

**General report no 5 on the lunatic asylums, vaccination, and dispensaries
in the Bengal presidency, 1872 : with appendices / compiled by E. A. Birch.**

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GENERAL REPORT, No. 5,

ON THE

Lunatic Asylums, Vaccination, and Dispensaries

IN THE

BENGAL PRESIDENCY,

1872.

WITH APPENDICES.

COMPILED BY

SURGEON E. A. BIRCH, F.R.C.S.,

BENGAL MEDICAL SERVICE.



CALCUTTA :

OFFICE OF SUPERINTENDENT OF GOVERNMENT PRINTING.

1875.

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Sanitary Regulations, Vaccination, and Dispensaries

BENGAL PRESIDENCY.

1875.

CALCUTTA:

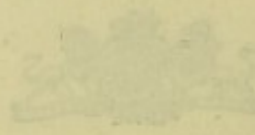
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1875.

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No. 589 $\frac{1}{2}$.

FROM

SIR J. CAMPBELL BROWN, K. C. B.,

Surgeon-General,

INDIAN MEDICAL SERVICE,

(*On leave.*)

TO

COLONEL H. K. BURNE, C. B.,

Secretary to the Government of India,

MILITARY DEPARTMENT.

Dated, Darjeeling, the 13th August 1875.

SIR,

I HAVE the honor to submit the General Report on the Lunatic Asylums, Vaccination, Hospitals and Dispensaries in the Bengal Presidency for the year 1872.

2. This report is the fifth of the series, and presents, in a condensed and digested form, an account of the transactions of all the Civil Medical Institutions of the Bengal Presidency. The cause of the delay in its preparation has simply been the largely increased amount of work, more particularly of report-writing, which has fallen upon my office during the past year. Under the orders of the Bengal Government, it has become necessary to prepare five annual reports, each concerning a large number of institutions, and demanding much time and labour for their proper compilation; and, in addition to these, the preparation of the annual report of the Native Army, and the disposal of an increasing amount of current correspondence constitute an aggregate of work which it has become extremely difficult to overtake. The reports above alluded to are required for purposes of current administration, and must take precedence of a compilation which is intended rather for convenient and comprehensive record than for current use. I was compelled to utilize the services of Surgeon C. J. McKenna, who happened to be temporarily attached to the Presidency General Hospital, for the preparation of medical reports on Bengal Jails for the years 1872 and 1873. This duty he undertook with readiness and executed with commendable diligence and ability. Surgeon E. A. Birch, F. R. C. S., similarly, at my request, undertook to compile the general report of Civil Medical Institutions for the same years, and, so far as he has progressed, he has acquitted himself of this troublesome and laborious task with great credit. The result is that I am now enabled to present to Government a condensed and luminous record of medical transactions throughout the Bengal Presidency for the year 1872. A similar record for 1873 is in an advanced stage of preparation. These volumes will be found of great value and use, inasmuch as they contain, in a systematised form, the essence of a great number of separate reports submitted to local Governments, whose contents are here collated and abstracted with intelligence and judgment.

3. The reports and statistics of lunatic asylums have been summarised in a manner which will furnish valuable information regarding the causation and treatment of insanity among the natives of India. The transactions of the new lunatic asylums erected at Agra and Rangoon have been included in the report for the first time. These asylums were constructed upon a plan which has, I fear, entailed a great waste of public money, and whose failure teaches a valuable, though costly, lesson for the future. The increasing number of lunatics, more especially of criminal lunatics, coming under detention has brought into prominent notice the inadequate space which the

STATEMENT No. II.

Statistics of Civil and Military Insanes.	CIVIL.			MILITARY.			TOTAL.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Remaining on 1st January ...	16	11	27	8	...	8	24	11	35
Admitted ...	39	6	45	16	2	18	55	8	63
Re-admitted ...	1	2	3	...	...	...	1	2	3
Total treated ...	56	19	75	24	2	26	80	21	101
Discharged cured ...	10	2	12	1	...	1	11	2	13
Improved and transferred to friends ...	7	4	11	...	...	...	7	4	11
Despatched to Europe as ordinary invalids ...	2	...	2	20	2	22	22	2	24
Despatched to Europe as insanes ...	19	2	21	2	...	2	21	2	23
Died ...	1	...	1	...	...	...	1	...	1
Remaining under treatment (European) ...	8	2	10	1	...	1	9	2	11
Remaining under treatment (East Indian) ...	9	9	18	...	...	...	9	9	18

Mild forms of insanity of the military inmates.

Only one recovery is recorded in the military class, and there was not a single death of a military insane. Of course, the short period of residence of lunatic soldiers to a great extent explains this; but Dr. Payne in his report for 1871, when commenting upon a nearly similar state of facts, explains the cause to be that the asylum is used as a convenient means of discharging stupid soldiers from the service. In the present year it is clear that the records of the asylum continued to be thus vitiated, as 22 of the 24 who were sent to Europe were despatched as "ordinary invalids," and not as "insanes;" whilst, in contrast to this, of the 23 civil inmates so despatched, only 2 were sent under the former designation. This would seem to indicate that the rule with regard to the detention of harmless lunatics with their regiments till opportunity arrived of sending them home might, with advantage, be more extended in its application.

At the end of the year there remained in the asylum 29 inmates, of whom 11 were Europeans, 3 Armenians, and 15 East Indians. Of the total, 7 were paying and 22 military and pauper patients. The total number treated during the year was 101.

Mortality.

The mortality has been almost nominal, only one death having occurred—a civil patient who succumbed to inflammation of the lungs supervening during an attack of remittent fever. This gives a death-rate of 2.5 per cent. of strength and 0.99 of total treated.

Employment.

Dr Bird notes that the patients are not regularly employed, but they appreciate much the use of newspapers which are supplied to them, and they amuse themselves at various games.

On this point the Deputy Inspector-General of Hospitals remarks:—

The want of employment, or rather of some occupation to amuse the inmates, is apparent; at the same time, considering the class and habits of the lunatics, the difficulty of providing this is fully acknowledged, and the remark is merely made with a view to calling attention to the subject.

And the Inspector-General of Hospitals expresses his opinion as follows:—

The question of providing the inmates with occupation would be an easier one, were the institution a place of permanent residence until recovery or death, rather than a mere resting-house until arrangements can be made for sending them elsewhere.

Causes of insanity.

The causes of insanity are, in four cases, attributed to moral causes (pecuniary difficulties, domestic troubles), and in 52 to physical causes (9 to intemperance, 5 to child-birth, 17 to hereditary transmission, and 8 to epilepsy). In no less than 45 cases the cause of insanity could not be ascertained.

Types of insanity.

There were 18 cases of acute mania, 48 of chronic mania, 10 of melancholia, and 21 of dementia; whilst the remainder were cases of imbecility or puerperal mania.

Recoveries.

The ratio per cent. of cured to total treated continues low—only 12.8, a circumstance attributed to climate, and no doubt correctly. The percentage to daily average strength was 34.2. There is the strongest ground for believing that removal from India is by far the most hopeful means of restoring reason to Europeans who become insane in the country; but upon this point statistics

are much wanted, and it is hoped they may soon be available in compliance with the Secretary of State's letter No. 127 of May 11th, 1871, which directs that half-yearly reports of European insanes, who should in future be sent to England, are to be forwarded to India.

The court-yard around the women's dormitories has been enlarged, and a spacious shed erected at the back part of the compound for the female patients to exercise in. Dr. Bird considers that some addition is needed to the bath-rooms and lavatories. Building.

The Inspector-General of Hospitals in his remarks upon the working of this asylum states:— Finance.

The accounts of the asylum compare favourably with other years. The average cost of each inmate was Rs. 470, and of each diet, including wine, 10 annas and 1 pie daily. The system of contracting for supplies has been introduced with good effect.

Deputy Inspector-General of Hospitals, H. B. Buckle, C.B., remarks in his inspection report that "the asylum is in a thoroughly satisfactory state." Inspection.

LUNATIC ASYLUMS FOR NATIVES.

I.—GENERAL REPORT.

Asylum records.—The returns upon which the reports of this year have been framed are more complete and precise than any which have hitherto been submitted; for, although the same forms were employed last year, the departmental circular, in compliance with which they were rendered, was not issued till the year had nearly expired, when it was found difficult, and in some cases impossible, to obtain with accuracy details of antecedent conditions which had not been regularly registered. Asylum records.

Number of institutions.—Two new asylums have been brought into full working order during the year,—one at Agra, which was opened on August 12th, 1871; and the other at Rangoon, which was opened on June 21st, 1871, making a total of 14 such institutions for the reception of natives in the Bengal Presidency. Number of institutions.

Population and class of inmates.—The daily average number of lunatics confined in these 14 asylums during the year 1872 has been 2,128, the figures for the five preceding years being 1,847, 1,734, 1,651, 1,594, and 1,472. Thus this year's statistics give further confirmation to the observation that the increase of asylum population in India is "a gradually progressive one." The distinction of the sexes has been omitted from the Lahore return, but the remaining asylums had a population of 1,455 males to 417 females, or 38·6 per cent. of the latter to the former. Of criminal lunatics there were a population of 380, and of non-criminal 1,748, being a ratio of the former to the latter of 17·8 per cent., against 15 in 1871. There were 304 male and 42·6 female criminal insanes (excluding Lahore), or a percentage of 14. The proportion of non-criminal males to females entered in the returns has been 1,151 to 374·9, or 32·7 per cent. of the latter to the former. The asylums' population on the last day of the year was 2,147,—1,672 males and 475 females. Population.

Admissions and re-admissions.—The total admissions in 1872 numbered 1,050, against 914, 926, 1,099, 1,015, and 908 during the five preceding years; and re-admissions 85, against 68, 63, 37, 57, and 52. The percentage of males and females to admissions was 80·1 and 19·8. The figures for the preceding four years were 78·1 and 21·8, 77·6 and 22·4, 75 and 25, 78 and 22. The proportion of females admitted has therefore undergone a marked decrease during the past year. Admissions and re-admissions.

The majority of those admitted were Hindus, who furnished 68·5 per cent.; Mahomedans furnished 27·5, Christians 1·3, and other castes 2·5. The figures for the preceding year were—Hindus 71·4, Mahomedans 27·4, Christians ·7, and other castes 0·4. The proportion of males and females of each caste admitted has been, Hindus 80·7 and 19·3; Mahomedans 81·5 and 18·5; Christians 33·3 and 66·7; other castes 75·8 and 24·2. Caste.

Criminal lunatics.

Criminal lunatics constituted nearly one-fifth of the entire population. It is to be observed that this class is gradually, but steadily, encroaching year by year upon the accommodation of the asylums, as will be seen by the figures in

Annual increase of his class.

Year.	Daily average strength of criminal lunatics.	Percent. to total strength.
1869	232	14
1870	276	15.3
1871	313	16.9
1872	390	17.8

the margin. The question as to the disposal of criminal lunatics is one of considerable importance, and its solution seems to be the readiest means by which to relieve partially, for the time at all events, the overcrowding which exists in many asylums. Independently of this view of the matter, it would appear to be highly desirable to isolate the criminals from the non-criminals, many of the former being dangerous; and as some who are sane, or who have become so

Desirability of providing a separate asylum for criminal insanes.

under treatment, cannot be set at large on account of the heinous nature of their crimes, such persons are practically in jail, and necessarily so. A great principle in the management of an asylum is that it should be, as its name implies, a sanctuary,—a place, in fact, as unlike a prison as it can possibly be made. In the majority of cases, a totally different kind of management is necessary for criminal as distinguished from non-criminal insanes; and the presence of the former in general asylums constitutes a source of embarrassment to superintendents, whilst their removal to a place set apart for their exclusive reception would permit of increased space for innocent lunatics, and be in every way an advantage.

Embarrassment consequent upon the confinement of criminal lunatics in general asylums.

Dr. Bird (Dullundah) represents forcibly the difficulties which the confinement of this class of lunatics in ordinary asylums occasions. He says:—

This class of lunatics interferes with the smooth working of an asylum in many ways. Thus a criminal lunatic, when he becomes sane, is not discharged, but retained as a lunatic and recorded as such. This not only lessens the number of cures, and, as Dr. Payne remarked, vitiates the statistics of the asylum, but it adds to the difficulty of management, inasmuch as a dangerous criminal in his senses is always a source of care and anxiety in the wards of an ordinary lunatic asylum. He has intelligence enough to plan mischief and the hardihood to carry it out. They as a class are lazy, obstructive and mischievous, through the force of bad example. Moreover, they are difficult to deal with, because they are exempted from punishment and treated as ordinary lunatics; and knowing this, when they have become sane, they are not slow to avail themselves of those privileges.

Action taken to provide a separate asylum for criminal insanes in Bengal.

The Inspector-General of Hospitals, in his comments upon the working of the asylums in Lower Bengal (1872), gives the following history of the means taken to meet the case in that province:—

Opinion of the Inspector-General of Hospitals.

A considerable amount of correspondence has taken place during the year regarding the overcrowding of asylums, the necessity of providing increased accommodation, and the propriety of setting apart a special asylum for criminal lunatics, or at any rate of such of them as import difficulties into the management of asylums, and whose association with ordinary lunatics it is considered desirable to avoid. The necessity of providing a special asylum for criminal lunatic persons acquitted on the ground of insanity, or considered by the courts of law unable to make a defence, or who have become insane while undergoing imprisonment, has been acknowledged in most countries where public provision for the custody and treatment of the insane is made; and experience has affirmed the wisdom of the arrangement, until it has become a settled principle. In a letter No. 2520, dated 13th June, Government recognized the existence of overcrowding in asylums, and the advisability of establishing a separate asylum for criminal lunatics. The question of utilizing some of the disused military buildings at Berhampore, or the district jails of Bhaugulpore or Midnapore, for the purpose, was raised, and committees were appointed to examine and report upon the suitability of the buildings in each instance for conversion into an asylum.

In a resolution dated 30th August 1872, Government announced that after due consideration of the report of the committee, and a personal inspection of the buildings at Berhampore, the "Lieutenant-Governor had come to the conclusion that the plan recommended by the committee was clearly the best and cheapest—namely, to make the hospital and enclosure attached to it into a jail, and to join the conjee-house to the rear barracks for a lunatic asylum. The latter should be adapted to hold at least 200 lunatics, with ample space for a garden, &c."

The Public Works Department was instructed to prepare plans and estimates, and to make preparations to execute the necessary works as quickly as possible. This work is now in progress. A special inquiry was made in July regarding the number of lunatics whom it might be considered desirable to transfer to a criminal asylum. Superintendents reported that of 204 criminal lunatics (179 males and 25 females) then in confinement, 154 (136 males and 18 females) should be transferred. In September the report of the committee which sat at Midnapore for the purpose of considering the question of converting the district jail into

an asylum, was forwarded to this office for opinion. Mr. Saunders, who, during my absence on leave, held charge, represented that the climate of Midnapore was more favorable than that of Berhampore, and that the district jail might easily be converted into an excellent asylum.

In the resolution on the general report for 1871, dated 4th October, the question was again discussed. Doubts were expressed, (1) whether all criminal lunatics should be treated exceptionally; and (2) whether it could be wise to mass together dangerous men; and (3) the propriety of removing lunatics from their own districts, where they would be constantly liable to be sent up for trial or to be released, was questioned. The Lieutenant-Governor was also not sure whether the proposed new lunatic asylum at Berhampore was well fitted for a criminal asylum on account of its being so much in the station, and thought that, perhaps, the old jail at Midnapore might suit better. On these points I was instructed to report. After obtaining careful reports from Superintendents, I recently represented (1) that it is not necessary to treat all so-called criminal lunatics exceptionally—indeed that it would be wrong to do so; (2) that no risk need be anticipated from massing together those criminal lunatics whom it is desirable to confine in a special institution; and (3) that while it would be an undoubted hardship to remove all criminal lunatics from their own districts, it would neither involve hardship nor inconvenience to remove most of them, and more particularly those comparatively sane persons who are the main cause of the difficulties represented by Superintendents, and who are in most cases, so to speak, life lunatics. On the considerations set forth, I urged (1st) that a special asylum for some classes of criminal lunatics is really wanted; (2nd) that all criminal lunatics should, in the first instance, be sent to ordinary asylums; and (3rd) that particular lunatics should be selected by visitors of asylums for transmission to the criminal asylum under certain principles and rules. As regards the question whether the Berhampore adapted buildings or the Midnapore district jail is best suited for a criminal asylum, I am inclined to agree with Mr. Saunders and prefer the latter. Thus the matter now stands. Meantime, I am in communication with the Public Works Department regarding some practical points involved in the conversion of the Berhampore buildings into an asylum.

Occupation.—Statement No. III shows that the great majority of the lunatics confined in the asylums are drawn from cultivators, laborers, and beggars. Under this last head there are 130 admissions shewn, but it is probable that a very large proportion of these adopted beggary as a consequence of insanity, and not as an original occupation. Occupation prior to admission.

STATEMENT No. III.

ASYLUMS.	Total admissions.	Cultivators.	Laborers.	Beg. ars.	Servants.	Shop-keepers.	Artizans.	Prostitutes.	Police.	Others.	Unknown.
Dullundah ...	219	15	25	6	8	5	7	4	...	33	116
Dacca ...	125	43	8	7	7	1	3	2	4	45	5
Patna ...	124	38	26	12	8	5	6	...	3	17	9
Cuttack ...	14	3	4	2	...	...	2	...	...	3	...
Moydapore ...	43	12	...	7	6	7	4	...	...	7	...
Benares ...	60	8	3	1	3	...	3	...	...	19	23
Bareilly ...	88	29	4	18	14	8	1	1	...	13	...
Agra ...	86	...	26	8	3	...	4	2	...	36	7
Nagpore ...	28	1	3	10	3	3	...	...	1	7	...
Jubbulpore ...	44	13	...	13	6	3	3	...	...	6	...
Lucknow ...	96	16	53	13	10	3	...	1	...	...	...
Delhi ...	38	3	3	2	1	7	7	2	2	6	5
Labore ...	128	24	2	29	4	5	2	3	1	31	27
Rangoon ...	42	1	6	2	1	7	...	...	...	14	11
TOTAL ...	1,135	206	163	130	74	54	42	15	11	237	203

Classification of occupations of lunatics admitted into Dacca Asylum during five years.

The occupations of lunatics are thus comprehensively classified by Dr. Wise in his report upon the working of the Dacca Asylum. He writes:—

I have drawn up a table after a well-known English model, which shows at a glance from what classes of natives insane persons most usually come. The period taken is from 1868—72. During these five years, 397 male and female lunatics were admitted—

Of persons employed in out-door occupations,—		
Cultivators, tea coolies, boatmen, fishermen, &c., there were ...	...	221
Of members of the educated professions,—		
Mukhtears, pundits, &c. ...	...	17
Of Brahmins ...	...	10
Of persons engaged in commerce ...	...	5
In-door manufacturers,—		
(a.) Sedentary—		
Shop-keepers, weavers, tailors, &c. ...	...	31
(b.) Non-sedentary—		
Washermen, tanners, goldsmiths, carpenters, bakers, &c. ...	...	27
Landholders ...	...	4
Servants—		
(a.) Public—Constables, peons, &c. ...	...	11
(b.) Private—Cooks, bearers, &c. ...	...	32
Without occupation,—		
Beggars, <i>bairagis</i> , &c. ...	...	26
Unknown occupation ...	...	13
TOTAL		397

It will be seen that the results at Dacca correspond very closely with those given in the statement.

Age of lunatics.

Ages.—It is clear from the reports that much additional attention has been bestowed by Superintendents upon the correct recording of the ages of insanes. Table No. VI, therefore, possesses some value, notwithstanding the difficulty of arriving at a correct conclusion so far as natives are concerned; but the table may be regarded as approximately correct. The largest number of admissions took place between the ages of 20 and 30; next in order comes 30 to 40, then 40 to 50, 10 to 20, and 50 to 60. There were two admissions of patients under 10 years of age, and none over 70 years. This order is somewhat altered if the women alone are considered, more being admitted between 30 and 40 than between 20 and 30. The second decennial period held third place in last year's return, whereas it now ranks fourth.

Discharges.

Discharges.—Nine hundred and sixty-one lunatics were discharged during the year: of this total, 765 were males and 196 females; 422 of those discharged (343 males and 79 females), or 43·8 per cent., recovered completely. One hundred and sixteen (93 males and 23 females), or 12 per cent., had so far recovered their reason that they were transferred to the care of their friends; whilst 33 (31 males and 2 females), or 3·4 per cent., were "otherwise" discharged; and finally, 390 (298 males and 92 females), or 40·5 per cent., died. The population remaining at the end of the year was 2,147 (1,672 males and 475 females) against 1,852 (1,418 males and 434 females) in 1871, and 1,715 (1,305 males and 408 females) in 1870. Statement No. IV gives the ratio of discharges to strength, and compares it with the admission rate.

STATEMENT No. IV.

	1872.	1871.	1870.	1869.	1868.
Discharges ...	961	843	812	1,083	961
Ratio per cent. of average strength ...	45·14	45·64	46·82	65·55	60·28
Admission rate ...	53·32	53·17	53·9	66·5	60·5
Difference ...	3·95	7·53	7·08	·95	·22

Recoveries.—The following statement (No. V) shows the recoveries in proportion to average strength, total treated, and admissions for 1872, and the four preceding years. The recovery rate shows a very considerable reduction as compared with the previous years. A reduction may be looked for, seeing that the majority of recoveries takes place during the early stages of insanity; but it was exceptionally large in the year under review. The older the asylums grow (till they have attained that age when the duration of residence of inmates maintains a steady average), the greater the number of long-term residents, that is, the greater the number of incurables, and the less the average number of discharges. The percentage of improved has not varied very considerably during the series of years noted.

STATEMENT No. V.

	PER CENT. OF										
	AVERAGE STRENGTH.			TOTAL TREATED.			ADMISSIONS.				
	Recovered.	Improved.	Total.	Recovered.	Improved.	Total.	Recovered.	Improved.	Total.		
1872	19.8	5.4	25.2	13.5	3.7	17.2	37.1	10.2	47.3
1871	23.5	4.5	28	16.1	3.1	19.2	44.2	8.5	52.7
1870	23.3	5.7	29	16	3.9	19.9	43.7	10.8	54.5
1869	28.4	6.1	34.5	17.5	3.8	21.3	42.7	9.2	51.9
1868	33.4	5.6	39	21	3.5	24.5	52.4	8.8	61.2

In statement No. VI will be found recorded the amalgamated statistics of each asylum for a varying series of years, as well as the percentage of recoveries, deaths, and strength for 1872. The average percentage of recoveries during the whole series of years to admissions has been 43.75, and for 1872 it has been 37.18. The percentage of recoveries to daily average strength has been 26.06, and for 1872, 19.82. The statement also shows that the percentage of recoveries amongst males exceeds that amongst females, the ratios being 44.77 and 39.92 on admissions. The recovery rate, it will seen, varies from 57.5 at Delhi to 27.17 at Jubbulpore. The ratio on average population is 26.06, and 1872 gives 19.82. Nagpore shows the highest percentage of recoveries for 1872, and next in order Benares, Bareilly, Lahore, Patna, &c. The recovery rate this year has fallen considerably below that for 1871.

STATEMENT No. VI.

ASYLUMS.	ADMITTED.			DISCHARGED CURED.			DISCHARGED OTHERWISE.			DIED.			RECOVERIES PER CENT OF ADMISSIONS.			DEATHS PER CENT. OF ADMISSIONS.			PER CENT OF DAILY AVERAGE STRENGTH PER ANNUM.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Recoveries.	Deaths.	
	Dulbandah...	1,317	443	1,760	598	190	788	215	43	258	360	169	529	45.4	42.88	44.77	27.33	36.11	29.54	29.02	19.15
11 years																			*31.90	*19.37	12.4*
Dacca ...	938	222	1,160	425	98	523	191	52	243	311	65	376	45.3	44.14	45.08	33.15	29.28	32.41	19.82	14.25	
12 years																			39.4	32	17.37
Patna ...	788	171	959	439	83	522	74	10	84	160	45	205	55.71	48.53	54.43	20.3	26.31	21.37	30.22	11.87	
12 years																			43.34	12.9	23.03
Cuttack ...	187	35	222	83	15	98	35	1	36	30	9	39	44.38	42.85	44.14	16.04	25.71	17.50	31.68	12.6	
9 years																			35.71	9.72	25.6
Moydapore...	233	37	270	125	29	154	44	4	48	43	14	57	53.65	54.05	53.7	18.45	37.83	21.11	39	15.33	
12 years																			25.58	6.97	25.06
Benares ...	621	153	774	273	63	336	112	18	130	218	58	277	43.93	41.17	43.41	35.26	37.9	37.98	25.6	21.1	
12 years																			48.31	35	23.05
Bareilly ...	1,347	391	1,738	654	145	800	57	6	53	539	211	750	49.55	37.34	46.03	40.01	53.96	43.15	29.41	27.58	
12 years																			47.72	37.5	15.08
Agra ...	63	21	84	23	8	31	2	...	2	1	4	5	35.38	38.09	36.04	1.53	19.05	5.81	85.13	13.73	
1 year																			36.04	5.81	85.16
Nagpore ...	251	20	271	83	17	100	56	4	60	64	17	81	33.06	28.47	32.26	25.49	28.81	26.11	14.7	11.91	
8 years																			60.71	39.28	16.22
Jubbulpore...	217	41	258	64	6	70	11	4	15	64	11	75	29.49	14.63	27.17	29.49	26.83	29.07	16.38	17.55	
6 years																			38.63	50	14.23
Lucknow ...	491	185	676	183	67	250	66	30	96	227	88	315	37.27	36.21	36.83	46.23	47.56	46.09	25.28	31.86	
7 years																			23.96	72.91	15.05
Delhi ...	152	46	198	92	23	115	22	6	28	21	9	30	60.52	47.82	57.57	13.15	19.54	15.15	56.29	14.81	
6 years																			34.21	28.57	28.6
Lahore ...	1,133	260	1,393	472	96	568	91	23	117	457	121	578	41.66	36.92	40.77	49.16	46.53	48.87	23.61	28.19	
10 years																			44.53	72.65	22.26
Bangoon ...	140	29	169	14	1	15	16	2	18	5	2	7	10	5	9.37	3.37	10	4.37	7.57	3.33	
2 years																			35.71	14.28	12.82
TOTAL ...	7,880	2,081	9,961	3,528	882	4,360	985	203	1,188	2,001	814	2,815	44.77	39.92	43.75	33	39.05	34.27	26.06	20.41	
																			37.18	19.82	18.3

* These figures refer to the year 1872.

Table No. 11 shows that acute mania, as heretofore, gives the greatest number of recoveries, viz., 22.8 to treated. Next in order we find melancholia, Recoveries according to mental disease.

Recoveries according to age.

which gives 17·2 per cent.; then paralysis, 14·2; chronic mania, 9·9; acute dementia, 9·4; chronic dementia, 4·8; idiotcy, 2·8; and imbecility, 2·7. Insanity, due to physical causes, gives a higher percentage of recoveries than when due to mental causes by 16·6 to 13·5 (*vide* Table III). The rate of recovery according to age will be seen by a reference to Table VI; the greatest number took place between 20 and 30, next in order between 10 and 20, then 60 to 70.

Recoveries according to duration of residence.

The following statement shows the number of recoveries according to duration of residence in all asylums, except Lahore, of which the statistics are not available. There is nothing in the figures to call for detailed remark; they speak for themselves.

STATEMENT No. VII.

Recoveries according to duration of Residence.

ASYLUMS.	Under 1 month.	1 to 2 months.	2 to 3 months.	Under 3 months.	3 to 4 months.	4 to 5 months.	5 to 6 months.	3 to 6 months.	6 to 9 months.	9 to 12 months.	Under 1 year.	1 to 2 years.	2 to 3 years.	3 to 4 years.	4 to 5 years.	Under 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	Under 20 years.	20 to 30 years.	Under 30 years.	Average duration of residence.
Dullundah	6	6	11	23	5	4	8	17	6	6	52	13	3	1	1	70	...	...	...	70	...	70	281·1
Dacca	...	1	4	5	3	6	3	12	2	...	19	13	1	1	1	35	1	1	1	38	...	38	629·6
Patna	1	3	6	10	4	5	1	10	3	1	24	3	11	11	3	52	2	...	...	54	...	54	361·1
Cuttack	...	...	...	...	1	...	1	2	...	1	3	1	...	1	...	5	...	...	...	5	...	5	483·4
Moydapore	...	...	...	...	1	...	2	3	3	2	8	1	2	...	...	11	...	...	...	11	...	11	366·5
Benares	1	1	3	5	3	3	2	8	2	4	19	5	2	3	...	29	...	...	29	...	29	124·1	
Bareilly	...	3	2	5	...	2	4	6	10	5	26	11	3	1	1	42	...	...	42	...	42	...	
Agra	...	3	10	13	8	5	3	16	2	...	31	...	...	...	31	...	...	...	31	...	31	291	
Nagpore	...	1	...	1	1	3	...	4	3	3	11	2	...	3	...	16	1	...	...	17	...	17	423
Jubbulpore	1	1	1	3	...	...	...	3	...	...	6	6	3	2	...	17	...	...	...	17	...	17	516
Lucknow	...	5	...	5	6	1	1	8	4	2	19	3	...	...	1	23	...	...	...	23	...	23	...
Delhi	1	1	2	4	2	...	1	3	5	1	13	...	...	...	13	...	...	...	13	...	13	201	
Lahore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rangoon	...	3	2	5	1	2	...	3	1	5	14	1	...	...	...	15	...	...	...	15	...	15	277
	10	28	41	79	34	32	26	92	44	30	245	59	25	23	7	359	4	1	1	365	...	365	...

Mortality.

Mortality.—There have been 390 deaths against 289, 284, 487, and 331 in each of the four preceding years. The following statement gives the percentages to average strength, total treated, and admissions. The mortality of the year, though below that of the average of the previous four years, shows an increase upon that of 1871. The outbreak of cholera in the Lahore Asylum, and the very excessive mortality at the Lucknow Asylum, are the chief items which raise the percentages so high.

STATEMENT No. VIII.

YEAR.	PER CENT. OF		
	Daily average strength.	Total treated.	Admissions.
1872	18·32	12·55	34·36
1871	15·60	10·7	32·4
1870	16·37	41·25	30·7
1869	29·48	18·16	44·3
1868	20·70	13·08	32·6

Statement No. IX shows the asylums in series according to mortality. Deputy Inspector-General of Hospitals H. B. Buckle, C. B., makes an observation in his inspection report of the Dullundah Asylum, which may with advantage be repeated here. He says:—

It has been remarked 'that both the recovery and death-rates of earlier and shorter periods are larger than those of later and longer periods.' This is well shown in the present return, * * * and this is probably the explanation of the difference of the rates of mortality at respective asylums; so that, unless all the circumstances are considered, and the disturbing causes eliminated, it is difficult to make a comparison on this point between any two asylums without being liable to error.

STATEMENT No. IX.

ASYLUM.	DEATH PER CENT OF		Death-rate of different asylums.
	Average strength.	Total treated.	
1. Lucknow	45.8	30.4	
2. Lahore	36.3	24.3	
3. Delhi	28.6	17.3	
4. Cuttack	25.6	18.8	
5. Jubbulpore	18.4	13.8	
6. Dacca	18.4	12.1	
7. Benares	16.7	11.5	
8. Agra	13.7	5.2	
9. Bareilly	12.4	9.5	
10. Dullundah	12.4	8.9	
11. Nagpore	10.5	8.3	
12. Patna	6.8	4.7	
13. Moydapore	6.8	4.05	
14. Rangoon	5.1	3.9	
TOTAL	18.3	12.5	

Four of the asylums show an excessive death-rate; that at Lucknow being simply terrific—45.8 per cent. of average strength—particularly when it is recollected that there was no cholera or other epidemic to account for this state of things. The importance of this very excessive rate is heightened by the fact that the majority of fatal cases were due to dysentery and diarrhoea, and that Lucknow headed the list of 1871 with a mortality of 42.9 per cent. Even in 1870 the rate at this asylum was high, namely 24.5, and in 1869 it was 42.9. Statement No. VI shows Lucknow as holding the highest place in mortality for the series of years therein considered. The report of this asylum does not contain full information on the point. The high death-rate at Lahore is explained in Dr. Scriven's interesting report (*vide* Appendix No. 1). Of the total (93) deaths which took place, 25 were due to cholera, or 28.8 per cent. on mortality, and 9.7 per cent. on average strength. The Deputy Inspector General of Hospitals of the Umballa circle attributes the high death-rate at Delhi (28.6 against 13.0 in 1871, and 14.8 during the preceding six years) to the non-existence of a subordinated medical establishment, whereby disease in its earliest phases could be detected more readily than is possible at present; and he points out the necessity for a machinery which will keep each individual lunatic under constant professional surveillance, such as is impracticable on the part of a superintendent without some such assistance; but the explanation which is offered of the high death-rate of the Cuttack Asylum would seem to be equally applicable to the Delhi institution. At Cuttack the rate, though high, is 55 per cent. below that of Lucknow; and Dr. Cayley observes "that in a small asylum, where the numbers are not sufficient to keep up a steady average, an excessive mortality in one year and a very low rate in another are often mere accidental circumstances." This remark is certainly not an unreasonable explanation, seeing that the death-rate to strength in 1871 was only 8.9. Dacca, though exhibiting but a slightly diminished mortality rate, has sunk from second to sixth place in the list. The institutions which show a diminished rate are—Dacca, 18.4 against 19.6; Bareilly, 12.4 against 14.4; Dullundah, 12.4 against 12.8, and Nagpore, 10.5 against 11.4. The total average increase has been 2.7 on average strength and 1.8 on total treated. Lahore, Delhi, Cuttack and Jubbulpore show a very marked increase upon the rates of the previous year.

Deaths according to season are shown in statement No. X, and according to duration of residence in statement No. XI. The most noteworthy feature in the first of these statements is the very much larger number of deaths which took place during the colder months than during the warm weather—a fact which has been commented on by several Superintendents. The mortality amongst females per cent. of treated was greater than that of males by 13.7 to 12.2.

Deaths according to season.

STATEMENT No. X.

ASYLUMS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL
Dullundah	3	1	1	3	2	10	3	4	3	5	6	3	44
Dacca	6	5	2	...	2	6	1	1	2	3	4	8	40
Patna	...	1	2	6	...	...	2	1	2	2	...	...	16
Cuttack	2	1	2	...	3	...	1	1	2	2	...	...	13
Moydapore	...	...	...	1	...	...	1	...	1	...	...	...	3
Benares	...	...	...	...	4	1	1	7	1	2	3	2	21
Bareilly	4	3	2	2	1	4	1	3	1	3	1	8	33
Agra	...	...	...	...	...	...	2	1	...	...	...	2	5
Nagpore	3	1	...	...	...	...	1	...	...	...	3	3	11
Jubbulpore	...	...	2	2	1	1	1	3	4	6	2	...	22
Lucknow	4	1	2	2	6	2	2	7	12	11	13	8	70
Delhi	...	...	...	...	1	2	2	1	...	3	...	4	13
Lahore	...	1	2	1	3	19	3	8	10	20	16	10	93
Rangoon	1	...	...	...	...	...	...	...	...	1	1	3	6
TOTAL	23	14	15	17	20	48	18	38	37	58	51	51	390

According to mental disease. Excluding imbecility, idiocy and paralysis, of which the numbers treated are too small to yield any useful general result, the forms of insanity, in order of fatality, arrange themselves as follows:—acute dementia, melancholia, acute mania, chronic dementia, and chronic mania.

According to cause. Insanity, due to physical causes, gives a higher death-rate than that due to moral causes. The proportion being 11·12 to 9·4; but it has not been found possible to assign any cause for the insanity of a large number of cases; and, even in many of those for which the information has been noted, the figures cannot, for obvious reasons, be considered very reliable. Deaths are much more numerous during the earlier than the later periods of residence; but the figures in this table do not call for comment: 18·1 per cent. of deaths occurred under three months of residence, 40·4 under 1 year, and 89·2 under five years.

STATEMENT No. XI.

Deaths according to duration of Residence.

According to duration of residence.

ASYLUMS.	Under 1 month.	1 to 2 months.	2 to 3 months.	Under 3 months.	3 to 4 months.	4 to 5 months.	5 to 6 months.	6 to 7 months.	7 to 8 months.	8 to 9 months.	9 to 12 months.	Under 1 year.	1 to 2 years.	2 to 3 years.	3 to 4 years.	4 to 5 years.	Under 6 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	Under 20 years.	20 to 30 years.	Under 30 years.	Average duration of residence.
Dullundah	4	2	4	10	...	5	1	6	2	3	21	9	6	2	1	39	3	1	...	43	1	44	875·2	
Dacca	12	...	4	6	4	...	1	5	1	...	12	11	3	7	2	35	3	1	...	39	1	40	977·6	
Patna	1	2	1	4	1	...	2	2	1	...	8	6	...	2	...	16	...	...	...	16	...	16	396·4
Cuttack	...	1	2	3	1	...	...	1	2	1	7	1	1	1	...	10	3	...	...	13	...	13	891·4
Moydapore	...	1	...	1	...	...	1	1	...	1	3	...	...	...	...	3	...	...	...	3	...	3	186·6
Benares	...	...	...	...	...	2	...	2	...	4	6	7	2	2	...	17	1	...	3	21	...	21	179·3
Bareilly	...	1	3	3	7	2	...	2	3	1	13	9	8	1	...	31	2	...	...	33	...	33	...
Agra	3	...	2	5	...	...	...	...	...	...	5	...	...	...	...	5	...	...	...	5	...	5	76·8
Nagpore	1	...	1	2	1	...	...	1	...	...	3	2	...	...	3	8	3	...	...	11	...	11	1076
Jubbulpore	1	2	...	3	1	...	1	2	1	...	7	7	4	2	1	21	1	...	...	22	...	22	662
Lucknow	2	5	3	10	1	...	2	3	5	5	23	30	5	2	2	62	6	2	...	70	...	70	...	
Delhi	1	1	1	3	1	1	...	2	2	1	8	1	1	2	...	12	1	...	...	13	...	13	545
Lahore
Rangoon	...	...	...	2	...	...	2	...	2	...	4	2	...	...	...	6	...	...	...	6	...	6	300
TOTAL	16	17	21	54	14	8	7	29	18	19	120	85	30	21	9	265	23	4	3	295	2	297	...	

Types of insanity. Types of insanity.—Under instructions from the Inspector General of Hospitals, a re-diagnosis of all cases in asylums is to be made at least once a year. Table No. II is therefore likely to be more trustworthy than hitherto. Such a system is essential to the preservation of correct statistics. Formerly the original disease under which a patient was admitted was retained until his discharge.

Causation. Causation.—Ganjah and bhang, spirits, epilepsy, fever, and opium gave the greatest number of admissions in series from physical causes; whilst

grief, anger, and fear are stated to be the most frequent moral causes (*vide* table III). As before, ganjah and bhang show by far the highest figure,—365 admissions, or 32·1 per cent. of total. Dr. Wise, of Dacca, and Dr. Coates, of Moydapore, give the result of their enquiries and experiences in an exceedingly interesting form. Dr. Wise writes as follows:—

I believe that *ganjah* is less deleterious than is generally supposed; and that insanity is comparatively as rare among the *ganjah*-smokers as among persons who take a daily allowance of spirits. Like drunkenness, *ganjah* produces physical as well as psychical effects. By causing irritation, and probably changes in the nutrition of the brain, it gradually undermines the constitution. Its effects on the digestive organs, however, are less perceptibly injurious than are spirits. By exciting the emotions, it enfeebles the mind; and by the loss of self-respect, it incapacitates the individual for discharging his usual avocations. Poverty, and all the anxieties which accompany an irregular life, oblige him to drown care in deeper intoxication, which sooner or later ends in madness. *Ganjah* smoking not so deleterious as is generally supposed.

Among those classes of natives who spend most of their time in smoking the weed, madness is exceedingly rare. With them *ganjah*-smoking is an incentive to religious abstraction, and its unlimited use is a sure sign of religious sincerity.

The *Ramawats*, who are the greatest smokers in Eastern Bengal, seldom, if ever, become mad. They, as well as other natives who exceed in smoking *ganjah*, invariably live very well; and they maintain that, as long as plenty of food is taken, its effects are innocuous. The Ramawats.

The diet of a *Ramawat* usually consists of milk, two seers, (4lbs.), and 1½ lbs., ghee four ounces, and vegetables and fruit *ad libitum*. During the last six years none of these luxurious mendicants have been admitted into the asylum, although they are very numerous in the city of Dacca.

An excessive indulgence in *ganjah*, by those unaccustomed to its use, will generally be followed by insanity; but, like dram drinking, as long as the digestion remains good, it may be taken daily, in gradually increasing doses, without much injurious effect. Excessive indulgence causes insanity.

A person who indulges in *ganjah*, unless he be a religious mendicant, is stigmatized as a reprobate. The vice grows upon him; he neglects his family and his business; falls into irregular and disorderly habits, which alternate with periods of self-reproach and mental depression.

It is from among the laboring classes that the lunatic, mad from the effects of *ganjah*, comes.

Of the 93 lunatics treated during 1872, and whose insanity was referred to *ganjah*, 67 or 72 per cent. were Hindus, 25 Mahomedans, and one was a Native Christian.

Sixteen of the 25 Mahomedans came from Dacca or its neighbourhood.

I do not believe that *ganjah*-smoking is an incentive to crime. In the records of this asylum there is no mention of any crime having been committed while the individual was under the influence of hemp. *Ganjah*-smoking as an incentive to crime.

In a special report forwarded to Government in December 1871, it was shown that of 99 criminal lunatics admitted between 1861 and 1870, 39 had their madness referred to *ganjah*-smoking; but that in no instance was it alleged that the crime was committed while the individual was under the effects of *ganjah*.

During the past year four criminal lunatics were admitted whose insanity was referred to *ganjah*-smoking. They were all Hindus. One was charged with rape, one with theft, one with murder, and one with grievous hurt.

That many *ganjah*-smokers become criminals is not to be wondered at.

Few, if any, dacoits are to be found who do not make use of the weed to inspire them with false courage, but it is because they are thieves that they do so, and not because being smokers of *ganjah* they are thieves. The history of the use of hemp corroborates this. It has invariably been used to nerve a man to perpetrate a deed which he has already resolved on doing, and, as the *Ramawats* hold, to impress on the memory a train of thought that has already been pondered over. *Ganjah* used to inspire courage.

Dr. Coates writes:—

Ganjah holds its place as the chief cause of insanity. It occurs in three primary forms:—the *charas*, a resinous exudation from the flowers, leaves, and stalk of the *ganjah* plant; *ganjah*, the dried flower of the same shrub; and *bhang*, the dried leaves of the wild hemp, quite a different plant. The *charas* is not used by the common people, being too expensive. The rich smoke it with tobacco or eat it when made into sweetmeats. It is said not to be injurious. It only stimulates when weary, brightens the eye, and increases the powers of conversation.

I have not met a single case of insanity that could be traced to the use of *charas*. *Bhang* is made into *sobzi* or *siddhi*, by rubbing up the leaves with melon-seeds, spices, sugar, and water. It is used in the hot season only, when it is considered a cooling and refreshing drink. The juice of the *bhang* leaves is also mixed with sugar, milk, and butter, and made into a sort of jelly-like sweetmeat, called *majum*. This is not intoxicating. Like the *charas* users, the *bhang* eaters or drinkers do not suffer from its use. Both find this use beneficial rather than

the contrary. Their mind is not impaired, nor their sensations dulled; their body does not waste nor is premature old age induced. I have not known a case of insanity produced by *bhang*. There are native maxims which show the different effects of *bhang* and *ganjah* more aptly than any statement of mine. They carry a weight, in the way of proof, which is incontrovertible; hence my recording them. I need not give the translation, it is so simple and evident. They are—

“ Siddhi khaële budhe barhé,

Ganjah khaële lúkhe charé.”

Also,—Ganjah khane se gyan ghate,
Khonkhat khonkhat gará phate
Ar ghat jae kuchh autar ki
Mukh hojæ bundar ki.”

Ganjah.

It is far otherwise with those who smoke the flowering tops of the *ganjah* plant. I have witnessed men under its influence, and have never since been surprised at insanity quickly following its excessive indulgence.

Effects of ganjah-smoking.

The excitement was terrible. They sprang up, after a few whiffs, wild and giddy, danced, sang, talked volubly, laughed, and ran about in the utmost excitement; their eyes brilliant and their muscles quivering.

During the period of depression their eyes retained their brightness, but became blood-shot. They walked slowly, hung down their heads with brows contracted, and seemed morose and unsociable.

Ganjah as a cause of insanity.

Ganjah causes.—The dissipated use it to excite venery, to drown care and anxiety. I have already remarked how few *ganjah*-smokers end in criminal lunacy. I have examined the prisoners in the jail to discover how many of them used it, but even those whom I knew did so, denied it, as did all the others. I have failed, therefore, to trace ordinary crime to its cause.

Sickness.

Sickness.—The daily average number of lunatics who suffered from bodily ailments in each asylum is stated in table No. 1. The resulting total shows a percentage of 7·2 on strength against 8·5 for the previous year. This cannot be considered a very high sick-rate when we recollect the state of general health of lunatics at the time of their admission, and that bodily infirmities are apt to be induced by their mental conditions. The sickness-rate of the Bengal Army for the same year was 4·43 per cent. of strength.

The wasting of insanity.

Dr. Bird notices that the nervous force of nearly all lunatics is below par, and that they therefore bear sickness very badly; and he points out how easily and insidiously their insanity may lead to failure of bodily health. He says:—

Many of the inmates keep wasting day by day without apparent cause. They may eat and sleep well, but yet they grow thin. This wasting sometimes depends on what is known as inward fever or masked ague, and is checked by giving diffusible stimuli and quinine. Dysentery and diarrhœa among insanes advance very insidiously, and unless the greatest care is exercised, may have obtained thorough dominion over the patient before they are discovered. Patients are uncomplaining, because they are less sensible to pain and discomfort than sane persons, or because they are more abstracted. This, combined with the insidious nature of the complaints, renders extra care and watchfulness necessary.

Finances.

Finances.—The cost per patient, it will be seen, has increased, but varies much at different asylums. When explanations have been offered of the cause of this increased cost, they have been noticed under the headings of the various asylums. “Establishment” and “Contingencies” are the two items which show marked increase in this respect. Deducting earnings, the actual cost of each lunatic has been Rs. 67-8-2 against Rs. 64-1-9 in 1871.

Establishment.

Establishment.—This matter of establishment is shown in detail in table VIII. The proportion of male keepers to male lunatics varies from 1 to 10·5 at Patna, to 1 to 4·1 at Agra. The cause of this proportionally large number at Agra is explained in the report as being the fault of the plan upon which the asylum is constructed.

Employment.

Employment.—A marked improvement is here to be noticed; a percentage of 74·03 of strength has been constantly employed against 68·61 for 1871 and 65·4 for 1870. The Lucknow return shows the smallest percentage of employed, *viz.*, 49·7 per cent., and Moydapore the largest, *viz.*, 96·3 per cent. The result of this more general adoption of the plan of giving occupation to the insanes has been an increase in the average sum earned by each individual, Rs. 30-10-9 against 27-5-2 for the previous year.

Restraint—Has, on the whole, been but little used, and it is clear that every effort is being made to reduce it to a minimum. It has been more employed at Dullundah than elsewhere. The Superintendent remarks :—

Restraint has been had recourse to in the year perhaps a little too freely. The methods hitherto adopted have been ligatures and woollen bags. It is now proposed to stop the use of these almost entirely, and to adopt seclusion in a room, specially prepared for the purpose, instead. Every inmate who may thus be secluded will be taken out morning and evening for fresh air and exercise.

At Lucknow mechanical restraint, but only in the shape of woollen bags, was employed to some extent. At Patna it was only found necessary to resort to it on one occasion; at Agra twice; and at Benares twice; whilst it was not employed at all at Dacca, Nagpore, Moydapore, Delhi, Jubbulpore, &c. Dr. Rice (Jubbulpore) finds "that choosing congenial companions, agreeable occupations, a little flattering gentle talk, and a small treat in the way of sweetmeats, rarely fail to calm ordinary excitement."

State of health on admission.—A very large proportion of lunatics was in an inferior state of health at the time of admission. Thus, at Dullundah, 39 per cent. of admissions were in inferior health; at Dacca nearly 50 per cent.; at Moydapore 53 per cent.; at Patna 29 per cent., and so forth.

Overcrowding.—The rapid increase which the asylum population of Bengal is undergoing, opens up a most pressing and anxious question with regard to the sufficiency of accommodation for the future. The removal of criminal lunatics from asylums, as contemplated, will give some amount of temporary relief, but the matter will probably soon require a more extended consideration. Pressure upon space has been experienced at several asylums, whilst actual overcrowding existed at Dullundah, Dacca, and Cuttack. The point is one upon which Superintendents ought invariably to give full information in their reports.

DULLUNDAH ASYLUM.

This asylum was under the charge of Surgeon Major Payne, M. D., during the first four months of the year. Surgeon J. M. Shircore officiated for Dr. Payne during the remainder of the year. The annual report is written by Surgeon R. Bird, M. D., who succeeded Dr. Shircore as Officiating Superintendent.

A steady increase of population continues, as will be seen from the accompanying statement. Unlike the two years immediately preceding, the admissions have increased. Dr. Bird writes—"The admissions reached 191 and the re-admissions 28,—49 women and 170 men. The joint number is greater than the combined number of admissions and re-admissions of any year since the asylum was established, by 22. In 1867 the number was 197 and in 1866, 196." So also with the total treated, increase is to be observed,—544 were treated, being an excess of 51 over any preceding year. The ratio of cures has been very low, below the average of the last 10 years, but Dr. Bird explains the very small proportion by the fact that there has been an unusual number of transfers.

STATEMENT No. XII.

YEARS.	Daily average number.	PER CENT. OF AVERAGE STRENGTH.					
		Admitted.	DISCHARGED			Deaths.	Total discharges and deaths.
			Cured.	Improved.	Otherwise.		
1867	220	89.5	35.9	7.2	...	23.18	66.3
1868	268	73.1	38.1	10.1	...	17.9	66.1
1869	279	63.8	27.2	11.4	...	16.4	55.0
1870	309	59.5	28.8	9.7	...	12.6	51.1
1871	335	52.5	27.4	6.2	3.5	12.8	49.9
Average	282	67.7	31.5	8.9	.7	16.6	57.7
1872	354	61.9	19.8	11.6	3.4	12.4	47.2

Of 70 cures, 52 occurred during the first year of residence.

Of 53 improved, 46 occurred during the first year of residence.

Mortality.

The percentage of deaths to average strength has maintained a very even proportion during the last three years, but is slightly less this year, and considerably below the average of the previous five years,—12·4 against 16·6. The percentage of deaths amongst females which had hitherto, with the exception of the previous year, been high, having reached 29·2 in 1866, has this year been only 4·8. Dr. Bird attributes the general satisfactory result to recent improvements in the hygienic and sanitary conditions of the asylum; but it is difficult to account for the specially marked diminution in the female mortality, for the percentage of male deaths was a little more than double that of female deaths, whilst, as Dr. Bird remarks, when he notes the difficulty, “the men are less crowded, and better housed than the women. Indeed, the crowding of the latter is excessive.”

Marked reduction in female mortality.

Physical condition.

The deaths, 44 in number, were due to dysentery in 19 cases, to exhaustion in 3, and to phthisis in 2. Diarrhœa accounted for 2, old age for 1, cholera for 1, and 1 resulted from fracture of the ribs. Of the 44 deaths, 21 occurred within the first year of residence, and deaths do not appear to bear any direct relation to actual physical condition on admission. The physical condition of the lunatics is stated to be below par, many wasting away without apparent reason, bowel complaints originating and continuing insidiously without any voluntary intimation from the patient.

Proportion of women to men.

Of the daily average number resident throughout the year, the women bore a proportion to the men of 1 to 3·5; in sickness their proportion was 1 to 6; and they were as 1 to 6·3 in mortality.

Criminal lunatics.

There was an average of 77·4 criminal lunatics present. This class has become a source of serious embarrassment in the management of the asylum (*vide* General Report, p. 4).

Difficulty in deciding period of return of reason.

Dr. Bird is of opinion that in consequence of their lesser intellectual and emotional intensity, there is a greater difficulty in deciding the period of the return of reason to lunatic natives of India than to Europeans or Negroes.

Restraint.

Restraint has been had recourse to tolerably freely, but it is intended to cease the employment of such means as ligatures and woollen bags, and to adopt seclusion in specially prepared rooms instead. The Deputy Inspector General of Hospitals in forwarding the report says “the objection to adopting mechanical means of restraint is admitted and is to cease.”

Overcrowding.

Overcrowding existed throughout the year. At 50 superficial feet per individual, the asylum has room for 246 men and 47 women. The average number resident throughout the year has been 276 men and 78 women. At one time there were no less than 305 men and 88 women. It seems, however, that the large verandahs of the new building are occupied at night by the harmless lunatics, and thereby the evil effects of overcrowding have been obviated.

Accommodation for females defective.

The accommodation for the women is deficient. Dr. Bird says:—

The females are specially badly off in respect to space, inasmuch as they are more crowded in their sleeping rooms than the men, and their court-yards in proportion to their numbers are smaller, hotter, and more confined. Their work-shed, even more than their dormitories, calls for improvement, as it is small, badly protected from the sun, and very insufficiently ventilated.

Water-supply.

The system of water-supply is anything but what it should be, and seems to constitute the chief defect of the asylum. It is not uncommon for the tanks to go dry in the hot season, and then the lunatics are taken to a tank on the public maidan to bathe,—a most objectionable proceeding. A plan is about to be submitted to Government to overcome this defect.

Finance.

The new system of accounts came into force only on September 1st. The total cost of the asylum was Rs. 43,658 against Rs. 29,899 in 1871, but this difference is due to half the stipend of the Superintendent having been debited to Dullundah, the whole being formerly entered against the European asylum; and to the cost of gas, for which Rs. 2,091 were paid. Each diet cost Rs. 55-2-0, being a reduction of Re. 1-1-6 on the previous year.

Inspection.

Deputy Inspector General of Hospitals G. Saunders inspected the asylum on July 2nd, and reported satisfactorily concerning the management of the institution and the health of the inmates.

DACCA ASYLUM.

Surgeon J. Wise, M. D., held charge throughout the year, and furnishes a full and very interesting report.

The asylum receives lunatics from a population according to the late census, of 10,926,464 adults. Population covered by the asylum.

Statement No. XIII shows that the average strength of this asylum has remained very steady during the past five years. Indeed, the figure for this year only shows a difference of 1.42 (decrease) upon the average of the previous ten years, but there has been a very marked increase in the percentage of admissions to average strength—a difference in one year of 19.8. There has been a decided improvement in the death-rate and in the percentage of cured. Statistics.

STATEMENT No. XIII.

YEARS.	Daily average number.	PER CENT. OF AVERAGE STRENGTH.					
		Admitted.	DISCHARGED.			Deaths.	Total discharges and deaths.
			Cured.	Improved.	Otherwise.		
1867	210	36.6	16.2	3.3	3.8	16.6	39.9
1868	200	56	20.5	7	4	22.5	54
1869	232	42.6	12.5	2.5	3.01	17.6	35.6
1870	222	34.7	15.3	4.5	5	18.5	43.3
1871	213	37.5	13.6	5.1	1.9	19.7	40.3
Average	215.4	41.5	15.6	4.5	3.5	18.9	42.6
1872	218	57.3	17.4	6.4	1.8	18.4	44

The daily average number of sick has been much less than in former years. Sickness.
 Certain districts supply the asylum with a disproportionately large number of lunatics as compared with other districts. Dr. Wise points out upon what accidental circumstances these differences depend. He writes—

It is possible that the apparent prevalence of insanity in one district, as compared with another, may merely depend on the instructions given to the police. If a magistrate insists on all homeless lunatics being sent into the sudder station, the proportion of lunatics from that particular district will exceed that from adjoining districts where such an order is not enacted.

Agricultural labourers, as usual, furnished the majority of the admissions, Previous occupations of lunatics. but Dr. Wise remarks the curious fact that “the most numerous Hindu agricultural race in Eastern Bengal is undoubtedly the Chandal; yet only six men belonged to it.”

Nearly one-half of the admissions were in inferior (classed as “indifferent” and “bad”) health, and of those classed as having been admitted in “bad” health, exactly one half died before the end of the year. Health on admission.

Nearly one-half of the deaths (19 out of 40) which occurred were due to pulmonary diseases, and the majority of these were from pneumonia. Warm clothing as a preventive was inoperative. Deaths from pulmonary diseases.

In his remarks upon the working of this asylum, the Inspector General of Hospitals writes—

The inference which he (Dr. Wise) draws that the unusual prevalence of pulmonary affections is due to the over-crowded state of the asylum, cannot be resisted. This has been repeatedly represented during the year.

The asylum being about to be relieved of its criminal lunatics, some relief in this direction will be obtained.

One effect of the issue of extra warm clothing was to diminish the mortality from bowel complaints. The debilitated condition of insanes renders precaution in this matter imperative, and the good results obtained at Dacca are only what might be expected. Diminished mortality from bowel complaints.

A solitary death from typhoid fever is a curious incident, and possesses a special interest in connection with the etiology of the disease. Typhoid fever.

Ganjah.

Dr. Wise's interesting and valuable observations upon the effect of the various preparations of hemp in producing insanity have been already given in full (p. 11), but he adds—

It is a noteworthy fact that in this table there is no religious mendicant returned but from among the Bairagis. The Ramawats and Brahmacharies, who live doing little else but smoking ganjah, are never admitted into this asylum.

And this seems to bear out a remark made in another part of the report, *viz.*, that ganjah is less deleterious than is generally supposed, and that although it is to some extent an undoubted cause of insanity, it is generally even then an indirect cause by leading to poverty and physical degeneration, which operate as the direct causes of psychical degeneration or aberration. Ganjah-smoking he does not consider to be an incentive to crime.

Religious insanity amongst natives.

Religious insanity is exceedingly rare amongst the natives of India. The following case given by Dr. Wise is therefore worthy of record:—

Sonaton Chongo having inadvertently tied his cow in such a manner that the animal strangled herself, he, instead of expiating this grave offence by wearing a rope round his neck, remaining silent for a month, and begging from door to door, followed his usual avocations. The coldness and abhorrence of such impiety displayed by his fellow villagers worked upon a mind naturally weak. He became a prey to deep melancholy and despair, deploring his wretched fate and the hopelessness of being forgiven.

This is the only case within my recollection of a Hindu affected with religious melancholia.

A curious case of insanity due to superstition is also recorded and may be repeated—

Another very singular case, which is returned as acute dementia, but which properly should have been classed under melancholia (*attonita*), was admitted during the year. It is important, as showing another phase of native superstition. Ghulam Ali, aged 13, lived at his home with his parents and his grandmother. One day passing through a patch of jungle, a monkey ran up and embraced him. Its face wore the likeness of his grandmother. He was so terrified that he does not recollect what he heard the animal say. It quitted him, and he ran home scared and almost speechless. He went to his grandmother and asked her why she had assumed the form of a monkey. She tried to pacify him, but failed, and the poor boy became perfectly mad. Since his admission he has regularly, at intervals of a month, fallen into a state of lethargy, never speaking, but sitting with vacant looks, staring on the ground, and paying no attention to the calls of nature. This lasts for ten days, when he suddenly becomes excited and very talkative. After a few days he improves; but his mind is feeble and child-like.

High mortality amongst the insanes from Julpigoree.

The insanes who were admitted from the Julpigoree district gave a higher rate of mortality than any other, owing apparently, to their being sent, for some unknown reasons, a long roundabout journey *via* Purneah and Sahibgunge to Calcutta and Goalundo, and thence to Dacca by steamer, many of them being in the most deplorable physical condition and quite unfit to undergo such a journey, instead of being sent direct by boat from Dhoobree. Under orders from the Government of Bengal, the latter route is henceforth to be invariably followed.

In last year's report Dr. Wise showed that the death-rate bore a direct ratio to the distance travelled, and he points out the hardships of travelling in Eastern Bengal.

Restraint.

Mechanical restraint was not employed in any shape during the year.

Employment.

An average of 189 lunatics were employed at useful occupations. The dangerous and refractory worked the oil-mills, the weakly weeded the garden and roads, whilst gardening, soorkey-pounding, and such like, engaged the remainder. A large profit resulted to the credit of Government. The pay given to keepers does not appear to be sufficient to attract a good class of men, notwithstanding that there has been a slight increase in their wages.

Class of keepers.

Inspection.

Deputy Inspector-General of Hospitals H. B. Buckle, C. B., inspected the asylum on the 16th, 17th, 18th, 19th and 21st November. He remarks:—

The asylum was in very good order. The general air of cheerfulness and content exhibited by the inmates is very striking. They are most kindly treated; their peculiarities are studied, and work such as they can do provided, with occasional amusement. The garden, and working the garden, appear to be sources of pleasure to the insane; and, with one or two rare exceptions, there is none of that moping melancholy which is so distressing among the insanes; but by kindness and encouragement they are gradually led to employ themselves in the same manner.

PATNA ASYLUM.

This asylum was under the care of Surgeon-Major B. Simpson, M. D., during the whole year.

The statement below shows that the population has greatly increased of late years. The admissions numbered 124, being an increase of 46·8 on the average of the previous ten years. The admission-rate has, however, been less. The death-rate presents a very satisfactory figure. The number of cures in proportion to strength has been below the average. Statistics.

STATEMENT No. XIV.

YEARS.	Daily average number.	PER CENT. OF AVERAGE STRENGTH.					
		Admissions.	DISCHARGED			Deaths.	Total discharges and deaths.
			Cured.	Improved.	Otherwise.		
1867	130	59·2	16·9	1·5	1·5	12·3	32·2
1868	162	64·2	47·5	3·7	1·8	3·7	56·7
1869	161	65·8	41·6	11·1	1·2	13·6	67·5
1870	183	54·1	21·8	1·1	...	9·8	32·7
1871	211	40·8	27·5	1·4	·5	5·7	35·1
Average	169	56·8	31·1	3·7	·1	9·	44·8
1872	234	52·9	23·1	2·1	1·7	6·8	33·7

The health of the asylum has been good. The daily average number of sick has been 10·33 against 15·99 in 1871, notwithstanding the considerably increased population. Neither cholera nor dengue visited the institution, and the circumstance is certainly deserving of record in relation to epidemiological controversy. Dr. Simpson writes:— Sickness.

The total absence of these diseases is very remarkable, as the former was more or less prevalent in the district during the hot season, and the latter affected more than 90 per cent. of the surrounding population. Stringent measures were adopted to isolate the inmates as far as possible from the outside population, and I have no doubt the result was partly due to the precaution taken.

Of the admissions, only two are recorded as having been in good health at the time of admission; and of those discharged, all but two had gained weight at the time of their release. State of health on admission and discharge.

Dr. Simpson regards Indian hemp as a direct cause of insanity, but he points out that evidence of the extent to which its habitual use acts as a source of origin is based upon very insufficient data. Indian hemp.

Restraint is practically unemployed in the asylum. During the year it was only once resorted to, and that in order to secure the dressings upon an amputated finger against removal. Restraint.

Various improvements have been effected in the building. Two new sheds to protect the patients whilst working have been erected, and the overseer's house has been brought within the compound by extending the wall. Building.

Deputy Inspector-General of Hospitals C. R. Francis, M. B., inspected the asylum upon several occasions, and expressed himself satisfied with the management, &c., of the institution. Inspection.

CUTTACK ASYLUM.

Surgeon-Major A. Fleming, M. D., held charge of the asylum till within a few days of the end of the year, when he was relieved by Surgeon H. Cayley.

Statement No. XV shows a steady increase in the population year by year. The death-rate has been high, but, as Dr. Cayley observes, "in a small asylum where the numbers are not sufficient to keep up a steady average, an excessive mortality in one year, and a very low rate in another, are often mere accidental circumstances." The number of admissions has been small—only 14. Statistics.

STATEMENT No. XV.

YEARS.	Daily average number.	PER CENT. OF AVERAGE STRENGTH.						
		Admitted.	DISCHARGED			Deaths.	Total discharges and deaths.	
			Cured.	Improved.	Otherwise.			
1867	...	33	63.6	24.2	9.1	...	12.1	45.4
1868	...	36	47.2	22.2	8.3	...	11.1	41.6
1869	...	36	58.3	11.1	8.4	2.7	8.4	30.6
1870	...	38	57.9	44.7	13.1	23.7	5.2	86.7
1871	...	44	88.6	27.2	6.8	...	9.1	43.1
Average	...	37	63.1	25.9	9.1	5.3	9.2	49.5
1872	...	51	27.4	9.8	1.9	1.9	25.6	39.2

Overcrowding.

Overcrowding existed throughout the year. Dr. Cayley writes :—

The most pressing question now requiring settlement is that of want of accommodation. The asylum has room for 31 males and 13 females. During the year there has been an average of 39.7 males and 11.7 females, so that the men were generally overcrowded. On the last day of the year there were 41 males, or 10 above the proper number. This condition is not only injurious to the health of the inmates, but it renders proper separation of the noisy and violent from the quiet patients impossible. The grounds are small—too small in fact even now—so that the building could not be enlarged on the present site. If the criminal lunatics were transferred to another asylum, it would give temporary relief; but I think that an asylum which only holds 31 males and 13 females is not large enough for the Orissa Division.

Opinion of Deputy Inspector-General.

The Deputy Inspector-General of Hospitals, in forwarding the report, remarks :—

The asylum is stated to have accommodation for 31 males and 13 females, so that regarding the relative size of the asylum and the number of inmates, the overcrowding was extreme. Although opinions formed on such confined data, as is the case in this institution, are of little value, the conclusion is that want of sufficient space is acting unfavourably on the inmates; and that in removing this, the chances of reducing the death-rate to what it was when the number of inmates was smaller may probably be found.

The Inspector-General's conclusion.

The Inspector-General of Hospitals, in his comments upon the report, expresses a strong opinion. He says :—

Prospect of relief from overcrowding.

There can be no doubt that the asylum is overcrowded, and dangerously so. I was informed in September that the question of extending the asylum was under the consideration of Government.

Criminal lunatics.

Of the 55 inmates remaining in the institution at the end of 1871, 10 males and 2 females were criminal lunatics; and the ratio per cent. of criminals to the average population of ten years was 26.1. With such a large proportion of criminals, their removal would procure the relief so urgently needed; and this means particularly commends itself, as Dr. Cayley considers the present grounds too small to permit of enlargement of the existing building.

Restraint.

Mechanical restraint is not employed in an shape in the asylum.

Accident.

One accident occurred—an imbecile managed to commit suicide by hanging.

Cost of each lunatic.

The average cost of each diet has been Rs. 31-13-1, and of each patient Rs. 101-4-1; but this includes the Superintendent's allowance. The cost of diet has been Rs. 6 in excess of the previous year, the reason being the unusually high price of dall, rice, and other necessaries as compared with 1871.

Contract system.

There is a difficulty in introducing the contract system into this asylum; indeed the Superintendent considers it "hardly possible," for he states there are no contractors in Cuttack; the prices vary suddenly and enormously at different times; the system of contract is strange to the people, and no one would accept a contract on reasonable terms.

The Inspector-General's comment.

The Inspector-General of Hospitals considers that this asylum has been managed carefully and judiciously during the year.

MOYDAPORE ASYLUM.

Surgeon J. Coates, M. D., held charge throughout the year. The asylum is a small one, but it is clear that it cannot long remain so if the population is to go on increasing at the rate indicated in statement No. XVI.

The death-rate, it will be observed, presents a satisfactory figure. The admissions have been more numerous by 23 than the average of the last ten years, and 24 in excess of those for 1871. Statistics.

No restraint has been used during the year, nor are there any appliances for such. There are no punishment cells. Restraint.

STATEMENT No. XVI.

YEARS.	Daily average number.	PER CENT. OF AVERAGE STRENGTH.					
		Admitted.	DISCHARGED			Deaths.	Total discharges and deaths.
			Cured.	Improved.	Otherwise.		
1867	10	...	60	...	...	10	70
1868	9	...	...	...	11.1	...	11.1
1869	13	107.7	15.3	...	7.6	7.6	30.5
1870	21	90.5	33.3	9.5	4.8	33.3	80.9
1871	26	73.1	34.6	...	...	...	34.6
Average	15	54.3	28.6	1.9	4.7	10.2	45.4
1872	44	97.7	25	9.1	...	6.8	40.9

Dr. Coates, as before mentioned, has never known a case of insanity produced by *bhong*. The *charus*, a resinous exudation from the ganjah plant, is said not to be injurious; but as it is only used by the rich, full practical information concerning the effects of its prolonged use is wanting. *Ganjah*, the dried-flower tops of the same plant, is, he believes, a fertile source of insanity; but its habitual employment does not often terminate in criminal lunacy. Indian hemp.

An important observation is made with regard to the treatment of those cases of insanity which owe their origin to epilepsy. Epilepsy cases.

Nitrate of silver in 1 to 3 grain doses daily, with assafetida, effectually controlled the attacks and quite cured one case. No other remedy at all approached this, though we diligently persevered with chloral, bromide of potassium, zinc, and the phosphates.

Almost every individual in the asylum has been kept employed somehow or other. Employment.

The *gheel* or boarding-out system has not been introduced. Dr. Coates is of opinion that there are those who would undertake the charge of harmless lunatics for remuneration, were the matter fully explained to them. Seeing the crowded state of the asylum, some such effort ought to be made. Gheel system.

The Superintendent has paid special attention to the matter of education, and his efforts have been attended with encouraging success. Education.

Deputy Inspector-General G. Saunders inspected the asylum in January, and again in June. He found everything in a satisfactory state, and considered the sanitation of the asylum and the general health of the inmates to be good. Inspection.

BENARES ASYLUM.

Surgeon-Major Cockburn, M.D., held this charge up to April 21st, when he was relieved by Dr. Hooper, who officiated for him till the end of the year. Dr. Cockburn furnishes the report.

The daily average number of inmates has been the same as in 1871; the ratio of admissions to strength has been less. The statement also shows a diminished recovery-rate, whilst the death-rate, notwithstanding the occurrence of seven fatal cases of cholera, has not been excessive. There were 21 deaths, being 3.10 less than the average of the preceding ten years. Statistics.

STATEMENT No. XVII.

			1868.	1869.	1870.	1871.	1872.	
Per cent. of average strength.	Daily average number	...	108.7	111.9	111.5	125	125.8	
	Admitted	...	56.4	68.8	50.4	57.6	47.7	
	Discharged	Cured	...	19.4	23.4	18	28	23.1
		Improved	...	9.2	9	8.1	12	9.5
		Otherwise	1.8	1.8	...	2.4
	Deaths	...	30.3	33	14.3	14.4	16.7	
Total discharges and deaths	..	59.2	67.5	42.3	54.4	51.7		

Mortality, excluding cholera.

The mortality from ordinary causes has been 3 less than in 1871, and 10·10 less than the average of the preceding ten years. Of ordinary causes, dysentery caused the majority of deaths, and there were two fatal cases of diarrhoea.

Admissions declined for want of accommodation.

There has been 182 cases treated,—an increase of 8 upon the number of the previous year, and of 17·10 upon the average of the previous ten years. This increase would have been considerably greater but for special reasons.

The number treated would have been larger, had it been possible to receive all whose admission was applied for; but during three or four months of the hot season and rains, the asylum being as full as it could conveniently hold, and sickness prevailing, it was necessary from time to time to decline receiving patients from other districts.

Criminal lunatics.

The ratio of admissions of criminal lunatics to the total admissions of the year has been nearly doubled,—18·3 to 9·72 for 1871. The average strength of this class was 22·23, or 17·6 per cent. of the population.

Change of quarters on account of cholera.

The inmates were temporarily located in the Pandeypore barracks in August, on account of an outbreak of cholera in the asylum. Dr. Cockburn writes as follows concerning this:—

The officiating Superintendent states as follows:—On the 1st August, two days after the occurrence of the last of the 12 cases in the neighbouring asylum for the blind and destitute, cholera broke out in the asylum, 15 cases occurring from that date to the 9th. There were 116 patients in residence during the outbreak, and occupants in every building on the premises, excepting the house occupied by the overseer, were attacked. A ward in a separate enclosure was used as a cholera hospital, and the cells occupied by patients at the time of seizure were thoroughly disinfected and left vacant. On the 8th the healthy inmates were removed to the new asylum premises at Pandeypore, the last case (a fatal one) occurring there on the 9th. In all seven cases proved fatal. Although the asylum was full at the time of the outbreak, there was no unusual crowding. The average number of sick from ordinary causes was a little less than in 1871.

Chloral and bromide of potassium.

Dr. Cockburn speaks highly of the effects of chloral and bromide of potassium in the treatment of some forms of insanity.

Adverting to the Inspector-General of Prisons' letter No. 282 of August 7th, directing that the names of criminals sent for trial be retained on the rolls of the asylum until final orders of discharge have been received, the report continues—

I would beg to suggest that a circular order be addressed to all district officers, directing them to inform the Superintendent of the asylum how such cases have been disposed of, if not remanded to the asylum.

Restraint.

Restraint is hardly employed in the asylum. Canvas bags were resorted to on two occasions during the year, on account of excitement; and to this extent alone was restraint used.

Finance.

The expenditure exceeded that of 1871 by Rs. 1,266-2-9, on account of the enhanced rates of food, increased salaries having been granted to the native doctor and matron, loss on clothing burnt during the cholera outbreak, and exceptional contingencies. The cost of each individual was Rs. 93-6-11, and of each diet Rs. 31-12-3.

BAREILLY ASYLUM.

The report is furnished by Surgeon H. S. Smith, M. B., who officiated as Superintendent from May, prior to which date Surgeon J. H. Loch, M.D., held charge.

Statistics.

There were 88 admissions, being a decrease of 60 on the number of the previous year. The daily average strength has changed almost nothing. The death-rate has undergone a steady and very satisfactory reduction during the past five years. The deaths were 33 in number—dysentery and diarrhoea being the chief causes. The asylum was not visited by cholera during the year, but there was a solitary case of small-pox.

STATEMENT No. XVIII.

		1868.	1869.	1870.	1871.	1872.	
Daily average number	...	283·4	253·6	255·7	264·4	267·7	
Per cent. of average strength.	Admitted	49·1	91·3	64·4	55·9	32·9	
	Discharged	Cured	29·7	46·6	29·6	27·2	15·6
		Improved	70	79	39	3	...
		Otherwise	...	39	...	3	1·9
	Deaths	37·8	33·6	27·9	15·5	12·4	
Total discharges and deaths	68·2	103·9	58·1	46·1	29·9		

Criminal lunatics gave an average strength of 33·16, and 5 were admitted during the year. Only one criminal lunatic died. Dr. Smith, in alluding to the lesser mortality amongst this class as compared with ordinary insanes, says:—

I was at first inclined to suspect that the smaller proportionate mortality amongst the criminal as compared with the non-criminal population might be due to successful feigning of insanity by some of the number. I should now, however, be inclined to attribute it to the more favourable conditions under which they enter the asylum. They have been sent from the different jails, and have, prior to their admission here, had good food and proper medical treatment.

Two males and one female were discharged without having been entered on the books as lunatics. Of one of these cases it is remarked—

Halassie admitted under observation on April 26th; had then marks of violence on several parts of the body, more especially his back and arms, which were much swollen and deeply indurated by cords with which he had been tightly bound. He seemed rational and quiet, although the treatment to which he had been subjected might have readily produced insanity. Was returned to the magistrate on 8th May, having been twelve days under observation.

Weighments of the insanes were constantly made, and with the following results: 105 lunatics gained weight, 39 lost weight, and 167 remained stationary. The admissions almost invariably gained weight at first. The increase and decrease of weight was found, as a rule, to bear a direct proportion to the progress or otherwise of the patient.

Chloral and bromide of potassium are spoken of in terms of high praise. His Honor the Lieutenant-Governor authorized the Superintendents of the Bareilly and Benares asylums to enter in their budgets on account of medicines of this class (including ether) a sum not exceeding the average profits of the asylums, or Rs. 1,000 for Benares and Rs. 500 for Bareilly.

Mechanical restraint was not resorted to during the year, and solitary confinement on but rare occasions.

The barrack roofs were thoroughly repaired. The doorways are reported to be "nearly all in a dangerous state, large massive iron doors having been placed in walls built of materials quite unfit to support the frame work." The wall surrounding the asylum is out of repair.

The increased expenditure per patient is attributed to the additional expenditure upon clothing—each patient having been given two blankets instead of one as formerly, the enhanced cost of provisions, and expenditure upon special medicines. Each diet cost Rs. 29-10-8 against Rs. 24-6-11 in 1871.

NAGPORE ASYLUM.

Surgeon-Major W. B. Beatson, M. D., held charge throughout the year. The chief points shown by the statistics are—an average population nearly the same as last year, a diminished admission rate, a moderate death-rate, and an improved recovery-rate. There were 13 criminal lunatics under treatment, and the daily average strength of this class was 10·46. There was a low rate of sickness, and those in hospital for bodily ailments were chiefly epileptics, or old, worn-out, or debilitated persons. There was no epidemic.

STATEMENT No. XIX.

				1868.	1869.	1870.	1871.	1872.
Daily average number				100·8	101·7	97·3	104·6	104·8
Per cent. of average strength.	Admitted	...		34·7	30·5	39·1	31·5	26·7
		Discharged	Cured	...	14·9	16·7	12·3	9·5	16·2
	Improved		...	2·9	...	14·4	2·8	...
			Otherwise	11·8	...	4·7	·9
	Died	...		·99	14·7	7·1	11·4	10·5
Total discharges and deaths		...	18·8	43·2	33·9	28·6	27·6	

More than one-third of the admissions were wandering lunatics or beggars brought in by the police. The majority of admissions and all discharges were in good health. Of the 11 who died, 3 only were admitted in good health.

Mechanical restraint is never employed in the asylum; even solitary confinement is not adopted. Out-door employment occupies most of the lunatics constantly. Each individual cost Rs. 101-5-9, and each diet Rs.36-3-8.

JUBBULPORE ASYLUM.

Surgeon W. Rice, M. D., held this charge during the year, and he furnishes a very interesting and detailed report of the working of the asylum during the year.

Statistics.

The statistics are shewn in statement No. XX. Forty-four admissions took place, being 10 less than in the previous year, and but slightly more than the average of the five preceding years. The population has, however, increased, giving necessarily a diminished ratio of admissions to strength.

STATEMENT No. XX.

		1868.	1869.	1870.	1871.	1872.	
Per cent. of average strength.	Daily average number	41.5	61.6	77.2	106	119.4	
	Admitted	102.4	63.9	58.4	50.9	36.8	
	Discharged	Cured	46.3	18.03	12.9	10.3	14.2
		Improved	6.6	5.1
		Otherwise
	Died	12.4	27.5	14.2	6.6	18.4	
Total discharges and deaths	58.5	45.9	27.3	23.5	37.7		

Sickness and cause of death.

The death-rate has greatly increased "owing to the greater bodily sickness, and to the presence of bowel complaints of a nature exactly similar to those prevalent in the central jail, and described in the report of that institution;" but the affection proved more fatal owing to the class which furnished the patients. The daily average number of sick was 15, being a considerable increase upon that of any preceding year. Dr. Rice writes:—

There were 182 admissions to hospital, being 113 per cent. of the total number who passed through the asylum; 60, or one-third of the whole, were for bowel complaints, accounting for 17 deaths. There were 84 cases of fever leading to 3 deaths. The other two fatal cases were owing to debility or general atrophy complicated with anæmia, each of the three causes being as much concerned as either of the other two.

Health on admission

Of the admissions, 29 were in bad health; and of the 22 who died, 10 were in bad, 2 in indifferent, and 10 in good health, when they entered the institution.

Restraint.

Restraint has never been employed in the asylum, and solitary confinement is avoided as much as possible.

Vaccination.

Inoculation not being practised by the natives at Jubbulpore, Dr. Rice adopts the plan of vaccinating all admissions.

Employment.

Of the total average of 95.6 males, 70.5 were constantly employed chiefly at out-door work (the production of *nawar* being the only manufacture of the asylum). The amount of work done was very considerable, and it is noted that "a large amount of extra diet was given to some very energetic fellows whom nothing could restrain."

Mode of estimating the value of work done by the inmates of asylums.

Dr. Rice (Jubbulpore) notices the difficulty of coming to a correct conclusion as to the value of work performed by the inmates of an asylum, and suggests a method likely to give satisfaction, provided the Superintendent can devote sufficient time to this detail. He says:—

A daily rate of wages per man employed is, in the case of lunatics, obviously an unsatisfactory way of valuing work done; indeed, if we care for strict accuracy, it is impossible; their humours and moods are so variable, that many who start work in the morning with apparently the greatest willingness, will be found before an hour has passed to have thrown aside their implements and remain absolutely idle for the remainder of the day.

It is unquestionably the best way, 1st, to be certain that the work is a necessary one; 2nd, that it is well done; 3rd, carefully measured up; and, finally, fairly valued according to the local rates current. These four conditions have been carefully observed in all works done. The measurements were verified by myself and priced in the Executive Engineer's office.

Profits.

The aggregate of work done, thus estimated, deducting the cost of lime paid for by Government, savings by the cooking being done by insanes, the

grinding of wheat, &c., the net profits amounted to the very considerable sum of Rs. 4,000-8-6, or Rs. 44-9-6 per man employed.

The asylum in use is the old thuggee jail, and its occupation only commenced on 15th March. The report gives the following account of the transfer and its cause, as well as a description of the new quarters:—

The former lunatic asylum became inconveniently crowded. In March last, the "old thuggee jail" and the "old district jail hospital," after having been examined and pronounced fit by the Deputy Inspector-General of Hospitals and the Superintending and Executive Engineers, were made over to us, the former permanently for the males, and the latter for females until a female asylum shall be built. It was understood at the time that these buildings required considerable alterations and additions to render them fit for the purpose, but I undertook that most of the alterations should be made by the lunatics themselves. The barracks of the old jail were low and narrow, with flat-terraced roofs, enclosed with high intersecting and surrounding walls. The intersecting walls have been already demolished, and the surrounding wall will soon be lowered to a height just enough to prevent the inmates from straying away. Verandahs are needed to keep the wards cool, and to admit of sleeping in the open air on hot nights. Two have been completed, six are under construction. We had to build sheds for grinding wheat, cooking and newar making, sleeping-berths, and raised platforms on which the men might work or sit about.

Each inmate cost Rs. 72-3-4, being less than in the previous year. Each diet cost Rs. 27-10-7.

Deputy Inspector-General of Hospitals J. Ross inspected the asylum on December 24th. Alluding to a minute which he had written on August 13th, pointing out defects and the best means of remedying them so as to meet the requirements of an asylum, he says:—

A very great improvement has been effected since that date by the slow, but regular, labor of the inmates. The work is, therefore, economical; but I would rather see it all in hand at once as a part of public works, and the whole place made comfortable and healthy for the lunatics.

He also notes the necessity for taking up the land between the asylum and the Gumti River, which is at present occupied by the Nujeeb soldiers for gardening purposes. He does not consider it necessary to re-roof the barracks as had been suggested. Of the latrine arrangements, he says:—

The latrine arrangements are rather in a primitive state, but are conducted with cleanliness. The inmates of the several barracks are turned out in the very early morning and marched to the space between the inner and outer surrounding walls of the asylum. Here dry earth is laid down in several places, and the sewage is immediately removed and replaced with fresh earth.

He adds:—

I am quite satisfied with the management of the asylum, and the kindness and attention paid to the inmates. It will appear from the report that much has yet to be done before the present building will be a fit asylum for lunatics.

LUCKNOW ASYLUM.

Surgeon-Major H. M. Cannon, M. B., who held charge of the asylum, furnishes a very brief report—a circumstance to be regretted, seeing that the death-rate has been very exceptionally high, even surpassing the excessive mortality of the previous year. Out of 230 patients treated, there have been 70 deaths, or 45·8 per cent. of strength. The admissions amounted to 96 against 90 in 1871, and the daily average strength has been 2·4 in excess of the previous year.

STATEMENT No. XXI.

Statistics.

		1868.	1869.	1870.	1871.	1872.	
Daily average number	...	132	146·8	158·8	150·4	152·8	
Per cent. of average strength	Admitted	71·9	88·3	48·1	59·8	62·8	
	Discharged	Cured	43·2	30·8	20·2	13·9	15·05
		Improved	5·3	8·9	13·3	8·6	7·8
		Otherwise
	Died	18·9	42·91	24·5	42·5	45·8	
Total discharges and deaths	65·9	82·9	58·2	65·1	68·6		

Regarding the very high death-rate, Dr. Cannon writes:—

I am sorry to say the mortality during the year has been very high. Out of 230 patients,

Mortality.

70 died, *viz.*, 49 males and 21 females, or 30·14 per cent.; of these, 12 died in the month of September, 11 in October, and 13 in November, nearly all of which cases were the result of dysentery and diarrhœa, following severe attacks of dengue fever, but have been entered into the mortality tables under the heads of the diseases from which they died, namely, 32 from dysentery and 14 from diarrhœa. There were also 5 deaths from epilepsy during the year under review. There was not a single case of cholera during 1872, although it existed in the city and civil lines in an endemic form during nearly the whole year.

Unusual causes of death.

From the register of deaths we learn that the fatal cases of diarrhœa averaged 41 days in duration, the longest period being 5 months and 16 days, and the shortest period 15 days. The cause of death in 11 cases is recorded as being "ague fever," and 2 deaths are attributed to "dengue fever," but no explanation is appended of these unusual causes of death.

Health on admission of those who died.

Of those who died, 6 only were admitted in "bad" health and 3 in indifferent health.

Finance.

The total cost of the asylum was Rs. 11,523-13-4 against Rs. 10,723-4-9 in 1871. The cost per head was Rs. 75-9-6, and per diet Rs. 15-8-9.

Inspection.

Deputy Inspector General of Hospitals C. Archer, M. D., inspected this asylum on 16th December. His remarks give no additional information concerning the great mortality, but various sanitary matters which are interesting when viewed in relation to mortality are noted; thus—

Buildings.

There are eight male and four female barracks, each 36 feet in length and 18 feet in breadth, height 18 feet. One criminal barrack, male, and one female of the same dimensions, one violent male, and one female barrack, each 67' x 31', and in height 18½'. One lunatic hospital 57' 9" x 42' and in height 18'. Ventilation of all good, and built *katcha-pakka* with tiled roofs, with the exception of the hospital, which has a flat roof; they are all in good repair. The ground in the vicinity is open, with the exception of the criminal barracks, which are surrounded with a *katcha* wall; there are two barracks for the guard 12' x 10' and two cook-houses. Dry-earth sanitation is carried out.

Conservancy.

The night soil is buried at a distance of 264 feet from the barracks.

Drainage.

There are two drains,—one on the west side and one on the south side,—which run into the Gumti river.

Food.

Food—Flour, rice, dhal, ghee, meat, oil, &c.—all of the first quality.

The supply of water is got from a well, and is wholesome.

Clothing.

Clothing—Blankets for winter, *dosutti* cloth for summer—all of the best description.

Labour.

Labour—Lunatics work both in-door and out-door.

Appointment of a special committee to report upon the excessive mortality.

The Inspector General of Hospitals, deeming that the excessive death-rate required further elucidation, addressed the Chief Commissioner of Oude on the subject (letter No. 271 of June 2nd, 1873, from Secretary to Inspector-General of Hospitals, to the Secretary to the Chief Commissioner, Oude), suggesting that a special committee be appointed to investigate the whole subject thoroughly. This letter pointed out that the death-rate of the Lucknow Asylum has been more than double the usual death-rate of all the lunatic asylums of the Presidency taken together; that the death-rate of English pauper asylums is 10·8 per cent. of average residents; that any rate above 15 per cent. must be looked upon as abnormal in India and call for special inquiry; that the death-rate of the Lucknow Asylum has been for years far above this figure,—three times as much in 1872 and nearly three times as much in 1871 and 1869; the mortality in 1871, it is pointed out, was attributed to the excessive rains, whilst dengue is apparently credited with the same result for 1872. It is further shown that, contrary to the general rule, the mortality has been higher amongst females than males, and that bowel complaints accounted for 87 per cent. of deaths in 1871 and for 65 per cent. in 1872, the usual proportion which bowel complaints bear to other causes of death in Indian asylums being 20 to 30 per cent.

Constitution of the committee.

In compliance with the above letter, a committee, composed of the Deputy Inspector-General of Hospitals, the Sanitary Commissioner, and the Civil Surgeon of Lucknow, assembled on June 23rd and on various subsequent occasions. Its report was submitted on July 16th, 1873, the result of its deliberations being that the unhealthiness of the asylum is wholly due to its faulty site, which is considered incapable of improvement. The report asserts that certain portions of the grounds are, at certain seasons of the year, liable to inundation, which, when the water subsides, leave behind large quantities of fish and silt; that the buildings forming the female portion of the asylum are situated on an old burial ground, which has been in use for 40 or 50 years up to within 6 or 7 years; the graves show traces of being closely packed, and their bottoms become flooded when the river rises, and then, it is asserted, a foul smell ema-

Report of the committee.

nates from them. The higher portion of the site, the report further goes on to state, were, for several years prior to occupation as an asylum, used as stables for elephants, bullocks, and horses. Finally, attention is drawn to the low physical condition of the lunatics when admitted.

The Sanitary Commissioner entertained a view somewhat different from that of the rest of the committee. Whilst admitting the site as being faulty to a degree,—on the sandy bank of a river which annually inundates the grounds,—he does not think a case has been made out which would justify the place being abandoned. He adds:—

“There is no evidence that the fatal bowel complaints were of a communicable character, and it is possible that they arise chiefly from general causes such as it is within the competence of the establishment entrusted with the care of the patients to guard against by attention to all the necessaries of life and conditions of health;” and as a remedy, he suggests an increase of establishment with a sub-assistant surgeon as resident head of the institution, and the construction of an embankment to prevent the water of the river inundating the grounds.

DELHI ASYLUM.

This asylum was under the charge of Surgeon Penny, M. D., till May, when he was relieved by Surgeon A. Taylor.

STATEMENT No. XXII.

		1868.	1869.	1870.	1871.	1872.	
Daily average number	...	28.6	34.1	34.3	30.6	45.5	
Per cent. of average strength.	Admitted ...	121.4	85.3	73.5	133.9	83.5	
	Discharged ...	{ Cured	60.7	58.8	64.7	78.4	28.6
		{ Improved	10.7	23.6	5.9	19.6	17.5
		{ Otherwise	2.2
	Died ...	3.49	11.73	11.6	13.1	28.6	
Total discharges and deaths	...	75.	94.1	82.3	111.1	76.9	

The statement shows a very greatly increased death-rate. The total number of deaths was 13 and the daily average strength 45.5. The admissions were 37 against 41 in 1871, but they show an increase of 5.6 upon the average of the previous five years. The percentage of cured shows a great falling off. The admissions into hospital were few as compared with the number of deaths.

Dr. Taylor's report gives a minute account of the locality, the construction, and the plan of the asylum, which, however, is difficult to follow without a plan.

The year was the sixth of the re-establishment of the institution, which is situated on a high and well drained site, above the Khadir, about one mile from the bed of the Jumna; the ruins of old Delhi, upon part of which the asylum is built, lying between it and the river.

The asylum is surrounded by a wall 11 feet 2 inches high. At the entrance is the darogah's house and office, to the left of which there are two observation wards in a separate compound, but as these are damp they are seldom used. Then we come to an open yard containing 10 cells, most of which have small court-yards in front. The hospital is 30 feet by 18, and contains 11 sleeping-berths. The male portion of the asylum consists of a large square enclosure, with a latrine at one side and a bath-room at the other, and consists of a main block 91 feet by 12 feet, containing sleeping-berths; and two wings, each of which is divided into six separate rooms with barred doors. In this enclosure there is also a dining-room, dispensary and workshop. The female accommodation is at the south-west corner of the asylum, and is provided with a latrine and bath-room.

The clothing consists of a *dosuti* coat, *jahngeer* and cap for summer wear; and a blanket coat and cap lined with cotton, two or three blankets according to the climate, and a *tât* mattress for winter.

Concerning the mortality Dr. Taylor writes—

Fever has caused the greater number of admissions into hospital; it is the ordinary intermittent and easily cured. Bowel disorders are the most fatal of all complaints; there have been twelve admissions for diarrhoea, of which two were complicated with epilepsy, and two admissions for dysentery. Of the diarrhoea cases eight died. Pneumonia was very fatal; it was insidious in its attack, generally killing the patient without much warning. It was the only acute disease

treated in the hospital. Debility was fatal in two cases, and one died in an epileptic fit; * * * the death rate of the women was much higher than that of the men, being six with a daily average of fifteen.

Restraint.

Mechanical restraint is never used, but the refractory are shut up in solitary cells when it is thought necessary for their safety or that of others.

Establishment.

Dr. Taylor considered the establishment much below the requirements, and submitted an application for an increase; the Deputy Inspector General of Hospitals and the Inspector General of Prisons agreeing with him, but the local Government did not consider it necessary.

Inspection.

Deputy Inspector General of Hospitals J. N. Tresidder inspected the asylum on 25th January. He considers that the buildings are cut up into little rooms, which are not large and airy enough. The drainage of the airing-yards he condemns, and he continues—

Asylum unsuitable.

On the whole, I am of opinion that the asylum in its present state is not at all well-fitted for the comfort and benefit of the inmates. The walls are too low. Lunatics, if loose, get over them; one escaped to-day. This lowness of walls compels the confinement of patients in solitary cells. Two men have thus been long in solitary confinement, and many others, doubtless to save trouble to the warders, are thus incarcerated.

* * * * *

Accommodation.

The asylum contains, besides the cells, 2,313 superficial feet of barrack accommodation, used as dormitories at night, and 624 superficial feet contained in the place where the patients eat their food. Thus, at 60 square feet per man (for lunatics ought never to have less,) the asylum can accommodate 39.71 patients, but some of the inmates remain in their wards by day as well as by night. This I consider wrong; the dormitories should be emptied in the morning of all blankets, bedding and inmates, and aired during the day, whilst the bedding is aired in the sun. There are other wards that could be used as dormitories besides the cells, of which there are 23. Yesterday I saw eight patients confined in some of these cells; two have been without intermission confined during the last month or more. No mechanical restraint is used except solitary confinement. I do not consider that overcrowding has taken place of late in this asylum. There are latrines with dry earth in them, but it is difficult to get the lunatics to use them.

Dietary.

The dietary seems to me enough on six days of the week, except the items ghee and salt, which, I think, should be increased; and on Friday I think the diet is altogether too little; more salt is required most certainly. At present only 180 grains are issued, whereas prisoners all receive 226 grains, and some people have doubts whether even that is enough. I now recommend that 260 grains be at once issued, and that the ghee be increased to double its present quantity: instead of one tolah, 2 tolahs should be issued.

The mortality of this asylum, on which I shall presently comment, has been excessively heavy, and I have no doubt that it has been increased by want of more salt and more fatty matter in the food.

Statistics.

The daily average strength of the asylum during the past twelve months has been 45.5; total admissions to hospitals for other than mental diseases have been 30. Total deaths 13. The daily average number of sick has been 2.60, and upon this calculation the ratio per cent. of sick to strength will be 5.71, and that of admissions strength 65.95, whilst deaths to strength will be 28.57. This death rate is excessively high, even for a lunatic asylum where the physique of the patients is always low, but the ratio per cent. of sick to strength is extremely low, as also is that of admissions to strength. * * * *

High death-rate.

From this I argue that for want of a medical subordinate in charge of the asylum, the incipient stages of disease in the lunatics are not discovered, and the patients are not admitted to hospital for treatment until they are very ill, and that thus risk to life is greatly increased. If I am right, the difference in the averages is fully accounted for. * * * It is not practicable that the medical officer can do the detail duty required, as constant presence with the patients is necessary. * * * *

The lunatics are guarded by a jemadar, a female keeper and four warders, one warder is on duty at the gate day and night; thus two warders at least are occupied by reliefs, one goes for food, stores, necessaries, &c., and only one remains to superintend the inmates; this I fear, he does by shutting up in cells as many as possible, and solitary confinement I consider the worst possible treatment for the insane.

Amusement.

The inspection report goes on to comment upon the fact that there was no visible attempt to amuse or occupy the lunatics,—no kites, games or toys were to be seen. Dr. Tresidder adds:—

I am satisfied that the internal economy of this asylum is not what it might be. The appearance of the patients is described as being not good; they all seem weak and in a very low state of health. The absence of any record whereby to trace the medical history of individuals is also noted.

Dr. Taylor in his report remarks:—

The quantities of food in this asylum have been increased according to the recommendation of the Deputy Inspector General of Hospitals by adding salt daily, ghee three times a week, and khichree on Fridays. Since October 2 chittacks of dhal and $\frac{1}{2}$ chittack of goor have been given on Fridays, as I was of opinion that the food on that day was insufficient.

LAHORE ASYLUM.

Surgeon-Major J. B. Scriven, the Civil Surgeon of Lahore, furnished an excellent summary of the events of the year in his report.

The daily average strength has been 20 above that of 1871. The mortality was very severe, being 36·3 per cent. of average strength and 24·3 per cent. of total treated—the highest death-rate of any asylum in the presidency except Lucknow. The total deaths were 93, but 25 of these were due to cholera. There were 125 admissions, of which 101 were males and 24 females, and of the males 10 were criminals. The recovery rate was below the average, and the daily average number of sick was nearly double that of 1871. Statistics.

STATEMENT No. XXIII.

		1868.	1869.	1870.	1871.	1872.	
Daily average number	...	224·	220·	227·	236·	256·	
Per cent. of average strength	{ Admitted ...	73·2	63·6	45·4	61·8	50·	
	{ Discharged ...	{ Cured ...	40·2	24·5	20·7	25·8	22·2
		{ Improved ...	6·2	4·1	1·7	...	1·2
		{ Otherwise	2·9	...
	{ Died ...	25·	43·6	12·7	17·7	36·3	
{ Total discharges and deaths	71·4	72·3	35·2	46·6	59·7		

Dr. Scriven's report upon the epidemic of cholera gives such an excellent and interesting account of the outbreak, and of the energetic means taken to check it, that it has been printed in full (see appendix , page). It may, however, be here noted that notwithstanding the high rate of mortality, it has been less than during any previous cholera year. Cholera.

On the point of general health the Superintendent writes :—

The asylum continued to the commencement of the hot weather in a most satisfactory state as regards health, when suddenly in May cholera appeared. This, with the fever which followed it, has made the mortality very high. As usual, the fever which succeeded the cholera, or rather began as the cholera gradually declined, has been much more deadly than the cholera itself. Twenty-five lunatics only died of cholera, whilst 59 succumbed to the fever and its sequelæ—diarrhœa, dysentery, and debility, which prevailed from August to the end of September. General health.

Fires and warm blanket *pyjamas* have been supplied to the lunatics, and seem to have been very beneficial— Clothing and warmth.

at all events, the deaths were very few in the winter of 1871-72, although this season generally yielded a very heavy mortality; thus, there was only 1 death in December, none in January, 1 in February, and 2 in March.

The night soil is utilized in the gardens. It is intended to burn all the evacuations in the event of any future epidemic of cholera, so as to obviate any danger on that account. Night soil.

There are some criminals now in the asylum— who, having been acquitted of their crimes on the ground of insanity at the time of commission, have been sent to the lunatic asylum for safe keeping. These are mostly murderers, and it has been decided that such persons are never to be released. An illustration of the excellence of this rule has lately occurred, for one of the murderers having been for years tractable and sane, has at last broken out again into a violent paroxysm. Criminal lunatics.

Deputy Inspector General of Hospitals T. Hastings inspected the institution on November 27th. He found everything in a satisfactory state. Inspection.

RANGOON ASYLUM.

This asylum was opened on June 21st, 1871. Surgeon-Major H. Griffith, M. D., is the Superintendent. Date of opening.

The death rate has been low, as is to be expected in a new asylum. The large number of the daily average strength has proved the necessity for the existence of this asylum. Three criminal lunatics were admitted during the year, but there was a daily average strength of this class of 37.

Daily average strength	...	...	...	117	Statistics.
Per cent. of average strength	{ Admitted ...	...	...	36·7	
	{ Discharges ...	{ Cured ...	...	12·8	
		{ Improved ...	...	5·9	
		{ Otherwise ...	...	2·5	
	{ Deaths ...	...	...	5·1	
{ Total discharges and deaths	...	...	26·5		

Employment. The average daily number of lunatics employed at various occupations was 87. The patients are encouraged, but not forced to work.

General health. The general health has been good, the daily average number of sick being 5. There were 6 deaths—2 from softening of the brain, 1 from paralysis, 2 from diarrhoea, and 1 from accident. The last was caused by a fall of 40 feet from a tree whilst the patient was endeavouring to escape.

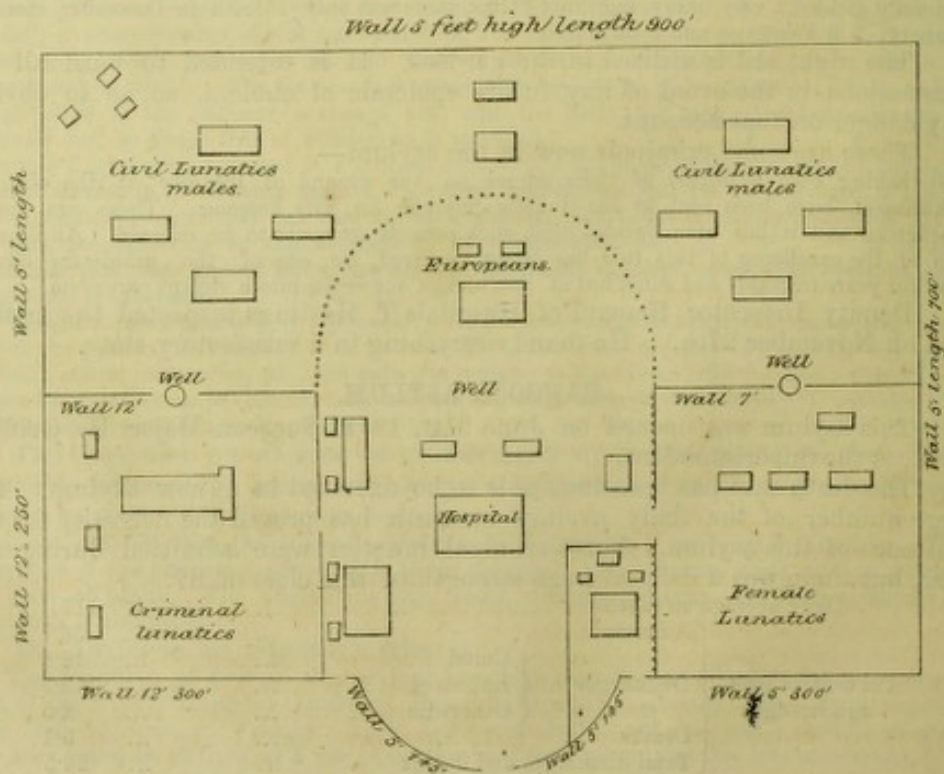
Diet. The diet is described as being ample and of good quality. The following is the scale:—

FOR EUROPEANS.				FOR NATIVES.			
Articles.	Quantity per diem.			Articles.	Quantity per diem.		
	lbs.	oz.	dr.		lbs.	oz.	
Bread	1	0	0	Rice	1	8	
Beef	1	0	0	Beef	0	4	
Rice	0	4	0	Fish	0	4	
Butter	0	1	0	Vegetables	0	8	
Milk	½ bottle			Salt	0	8	
Sugar	0	1	8	Condiments	0	0	
Tea	0	0	8	Gnappie	0	0	
Salt	0	0	8	Oil	0	0	
Onions	0	1	0	Fuel	2	0	
Barley	0	0	8				
Flour	0	0	8				
Pepper	0	0	1				
Ginger	0	0	1				
Fuel	2	0	0				

NOTE.—Beef four times a week, and fish three days.

Other points in sanitation. The water is good and sufficient for all purposes and is procured from wells. The drainage is good and storm water is carried off by masonry drains. The dry-earth system of conservancy is in force.

Buildings and plan. The buildings are described as consisting of 11 cottages for the reception of insane patients, 8 are for civil males, 1 for Europeans, 1 for females, and 1 is the hospital. The accompanying sketch will give a good idea of the plan; all the buildings are constructed of wood roofed with shingles, except the criminal cells, which are built of masonry. There was only accommodation for 20 criminals; so to relieve overcrowding in this department, some of the imbecile and idiotic criminals were removed into a cottage outside the criminal compound, but additional cells were being built.



The detailed accommodation of the asylum is as follows—

Accommodation.

No. of Cottages.	How occupied.	MEASUREMENTS.						Superficial area.	Cubic measurement.	No. to be accommodated at 54 supt. feet.	No. in occupation on 31st December 1872.	Superficial space per man.	Cubic space per man.
		Length.		Breadth.		Height.							
		F.	In.	F.	In.	F.	In.						
8	Civil lunatics ...	36	...	18	...	15	...	5,184	77,760	96	66	78	1,178
1	Europeans ...	36	...	18	...	15	...	648	9,720	12	2	324	4,860
1	Females ...	36	...	18	...	15	...	648	9,720	12	15	42	648
1	Hospital ...	36	...	18	...	17	6	648	11,340	12	4	162	2,835
<i>Criminal Cells.</i>													
14	Criminal lunatics ...	10	...	8	...	16	...	1,120	17,920	20	33	543	34

Deputy Inspector General of Hospitals C. Duff, M. D., inspected the asylum on November 19th. He states that:—

the hospital is a fine open structure of wood, as are all the cottages (with the exception of the criminal cells, 26 in number, which are of brick and chunam). This building is raised on piles 8 feet from the ground. * * * The sanitary condition of all the buildings in connection with the asylum and the hospital is excellent. There are no cess-pools or foul drains anywhere; the dry-earth system is rigidly carried out, all excreta are at once removed and buried in the kitchen garden. Coal tar is very freely used in the latrines and urinals." * * * Two new cottages were recommended to be built last year in the female enclosure, the one to be the hospital, and the other to be for observation cases; these cottages are very nearly finished.

The Deputy Inspector General of Hospitals speaks in the highest terms of the energy and tact displayed by Dr. Griffith in his asylum duties.

AGRA ASYLUM.

Surgeon-Major A. Christison, M. D., the Superintendent, furnishes the report.

The figures below show the statistics of the year:—

Statistics.

Daily average number	...	...	...	...	36.40	Statistics.
Per cent. of average strength.	Discharged	Admitted	...	...	...	236.2
		Cured	Improved	...	...	85.2
			Otherwise	...	...	2.7
			Died	...	...	2.7
		Total discharges and deaths	13.7	104.4

The report gives the following account:—

Origin.

The Agra lunatic asylum was opened on the 12th of August 1871, and at the close of the year there were 11 inmates, *viz.*, 8 males and 3 females.

The asylum covers a space of 55 acres, the ground is well raised, and the water in the five wells is above the average of Agra water in purity.

I found everything in a most imperfect state; the larger buildings, consisting of sun-dried bricks, were 16 feet high, without verandahs, and with no proper eaves to the roofs, the consequence of which was that they were much damaged by rain; the roofs also, being of tiles laid on bamboo-work resting on the earthen walls, were quickly damaged by white ants, and there being no bars on the doors, there was no means of securing the inmates at night, and at the same time affording adequate ventilation. This difficulty was of the more consequence as the grounds were enclosed by a 4½ feet wall only, constructed of earth with masonry coping.

The grounds were a rough plain, with all manner of mounds that had not been removed, and hollows that had not been filled up.

On taking over charge I found it necessary to represent at once that the grounds must be put in order for the safety of the inmates, and that the buildings must be greatly altered before they could be considered safe or convenient.

The means of putting the grounds in order, as originally estimated, having been placed at my disposal by the Public Works Department, the past 12 months have been occupied in this endeavour; great changes in the levels have been effected, roads have been made, drains, water-courses, and culverts have been put down, and young trees planted in every direction.

Supplemental report.

Dr. Christison furnished a supplemental report, dated March 8th, 1873, containing additional information. He premises that "the buildings were constructed by the Department of Public Works, and that he was not in any way concerned in them." He explains that when he took charge there were no criminal quarters, that the houses of the subordinates were situated in the centre of the asylum, and that they were unsuitable. Plan No. 2 shows the arrangements which are being carried out; but, adds Dr. Christison, "it does not represent what I myself consider manageable or economical, owing to the great variety and number of the buildings and the difficulty of looking after the inmates;" and he says, "I must mention that the whole design is from plans made under instructions from the Government of India."

Inspection report of 1871.

In his inspection report for 1871, Inspector General of Hospitals G. Playfair, M. D., bears out these remarks as to the condition of the asylum when it was handed over to the Superintendent; and he made a series of suggestions with a view to rendering the asylum fit for its purpose. These suggestions were approved of, and the work is slowly progressing.

Dr. Christison gives a detailed description of the several buildings; but as changes are progressing, many of which must ere this have been completed, it is unnecessary to quote his words. It is sufficient for the sake of the history of the institution, and as explaining future difficulties which may arise, to record the conditions in which the buildings were handed over to the Superintendent.

Much still remains to be done: the low surrounding earthen wall is to be replaced by a substantial one of sufficient height; criminal wards constructed; walls built around the women's quarters. A garden has been commenced, and a tank constructed. Three thousand trees have been planted.

Epidemics.

Neither cholera nor dengue visited the asylum, though both prevailed in the neighbourhood. There were five deaths of aged and diseased persons. The daily average number of sick was almost nominal. Improved mental condition ran parallel with increased weight and progress of general health.

Deaths.

Employment.

Occupation in the shape of gardening, wheat-grinding, tailoring, cooking, cotton-picking and weeding the garden was adopted. There were three escapes. The use of intoxicating drugs does not account for many of the cases treated.

Inspection.

Deputy Inspector General of Hospitals C. M. Smith, F. R. C. S., furnished a detailed account of the state of the buildings and of the working of the asylum under date March 1873, as a special report to the Inspector General of Hospitals. He says:—

I approach the subject of this report with feelings of considerable difficulty and diffidence, since the original design of this asylum has received the deliberate sanction of the Supreme Government, and Rs. 40,000 have already been spent upon its construction, and Rs. 60,000 more have been sanctioned for its completion.

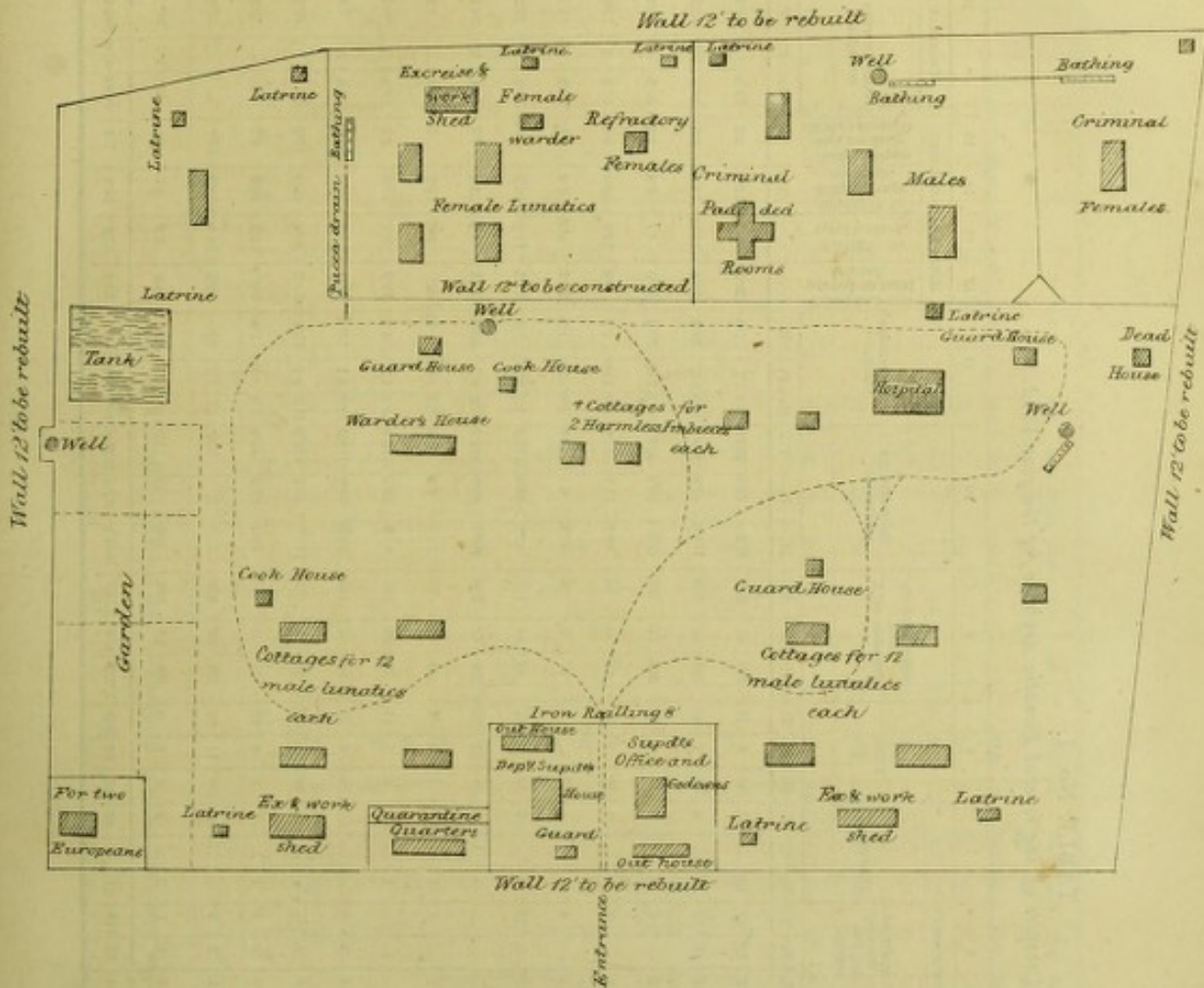
Dr. Smith's further remarks fully confirm the description given by his predecessor and by Dr. Christison as to the state of the asylum buildings when they were handed over to be used as an asylum. Alluding to a visit which he paid to the asylum in April of the year under review, he writes that a considerable amount of work in the shape of road-making, levelling, drainage, constructing a tank and a garden, had been carried out by Dr. Christison—

"But the buildings being under the Department Public Works, remained untouched. These in their then condition were to my mind so utterly unsuited to the habitation of human beings, and in so dilapidated a state from the effects of rain and destruction of white-ants, that I have no hesitation in expressing my belief that *the whole of the money spent* in their erection has been thrown away. No one is more alive to the impracticability of the original design than Dr. Christison himself, and it is due to his energy and perseverance that the present improvements are being carried out, and the mistakes in plan and construction are being remedied.

The accompanying plan (slightly modified from Plan No. 2 accompanying the report) shows what it is intended the asylum is eventually to be. Dr. Smith points out that the four cottages for harmless imbeciles are constructed to hold two men each, and that such an arrangement is dangerous for obvious reasons. The tank, too, he says, is very deep, and therefore dangerous, and he considers a fence around it very necessary.

The lunatics (he adds) are in good bodily health and condition, and are evidently well fed and cared for; indeed, the only reason I can assign for the few escapes that have taken place

is the kindly treatment they experience; and perhaps the thorough knowledge they all have that they can get away whenever they like, may act as a non-incentive to escaping.



Note.—In March 1873 the only parts of this plan which were quite completed were the block of barracks intended for female lunatics (a verandah had then been added to one side of each barrack, and the mud walls had been coped with 2 feet of pucca masonry—an arrangement which recalls to Dr. C. M. Smith's mind the "image with a head of brass and feet of clay"), two of the cottages for imbeciles, the Warder's house, and the cook-house and guard-house near it. The tank and wells were also finished. All else was doomed to alteration of some sort or other, whilst a few of the minor buildings were destined to demolition. The dividing walls had not been constructed. The hospital and all barracks were to have battens and Goodwin tiles.

In my opinion, the asylum should never have been occupied until the buildings were in a proper state for the reception of lunatics, and, speaking from an experience of 19 years, during which period I have had the management of native insanes, I feel bound to raise a warning voice, that unless measures are promptly taken to remedy the present want of security and separation within the asylum, some terrible catastrophe will occur, and no one will be to blame.

* * * * * A European matron is urgently required to take charge of the female lunatics.

* * * * *

Looking at the vast space occupied by the buildings, so widely separated from each other, and the probability that the number of patients will never exceed 100, the question is forced upon me, what will each lunatic cost Government? It must be borne in mind that the lunatics themselves will not be able to cultivate and keep in order 56 acres of land without hired labour.

As the raising of the present enclosing wall will be a very heavy item (the estimate for this alone being Rs. 34,000) I think it may still be a matter for the consideration of Government whether it would not be better at once to centralize the buildings into a more compact space, to be enclosed by a wall sufficiently high to prevent escapes, leaving the present outside wall as it is, and converting the whole area not required by the lunatics into a model farm, which would afford ample and healthy out-door employment for the lunatics, while the produce would in a great measure help to defray the cost of the institution.

TABLE No. VI.

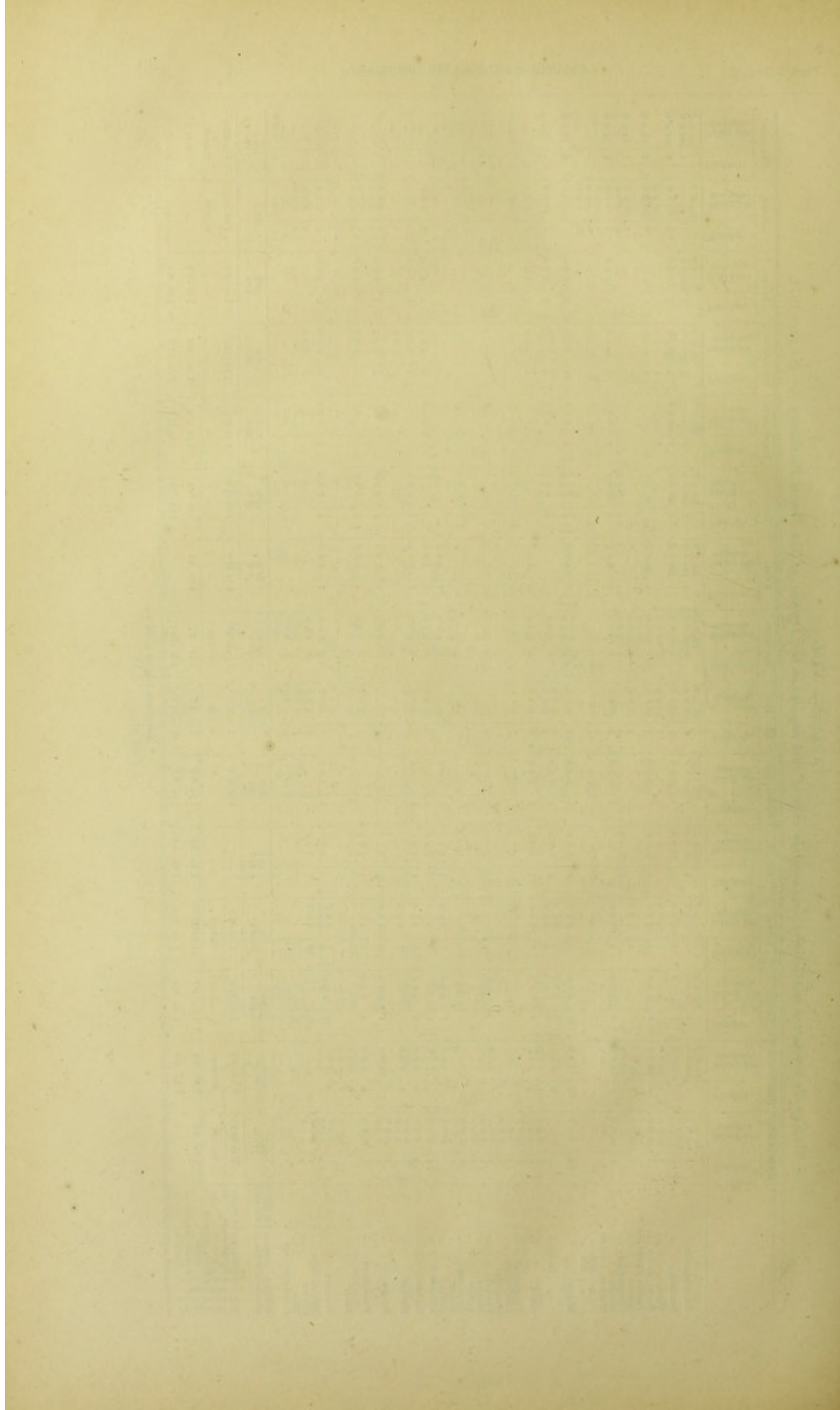
Admissions, discharges, and deaths according to age.

	Under 10.		10 to 20.		20 to 30.		30 to 40.		40 to 50.		50 to 60.		60 to 70.		70 to 80.		Above 80.		TOTAL.									
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.								
Remaining	2	5	7	144	36	180	590	146	796	545	155	700	167	71	238	62	20	82	10	13	23	6	6	1,526	446	1,972		
<i>Admitted.</i>																												
Dullandah
Dacca
Patna
Cuttack
Moydanore
Benares
Bareilly
Agra
Nagpore
Jubbulpore
Lucknow
Delhi
Lahore
Rangoon
TOTAL ADMITTED	2	...	2	67	28	95	361	71	432	335	74	409	99	38	137	41	9	50	5	10	18	33	6	6	910	225	1,135	
TOTAL TREATED	4	5	9	211	64	275	951	217	1,168	880	229	1,109	266	109	375	103	29	132	15	18	33	6	6	6	2,436	671	3,107	
Admitted under each period per cent. of total admissions
Discharged cured
Improved, &c. per cent. of treated
Died per cent. of treated
per cent. of treated

Admitted under each period per cent. of total admissions ...
 Discharged cured ...
 Improved, &c. per cent. of treated ...
 Died per cent. of treated ...
 per cent. of treated ...

TABLE No. VIII.
Showing the sanctioned establishment and monthly wage of each employed in the Asylums of the Bengal Presidency for the year 1872.

	BHOWANIPUR.		DELDUDDAR.		DACC.		PATNA.		CUTTACK.		MOYDAPUR.		BESBARA.		BAREILLY.		AGRA.		NAGPORE.		JENTPUR.		LACKNOW.		DELHI.		LARGH.		BANGORS.		
	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	Number.	Salary per mensem.	
Superintendent	1	Rs. A. P. 555 0 0	1	250 0 0	1	250 0 0	1	250 0 0	1	150 0 0	1	150 0 0	1	250 0 0	1	250 0 0	1	150 0 0	1	250 0 0	1	250 0 0	1	200 0 0	1	150 0 0	1	250 0 0	1	250 0 0	
Overseer	1	100 0 0	1	100 0 0	1	100 0 0	1	100 0 0	1	25 0 0	1	27 0 0	1	100 0 0	1	100 0 0	1	100 0 0	1	60 0 0	1	60 0 0	1	50 0 0	1	18 8 0	1	50 0 0	1	50 0 0	
Writer	1	35 0 0	1	25 0 0	1	25 0 0	1	25 0 0	1	10 0 0	1	20 0 0	1	30 0 0	1	30 0 0	1	40 0 0	1	30 0 0	1	30 0 0	1	30 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Female Native Doctor	1	110 0 0	1	10 0 0	1	10 0 0	1	25 0 0	1	12 0 0	1	10 0 0	1	25 0 0	1	30 0 0	1	40 0 0	1	7 0 0	1	7 0 0	1	10 0 0	1	12 8 0	1	30 0 0	1	30 0 0	
Matron	1	15 0 0	1	15 0 0	1	15 0 0	1	12 0 0	1	12 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	6 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Comptroller	1	15 0 0	1	15 0 0	1	15 0 0	1	12 0 0	1	12 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	6 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Jemadars, 1st class	1	15 0 0	1	15 0 0	1	15 0 0	1	12 0 0	1	12 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	6 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Warders, 1st class	1	15 0 0	1	15 0 0	1	15 0 0	1	12 0 0	1	12 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	6 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Warders, 2nd class	1	15 0 0	1	15 0 0	1	15 0 0	1	12 0 0	1	12 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	6 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Warders, 3rd class	1	15 0 0	1	15 0 0	1	15 0 0	1	12 0 0	1	12 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	6 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Keepers	68	9 0 0	32	8 0 0	30	6 0 0	17	6 0 0	6	6 0 0	4	5 0 0	12	5 8 0	7	5 0 0	7	5 0 0	7	5 0 0	3	8 0 0	9	6 0 0	19	5 0 0	4	5 0 0	6	10 0 0	
female	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Cooks	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Khanasah	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Khidmatgar	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Masakchee	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Furnish	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Joiners	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Painters	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Carpenters	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Barbers	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Huckam	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Rhodies	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Barbers	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Darwan	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Mallies	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Washerman	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Baker	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Sweepers	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Melheranias	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Coolies	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Dhal	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Cowled servant	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	1	10 0 0	
Daily average (Males & Females)	527		276 1		174 8		178		307		376		422		500 8		289		543		556		1129		332		256		104		400 0
number of lunatics & Females	123		78 1		43 9		56 4		117		61		36		60 9		76		23 5		23 8		39 0		127		13		13		400 0
Jemadars to males	1	1 to 257	1	1 to 453	1	1 to 319	1	1 to 415	1	1 to 378	1	1 to 378	1	1 to 922	1	1 to 200 8	1	1 to 280	1	1 to 84 3	1	1 to 47 8	1	1 to 112 9	1	1 to 332	1	1 to	1	1 to 52	
female	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	1	matron	
Jemadars to males	1	1 to 38	1	1 to 86	1	1 to 87	1	1 to 105	1	1 to 68	1	1 to 94	1	1 to 77	1	1 to 57	1	1 to 41	1	1 to 104	1	1 to 29	1	1 to 59	1	1 to 83	1	1 to 173	1	1 to 173	
female	1	1 to 38	1	1 to 86	1	1 to 87	1	1 to 105	1	1 to 68	1	1 to 94	1	1 to 77	1	1 to 57	1	1 to 41	1	1 to 104	1	1 to 29	1	1 to 59	1	1 to 83	1	1 to 173	1	1 to 173	
Jemadars to males	1	1 to 87	1	1 to 87	1	1 to 62	1	1 to 94	1	1 to 58	1	1 to																			



PART II.

VACCINATION.

VACCINATION IN THE BENGAL PRESIDENCY.

The general results of the year's work are noted in the following statement:—

General results of the year's work.

STATEMENT No. I.

YEAR.	AGENCY.				OPERATIONS.			COST.	
	Superintendents General.	Superintendents.	Deputy and Native Superintendents and Head Vaccinators.	Vaccinators.	Number of persons vaccinated.	Number successfully vaccinated.	Percentage.	Total cost.	Cost of each successful case.
1870-71	3	11	98	882	1,071,524	914,462	85.34	Rs. 242,533	Rs. A. P. 0 4 1
1871-72	5	10	92	1,031	1,189,376	1,017,016	85.68	253,400	0 3 11
1872-73	5	14	135	1,307	1,769,710	1,496,533	84.56	296,470	0 3 2

It shows an increase of agency, an increase of work done, and of total cost. The establishment has been augmented by 4 superintendents, 43 deputy superintendents, and 276 vaccinators. The number of persons vaccinated is in excess of the previous year by 532,096. The total expenditure exceeded that of 1871-72 by Rs. 23,675, but the cost of each successful case has been diminished by nine pies (annas three and two pie against annas three and eleven pie). The only item which exhibits an inferior result is the percentage of successful cases, which has diminished by 1.12 (85.68 against 84.56); but this may be due in great part, if not in whole, to the superior supervision which has been exercised, for, as Dr. Macgregor, Superintendent of the Benares division, observes, "the perfect system of registration now in vogue precludes the possibility of falsifying returns without detection even a year subsequently."

Statement No. II displays how far each of the provinces in the Presidency is responsible for the general results above stated. Oudh is the only province which shows a decrease in the amount of work done, whilst the cost of its establishment has increased. The statement must, however, be regarded as a highly favourable one, taken as a whole. In the Central Provinces and Rajpootana the cost has diminished, and the amount of work has increased very considerably.

Results in each province separately.

STATEMENT No. II.

PROVINCES.	PERSONS VACCINATED.		PERSONS SUCCESSFULLY VACCINATED.		COST OF VACCINATION.	
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.
Bengal	312,125	...	253,240	...	3,161	...
North-Western Provinces	114,543	...	86,162	...	11,850	...
Punjab	90,666	...	82,622	...	2,000	...
Central Provinces	13,752	...	15,132	...	...	61
Oudh	...	18,493	...	13,036	931	...
Rajpootana	9,358	...	10,098	...	...	298
Burmah	1,845	...	1,727	...	2,184	...
Hyderabad	8,300	...	4,768	...	3,908	...
TOTAL	550,589	18,493	453,749	13,036	24,034	359
Difference	532,096	...	440,713	...	23,675	...

Ratio of success to population.

The ratio of successful vaccinations to population is shown in statement No. III. Figures have not been supplied for Rajpootana and Burmah for want of sufficient data whereon to base a calculation. All the other provinces, except Oudh, compare very favourably with the preceding year:—

STATEMENT No. III.

PROVINCE.	Successful vaccination per cent. of population.	
	1871-72.	1872-73.
Bengal	50	88
N. W. Provinces	87	109
Punjab	148	189
Central Provinces	101	14
Oudh	24	13
Rajpootana	...	...
Burmah	...	...
Hyderabad	...	154

Determination as to sufficiency of vaccination.

The sufficiency of vaccination for each area has been pretty generally calculated upon an assumed birth-rate of 30 per mille of the population. The various reports contain detailed information on this point. The Surgeon-General, in his report upon vaccination in the province of Bengal for the year, enters fully into this subject so far as the areas in which inoculation is prohibited by law are concerned. He gives the following table, which shows "how much vaccination has been performed during the last season and within the last ten years, and in comparison with what appear on theoretical grounds to be necessary:—"

LOCALITY.	Population.	Number of vaccinators theoretically necessary.*	Number actually employed in 1872-73.	Number of successful vaccinations theoretically necessary. †	Number successfully vaccinated during 1872-73.	TOTAL NUMBER VACCINATED DURING THE PREVIOUS TEN YEARS.
Calcutta and Suburbs	704,750	42	30	21,142	14,357	438,337
Howrah	87,784	6	1	2,933	1,551	27,359
Deoghur	4,000	1	?	120	?	.....
Kishnaghur	36,750	2	1	802	498	5,307
Bardwan	32,321	2	3	969	48	3,823
Hooghly	34,761	2	1	1,042	1,765	22,960
Serampore	24,440	2	1	733	858	7 years 3,981
Ooterparah	4,389	1	...	131	...	.....
Berhampore	27,110	2	3	813	1,470	4 years 3,318
Moorshedabad	46,182	3	3	1,358	628	8,199
Jamalpor	10,453	1	4†	313	1,340	.....
Dacca	69,212	4	6	2,076	2,686	20,229
Darjeeling	3,157	1	1	34	1,171	8 years 13,768
Patna	158,900	9	6	4,767	9,218	39,386
Dinapore	12,974	1	1	389	216	7 years 1,664
Chuprah	46,287	3	9	1,388	1,740	10,725
Arrah	39,386	2	3	1,181	2,374	9 years 8,976
Mozufferpore	38,223	2	3	1,146	3,300	21,432
Durbungah	47,450	3	2	1,423	442	3 years 2,971
Gyah and Sahibgunge	66,843	4	2	2,005	403	2,001
Chota Nagpore	3,450,023	69	130	103,500	58,018	171,650
Bhaugulpore	69,678	4	2	2,090	603	3,112
Midnapore	31,217	2	1	936	1,190	108,620
Jungiporee	11,361	1	1	340	346	4 years 866
Kandhi	12,016	1	1	420	277	5 years 1,122
Comillah	12,948	1	2	388	260	2,981
Metropolitan circles	7,539,278	151	128	226,178	275,915	5 years 783,198

* One for every 16,666 of a town population and 20,000 of a rural population, a vaccinator being supposed to do 500 vaccinations in the former case and 1,500 in the latter.

† 30 per 1,000 of population.

‡ And Monghyr.

Various other methods of attaining accuracy as to the sufficiency of vaccination for defined areas have, from time to time, been attempted; that which promises most useful results is the system of "vaccine census." Table No. VI appended to the Surgeon-General's report, before alluded to, gives in detail all the information which has been thus collected in Bengal Proper, and which constitutes a valuable record for future use. The general results are to establish conclusions before arrived at and stated in last year's report,—a large proportion of inoculated, and of persons who had suffered from small-pox, a considerable population unprotected, and a trifling proportion of persons vaccinated. Dr. Pearson states that it was proposed to take a vaccine census in all the schools of the North-Western Provinces, but that the Educational Department, after much deliberation, came to the conclusion that it would be dangerous, and that the inquiry might empty the schools. No such objection appears to have been raised elsewhere. Dr. Lidderdale examined in this way 23 schools in the Darjeeling circle during his cold-weather tour, with the following results:—

No. of schools.	No. of boys examined.	Inoculated.	Inoculated per cent. of total examined.	Vaccinated.	Vaccinated per cent. of total examined.	Had small-pox.	Had small-pox per cent. of total examined.	Unprotected.	Unprotected per cent. of total examined.
23	1,286	556	43.25	280	21.77	74	5.75	376	29.23

which tally pretty generally with other observations.

It is to be hoped that the practice may be extended to all the provinces in Bengal, as careful observations in this direction, the accuracy of which cannot be gainsaid, cannot fail to yield valuable results.

Statement No. IV shows the amount of work done by each vaccinator—

Work done by each vaccinator.

STATEMENT No. IV.

PROVINCE.		Maximum.	Minimum.	Average.
Bengal	{ Establishment	5,302	36	2,451
	{ Dispensary	2,390	37	1,089
North-Western Provinces	{ Establishment	3,598	97	1,144
	{ Bundelcund Native State	663	30	348
Punjab	{ Establishment	2,586	53	2,538
	{ Dispensary	4,099	142	1,152
	{ Municipal and local	3,118	204	695
Central Provinces	{ Establishment	1,844	10	1,321
	{ Dispensary	3,927	414	1,427
Oudh	...	672	200	355
Rajpootana	...	...	...	755
Burmah	...	...	...	...
Hyderabad Assigned Districts	...	3,164	261	843

On the whole, the figures are to be regarded in a favourable light. Bengal has had a higher average of operations performed *per* vaccinator both by the regular establishments and locally-entertained vaccinators than during the previous year.

The Punjab establishment has produced a considerably higher average, as also has its municipal and local vaccinators; but those under the head of "Dispensary" show a slightly diminished average. The Central Provinces exhibit improved results, but Oudh and Rajpootana have fallen off considerably. The Hyderabad Assigned Districts have raised their average from 680 to 843.

The subordinates of the regular establishments everywhere take the lead, and this has been attributed to their superior training, but is more likely to be due to the systematic supervision to which they are subjected. The municipal vaccinators worked well in the metropolitan circle, but they were under the close supervision of the deputy superintendents. The Superintendent General of the North-Western Provinces is opposed to the creation of municipal vaccinators, or of any class not directly under the department, but the local Government thinks that much may be done through their means.

Regular establishment produces better results than other classes of workers.

Dispensary vaccination in the Punjab.

Vaccination in the Punjab, by means of dispensary agency, would seem to be in an unsatisfactory condition. The Superintendent General writes as follows :—

I much fear that the work of vaccinators at several dispensaries is not properly supervised.

This is certainly the case at some.

For instance, in the Rohtak district, the civil surgeon says the work was supervised by *lambardárs* and *tahsildárs*.

In the Gurgáon district 22 extra vaccinators were entertained, 14 of whom worked in ten places—towns, I presume—and six in villages, and two were appointed supervisors. Their work was evidently very badly done, for out of 4,488 cases, only 2,591, or about 57 per cent., were reported successful: none were given under the head “unknown.” It is almost or quite impossible that out of so large a number, every single case could have been seen at the time when only the result of the operation could have been certified. Moreover, unless the two supervisors were old, experienced hands, they were not competent for their post.

In the Hissár district the work appears to have been greatly scattered. At the end of each month the vaccinators brought their registers, signed by the *lambardárs*, to the civil surgeon, as a proof of their correctness. The civil surgeon, Fírozpúr, says “no supervision existed for village work at a distance, but supposed supervision through *lambardárs*, *tahsildárs* and deputy commissioner has been carried on; but the accuracy of these returns is dubious.”

This manner of carrying on work is most unsatisfactory. Sufficient has been said to show that in many cases the returns of dispensary vaccinators cannot be relied on.

In my opinion it would be better that no work at all should be done than that which is evidently unreliable. Civil surgeons should understand that they are responsible for the accuracy of the returns they submit. They should keep vaccinators at work only in those places where their operations can be regularly supervised.

In special cases where it is necessary for vaccinators to be sent to a distance, some arrangements should be made for their supervision. If vaccinators are entertained for a short period only, a plan to which I have a great objection, for good men will not offer themselves for such work, they should be thoroughly taught their work and kept under the closest supervision. It is of no use to merely teach them how to operate; they must learn to distinguish between a true and spurious vesicle, &c.

And speaking of the same class of men at Jhelam, he found them “quite incompetent to operate from ‘arm to arm,’ and altogether very ignorant in their work. They were suspended until they had learned their duties thoroughly.”

In the Province of Bengal, the dispensary vaccination agency increased greatly during the year, and much good work was done in this way, but it was of very unequal quality according to the exact means and amount of supervision employed.

Hakeem vaccinators.

Hakeem vaccinators were employed at Meerut, under the idea that they would prove useful during the recess, and that they were more likely to have access to the families of the “better classes.” Dr. Richardson, commenting upon this system, says “at first sight, and in theory, nothing could look more promising. The only fault is, that as with the scheme for educating the sons of *hakeems* as vaccinators, it entirely fails in practice.” * * * * *

The only men whose services can be secured are those who have failed in practice, and, as a last resource, are glad to earn a livelihood in any way. The very fact of their consenting to serve as vaccinators is a proof that they can be of little use as *hakeems*. They are usually old men, accustomed to an easy-going life, and utterly unfit for the hard work and harder life which are the portion of the successful vaccinator. The consequence is that municipalities at considerable expense secure the services of men who, from their failure as *hakeems*, have given proof that they do not possess the skill to enable them to secure the confidence of the people as medical practitioners; while from their age and previous habits of life they are unfit for the duties of a vaccinator.

In the Punjab some slight success attended the employment of *hakeems* who there work entirely with crusts. The resulting cicatrices were found by Dr. Bennett to be defective in quality and quantity, and the average of success was only about 50 per cent. Dr. Bennett adds :—

If these men are allowed to practise vaccination in this imperfect manner, they will certainly bring the operation into disrepute, and thus do more harm than good; but if taught to vaccinate from arm to arm, they might be of great service in spreading vaccination amongst the people, and I would suggest that this be done before they are allowed to resume operations.

Female vaccinators.

Female vaccinators worked in the Gujrat district of the Punjab, and proved an utter failure. The number of their “successful” cases was absurdly

few, and all of these were of doubtful protective power. The registers were extensively falsified, and "in almost every case examined, it appeared that the operation had been performed by a male vaccinator, who himself confessed that he had been in the habit of accompanying them at their work." The Punjab Government has directed that the employment of this class of persons is to be discontinued until some effective means of supervision be obtainable.

The percentage of success in each province separately is shown by the statement below:—

Percentage of success
in each province.

STATEMENT No. V.

Province.		Primary vaccination.	Secondary vaccination.
Bengal	{ Establishment	98.01	23.44
	{ Dispensary	63.47	61.13
North-Western Provinces	{ Establishment	88.66	52.88
	{ Bundelcund Native State	84.09	75
Punjab	{ Establishment	98.19	42.2
	{ Dispensary	79.64	64.36
	{ Municipal and Local	77.33	60.02
Central Provinces	{ Establishment	91.71	.....
	{ Dispensary	87.61	61.64
Oudh ... ..	.....	81.4	53.72
Rajpootana ... ..	.....	80.85	82.83
Burmah ... ..	.....	72.59	.....
Hyderabad Assigned Districts ... ..	.....	82.6	.....

As with quantity, so with quality, the regular establishments carry the day everywhere. Bengal and the Punjab establishments head the list with the highest percentage of successful primary cases, as they did last year, but the improved results by this agency have been uniform throughout all the provinces. The percentage of successful dispensary cases in Bengal and the Punjab has much diminished, but the Central Provinces show an improved result.

Secondary vaccinations, on the other hand, show a marked and uniform falling off of success, irrespective of the kind of agency employed; but it is difficult to estimate the precise value of figures under this head, as the term "re-vaccination" has been frequently erroneously construed by the subordinates of the establishment. Re-vaccinations.

The Superintendent General of the Central Provinces observes that "the cases of true re-vaccinations have been very few, and, from misconception of the meaning of the term, many of the returns have contained errors under that head which have now been corrected. Cases of failure, followed by a second operation after a few days, had been given as re-vaccinations. * * * At Jubbulpore, all policemen, prisoners, lunatics, and candidates for Government employment are vaccinated, irrespective of their having had small-pox; and of these as many as had unmistakable marks of small-pox or vaccination have been returned as re-vaccinated." So in the North-Western Provinces, Dr. Macgregor of the Benares circle writes:—

Re-vaccination.—This has been discouraged as much as possible, as vaccination is too recent an institution in this division to require a repetition of it. Many do so in order to swell their list of operations. Even those deeply pitted with small-pox are said to be re-vaccinated when operated upon for the first time! Speedy re-vaccinations, or the primary vaccination of those who are marked with small-pox, do great harm to the cause. *Malees* point out cases of the former as an evidence of the insufficiency of our "ticca," as compared with their own, which they maintain gives a life-long protection, and the latter makes the people suspect some covert meaning.

Sex of the vaccinated.—The uniformity which the ratio of the sexes has borne to each other for some years past, bears, as was observed in last year's report, strong testimony to the accuracy of the returns. Of the total number vaccinated, the statement shows 53.2 per cent. to have been males and 46.8 per cent. females. The figures for last year were 53.4 males and 46.6 females. The rates for each province, as compared with that of the previous year, and of the census returns, are arranged in statement No. VI. Sex of the vaccinated

STATEMENT No. VI.

PROVINCES.	PERCENTAGE AMONG THOSE VACCINATED OF			
	Males.		Females.	
	1871-72.	1872-73.	1871-72.	1872-73.
Bengal	54.6	53.3	45.4	46.69
North-Western Provinces	50.1	50.16	49.9	49.9
Punjab	54.6	54.51	45.4	45.49
Central Provinces	55.5	55.87	44.5	44.13
Oudh	60.5	57.41	39.5	42.58
Berars	51	49.96	49	48.2
Vaccine establishment	51.6	51.69	48.4	50.04
Dispensary vaccination	58.9	58.28	41.1	48.31
			41.1	41.72

The proportion of the sexes in Oudh is seen to be very much more satisfactory than was the case during the previous year, but no comment is made in the very brief report to explain the difference. In the North-Western Provinces, the number of females exceeds the number of males in every circle, with the exception of Benares, where the proportions are inverted. In the Hyderabad Assigned Districts there is a marked increase in the number of operations performed on females. The newly-created Eastern Bengal circle started with an excess of females.

Age of the vaccinated.

Age of the vaccinated.—A falling off in the number of those who were under one year of age is not the most hopeful feature of the year:—

STATEMENT No. VII.

PROVINCES.	PERCENTAGE AMONG THOSE VACCINATED OF PERSONS			
	Under 1 year.		Over 1 year.	
	1871-72.	1872-73.	1871-72.	1872-73.
Bengal	13	10	87	90
North-Western Provinces	33.9	25	66.1	75
Punjab	45.4	36.95	54.6	63.05
Central Provinces	26.8	31.96	73.2	68.04
Oudh	17.5	24.94	82.5	75.05
Hyderabad Assigned Districts	14.8	17.22	85.2	82.78
Establishments	28.2	20.5	71.8	79.5
Dispensaries and local	29.3	31.2	70.2	68.8

Of the total number, 75.2 per cent. were over, and only 24.8 under one year of age. In 1871-72 the figures were 71.3 and 28.7. The Central Provinces, Oudh, the Hyderabad Assigned Districts, and the dispensaries, have given improved results. The percentage of those under one year in the Province of Bengal is miserably small—only 10—and this is chiefly due (though the number never was large) to the falling off in the dispensary vaccination, and the bad start which the newly-created circle (Eastern Bengal) has made in this respect. Of the total number of primary operations performed in the North-Western Provinces, only 22.8 per cent. were on children under one year of age; during the previous year the figure was 34, and the falling off is common to all the circles. The proportion of children under one year of age receiving vaccination in the Benares circle, as compared with those above that age, is singularly small. The Superintendent states the explanation to be that in inoculation it is not customary to perform the operation in very early years, and the parents apply to vaccination the same ruling.

Caste of the vaccinated.—Statement No. VIII speaks for itself. The only point which needs special mention is the fact that the proportion of Mus-<sup>Caste of the vacci-
nated.</sup> sulmans has increased in all the provinces, except the North-West, which shows a slightly lower figure.

STATEMENT No. VIII.

PROVINCES.	PERCENTAGE AMONG THOSE VACCINATED OF			
	Christians.	Hindoes.	Musulmans.	Other castes.
Bengal	.34	52.41	39.7	7.55
	.06	64.8	31.3	3.7
North-Western Provinces	.28	25.01	14.93	59.78
	(?)	84	14 ^a	(l)
Punjab	.04	38.34	49.48	12.14
	...	48	52	...
Central Provinces	.15	70.12	4.8	24.93
	...	95	2.6	...
Oudh	1.25	77.77	20.96	.01
	...	88	10	...
Hyderabad Assigned Districts	.03	75.37	5.12	19.47

In some districts sickness interfered seriously with the work. Fever prostrated several of the vaccinators of the second and third metropolitan circles, and cholera appeared on some of the working grounds in the 24-Pergunnahs of the Province of Bengal. In the Bhandara district of the Central Provinces, fever was also the cause of a falling off in the number of operations. At Sambalpoore, owing to an outbreak of cholera which followed the march of a native infantry regiment through the district in February, the villagers would not, through fear, admit the vaccinators while the disease was in the neighbourhood. So at Midnapore and some other places sickness impeded active progress.

Sickness impeding work.

The systems of vaccinating, which have been adopted by the various provinces were fully described in last year's report. It need here be simply noted that further evidence displays more clearly than ever the superiority of the "Calcutta system" of concentrating the forces and vaccinating one area thoroughly and completely before proceeding to another. This procedure is carried out in its entirety in the metropolitan circles, Ranchi and Eastern Bengal circles, of the Province of Bengal. In the other portions of the Province, the principle of working at small areas with close supervision is always kept in view so far as a deficient staff and other considerations permit. In Oudh, concentration has, too, been recognized. Dr. Sutherland writes:—

Various systems followed.

The system pursued was as follows:—Three vaccinators, the most skilled, and those having the most knowledge of the localities, were sent to each district with instructions to work within a radius of five miles around the civil station, so as to ensure that their work could be frequently inspected by the civil surgeon and others. Each was granted a certificate, containing a careful descriptive roll of himself, stating that he was an authorized vaccinator, and requesting any Government officer, or other person interested in vaccination, to make a note in the vaccinator's book, whenever he took an opportunity of showing his work. Additional vaccinators were posted to the cities;—to Faizabad 3, to Sitapur 1, to Rai Bareilly 1, and the remaining 10, including 6 assistants and the candidates in training for vacancies, were left at Lucknow under the deputy superintendent. I personally inspected the work of all the vaccinators during the season, and made a note in most of their books at the time. I found the quality of vaccination generally very good, and met with none of bad quality. With the amount generally I was disappointed, but in most instances gratified to find that the people seemed to understand the object of it and to have taken it voluntarily.

In Burmah the operations of the vaccinators were confined to large towns, where the results of their work could be examined easily.

The dispensary system and its results have been already commented upon.

The system of the North-Western Provinces is compared with that of other parts of India in the following table, which is given by the Superintendent General :—

PROVINCE.	Average number per vaccinator per season.	Average per cent. success in primary cases.	Average per cent. success in secondary cases.	Cost per successful case.	REMARKS.
				A. P.	
Bombay ...	1·411	94·8	70·4	6 1	
Bengal ...	1·306	90·8	76·3	5 2	
N. W. Provinces ...	1·194	88·1	63·2	4 6	
Central Provinces ...	1·112	90·6	89·8	2 1½	Superintendent's pay not debited to Vaccination Department.
Punjab ...	1·002	87·1	60·4	2 4	Cost will increase when the two Superintendents attain to higher pay of rank.
Madras ...	·797	90·4	63·8	5 10	
Oudh ...	·677	79·7	64·7	3 9	Superintendent's pay not debited to Vaccination Department.
Burmah ...	·521	70·5	...	9 4	

Vaccination in cantonments of the North-Western Provinces.

Military cantonments in the North-West did not prove a congenial soil whereon to work. The Government resolution upon the report for the Province says :—

"It has been observed that four cantonments keep up vaccinators, but there are many that do not; and it is reported that the appointment of a vaccinator for the cantonments of Meerut and Muttra was negatived by the military authorities, although recommended by the Superintendent. On this subject His Honor ventures to think that where there is a considerable population massed together within cantonments, the duty of providing the means of vaccination is incumbent on the cantonment committee, and payment for this should be made out of cantonment funds. It is even more important in the case of bazaars within cantonments than elsewhere, as the health of the troops is directly endangered by the placing a large unprotected population in close proximity to them."

The Superintendent of the circle writes :—

The Meerut sudder bazaar contains a native population of, I am told, about 16,000 persons; but, except that a Government vaccinator was employed in it under my direction—when I had ascertained that small-pox prevailed in the neighbouring city of Meerut, I am not aware that anything was done by the military authorities to protect those by means of vaccination.

Attitude of the people.

Attitude of the people.—Everything that the Superintendents have to say upon this subject must be full of interest, and the present year's reports are not wanting in this respect. It is not going too far to say that nowhere throughout the vast extent of the Bengal Presidency does actual active opposition exist.

Bengal.

In all towns, but more particularly in Calcutta, class antagonism to the system is more or less met with; but this question will be discussed presently. In the province of Bengal, the districts of Burdwan and Beerbhoom have shown the least friendly spirit towards vaccination. In the former the people seem determined to believe that taxation is contemplated as a result, and the Superintendent states of the latter that "much prejudice against vaccination exists, and it is only low caste people and domestic servants who will submit to the operation." In Chota Nagpore strong prejudice has given way to mild resistance or indifference. In parts of Rajmehal there is still opposition.

North-Western Provinces.

In the North-Western Provinces "there is no feeling of genuine hostility anywhere. The attitude is either one of apathy, ignorance, suspicion, or impudence."

Punjab.

The Government resolution upon the Punjab report observes :

"It is satisfactory to note that, as a rule, no opposition was offered, but, on the contrary aid and assistance were rendered by the Chiefs of the States visited, and especially by His Highness the Maharajah of Patialla and the Ranas of Bajji and Koti."

The city of Delhi has ever been a point of difficulty; but in the city of Ludianah, which formerly had an unenviable notoriety, "there was nothing like the amount of opposition that there used to be in former days," whilst in several places of the district "the people had invited the vaccinators to go to them." Of Jullunder it is reported that "the people in the villages near the town and cantonments are a good deal opposed to it, but not so much so as formerly; and in the city, where not long ago there was great opposition, considerable numbers have been operated on."

The Chief Commissioner's resolution on the report of the Central Pro- Central Provinces. vinces records :

"It is satisfactory to learn that the objections to vaccination are year by year growing fainter. In fact, it would seem that what has now to be overcome is apathy and indifference, and not deep-rooted prejudice. In Betul and Chhindwara, men of position, who had formerly either actively or passively opposed the measure, lent their support to it, and the same cheering signs have no doubt appeared elsewhere. The apathy and indifference, however, of the masses give way in the presence of the disease, and they are then eager that their children should be vaccinated."

The Superintendent says of Sambalpoore :

"The people, as a rule, eagerly seek the services of the vaccinator."

Of the state of feeling in Rajpootana there is not much information, but Rajpootana. "the apathy and obstinacy of the people" and "considerable opposition in the city of Jeypore" are spoken of; but Dr. Moore writes: "My experience leads me to believe that by patience and tact an European at least might easily vaccinate nearly every child in nearly every village in Rajpootana."

Dr. Aitchison, writing of Ladakh, says that Dr. Cayley had in former years Cashmere. rendered the practice of vaccination popular, and that he was received gladly by the people who everywhere were anxious for the operation. In eleven months he vaccinated 1,621 persons. He also mentions the interesting fact, that at Sirinagar, in Cashmere, there is a man who performs vaccination out of pure charity to the people.

Some classes are particularly troublesome to deal with. Dr. Charles gives Particular classes which are troublesome. a graphic account of some of the difficulties he has had to encounter in Calcutta, and which he met with consummate tact. Here the ultra orthodox and intensely bigoted Hindus of the Khansiparah quarter can only be gained over by overcoming the objections of a leader, "a man of great wealth, intense religious feeling, and little education;" and, before success was obtained, innumerable devices and several years were exhausted. There the "butcher class" resents moderate importunity with active hostility, and is only to be assuaged by delicate coaxing for years; whilst most difficult of all would appear to be the inhabitants of Burra Bazaar, "a heterogeneous class of up-country men," who, not being bound together in a common community, have to be attacked individually. One has to be treated in one way, one in another; one can only be reached through some potent friend, another can only have his own feelings on the subject over-ridden by the landlord of his house. A considerable number will listen to no arguments but those addressed to them by the business firms with which they hold relations. To study thus how individuals can be best reached involves no little labour, and, having once got the information necessary, to go and make an ally in the necessary quarter requires so much time that only the emergency calling for it justifies such an expenditure.

The Ferazees, a peculiar sect of Mahomedans, who, being extreme fatalists, oppose both vaccination and inoculation as being against the will of God, are perhaps the most invulnerable of all.

Wherever the Buneah caste predominates, there vaccination languishes.

It is admitted that throughout all the provinces the inhabitants of towns are very much less accessible than those of rural areas, and this is chiefly attributed to the knowledge the citizen has of the exact powers possessed by the vaccinators under the law. Dr. Charles gives some interesting information on the point. As regards numbers vaccinated by each operator, the towns compare very unfavourably with rural districts.

Certain times, and seasons too, interfere with the work of vaccination. A Particular periods which interfere with vaccination. late Doorga Poojah, for instance, encroaches upon the working season. The *hoolee* festival has been taken advantage of. Dr. Watson, Superintendent of the Allahabad circle, mentions another instance:—

While visiting the *tehsel* of Kurakut, I had an interview with about 60 or 70 of the leading men of the eastern part of the *tehsel*—the Thakoors of Dobie. These men happen to have come into Kurakut for the day, and the *tehseldar* very kindly gave me an opportunity of seeing and speaking to them. The Thakoors promised to give every assistance to any vaccinator who visited their part of the pergunnah, making, however, one curious stipulation. They said, they could not allow their children to be vaccinated during the month of Poos (December-January), and the vaccinator must not be sent to them till Magh (January-February). I, of course, agreed to their proposal, and directed the vaccinators of Kurakut to remain in the western part of the

pergunnah during the current month of Poos, and to go to the villages of the high caste Thakoors, in the eastern part, as soon as possible after the commencement of the lucky month of Magh. I have never heard of this particular superstition in any part of my circle except Jounpore; but I have repeatedly heard of it in all parts of that zillah.

So also Dr. Macgregor writes:—

There is a period of forty days in the year, called *kurwas*, which is much observed by devout Hindus. It is a movable period, and this year it extended from the beginning of December to the middle of January. Nothing of the least importance is initiated in that unlucky period. They purchase no bullocks nor clothes, raise up no walls nor build doors, and the *charpoy* is not even repaired. Vaccination unfortunately comes also in the category of things forbidden, and no persuasion can avail with a very strict Hindu.

Summary of general state of feeling.

It is rendered abundantly apparent from the reports that neither real religious prejudice, nor active hostility, step in anywhere as obstructions in the road towards success; but apathy, ignorance, superstition and suspiciousness are the real obstacles which have to be uprooted.

The native of India has a particular objection to his name being written down on paper. He invariably connects the act with the idea of taxation of some kind, and it is frequently with the greatest difficulty that he can be persuaded otherwise. So prevalent is this belief throughout the district of Burdwan, that the Superintendent had often to reply to the query whether the amount to be levied was to be one rupee or five rupees.

Superstitions which impede vaccination.

Numerous instances of the various superstitions might be given, but a few will suffice. Dr. Charles, in Calcutta, has endeavoured to stipulate for vaccination as a condition of rendering his professional services to men who occupy the positions of leaders of the people, and has instanced in his appeals the submission of certain men of the most revered castes and of great piety; but he has been met with the reply that such holy men can do anything, but that those whom he addressed could not risk the damnation of their souls for the sake of protecting their bodies from small-pox.

The people of the Eastern Bengal circle consider it to be inconsistent that vaccination, without causing an eruption, can protect from small-pox; nor can they conceive why Government should spend so much money without the prospect of substantial return, and they dread the imposition of a tax.

The Mahomedan belief that vaccination is merely a ruse on the part of Government to discover the birth of the infant in whose veins milk instead of blood is to flow, and who is to free the country of the infidel, is more widely spread than is supposed. Then there is a superstition, confined certainly to the more ignorant of the people, chiefly of the North-West, that the operation is a sacrifice to the railway god—a means whereby to secure vital energy or “veil,” or spirit, in the shape of motive power for the engine.

In Allahabad, which is a holy city in the eyes of the Hindus, it is stated “vaccination will only be accepted at the hands of a Brahmin.”

Dr. Macgregor states that the “most common complaint one hears of is the ‘irreligious’ character of our vaccinators. We are said to encroach upon the prerogative of the goddess, and do not conciliate her with worship,” after the invariable manner of the *poojah* of the ancient inoculators.

The civil surgeon of Burdwan states that “the people cannot be induced to give up their crusts, lest some fearful calamity should befall them; during my tours of inspection I have over and over again observed numbers of children and even adults present themselves with bleeding arms, apprehensive that the crusts would be taken by me; they tore them off and threw them away.”

Superstitions which assist vaccination.

But most remarkable of all is the superstition of the people in some parts of the North-West, mentioned by Dr. Richardson; but which is, however, more calculated to promote than to retard vaccination. He believes that principally girls are brought forward in infanticide villages in the hope and belief that some evil will accrue. It is curious that belief in the fatal properties of

vaccination should prove a means of its promotion and success. He writes:—

But it is a curious fact that in all districts most notorious for infanticide, such as Mynpoorie and Etawah, the number of girls greatly exceeds the number of boys vaccinated. In the returns for Mynpoorie, the girls are more numerous than the boys by a fifth, and in Etawah by a seventh. When this is taken in conjunction with the circumstance that in these provinces the males exceed the females in number by more than a tenth, the proportion of the sexes vaccinated is still more remarkable. That the returns are correct, I have no doubt. In some villages, in the Allyghur district particularly, I was surprised to notice that almost every child brought for inspection or vaccination was a female.

Another curious instance of ignorance proving an aid is mentioned by the deputy superintendent of the Sonthal pergunnahs :

A circumstance occurred which facilitated the introduction of the work here. A report of small-pox (which afterwards turned out to be false) was made by the inhabitants of a certain village named Bissenpore, in the interior of Pakour. I went there, accompanied by one of my vaccinators, and found that a few deaths had occurred from dysentery and fever, which certain people of the village attributed to small-pox. They said that an inoculator, named Megh Roy, had performed inoculation in their village last year; that this had not given rise to the usual eruption of small-pox, which had accordingly lain latent in the system, and now appeared in the shape of bloody discharge from the intestines, and so forth. I did not think of at once disabusing their minds of this false impression, but took advantage of it for the purpose of introducing vaccination and winning over to our side the inoculator named. I offered the people hopes of protection from the dire mortality with which they were threatened, and they accordingly agreed to my proposals.

It would be weary to recount the numerous ruses, and the oft-repeated and various palavers which had to be adopted to win over some important personage, or some high caste villager, to whom the people look up as a leader.

Seeing that the people have from time immemorial been taught to look to their superiors for guidance and that implicit obedience is expected of them, there cannot be a doubt that one of the most hopeful aids is to be found in the influence of their leaders and rulers, and the authorities in charge of the department have not, with the solitary exception of the Superintendent of vaccination in Oudh, been slow to invoke this powerful medicine with patience, tact and perseverance. It is singular that Dr. Sutherland's experience should induce him to oppose the slightest appearance of official or other influence, but the results attained in his province are not such as to commend his doctrines to others. Of the value of the legitimate support and influence of the civil authorities, the reports of the season's working are profuse. Of course everything depends upon the nature of the influence exerted, but there are certainly very few district officials in India who would permit the use of undue influence within their districts. The kind of influence necessary is that of patronage, and not of despotism. It is described in para. 63 of the report of the Central Provinces :

The Commissioner of the division has recommended "that the more important men of position, such as the honorary magistrates, should be spoken to on the subject by the deputy commissioner, and that in future years, before commencing operations in any locality, the more influential *malguzars* of the neighbourhood be called in by the deputy commissioner, addressed personally on the aim and object of vaccination, and informed that while Government will not actually force vaccination on any one, yet that they will be held responsible that the vaccinators shall be free from molestation and shall be allowed a fair and free field to do what they can.

As a practical example of the good which can thus be worked, the following quotation shows:—

Ghazepore.—This district is far ahead of the rest as regards the numbers vaccinated. It has an increase of 4,634. The Collector, Mr. Saunders, gave every assistance both in supporting vaccination and in discountenancing inoculation, which has its hot-bed in Ghazepore. He always had the *tehseel* vaccinator in his camp, to whom he gave every encouragement in approaching the most influential classes. I cannot avoid mentioning here how all-important the moral support of the Collector is with reference to vaccination. The *tehseeldars* and lower official grades take their cue from their chief, and this influence penetrates even to the village *putwaree*. Vaccination has but a small chance of success when it is mingled up in the same sentence, in a Collector's exhortation, with general sanitation, which, to a villager, means nothing; and with cholera pills, which, from indiscriminate exhibition, bring more dis-

Value of the support and influence of native gentlemen and of civil authorities.

credit on English medicine than any good ever done by them can counterbalance. I mention this because I have frequently heard natives hint that vaccination was in the same category of inefficiency with cholera pills. But when the Collector takes the same amount of interest in vaccination *per se* as Mr. Saunders did, the outturn of work will amply repay it.

Again, whilst accompanying the municipal vaccinators of Mozuffnuggur through the town about the 1st December, I found that the only persons being vaccinated were a few *chamars* and sweepers in the suburbs. After an unsuccessful attempt to prevail upon some of the better classes to have their children brought, I explained the position of affairs to Mr. Williams, who undertook to see what would be done. From this time no further difficulty was experienced. Mr. Williams is well known to the people, and no sooner did he show them, by visiting the town with the vaccinator, that he took an interest in vaccination, than all classes readily came forward to assist. * * *

In Boolundshuhur district vaccination owes its success in great part to the interest taken in it by the magistrate. It was not until he had impressed the municipalities of the four large towns in his district with a sense of their duty in regard to this matter that the municipal vaccinators could obtain even a footing.

Native rulers have, in many instances, either been induced to oppose inoculation or to assist vaccination, and upon their views whole territories have acted. Whilst an ignorant native utters the expression "*ma bap*," which in itself proclaims the theory of their lives, we should indeed be foolish to ignore such wholesome influences.

Influence of the civil authorities if withheld does negatively a positive harm.

On the other hand, if the civil authorities do not interest themselves more or less, they are doing vaccination a positive harm, and they may passively, and without appreciating the fact, actually thwart the object of Government. Dr. Watson writes—

Some magistrates take unnecessary pains to assure the people of their districts that vaccination is entirely voluntary. It is of course true that the present system of vaccination is a voluntary and not a compulsory one; but repeated assurance of the fact from magistrates of districts is apt to prove injurious, by leading the people to think that the magistrates disapprove of vaccination.

Effects of prohibition of inoculation.

Wherever inoculation has been prohibited by law throughout Lower Bengal (by Act IV of 1865), the most marked improvements have resulted. This subject has, however, been so exhaustively treated by Dr. McLeod in his memorandum on the subject in last year's volume, that it need not be discussed here. In many places to which the Act does not extend, the people have laboured under the impression that inoculation is prohibited by law, in consequence of its being discountenanced by the authorities, and by this proper exercise of influence a great deal of good has resulted. In the reports of the year there are contained the details of many outbreaks of small-pox which were traced to the practice of inoculation. There are also numerous instances of outbreaks having been satisfactorily stamped out through the agency of the department. The Surgeon-General is of opinion that Act IV of 1865 might advantageously be extended to many municipalities and stations where a sufficient vaccine agency already exists, or might easily be provided. By Act XXIV of 1868, inoculation was prohibited in Kumaon and Gurhwal in the North-Western Provinces, and the result has exceeded the most sanguine expectations. Wherever inoculation has been legally forbidden, the people have readily accepted vaccination in its stead. The experience which has been gained upon this point will doubtless lead to the extension of the prohibition to all the provinces of India in due time, now that it has been demonstrated that violence is not thereby done to the religious feelings of the people. The Surgeon-General in his comment upon the report of the Sonthal Pergunnahs observes—

Until inoculation is prohibited by law, the work of the establishment will be liable to derangement from two causes, namely, the lingering fondness for an old custom, and the interested efforts of the inoculators to disparage vaccination, and the necessity of deputing the vaccinators to protect communities among whom small-pox has been lighted up by inoculation.

This remark may be widely applied, and when it is further considered that the people are not slow to appreciate the force of the law, that their religious feelings are not really engaged, that inoculation is a certain means of perpetuating the disease of small-pox, and that the vaccine department is

ever ready to come forward with the means of protection,—the case against inoculation is stated.

Dr. Macgregor gives a most interesting account of the operation of inoculation and its attendant rites, as performed in the North-Western Provinces. He writes—

The operation of inoculation and its religious rites described.

When the inoculating season reverts, the *malee* goes to his customers, and a lucky day is fixed upon for the operation. Among the better classes a lucky day is chosen also for vaccination. Each village has its own inoculator, who is known and treated as a kind of family physician in small-pox cases. The evening previous to the operation the house is well purified and plastered with a mixture of cow-dung and clay. Judging by the coarseness of the iron prong the *malee* employs, one could easily believe that two persons are required to moderate the child's struggles during the long and painful process.

The operation finished, the *malee* receives his fee and departs for that day. On the third day he returns and exhibits to his patient some assafœtida and mustard oil, with bruised small-pox crusts. It is, however, when the feverish period arrives that all his energies are called into play, as the parents trust in him for the safety of the child, and his authority is supreme in the household of even the proudest zemindar. He gives a variety of nostrums, sits down—native fashion—by the child's bed, and sings literally by the hour songs to "Seetla," the goddess of small-pox. He accompanies the melody on the native "cymbals," and the women of the household join in the chorus. "Visit, oh Seetla! this secluded dwelling, stand at the door and give this child the gift of health. Much have we worshipped thee for its sake before its birth; we have worshipped at Prag and Juggernath, and bathed in the sacred Ganges, and have made obeisance at all thy shrines. We will paint thy face with 'roree' and pour into thy lap sweet-smelling spices. Then go, and swing thyself happy on thine own *neem* tree, that so all in this house be happy likewise." This is a literal translation of a portion of a "Seetla" song. If the fever does not seem to abate, a goat is enticed to the bed-side, its forehead is streaked red with "roree," the child's hand is placed on its head, and it is led out into the jungles to be set free. Scandal has it that the *malee* contrives to regain hold of the scape-goat afterwards for a less "spiritual" purpose. During this period the people of the house are forbidden to bathe or wash their clothes, to eat any rich food, to wear shoes, give alms or fire, or to mingle with their neighbours in the bazaar. These restrictions, on the whole, are sensible; and if acted up to, inoculation would not lead to such disastrous results as it so frequently does.

About the fifteenth day, when the child's safety is assured, the great *pooja* occurs. The house is a second time re-purified and plastered, and in the evening the *malee* arrives with his cymbals. He resumes the song, and is joined in the chorus again by the women as they cook the materials for the coming feast. When the food is prepared, a *gurra* of water is placed close to the wall, and a square place marked in front of it, as high caste Hindoos make when they cook their food.

In this space are placed food and sweetmeats of various kinds in seven vessels of brass or earthen-ware. They could not explain why the number was always seven; but the Jewish preference for the same number, as expressive of completeness, is significant. Over the *gurra* is thrown a reddish-yellow cloth, which is covered with *neem* and mango leaves. Chaplets of flowers are suspended around it, and in front is placed a lamp over which *ghee* is gently poured—"so that the odour arising therefrom may please the nostrils of Seetla." Pieces of cloth, brass vessels, money and jewels, are deposited in front of the lamp. These are the offerings of the parents to the goddess, as represented by her high-priest the *malee*, who continues his songs until he is satisfied with the contribution; when this is the case, he pats the child on the back (which is the expression of his satisfaction), sprinkles some water from the *gurra* on its face, and tells it to "go and be happy."

Some of the food he distributes to the child, its parents, and such others as may happen to be present on the occasion; and from every recipient thereof he expects a reward of some description. Many give the rings off their fingers for a small portion of this consecrated bread. The *malee* then collects the spoil and takes his departure, while the *gurra* is thrown into the nearest river.

Dr. Garden, in speaking of the operation of inoculation in the Punjab, says—

Vaccination after inoculation.

"They (the inoculators) are said to operate very well, but I am sure, from the excellent way in which vaccination succeeds on many who have been comparatively lately inoculated, that it is attended in a large number of instances with no result, excepting that of causing very great pain and suffering to the unfortunate infant."

In the Province of Bengal the employment of ex-inoculators promises most hopefully, but not so elsewhere. In the Ranchi circle there are now no less than one hundred and seven of those men at work. In the Sonthal Pergunnahs 5 were instructed and 25 submitted returns. In the Eastern Bengal circle some inoculators considered it better policy to adopt the trade of vaccina-

Ex-inoculators.

tion, although the act prohibiting inoculation has not yet been extended to this area.

Dr. Wood writes—

“Twenty-eight ex-inoculators from Maunbhoom and the east, or fifteen more than last year, have been under instruction during the season. They are usually unable to read or write, and from most of them no returns will, in future, be had, unless they get assistance from the better instructed among the villagers. It has always been the custom of these men to come to Lohardugga during the working season and depart in the beginning of the hot weather. Seven of the new men went away after a short time dissatisfied with having to wait till they had learnt to vaccinate, for they had no funds to carry on with.”

Ex-inoculators did 21,684 successful cases this year in the Ranchi circle against 12,842 last year. The percentage of success in Singhoom and Maunbhoom was 86.5 and 70 respectively—“not high rates, but, considering the operators, they cannot be considered disappointing.”

The deputy superintendent of the Sonthal pergunnahs points out some difficulties connected with Government vaccinators and ex-inoculators working in contiguous localities; and the Surgeon-General observes “there is much force in what he writes, and until inoculation is prohibited by law, and the people are convinced that vaccination is better, the difficulties which he describes will continue to exist.”

The inadvisability of allowing these men to practise in the neighbourhood of Government vaccinators was hinted at in my last year's report. This has, however, been more strongly felt this year. These inoculators are courted by the people chiefly upon the supposition that they were practising their old method, and they make it their interest to keep up this impression. It is on this account that they generally operate on the fore-arm, especially in males. They cannot, through fear of losing their practice, give out that they were carrying on vaccination. They might have a few staunch clients, who, out of veneration for them, might submit to anything they do. But still people of low means generally look to their purses more than to anything else, and when they come to know that these men were carrying on the same sort of work for fees, which the Government people perform gratis, they are apt to declare themselves for the latter, and even to deny the fees to which the inoculators are entitled.

On the other hand, if these inoculators are allowed to have their own way, the interests of vaccination are likely to suffer a great deal. The people have still a great veneration for the time-honored custom of inoculation, and when they see their old inoculators practising it (as they are made to believe) amongst them, and that, in defiance of all the measures taken by Government (as they imagine) for its suppression, they make bold to decry vaccination and to deny it all access to their villages. Thus I do not think it a good policy to allow inoculators to practise vaccination in the neighbourhood of Government vaccinators. The interests of both are liable to suffer to the great detriment of vaccination. I had, however, tried to obviate this difficulty by placing these two classes of vaccinators far apart from each other. But this again is not always practicable without sacrificing the interests of either; for the inoculators think it a great loss to go and work in distant places, leaving their old clients, and, on the other hand, vaccinators cannot be told to leap over to a distant place without interfering with the gradual and steady progress of vaccination. In order that vaccination might be self-supporting, it must first have a firm hold upon the confidence of the people, which cannot be the case if it is allowed to be interfered with by any disturbing cause however slight. I do not at all mean to deny the importance of allowing inoculators to practise vaccination, but I am only pointing out the disadvantages which result from allowing these men to practise in the midst of Government vaccinators. I earnestly hope that these difficulties may in future be overcome by assigning to either class different areas in separate sub-divisions, and by at the same time prohibiting inoculation.

In Burmah the inoculators were supplied with lymph, and used it largely with very good results. But the work of conversion does not prosper in other regions.

The Superintendent-General of the North-Western Provinces says that “we get but the scum of the class; any really intelligent and respectable inoculator can earn far more by private practice than we can ever hope to give him. He lives in an atmosphere of perpetual ghee, fees and song. Why should this man wish to join our department? What have we to offer him in exchange for these realities, but small pay, hard work, oftentimes suspicion and mistrust, and ill-usage as an occasional possibility.”

There is ample evidence that this class can be bought over. Dr. Lidderdale is of opinion that most of the inoculators of the Darjeeling circle would come forward for instruction if they received payment. Dr. Purves, of Monghyr,

Ex-inoculators in the North-Western Provinces.

Advisability of payments to ex-inoculators whilst under tuition.

considers payment necessary. Dr. Wood states that inoculators who had come for instruction, went away after a short time dissatisfied; but, "had a small sum been allowed for maintenance, this might have been avoided."

The Surgeon-General expresses his opinion as follows concerning the question of paying inoculators. Writing of Singbhoom and Maunbhoom, he says:—

It has now arrived at a stage at which it may be pronounced an institution, and all that appears to be necessary now is to provide the men with a small subsistence allowance whilst they are learning, and to appoint a vaccine inspector to each district, whose duty it will be to assist the men in establishing a good vesicle, to supervise and aid them in their work, to verify their returns, and ensure the quality of their vaccination.

The year was not remarkable for the spread of epidemic small-pox in the Province of Bengal—the total number of deaths recorded was 4,525, being $\cdot 07$ per 1,000 of population. The deaths from small-pox in the North-Western Provinces are thus tabulated in the report:—

1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	Grand Total.
104,395	66,312	39,715	29,983	90,770	23,564	38,449	30,073	423,261

In the Punjab there were 23,639 deaths against 25,611 during the previous year.

Small-pox caused 845 deaths in Burmah, but there was no epidemic outbreak. In the Central Provinces the disease was epidemic in several places; the total number of deaths was 5,237.

In various parts of the Presidency a great deal of valuable time was lost at the beginning of the season, in consequence of the deficient supply or defective quality of the virus. Everywhere the superiority of lymph over crusts is upheld. Dr. Charles points out that the tubes which are sent from England are defective in construction, being too large in calibre and composed of too thick glass; the capillary attraction is vitiated by the first defect, and, in consequence of the second, an amount of heat has to be employed to close the tube, which proves destructive to the vitality of the lymph. To obviate the latter difficulty, he has employed, successfully, antiseptic plugs whereby to close the tubes.

Dr. Charles considers the attempt to make Calcutta a place for the store of lymph a self-imposed difficulty, and urges the advisability of utilizing Darjeeling for the purpose. The Surgeon-General approves of this suggestion.

The results obtained with the Calcutta stored lymph call for some such change of system.

In the Ranchi circle time was lost at the commencement of the season. The English supply failed except one tube, and the stock which had been kept up throughout the year was scanty.

In the Sonthal pergunnahs several sources had to be indented upon to secure a sufficient supply to commence work with. The operations were commenced early in October with tubes of lymph received from England and from the Superintendent-General's office, Calcutta, as also with such crusts of last cold season as had kept well, and lymph and crusts from Darjeeling.

The civil surgeon of Bancoorah reports that all the Calcutta supplies failed. At Gya all November was lost, as the Calcutta supplies failed, and more had to be obtained from Darjeeling and Ranchi.

The Kumaon and Gurhwal vaccine depôt did good work for the North-Western Provinces. It supplied 11,750 crusts and 6,462 tubes. Three tube-fillers have been sanctioned for the depôt. Dr. Pringle reports thus of the English lymph:—

A supply of 50 tubes was received in March 1872 from the National Vaccine Institution, London, through the Privy Council, the report of which is as under.—Of the 50 tubes, in only one was the lymph found to be dried up, the remaining 49 were well filled with clear lymph, free from impurities; and altogether this is by far the best supply I have ever received from this source. The operations with the tubes used were eminently successful.

A commencement was made with this lymph under my own superintendence in the middle of April 1872, near Mussourie. The lymph from these cases was taken to Jounsar Bawar

where vaccination was fully established by the middle of May; and from there it was carried into the Terai country, to the district selected for the lymph nursery, for the hot and rainy season of 1872.

The supply thus collected proved of admirable quality in the hands of others to whom it was despatched from time to time in the plains.

Dr. Brake, of the Central Provinces, writes :—

A supply of English lymph was received through the Superintendent-General of Vaccination, Bombay, in October 1st, and distributed to the several medical officers throughout the province. Its employment was followed by very various results. No report was received from Narsinghpur, Nimar, Seoni and Sironcha, but in nine districts there was more or less success, and in seven total failure. At the end of October and beginning of November there was a good supply of fresh lymph at Nagpur, and charged tubes were sent to every district medical officer as well as to Kamthi, Akola, Pachmarhi, and Bhurtpore; further supplies were occasionally asked for from Nagpur, and the medical officers of Narsinghpur and Hoshangabad also receive vaccine direct from Puna, Calcutta or Almora.

The civil surgeon of Sironcha adopted a novel method of collecting lymph, which possesses the advantage of simplicity, and there does not appear to be any reason why it should not prove as useful elsewhere as it did in his hands, provided it be not kept too long. Dr. Brake writes :—

The civil surgeon attributes the success of vaccination during the hot weather to a plan he adopted for preserving lymph. To me it is novel, and I give its description in his own words :—“Where a good healthy vesicle was found, this was punctured and blotting paper applied gently till the lymph was absorbed to about the size of a two-anna piece. One vesicle thus yielded about 10 little discs of vaccine lymph. In using these the part was first scarified with a lancet, the blotting paper disc was applied and kept on for a day by sticking plaster. Not a single case failed that was so vaccinated. Red blotting paper was used in preference to white, as the stain left by the lymph was more perceptible. This plan was not used when arm to arm vaccination could be resorted to.”

Of Burmah, the administration report records :—

In consequence of the repeated failure of both vaccine lymph and crusts towards the end of 1872, successful vaccination was not established all over the province until very late in the season; in most stations very little work was done until January 1873. The lymph, &c., which failed was received from the Superintendent-General of Vaccination, North-Western Provinces, and Calcutta. Constant and consecutive supplies were sent to all stations, commencing at the end of September; 1,782 crusts and 190 capillary tubes containing lymph were distributed to the several stations in the province by the Superintendent of Vaccination, and with this supply the work of vaccination was carried on during the year.

The Punjab supply, collected at the hill stations, seems to have been sufficient to meet all wants.

Crust vaccination.

In compliance with instructions from the Surgeon General, Dr. Charles instituted a series of experiments concerning crust vaccination, as it had been asserted that a spurious disease had resulted therefrom. Of 18 children thus vaccinated, 16 proved successful cases, all of which ran a normal course, producing the characteristic vesicle; but only 3 succeeded on the first attempt, 9 on the second, 3 on the third, and 1 on the fourth; total 29 attempts for 16 vaccinations, with 112 points of insertion, of which only 22 succeeded.

Animal vaccination.

Dr. Charles reports that the stock of virus originally taken from the calf in Calcutta, which had never previously been through the human system, had, on March 31st, 1873, reached its 142nd transmission through man. It retains its efficacy unimpaired, but is in no way superior to the old stock of lymph which is still in use in other parts of the town.

Dr. French at Bhandara, in the Central Provinces, by means of a hypodermic syringe, vaccinated a young calf, and from it he vaccinated four men with good results; and from them he vaccinated a second calf, whence he vaccinated the people generally.

VACCINATION IN THE PROVINCE OF BENGAL.

A new circle formed.
Consequences.

A new circle of vaccination was opened during the year,—that of Eastern Bengal, with its head-quarters at Dacca. An augmented agency and an increased amount of work are therefore the natural consequences of the year's operations.

Staff increased.

The staff of the metropolitan circles was also increased; a larger number of vaccinators were employed by municipalities and dispensaries, and ex-inoculators

who adopted the calling of professional vaccinators were nearly three times Season's work. as numerous. This marked extension of the system of unpaid agency is matter for special congratulation.

Statement No. X exhibits the season's work in detail and in comparison with that of the four preceding years.

STATEMENT No. X.

Abstract Statement of Vaccination in Lower Bengal during 1872-73, compared with four preceding years.

CIRCLES AND YEARS.	ESTABLISHMENT.							OPERATIONS.		PERCENTAGE OF SUCCESSFUL CASES.		Cost.				Average cost of each successful case.			
	Superintendent Gen-eral.	Superintendent.	Deputy Superintendent.	Native Superintendent & Head Vaccinator.	Vaccinators.				Persons vaccinated.	Persons successfully vaccinated.	Primary vaccination.	Secondary vaccination.	Paid by State.	Paid by Local Fund.	Total.		Per cent. of Total.		
					Vaccine Establishment.	Dispensary.	Municipal and Local Fund.	Native State.									Total.	Paid by State.	Paid by Local Fund.
1872-73.																			
Calcutta ...	1	...	3	6	3	...	18	...	21*	31,433	18,216	99.51	23.16	Rs. 7,853 6 3	Rs. 3,708 0 0	11,561 6 3	67.92	32.07	10 1
Metropolitan circles ...	...	1	3	12	78	...	...	...	78†	267,074	266,154	99.73	55.26	...	...	31,797 13 8	8.100	...	1 10
Darjeeling circle ...	...	1	1	7	42	...	1	...	43	106,399	100,695	93.97	...	18,178 11 11	105 13 0	18,284 8 11	99.42	.68	2 10
Ranchee ditto ...	...	1	...	3	20	...	...	...	20	36,518	35,296	95.29	25.92	11,246 10 1	...	11,246 10 1	1.100	...	5 1
Sonthal Pergunnahs ditto ...	...	...	1	...	6	...	...	...	6	11,071	10,490	95.09	80	2,687 3 6	...	2,687 3 6	6.100	...	4 1
Eastern Bengal ditto ...	...	1	...	3	36	...	...	...	36	47,549	47,417	99.73	29.72	4,964 11 7	...	4,964 11 7	7.100	...	1 8
Dispensary ...	...	...	...	...	...	69	103	...	172	187,312	114,373	89.33	61.13	5,639 0 0	4,929 0 0	10,568 0 0	53.36	46.64	1 5
TOTAL ...	1	4	8	31	185	69	122	...	376	687,496	592,551	96.20	25.54	82,367 9 0	8,742 13 0	91,110 6 0	90.4	9.6	2 5
1871-72 ...	1	3	8	25	128	104	80	1	313	375,281	339,311	91.51	31.05	78,980 9 1	8,968 9 4	87,949 2 5	89.8	10.19	4 2
1870-71 ...	1	3	8	22	59	44	131	5	239	348,309	324,226	94.12	40.63	77,788 1 6	9,956 0 0	87,744 1 6	88.65	11.35	4 3
1869-70 ...	1	3	8	12	125	81	25	5	236	340,050	315,053	94.77	48.29	74,973 13 11	4,681 0 0	79,654 13 11	94.12	5.88	4 0½
1868-69 ...	...	2	8	18	...	...	...	...	266	262,541	234,828	89.4	...	...	...	57,895 0 0	...	...	3 11

* As four sanctioned vaccinators were not employed, they are not included here.

† And twenty-four apprentices.

The total number of persons vaccinated has increased by 312,125, of which, the newly created circle accounts for 47,417, leaving an aggregate increase of the old circles of 264,708, as compared with last year. The increase is shared by all the circles except Darjeeling, which shows a slight decrease. The details are as follows:—Increase—Calcutta and suburbs, 10,948; metropolitan, 175,558; Ranchi 868; Sonthal Pergunnahs, 2,719; Eastern Bengal circle, 47,549; dispensaries, 79,793; total increase 317,435; decrease—Darjeeling circle, 5,310; net increase, 312,125.

The number of operations performed, if taken alone, would be but a poor index of success, but when it is seen that the percentage of successful primary vaccinations preserves a commensurate increase, the real result cannot be doubted.

The figures appertaining to the circles may be received with confidence, but those classed under the heading "dispensary" must be met with some amount of caution—the result of a small agency for inspection and verification—but as a set-off against possible spurious gains thus recorded, may be placed the proceedings of inoculators and others who have rendered no account of their doings. Deducting, however, the dispensary items from the totals of both years, the net increase of well authenticated vaccination has been 232,332 over the season 1871-72, or going still further and excluding Dacca as being a new circle, there has been an increase upon the number returned by the six old circles of 184,783.

YEARS.			Operations.	YEARS.			Operations.
1863-64	...	...	67,141	1868-69	...	...	262,541
1864-65	...	...	90,321	1869-70	...	...	340,050
1865-66	...	...	152,099	1870-71	...	...	348,309
1866-67	...	...	194,753	1871-72	...	...	375,281
1867-68	...	...	237,748	1872-73	...	...	687,406

The statement above shows the annual increase which vaccination has undergone in the province of Bengal during the last ten years. The most notable feature is the vast stride taken in 1872-73. Yet, notwithstanding the enormous result here exhibited, we shall have to perform nearly three times as many vaccinations annually to keep pace with the birth-rate if 30 *per mille* of the population is an approximately correct figure to work upon.

The total cost exceeded that of the previous year by Rs. 3,161-3-7.

The amount borne by the State increased by Rs. 2,386-15-11, and by local funds diminished by Rs. 225-12-4. The formation of the new circle accounts for the increased cost; but on account of the large number of persons vaccinated, the cost of each successful case has fallen greatly—from 4 annas and 2 pies to 2 annas and 5 pies; although the large number of vaccinations performed by an unpaid agency in Chota Nagpore has not been taken into account.

Of the vaccinated, 52·5 per cent. were Hindus, 39·7 Mahomedans, and 7·5 other castes, whilst of Christians there were 7·3. This shows a satisfactory result, in that a larger proportion of Mahomedans were vaccinated. The proportion of the several classes in the population of Bengal, according to the census, is Christians ·2, Hindus 50·8, Mahomedans 48·8, other castes 0·9. The inclusion of the returns of Chota Nagpore, where nearly all those who were vaccinated were either Coles or Sonthals, accounts for the large percentage of "other castes" entered.

So far as the returns indicate, there has been a falling off in the percentage of infant vaccinations; only about 10 per cent. of 590,048 cases concerning whom this fact was recorded were under one year of age.

Dr. Lidderdale and Dr. Gupta assert that the practice of attaching vaccinators to dispensaries during the recess is productive of great discontent amongst the men who object strongly to act as dressers. It is asserted that the practice prevents good men coming forward to learn, and some of those who worked well deserted at the end of the season rather than join the dispensaries.

Calcutta and
Suburbs.

Calcutta and Suburbs—The vaccination agency remained undisturbed, save that one of the deputy superintendents was transferred to take charge of the new Eastern Bengal circle in October.

Agency being gradually reduced.

The following table given by Dr. Charles shows that the establishment is being gradually reduced :—

YEAR.	TOWN.	SUBURBS.	TOTAL.	REMARKS.	
1868-69	...	15	12	27	The head vaccinators. (Native superintendents) remained the same in each year.
1869-70	...	13	12	25	
1870-71	...	12	10	22	
1871-72	...	11	10	21	
1872-73	...	11	10	21	

Work done.

The total number of vaccinations performed exceeded those of the previous year by 10,948, of which the town contributed 1,692, the suburbs 2,938, and the cooly depôts 6,318. No less than 54 per cent. were secondary vaccinations, but this is explained by the circumstance that nearly all (88 per cent.) coolies passing through the depôts have been already protected some way or other. The successful operations only accounted for 58 per cent., but this includes all re-vaccinations. The percentage of success of primary vaccinations was 99.51,—a result which shows work of the highest class. The number of operations performed by each vaccinator increased to 779 against 559 in 1871-72, but this was owing to the large number vaccinated at the cooly depôts.

Cost in Calcutta.

The cost of each successful operation has fallen from 14½ annas to 10½ annas, because of the greater number of the successful cases, and the discontinuance of one deputy superintendent from October. Vaccination has always cost a great deal in the town of Calcutta, and Dr. Charles attributes this chiefly to the obstructive opposition met with from the masses, who are well aware that the members of the establishment dare not use force, or even importunity amounting to annoyance. He also shows that each vaccinator can perform but a comparatively small number of operations in the city as compared with the country. He writes—

Cause of high cost in Calcutta.

A superintendent, hunting in the lanes of Calcutta for single vaccinated cases, can never overtake from sun-rise to sun-set the number that can be seen in a forenoon in the country; and not only so, but a vaccinator, when all his work can be so easily got at as it can in the mofussil, does not need nearly so much looking after as he requires in a large city, where any of his misdeeds can be so easily concealed, and where he must be supervised from week to week, if not from day to day.

Even the circumstances of different cities are so varied, that the work in them cannot be compared with any prospect of arriving at an exact estimate of how the establishment is working. Take Bombay, for example, where I am told crowds flock to vaccinating stations where a calf is used to vaccinate from—a proceeding that would drive Calcutta into rebellion if forced upon it, and instead of attracting crowds to a vaccinating station, would repel all from resorting to it: or to take Madras, where the attraction of a few handfull of rice brings a crowd of applicants for vaccination—an inducement which would hardly tempt the poor of Calcutta to walk across the streets for the benefit, as they can get it at any native house they ask for it without having the trouble of being vaccinated.

* * * * *

With most complete data in my possession to enable me to form a judgment on the subject, I feel myself in a position to state most distinctly, that the time will never arrive in which a vaccination in Calcutta will come to cost such a small sum as one in the country around, and that no operator will ever be able to overtake so many vaccinations in Calcutta as he can readily do in the mofussil.

Difficulty of arriving at a true estimate of the sufficiency of vaccination.

On the subject of estimating the sufficiency of vaccination, Dr. Charles writes—

I hoped, with the results of the census, to have been able to work out more satisfactorily than has hitherto been possible the extent to which vaccination every year falls short of the requirements of the population. On examining the figures supplied, however, I do not judge them to be sufficient for my purpose. In working with them, the fact that has been pointed out before is very apparent, that the numbers every year vaccinated fall short of what

they should do were all additions to the population protected from small-pox. The other fact, which was also known before, has also received abundant corroboration, and there is now no longer room for doubt that the birth-rate of Calcutta is a much smaller one than we should have been led to estimate it by looking at statistics collected in Europe. This last fact comes out most strongly, and without attaching too much weight to figures to which exception might be taken, I conceive that the broad fact above stated admits of no reasonable doubt. This is a matter for just congratulation, as the progress made in vaccinating Calcutta can now be viewed in a much more hopeful manner than it could have been without such confirmation. Though there is still much further room for progress, the numbers left every year unprotected are not so large as theoretical reasoning would justify us in believing, but are more in accord with the results obtained in examining the amount of protection actually found to exist among the community.

The Surgeon-General in his remarks upon the report observes—

The number of births registered in Calcutta during the year ending 31st March 1873 was 4,113, and within the limits of the Suburban Municipality 1,674. The number of children under one year of age revealed by last year's census was in the former case 7,099 and in the latter 8,288; these figures give percentages on population of '92, '65, 1'76 and 3'22. The percentages of successful vaccination were (excluding coolies), town 1'11, suburbs 3'0. The comparison might be considered favourable if it were reliable. For the present, until the statistics of the population have become more reliable, special "vaccine census" among small sections of the community furnish the best data for determining the extent to which vaccination has been accepted by the people.

Surgeon-General's comment.

Only 19 deaths from small-pox occurred during the year, and there is strong evidence to show that they were contracted elsewhere.

Dr. Charles' suggestion, that Darjeeling be made a depôt whence to supply lymph, has been elsewhere commented upon.

Small-pox.

Metropolitan Circles.—Dr. K. P. Gupta relieved Dr. Cayley of the superintendence of these circles in October, when commenced the fifth season's work.

Metropolitan circles.

The establishment was increased by 1 head vaccinator, 7 vaccinators, and 8 apprentices to each circle. The entire agency employed was, 1 superintendent, 3 deputy superintendents, 12 head vaccinators, 78 vaccinators, and 24 apprentices.

Increase of establishment found necessary.

This was done as the census proved that the population of this area had been greatly under-rated, and Dr. Cayley showed that it would occupy six years instead of five, as had been originally intended, to complete the vaccination of these districts:—

The following table exhibits a summary of work done during five years:—

Summary of operations.

Metropolitan Circles.

Circles.	1868-69.			1869-70.			1870-71.			1871-72.			1872-73.		
	Area in square miles.	Number of villages.	Number of successful operations.	Area in square miles.	Number of villages.	Number of successful operations.	Area in square miles.	Number of villages.	Number of successful operations.	Area in square miles.	Number of villages.	Number of successful operations.	Area in square miles.	Number of villages.	Number of successful operations.
First Circle	240	537	29,976	816	772	33,483	804	507	26,930	960	267	28,501	925	1,085	83,627
Second "	369	343	24,788	800	926	53,199	729	773	30,949	551	296	17,396	1,07	946	74,101
Third "	508	655	66,571	435	477	69,633	925	905	81,969	729	440	45,097	1,097	1,185	108,391
TOTAL	1,108	1,535	121,335	2,071	2,175	155,315	2,509	2,185	139,639	2,231	973	90,994	3,101	3,216	266,119

The Surgeon-General thus summarises the amount of work done:—

Work accomplished.

The amount of work has undergone a satisfactory increase, more than commensurate with the increase of agency. The number of vaccinations amounted to 267,074, and of successful primary vaccinations to 266,091. To this must be added 5,426 successful vaccinations (out of 5,487) performed by vaccinators employed by municipalities, &c., and 4,335 successful vaccinations (out of 5,036) performed in Burdwan, Hooghly, Howrah, and Serampore, by the municipal vaccinators locally entertained. The total yield of the season is therefore 275,915 successful vaccinations, which, among a population of 7,539,278, gives a percentage of 3'65. This must exceed the birth-rate, and if the same amount of work is accomplished yearly, and there is every reason to believe that it will, the present establishment would appear to be quite equal to the maintenance of a high degree of protection among the inhabitants

Ratio of success to population.

of these districts. Vaccination was not, however, uniformly spread over the whole area, and the estimate above given is artificial; still, for the purpose of judging of the sufficiency of the gross outturn of work accomplished in any season, a comparison with the total population which it is intended to maintain thoroughly vaccinated is necessary.

Percentage of successful cases.

The successful cases average 99·3 per cent. of operations—a result which is due to the sole employment of arm to arm vaccination and to admirable supervision.

Cost.

Each vaccinator performed 2,967 against 1,452 in 1871-72. With these highly satisfactory results, the total cost fell from Rs. 34,935 to Rs. 31,795, and of each successful case from 6 annas 1 pie to 1 anna 10 pies. This was due to savings under the head of superintendent's pay and house-rent, and to double the amount of work having been performed by each vaccinator.

Prejudices of the people giving way.

The prejudices of the people are being satisfactorily overcome. The moral effect of the extension of Act IV of 1865 has been a great aid to vaccination. Some inoculators came forward for instruction.

Small-pox.

There was very little small-pox in these circles during the year, although 23 outbreaks were reported; in 18 the disease proved to be small-pox and in 5 chicken-pox.

In the 23 outbreaks of the small-pox, 52 villages were affected, and 321 persons were ascertained to have been attacked; of these, 54 died and 267 recovered.

In 34 villages vaccinations were performed around the infected persons, and the spread of the disease was arrested. In one vaccination was not required, the village being already protected by vaccination; and in seventeen the people refused to take it. Seven of the villages were previously protected, wholly or in part, by vaccination, and 45 by inoculation. Of the persons attacked, 4 were previously vaccinated, of whom 1 died; 19 inoculated, of whom 2 died; and 298 were unprotected, of whom 51 died. In 14 of the 52 villages the disease was traced to the practice of inoculation in the border district of Jessore; in 34, to contact with small-pox; and in 4, the origin could not be ascertained.

Plan of work.

The plan of work proposed for the season was as follows:—

That two circles should go to the north half of Nuddea, where are 14 thannahs still to be done, and that from one of these circles a gang or division of 1 head and 7 ordinary vaccinators should be detached to the northern parts of Neamutpore and Raneegunge. The remaining or third circle to be employed in the south of the 24-Pergunnahs, in Govindpore and the neighbouring thannahs, and across in Hooghly as far as Chunderkona, and take in Goghat and Jehanabad, and, if possible, detaching one division under a head vaccinator to Kullingah and Sathkira thannahs.

But in consequence of sickness breaking out after the commencement of operations, this programme had to be modified somewhat.

Darjeeling Circle.

Darjeeling Circle.—Surgeon-Major Lidderdale, M. D., continued the superintendence. There was no change in the establishment, but very considerable difficulty was experienced in keeping up the full strength in consequence of the sickness of some and misbehaviour of others.

The area and population of this circle are shown in the following statement (No. XI):—

DISTRICT.						Area.	Population.
Darjeeling	...	...	...	...	...	1,234	95,224
Julpigoree	...	...	...	...	...	2,906	418,048
Rungpore	...	...	...	...	...	3,476	2,150,179
Purneah	...	...	...	...	...	4,959	1,714,795
Maldah	...	...	...	...	...	1,813	676,426
Bogra	...	...	...	...	...	1,501	689,467
Dinagepore	...	...	...	...	...	4,126	1,501,924
Rajshahye	...	...	...	...	...	2,234	1,310,727
TOTAL						22,247	8,556,790

Additional agency.

In addition to the regular agency, six vaccinators were entertained by the Dinagepore Rajbaree; but these men proved of very little use, and dodged about in the superintendent's rear to avoid inspection. One of them went so far as to "warn the people against accepting vaccination from Mussulmans who would not perform the Sitala Poojah, without which, he stated, it was useless, and reaped a rich harvest by charging four and two annas a head for each operation." Two men also worked at Gobindgunge, 12 ex-inoculators

at Bograh, 4 vaccinators at Nattore, 2 at Bograh, 3 at Purneah, and 1 at Darjeeling. Working arrangements.

Concerning the arrangements for work, Dr. Lidderdale writes:—

The scheme brought forward last year for massing all the vaccinators of the circle in a limited area, did not meet with the Inspector General's approval, and his recommendation to take up the sudder thannahs did not reach me till the distribution for the season had been made, but this latter is the one which has been followed as small-pox and other circumstances permitted. The sudder thannahs of Rungpore and Bograh have been protected. Those of Dinagepore, Julpigoree, Maldah, and Rampore Beaulah partially done; while Purneah is the only one untouched. It is so far removed from parts already worked in, and would be so isolated from all other protected areas, that I consider it better to begin in the north of the district joining on to Julpigoree and Dinagepore, and thence proceed southwards.

The Surgeon-General thus summarises the amount of work performed:— Summary of work.

The total number of operations performed by the regular establishment amounted to 106,399 vaccinations—a decrease of 5,310; and 100,695 successful vaccinations—a decrease of 3,555. But if the operations performed by the various additional agencies enumerated in the last paragraph are added, the number of vaccinations performed within the area of these circles amounts to 123,790, and of successful operations to 116,848. The population of the 8 districts included in this circle amounts to more than $8\frac{1}{2}$ millions, which give—at 30 per 1,000—255,000 births yearly. The successful vaccinations do not quite amount to one-half of this number. The extent to which they fall short of what would appear theoretically necessary varies considerably for each district. Dr. Lidderdale demonstrates this in his report, but the broad fact remains, that the amount of work done during the past season does not amount to one-half of what would appear necessary. Estimate of sufficiency.

The Superintendent explains the cause of the decrease in the numbers vaccinated to be, that vaccination was much less practiced during the hot months than in the previous year, on account of small-pox being much less prevalent, and that no municipal vaccinators' returns are included. The cold season's operations exceeded those of 1871-72 by 10,547, and the quality of the work improved by 14.5 per cent. Cause of falling off.

Each man employed gave a higher average of work, and performed 2,474 operations. The cost of the circle increased by Rs. 430, but the cost of each successful case has not increased in consequence of the higher ratio of success. Work done by each vaccinator. Cost.

The ratio of success obtained in the Darjeeling Hills is low, only 86.21 per cent. of operations,—a result attributed by Dr. Lidderdale to the injury caused to the vaccine vesicle by their coarse blanket clothing and tight jackets fitting tight to the skin. Cholera interfered with the work in these hills, one effect being that a much smaller number of coolies belonging to tea gardens were protected. Low success in Darjeeling Hills explained.

At Julpigoree small-pox outbreaks prevented regular systematic work. At Julpigoree.

An area lying between the Durla and Berhampooter, where vaccination had never previously been practised, was gone over with gratifying results. The country lying between the Teesta and Berhampooter, which is intersected by the Durla, is inhabited by a class of *Baid* inoculators who oppose vaccination much, and, adds the report:— Fresh work.

Till it is vaccinated, these men create a constant danger to all Eastern Bengal on account of the great traffic on the Berhampooter, Teesta and Durla, in jute, tobacco, mustard and rice. A dangerous spot.

Small-pox was not so prevalent as during the previous year, and where it existed it was due to inoculation. Small-pox.

Fifteen inoculators were instructed. Dr. Lidderdale advocates the payment of a subsistence allowance to these men, and intimates that, with such assistance, he believes most of the inoculators would come forward for instruction; as, however, the Surgeon-General observes, these men "must be very carefully taught and supervised if they are to constitute a safe and reliable agency." The Surgeon-General eulogizes Dr. Lidderdale's energy and the thorough manner in which he has worked. Inoculators.

Ranchi Circle.—Dr. J. J. Wood, Superintendent. The establishment, consisting of 3 head vaccinators and 20 vaccinators, was the same as during last year; but in addition no less than 107 ex-inoculators worked (16 in Hazaribagh, 32 in Lohardugga, 27 in Singbhoom and 32 in Maunbhoom) and submitted returns. Ranchi Circle.

The Surgeon-General in his report to Government thus comments upon the season's work:—

Summary of work	The work of the Government establishment exceeded that of any previous year: 36,518 operations were performed, 35,206 of which were successful, against 35,650 and 34,664 in 1871-72; 23,313 and 20,578 in 1870-71; 19,101 and 16,074 in 1869-70; 7,904 and 4,618 in 1868-69, and 6,447 and 5,118 in 1867-68. The increase has thus been progressive. The number of operations performed by each vaccinator has correspondingly risen, and the quality of the vaccination has improved, the ratio of success in these six seasons being 75·70, 58·42, 87·54, 92·12, 98·38 and 97·77. The total cost of the circle has been higher in 1872-73 owing to the augmentation of the Superintendent's salary, and the cost of each successful case has been annas 5-0 $\frac{6}{15}$ against annas 4-7 $\frac{7}{15}$ in the previous season. The higher proportion which the cost of superintending to executive agency bears in this circle is the cause of the greater expense of vaccination as compared with other circles.
Work of additional agency.	The work performed by the additional agency referred to above amounted to 30,607 vaccinations as detailed in Table No. V. The results of the whole of these operations were not detailed. The percentage of successful cases among vaccinations whose result was tabulated, was 77·8, and if this is accepted as a representative of the general rate of success, the successful operations amounted to about 22,812. On adding these figures to the returns of the circle quoted above, the sum total of vaccinations by all agencies for the season was 67,125, and of successful vaccinations 58,018. The population of the Chota Nagpore division is, according to the last census, excluding the tributary mehals, 3,450,023, which at 30 per 1,000 would give an annual birth-rate of 103,500. The successful vaccinations, therefore, amount to about one-half of what would appear to be necessary. Although this is a somewhat disappointing result, it is a great improvement on the previous year, in which the total number of vaccinations performed by all agencies was 52,769, and that number was far in advance of any preceding year. As far as the extent of the agency employed and the amount of work performed are concerned, therefore, the season under report presents a most marked improvement and gives promise of still more satisfactory results in the future.
Vaccination to population.	
Vaccination at one point the rule.	The great majority of the cases verified by the Superintendent had been vaccinated only in one place. This is to be regretted.
Supervision of work of additional agency.	The work of the additional agency was subjected to very little supervision, to none at all in Hazaribagh and Ranchi. The Civil Surgeons of Singbhoom and Maunbhoom took a warm interest in the movement. The former verified 6,156 out of a total of 8,458 cases, and the latter 1,578 out of 8,358, and they found the percentages of success to be 86·5 and 70, respectively.
Deficient supply of lymph at the commencement of the season.	There was difficulty in setting up a good vesicle at the commencement of the season, and consequent delay. It is to be desired that Ranchi, with its semi-hill climate and an aboriginal race of people, many of whom seek vaccination, may soon be able not only to keep up a plentiful supply of lymph throughout the year, and to meet its own wants fully, but to supply neighbouring districts which are not so favoured.
Some local difficulties.	In some parts of this circle there are natural conditions which must tend to render work, so far as numbers are concerned, slow; they are,—a very sparse population (in some places only 80 to the square mile), a wild jungly country, with few roads and many wild beasts, and a wild and shy people who fly at the approach of mysterious strangers.
Small-pox.	Small-pox did not prevail extensively. The sub-divisions of Palamow and Lohardugga contributed most cases, and at these places inoculation is practised.
Payment to inoculators under tuition.	Dr. Wood urges the payment of inoculators whilst under tuition, and he states that some who came to learn left for want of means of support.
Work arranged systematically.	The season's operations were conducted systematically; a definite area was selected, and the vaccinators having been divided into three parties, were assigned specified tracts. The work done per man of each of these parties varied greatly, and this is accounted for by the class of people amongst whom they were working.
Summary of work.	<i>Sonthal Pergunnahs.</i> —Assistant Surgeon Kalikrisna Ghose, the Superintendent, endeavoured to work more systematically and in continuation of last year's work, but his staff was deficient for any comprehensive scheme, and his men were frequently detached to stamp out outbreaks of small-pox; nevertheless the season's working has been very successful. He accomplished 11,071 operations against 8,352 for the previous year, and the successful operations amounted to 10,490 against 7,561. Each vaccinator did 1,845 cases against 1,392, and the percentage of success was 95·09 against 90·88.
Cost.	The cost of the establishment was Rs. 2,687 against Rs. 2,453, and of each successful case 4 annas 1 pie against 4 annas 8 pie.

Inoculation is largely practised, and the Superintendent urges its prohibition by law. At present the town of Deoghur is the only part of the Sonthal Pergunnahs under the operation of Act IV of 1865. The Surgeon-General thinks the question is worth entertaining, whether it would not be well to concentrate the efforts of the establishment on the sub-division of Rajmehal, which is about half vaccinated, and extend the Act to it. Inoculation.

The work of inspection was most efficiently performed, 90 per cent. of cases being verified. Inspection.

Small-pox prevailed in the Rajmehal and Pakour sub-divisions; the outbreaks were lighted up by inoculation, and much good was effected by establishing vaccination around the infected houses. Small-pox.

Five inoculators were instructed and 25 submitted returns; they performed 4,572 vaccinations, but their work was not inspected except in two instances. Ex-inoculators.

The prejudices of the people decide against arm to arm vaccination; nevertheless about one-half of the cases were so done. On the whole, the Sonthals have learned to appreciate vaccination. On the subject of the insufficiency of vaccination, the Surgeon-General observes— Prejudices and attitude.

The population amounts to 1,254,287; estimating the births at 37,778 and successful vaccinations at 14,000, much still remains to be done ere the district can be said to be sufficiently vaccinated. Insufficiency of vaccination.

Eastern Bengal Circle.—The circumstances under which this circle was established are thus related by the Surgeon-General in his report to Government:—

The formation of this circle arose from a recommendation submitted by the Commissioner of the Dacca Division in 1871, that inoculation should be prohibited within the area of his jurisdiction. On further correspondence it became apparent that no provision existed for the performance of vaccination, and that the proposal to prohibit the one practice could not be entertained until a sufficient provision had been made for supplying protection from small-pox by means of vaccination. On the subject being referred to me for opinion, I represented that it was most desirable that a new circle of vaccination, with the city of Dacca as its centre, should be organized for Eastern Bengal, conducted on the thorough system pursued in the metropolitan circles. It was finally resolved to create this circle, and a scheme of establishment, prepared by Dr. Charles and marginally specified, was sanctioned by Bengal Government letter No. 2104, dated 21st May 1872, and confirmed by Financial resolution No. 921, dated 8th July. Second grade Sub-Assistant Surgeon Bhoobun Mohun Mitter was appointed to the post of Superintendent by Government order No. 3236, dated 27th July 1872. He was subsequently, on the recommendation of Mr. Buckle, prohibited from Origin.

	Ra.
1 Superintendent	350
6 Head vaccinators	90
36 Vaccinators	360
36 Extra vaccinators	180
1 Writer	30
2 Peons	12
Contingencies	30
Total	1,052

engaging in private practice.

The Superintendent details the proceedings of the first season in a carefully prepared report. It was found impossible to recruit the sanctioned establishment, and the work was carried on with 3 head vaccinators instead of 6, and 36 vaccinators in place of 72. Many of the latter were, moreover, unskilled, and in other respects unsatisfactory. A good outturn of work was, however, accomplished: 47,549 vaccinations were performed, 47,417 of which were successful, or 99.73 percent. Each vaccinator performed 1,320 operations, and the cost of each successful case amounted to anna 1-8. Surgeon K. P. Goopta, the officiating Superintendent of the Metropolitan circles, was deputed in December to inspect the working of the new circle. He found that a satisfactory vesicle had been established, and that arm to arm vaccination was alone practised. He inspected the work of each of the three divisions into which the circle had been divided and found the results good. A careful programme had been drawn out for the season's work, and though much opposition was experienced, the Superintendent and his staff were labouring with considerable success to overcome it. Summary of work.

The Superintendent's report indicates that, as far as circumstances permitted, work was done in a careful and systematic manner. Among a people wedded to inoculation it could not be expected that no opposition should be experienced, and it is not surprising that the usual suspicions and prejudices were encountered. They seem to have been judiciously combated and successfully overcome until the season for inoculation arrived, when, no doubt, instigated by the inoculators, opposition took on a more active form. The sect of Ferazees were also found to be intractable. Baboo Bhoobun Mohun Mitter recommends the extension of Act IV of 1865 to the district of Dacca. The population of this district is 1,193,512. The number of births would amount, at 30 per 1,000, to 34,805. The number of successful vaccinations performed by the circle exceeded this number, and the establishment when complete should accomplish double the work of last season. I am, therefore, of opinion that the Act might very safely be extended to the Dacca district. The measure would, moreover, give a great impulse to vaccination in Eastern Bengal. Attitude of the people.

Agency sufficient.

Extension of Act IV of 1865 recommended.

Establishment of vesicle.

Virus was established by taking a vaccinated child from Calcutta, and an excellent vesicle produced. The people unfortunately are strongly prejudiced against arm to arm vaccination; they believe that the child who furnishes the lymph loses flesh daily and ultimately dies from the effects.

Inspections.

The inspections were carefully conducted and 54 per cent. of the cases verified.

There was some difficulty experienced in keeping the establishment together; ten men resigned and four were dismissed, whilst no trained substitutes could be procured, and fresh untaught men, of whom much could not be expected, had to be entertained in their places.

Small-pox.

There was not much small-pox. Three outbreaks were reported, of which two were traced clearly to inoculation. All were promptly stamped out in a very satisfactory manner.

Inoculators.

Four inoculators were instructed, of whom three turned out very well.

Peculiarities in statistics of circle.

It is peculiar that this circle commenced its existence with an excess of females operated upon, and it stands lowest in the list as regards infant vaccination.

Dispensary vaccination.

Dispensary, Municipal, and local vaccination.—Vast strides are being made in the amount of work accomplished by these agencies. The following table compares the results of the year with those of 1871-72. The number of persons vaccinated by the establishment exceeded that of the previous year by 72,317, and the number done by other agencies shows an excess of 23,739:—

Work done.

Circle of medical superintendence.	ESTABLISHMENT PAID				TOTAL NUMBER OF PERSONS VACCINATED				Number of persons vaccinated by each vaccinator.	
	By Government.		By local fund.		By establishment.		By others.		1872-73.	1871-72.
	1872-73.	1871-72.	1872-73.	1871-72.	1872-73.	1871-72.	1872-73.	1871-72.		
Presidency Circle ...	36	14	48	16	58,419	24,279	22,422	2,037	695.4	809.2
Dacca " ...	16	18	11	7	16,737	11,239	420	8,126	619.9	449.6
Dinapore " ...	17	12	44	33	56,450	23,771	32,864	21,804	925.4	528.2
TOTAL ...	69	44	103	56	131,606	59,289	55,706	31,967	765.1	592.8

Agency increased.

The agency employed very greatly exceeded that of the previous year, 172 vaccinators and 472 ex-inoculators against 100 vaccinators and 163 ex-inoculators.

Difficulty in establishing vesicle.

In most stations there was delay and difficulty in setting up a good vesicle at the commencement of the season, but Dr. Mathew, of Midnapore, asserts that infants can be vaccinated at all seasons of the year successfully.

Inspections.

Inspection and verification of work have, on the whole, been better performed, and this has evidently had much to do with the increased success of the year, for, as the Surgeon-General observes, the success of vaccination by this agency "depends very greatly, almost entirely, on the interest and energy which the civil surgeon may exert."

Small pox.

Small-pox was not epidemic, but it was not absolutely absent from any district. Very great good seems to have been done by the system of "stamping out." In Midnapore there was a severe outbreak which was cut short by Dr. Mathew's energy. Jessore suffered little, although inoculation prevails. The Rajshahye and Orissa divisions enjoyed immunity. Dacca city was almost free from the disease, and the district suffered but little. Around Bhaugulpore there were cases towards the close of the season. There were no epidemics in the Patna and Cooch Behar divisions, but the Patna and Orissa divisions and Assam shows the highest figures in the small-pox mortality returns.

Surgeon-General's comment on the dispensary vaccination of province.

The Surgeon-General's report to Government comments as follows on the work of each district:—

The amount of work done within the Burdwan municipality was miserable in every respect. In Bancoorah great progress has been made in inducing inoculators to vaccinate, and much credit is due to Mr. Connolly and his assistant for the success they have attained. For Midnapore special arrangements were sanctioned, and the number of vaccinations is three times as numerous as in the previous year. The outbreak of fever which occurred during the cold weather interfered much with the success of the experiment. It cannot, however, be pronounced a failure, and I have caused Dr. Mathew

to submit a proposal for a renewal of the grant assigned to him last year, and I shall be prepared to support its repetition. Inoculation has evidently become discredited, and it is to be feared that if vaccination is not pushed in Midnapore, the people will be left without protection. The work done in the towns of Hooghly, Howrah and Serampore was considerable, carefully supervised, and of good quality. Several municipalities in the 24-Pergunnahs and Nuddea were supplied with vaccination by the Superintendent of the Metropolitan circles. The people will appreciate better the vaccination which is locally paid for. The work was good and supervised by the local medical subordinates and by members of the vaccine establishment. Jessore is still very backward, though Dr. Bowser succeeded in getting more men employed and more work done. Moorshedabad shows better results than last year. Dr. Coates and his assistants exercised careful supervision over the vaccinators. There is room for improvement in the amount of work done in the town of Moorshedabad. The work done in Dinagepore and Maldah was very trifling. Considerable improvement is manifest in Rajshahye. No dispensary vaccination was performed in Rungpore. A very fair amount of vaccination was performed in Bograh and Serajgunge. The Orissa districts show very paltry results. Vaccination was carried on within the limits of the town of Dacca under Dr. Wise's supervision. The amount was much larger, and the ratio of success was above the average. Dr. Bose has succeeded in getting some good work done at Fureedpore. Vaccination in Backergunge is confined to the sudder station, and was rather less in amount than in 1871-72. In Mymensingh, on the other hand, the amount of work was doubled, and a good many vaccinations were performed in connection with the dispensaries in the interior. Vaccination is still very backward in the remaining districts of Eastern Bengal and in the Assam districts. Fewer converted inoculators were employed in Kamroop in order that they might be more effectually supervised, but the results of inspection do not appear to have been satisfactory. Mr. Hughes, civil medical officer of Nowgong, only inspected the work of his vaccinator once, and he was then unable to find a single vaccinated person. Turning to Behar the results are more hopeful. The number of vaccinations in Patna and Bankipore have been much more numerous and fairly successful. The results for Patna itself are very satisfactory, and Dr. Simpson states that the work is regularly inspected and verified. Dr. R. McLeod deserves credit for the progress he has made in Gya, a most difficult and bigotted country. Dr. Thornton in Arrah has also been assiduous, and vaccination is making some progress in the district. In Tirhoot vaccination has formed several centres in the district, and the numbers vaccinated are increasing, except at Durbungah where there is a great falling off. Fewer vaccinations have been performed in and around Chuprah, but a new centre has been formed at Sewan. Dr. Cullen has been very successful in inducing inoculators to vaccinate in Chumparun, and deserves much credit for having realized and performed the duty of inspecting and verifying their work so assiduously. The number of converted inoculators employed in vaccination in Monghyr exceeds that in any other district. More systematic inspection is very much wanted, but Dr. Purves saw enough to convince him that the work was fairly good. In Bhagulpore and the Sonthal Pergunnahs also a large number of inoculators have been induced to change their practice, but in both districts supervision is desirable. Vaccination is very backward in Purneah. In Darjeeling municipal vaccination has obtained Dr. Duka's attention. A few vaccinations were performed by the dispensary establishment at Julpigoree.

The Surgeon-General thus concludes his report to Government—

Surgeon-General's
conclusion.

On the whole, the vaccine season, of whose transactions I have now completed a review, presents features of activity, success and promise which have not characterised any previous year in the whole history of vaccination in Bengal, and I am sanguine that year by year vaccination will progress until it has eventually entirely displaced the pernicious practice of inoculation. Such a desirable consummation can only be accomplished gradually and after the lapse of many years. Meanwhile, it is of the utmost importance that every step in advance should be very firmly founded; for, while I should hail the universal extension of sound vaccination, conducted on proper principles, to every corner of Bengal as a grand achievement, I should consider the spread of a loose and imperfect mode of work—a bad system of vaccinating, a spurious disease, and partial or incomplete protection—a most serious calamity.

In the resolution upon the Surgeon-General's report, Government records its views as follows:—

Views of Govern-
ment.

The views maintained by Dr. Brown of the importance of centralising and systematising vaccine work have received the support of Government, and been justified by the results; while the very full examination made during the year by Dr. McLeod at the request of Government of the amount of protection afforded in places where inoculation has been prohibited, has led to conclusions altogether more favorable than we had ventured to anticipate. There would seem to be a real diminution in the frequency of small-pox, and much experience has been gained as to the best way of dealing with outbreaks when they do occur. Inoculation is becoming slowly, but surely, discredited over very considerable and yearly increasing areas. On the whole, progress is everywhere visible, and is satisfactorily maintained.

VACCINATION IN THE NORTH-WESTERN PROVINCES

The vaccination department of these provinces was administered throughout the year by Surgeon-Major F. Pearson, the Superintendent-General, who furnishes the report.

Season's work.

The statement on the next page shows the results of the season's work in contrast with that of each of the preceding five years.

Province	1897	1898	1899	1900	1901	1902
Albany	1,234	1,567	1,890	2,123	2,456	2,789
Bethlehem	987	1,234	1,567	1,890	2,123	2,456
Delaware	765	890	1,123	1,456	1,789	2,123
Franklin	654	789	912	1,234	1,567	1,890
Greene	543	678	801	923	1,145	1,367
Hamilton	432	567	690	812	934	1,156
Jefferson	321	456	579	701	823	945
Madison	210	345	468	590	712	834
Montgomery	109	234	357	479	601	723
Orange	98	123	246	369	491	613
Rockingham	87	112	235	358	480	602
Spartanburg	76	101	224	347	469	591
Union	65	90	213	336	458	580
Watauga	54	79	202	325	447	569
Wayne	43	68	191	314	436	558
Yadkin	32	57	180	303	425	547
Total	5,432	6,789	8,123	9,456	10,789	12,123

STATEMENT XV.

Abstract Statement of Vaccination in the North-Western Provinces during the year 1872-73 compared with five preceding years.

CIRCLE AND YEAR.	ESTABLISHMENT.										OPERATIONS.				PERCENTAGE OF SUCCESSFUL CASES.		COST.					Average cost of each successful case.	As. P.
	Superintendent Genl.	Superintendents.	Deputy Superintendents.	Native Superintendents and Head Vaccinators.	Vaccinators.				Persons vaccinated.	Persons successfully vaccinated.	Primary vaccination.	Secondary vaccination.	Paid by the State.	Paid by local funds.	Total.	Paid by the State.	Paid by local funds.	Per cent. of Total.					
					Vaccine establishment.	Dispensary.	Municipal and local funds.	Native States.											Total.				
1872-73.	1	{	...	3	14*	...	10	...	24	54,714	42,364	4377	20,922	8 6	776 0 0	21,698 8 6	96.42	3.58	8 2				
Kanoun ...	1	{	...	5	39†	...	25	...	64	81,610	65,243	4648	6,278	4 7	2,636 0 0	8,914 4 7	70.43	29.57	2 2				
Rohilkund ...	...	...	...	13	72‡	...	49	4	125	155,375	131,223	721	21,205	14 4	4,655 0 0	25,860 14 4	82	18	3 1	
Agra and Meerut ...	...	...	...	9	64§	...	26	3	93	70,926	52,083	71	19,676	9 0	2,335 7 8	22,012 0 8	89.39	10.61	6 9	
Allahabad and Jhansi ...	...	...	...	6	36||	...	10	10	56	51,791	41,655	81.9	14,277	15 1	1,404 0 0	15,681 15 1	91.05	8.95	6 0	
Benares ...	...	...	...	9	...	...	...	66	66	23,014	17,949	84	...	...	...	...	...	...	...
Bandelcund ...	...	...	...	45	225	...	120	83	428	437,430	350,427	88.41	82,861	3 6	11,806 7 8	94,167 11 2	87.46	12.54	4 6	
TOTAL	1	4	1	35	186	...	77	10	273	322,887	264,265	88.26	73,790	0 0	8,527 0 0	82,317 0 0	89.6	10.4	5 0				
1871-72 ...	1	3	1	36	188	...	59	37	284	311,610	244,862	49.5	70,773	0 0	10,216 0 0	80,989 0 0	87.4	12.6	5 3				
1870-71 ...	1	4	...	36	188	...	50	22	260	299,357	237,298	84.77	...	...	...	...	...	...	5 0
1869-70 ...	1	4	...	36	188	...	55	11	254	331,590	266,687	85.69	...	...	...	...	...	...	4 7
1868-69 ...	1	4	...	...	188	...	...	...	248	253,048	198,317	10.37	...	...	...	...	...	...	6 4
1867-68 ...	1	4	...	...	188	...	...	...	211	203,916	161,711	80.53	...	...	...	...	...	...	6 4
1866-67 ...	1	3	...	...	170	...	41	...	...	...	...	...	...	...	...	...	...	...	6 3

* And 3 apprentices.
 † And 5 " "
 ‡ And 13 " "
 § And 9 " "
 || And 6 " "

The results of Bundelcund to be excluded from comparison with former years.

Agency increased.

Work increased.

Cost per successful case diminished.

Sufficiency of vaccination.

Vaccination to births.

Sex of vaccinated.

Caste of vaccinated.

Work performed by each class of vaccinator.

Small-pox.

In comparing the results of the present season with those of preceding years, it is to be borne in mind that last year the Ajmere circle was transferred to Rajpootana, and that now the returns of the Native States of Bundelcund are included. It will therefore be more convenient to compare the figures of the province with those of last year by excluding for the moment Bundelcund.

The vaccination agency has greatly increased. The staff (including apprentices) numbered 438, being an increase of 125 upon the previous year. The details of this additional agency were 39 vaccinators and 35 apprentices paid by Government; 26 vaccinators paid by municipalities; 17 vaccinators paid from local funds; 8 vaccinators paid by native chiefs and landlords. The total number of persons vaccinated was 414,416 against 322,887 in 1871-72, being an increase of 91,529, or 28 per cent. Of this total, 87 per cent. were successful cases, and if primary cases alone are considered, the percentage of success was 88·7. The average number of operations performed by each man was 238·8 per mensem, being an increase of 6·1, and the cost of each successful case fell from 5 annas to 4 annas and 6 pies. Taking the population at 30,693,706, and the number of births at 920,810, there were vaccinated 36·10 per cent. of the number of births. Of the total population, 1·2 per cent. was vaccinated (1·1 males and 1·3 females), the highest proportion (1·9) being attained by the Kumaon and Rohilkund circles, and the lowest by the Benares circle (0·6); the Allahabad and Jhansi circles giving a percentage of 1·0, and the Meerut and Agra circles 1·4. Of the total vaccinated, 50·3 were males and 49·7 females. All the circles gave an excess of females except Benares, where the proportions stand reversed: 22·8 per cent. of the total number of primary cases were infant vaccinations,—a result which compares unfavorably with the preceding year when the number was 34; the falling off in this respect is common to all the circles. His Honor the Lieutenant-Governor in alluding to this circumstance as mentioned in the report, expresses his doubt as to the reliability of these statistics, and observes that “in Kumaon it is noticed that while three-fourths of the operations of last year were said to be performed on yearling infants, only one-fourth is so returned this year. Violent variations like this must, unless explained, throw doubt on the statistics.” The number of infant vaccinations to births would, according to the above figures, hold a proportion of about 10 per cent.—Christians composed 29, Mahomedans 15·6, Hindus 27·2, and other castes 56·8 per cent. of primary cases. The following table given in the report compares the monthly number of cases performed by each class of vaccinator and the percentage of success attained by each. In the year 1872 there were 30,073 deaths from small-pox in the North-Western Provinces, against 38,449 in 1871 :—

No.	Class.	Average monthly numbers.	Monthly percentage of success.
225	Government vaccinators	274·2	88·2
84	Municipal do.	157·8	87·0
36	Local do.	172·1	85·4
17	Native Chiefs and landlords' do.	110·6	85·6

Proportion of vaccinators to population and area.

Cause of increase of establishment.

Result attained by attempt to vaccinate exhaustively selected areas.

With the present establishment each vaccinator has assigned to him about 184 square miles and a population of about 70,076 persons.

The Government resolution upon Dr. Pearson's report explains that the increase in the number of Government vaccinators was “due to the correspondence which took place two years ago regarding the possibility of providing complete immunity from small-pox in certain localities, so that the people might have before them absolute proof of the benefits of vaccination.” It was resolved as an experiment to supply certain selected districts with a sufficient number of operators to vaccinate every child that is born; and those districts were chosen in which vaccination had previously been most popular and successful, or in which the people showed themselves most ready to cooperate by providing funds for local vaccinators. The following table shows the result of the year's work. The results have not altogether come up to expectation; but in some cases the vaccinators were appointed late in the year, and in most cases they were new to the district, and even to the work. In

Saharunpore and Meerut the number of operations kept pace with the increase in the operators; in others the increase was in smaller proportion. In Goruckpore alone the result is altogether unsatisfactory:—

District.	No. of Government vaccinators.		Total number vaccinated.	
	1871-72.	1872-73.	1871-72.	1872-73.
Moradabad	6	12	11,414	16,618
Bijnour	5	10	8,552	14,928
Saharunpore	4	8	6,824	13,658
Meerut	6	12	5,862	11,939
Cawnpore	9	18	13,076	20,648
Goruckpore	6	14	8,608	9,497
TOTAL	36	74	54,336	87,288

Dr. Pearson quotes the following from Dr. Walker's Jail report:—

I was aware that in many jails the record had not been so carefully kept as in others, so the return which I have received is a partial one, being for certain years between 1861 and 1872, and referring only to certain jails; yet, as far as it goes it is valuable.

We have a record of 268,445 individuals. Of this number, 228,964 had had small-pox; 20,480 cases were uncertain; 12,215 were unprotected; 4,233 had been inoculated; and 2,553 had been vaccinated. That is to say, in a total of 268,445 of the jail population, 85·29 per cent. had gone through an attack of small-pox; 1·56 had been inoculated; and only 0·95 per cent. vaccinated. Of the rest, 4·55 per cent. were unprotected, and 7·62 were doubtful cases.

And he goes on to observe—

At first sight these figures seem curious, knowing that for years past we have been in the habit of vaccinating tens of thousands annually. But the solution is simple:—Vaccination was not undertaken on at all a large or general scale in the plains until 1864; the vaccinated generation has therefore hardly had time yet to attain to a jail position.

The return is interesting, as showing the fearful prevalence of small-pox, warranting the native saying, that "until a child has gone through its small-pox, it is not considered viable."

The Lieutenant-Governor observes concerning this, that Dr. Walker's figures, though not exhaustive,

are accurate so far as they go, and probably the jail population corresponds pretty closely in this respect with the population of the province at large. Dr. Walker found that 0·95 of his prisoners had been vaccinated; while the return given in paragraph 4 showed that the proportion to the whole population, even in this year of progress, was only 1·2. Besides them 1·57 had been inoculated and 85·29 per cent. of the prisoners had had small-pox. These figures afford a striking testimony to the terrible scourge which this disease is among the unprotected population. When 85 per cent. of the surviving population have passed through the ordeal, it may be conceived what multitudes have fallen victims under it.

The Bundelcund circle is supervised by the Superintendent of the Allaha-
bad and Jhansi circles, and has its head-quarters at Nowgong. The vaccina-
tors are the hereditary *Baids* and *Suttiahs* of the various States, and they
receive no pay but hold rent-free lands from the Rajahs. The arrangement is
considered by Dr. Watson to be "admirably suited for the introduction of
vaccination into independent territory, but it would be unreasonable to expect
such vaccinators to vaccinate as many children as is done by the regular agency
in the North-Western Provinces." Dr. Pearson adds that the amount of work
done by each vaccinator is small in amount, being only 69 per mensem, but
the quality is satisfactory, showing 84 per cent. successful.

The Kumaon and Gurhwal vaccine depôt is the chief source from which
the annual supply of lymph is obtained for the province. Inoculation is pro-
hibited by law in these hills. During the season 11,750 crusts and 6,462 tubes
were despatched from the depôt, and the quality of the lymph has been uni-
versally extolled by the operators in the plains. Three tube-fillers have been
sanctioned.

Dr. Pringle carried on vaccine operations in the hills near Mussoorie
from 1st April to 22nd October. He reports highly of the vaccine lymph sup-
plied by the medical department of the Privy Council.

The returns of the Kumaon division of the Kumaon and Rohilcund circle
are satisfactory. The Superintendent-General, who personally supervises this

Jail statistics as to
vaccination.

Bundelcund circle.
Constitution of
agency.

Work done by each
man.

Kumaon and Gurh-
wal lymph depôt.

Work in the hills
during summer.
English lymph.

Kumaon division.

Rapid increase of population.	division, states that the population has within the last ten years increased by 200,000, and that the number successfully vaccinated during the season was double the birth addition. The establishment was increased by three apprentices and four vaccinators; 54,714 persons were vaccinated, being an excess of 17,257 upon last year; 92·5 per cent. of primary cases were successful, excluding all "unknown" cases. Each vaccinator performed 379·8 operations monthly, being an increase of 75·8 upon the previous year. There were 105 deaths from small-pox against 257.
Vaccination ample.	
Work done.	
Small-pox.	
Rohilkund division.	<i>Rohilkund division.</i> —This division worked with an increase of 17 vaccinators and 5 apprentices. Total number vaccinated 81,610, being a decrease of 3,210. In alluding to this decrease, the Superintendent-General explains that the strength of the establishment in 1871-72, though entered as consisting of only 47 vaccinators, was in reality 67 in number, as 20 <i>umedwars</i> were employed in addition to the regular sanctioned strength, thus bringing up the number to within two of the present year.
Establishment increased, but work decreased.	
Explanation.	
Sufficiency of vaccination.	Assuming the births to be 151,958 in a population of 5,065,269, the number of successful vaccinations to births was 42·9 per cent. The average monthly number of operations per Government vaccinator in Rohilkund, Dr. Pearson considers good, <i>viz.</i> , 312·2, but the small amount of work performed by the municipal employés spoils the general result. Much support was received from native gentlemen.
Work done by each vaccinator.	
Agra and Meerut circle.	<i>Agra and Meerut circle.</i> —Dr. Richardson, Superintendent.—The establishment increased by 30 vaccinators and 12 apprentices. The increase of work done has been commensurate with the increase of establishment. There were 155,375 operations, being an increase of 58,729; and the average number accomplished by each member of the agency was 248, being an increase of 45.
Establishment increased.	
Work increased.	
Sufficiency of vaccination.	Assuming the births to be 300,082, and the population 10,002,734, there were 43·7 per cent. of the birth-rate successfully vaccinated. There were more females than males operated upon.
Sex of vaccinated.	
Obstruction from inoculators.	In the summer, Dr. Pringle, who held the Superintendentship until October, was much frustrated in his efforts to establish a sufficient working supply of lymph by the inoculators in Teree, Gurhwal, but by great perseverance he succeeded in stamping out a formidable outbreak of small-pox which had been lighted up by these pests. It is satisfactory to learn that the Rajah of Gurhwal has entirely set his face against inoculation, and has promised to take measures to stop it.
Small-pox stamped out.	
Low rate of success at Agra and Meerut.	The districts of Agra and Meerut in this circle show the most unfavorable results, and those of Mozuffurnuggur, Boolundshuhur, and Etawah, the most favorable. The success in the latter localities is attributed to the personal interest which the civil authorities evinced in the work. The cantonments of Muttra and Meerut declined to give any assistance in the shape of entertaining vaccinators.
Cantonments of Meerut and Muttra declined to entertain vaccinators.	
The amount of protection in Dehra Doon.	Dr. Richardson considers the idea that the Dehra Doon district is nearly as perfectly protected as Kumaon and Gurhwal is a mistake. "The spread of tea-planting in the Doon, and the proximity of a large hill station, create an annual influx of numbers of coolies and workmen from other districts less protected by vaccination, which will continue to render the eradication of small-pox from the Doon no easy task."
Allahabad and Jhansi circle.	The municipal vaccinators of Meerut have, for the first time, been placed under the superintendence of the department.
Establishment increased.	<i>Allahabad and Jhansi circle.</i> —Dr. Watson, Superintendent.—Establishment increased by 20 vaccinators and 9 apprentices. Total number vaccinated 70,926, being an increase of 11,829, with a percentage of 82 successful cases.
Sufficiency of vaccination.	Assuming the births to be 196,042 in a population of 6,534,763, the percentage of successful vaccinations to the number of births would be 26·5. Vaccination is found to succeed best when there is a large proportion of Mahomedans, and very badly in any place when the Bunniah caste is the leading one.
Vaccination succeeded best amongst Mahomedans.	
Unsatisfactory in the district of Allahabad.	In the district of Allahabad vaccination is in a more unsatisfactory state than in any other part of the circle. Dr. Watson invariably inspected the children at the doors of their own homes.
Benares circle.	<i>Benares circle.</i> —Dr. Macgregor officiated as Superintendent.—The establishment had undergone an increase of 19 vaccinators and 6 apprentices;
Establishment increased,	

51,791 vaccinations were performed, being an increase of 6,924; but this increase was far from being commensurate with the increase of agency, for there were only 167.6 vaccinations performed per man per mensem, being 75.4 less than during the previous year; but, adds Dr. Pearson, "the number of *umeds* employed in that year brought up the total to an altogether misleading figure." Assuming the births to be 250,938 in a population of 8,364,606, the percentage of successful vaccinations would only amount to 16.56 of the birth addition. The proportion of children under one year of age who were vaccinated only averaged 8.94 per cent. of primary cases; and the reason for this is supposed to be that it is not customary to perform inoculation in very early life, and that the same ruling is applied by the people to vaccination.

but work not commensurate with this increase.

Sufficiency of vaccination.

Infant vaccinations few.

The Lieutenant-Governor, in his order passed upon Dr. Pearson's report, considers the year to have been one of considerable progress, and thanks the Superintendent-General for his zealous and successful management of the department.

Government resolution.

VACCINATION IN THE PUNJAB.

Surgeon-Major A. M. Garden, the Superintendent-General of Vaccination, resumed charge of his office from Surgeon J. Newton, who had officiated for him while on furlough, on November 1st. Surgeon J. Bennett, M.D., continued to officiate as Superintendent.

Statement No. XII shows in detail and comparatively, the work of the year.

Work done.

STATEMENT No. XII.
Abstract Statement of Vaccination in the Punjab during 1872-73 compared with four preceding years.

CIRCLE AND YEAR.	ESTABLISHMENT.							OPERATIONS.		PERCENTAGE OF SUCCESSFUL CASES.				COST.				Average cost of each successful case.		
	Superintendent-General.	Superintendent.	Deputy Superintendent.	Native Superintendent & Head Vaccinator.	Vaccinators.				Persons vaccinated.	Persons successfully vaccinated.	Primary vaccination.	Secondary vaccination.	Paid by the State.	Paid by Local Funds.	Total.	Paid by the State.	Paid by Local Funds.		Per cent of Total.	
					Vaccine establishment.	Dispensary.	Municipal and local.	Native State.												Total.
1872-73.																				
Vaccine establishment	1	1	...	28	111	111	281,776	265,961	98.19	42.2	Rs. A. P. 51,598 6 9	...	Rs. A. P. 51,598 6 9	100	3 1	
Dispensary	44	...	44	50,786	37,319	79.69	64.27	4,776 0 0	100	2 0	
Municipal and other establishments	...	...	...	...	...	...	49	53	39,623	27,314	77.33	60.02	.....	2,499 4 1	2,499 4 1	...	100	1 5
TOTAL	1	1	...	28	111	44	49	208	372,185	330,694	93.73	52.89	56,374 6 9	2,499 4 1	58,873 10 10	95.76	4.24	2 5		
1871-72	1	1	...	26	113	46	81	247	281,519	247,372	89.2	47.2	54,842 0 0	2,031 0 0	56,873 0 0	96.4	3.6	3 8		
1870-71	1	1	...	26	94	56	22	176	221,419	192,089	85	59.8	51,207 0 0	1,114 0 0	52,307 0 0	97.7	2.3	4 6		
1869-70	1	1	...	24	87	53	25	165	277,196	237,314	45.5	...	.....	.....	54,736 0 0	...	...	3 9
1868-69	1	1	...	24	78	56	...	134	233,868	203,881	72.9	...	.....	.....	46,169 0 0	...	...	3 7

There were 372,185 operations performed, being an increase of 90,666 upon last year, with a percentage of success among primary cases of 93·73, an improvement of 4·55 upon last year's result. The cost of each successful case has fallen from 3 annas 8 pie to 2 annas and 5 pie. The increase in the amount of work done is chiefly due to the exertions of the regular establishment, which performed 85,341 cases more than in 1871-72. Municipal and other agencies contribute slightly towards the increase, but the number of dispensary cases has fallen by 3,810. The Government resolution referring to this observes that "the number vaccinated by the dispensary establishments shows a decrease of 3,810 cases, and the percentage of successful cases fell from 84·99 to 79·62, and the average cost rose from 1 anna 10 pie to 2 annas 11 pie. It appears, however, that last year's operations performed by vaccinators employed at the cost of local funds (excepting at Shujabád) were included in the dispensary returns, whereas this year they have been shown separately; and, as the number of such operations during the year under report was 11,417, it may be inferred that there was no falling off, but an increase in the number of cases."

Dr. Newton carried on operations between April 1st and November 1st in the Hill States of Patiala, Bajji, Suket, Bassahir, and the valley of the Sutlej. Some vaccinators worked in Kulu and Lahore during the hotter months. Simla was the scene of operations, and in August Koti was visited. In the cold weather operations were carried on in that portion of the State of Patiala which is situated in the Peanis, and in the districts of Ambala, Ludianah, Karnal, Delhi, Hushiarpore, Lahore, Gujranwalla, Sialkote, Amritsar, Jalandhar, Gurdaspore and Kangra. The Native Chiefs of Hill States, with a single exception, gave great assistance. In British territory there was opposition in the towns of Delhi and Ambala, and in the districts of Amritsar and Kangra. Ludianah, which was formerly a seat of the most marked opposition, has apparently surrendered, and is now an example of what can be attained by perseverance and tact. In fact, it is stated of this district that in several places people invited the vaccinators to go to them.

In Hushiarpore and Sialkote a really good amount of success was attained. The former district had only once been visited before by the establishment, but the Deputy Commissioner took much pains to prepare the people for Dr. Garden's advent; the result was, notwithstanding that there are a great many inoculators in the district, that 75,420 persons were vaccinated, with a percentage of 98·2 per cent. of successful vaccinations in primary cases. In Sialkote 14,355 operations were performed, with a success of 99 per cent. in primary cases. "The people brought their children readily to the vaccinators, and many in the Jammu territory brought theirs also. Since vaccination was first started here by Colonel Mercer there has been but little opposition."

Dr. Bennett's party, consisting of 6 native superintendents and 20 vaccinators, performed 69,610 operations in the districts of Jhelam, Rawalpindi, Gujrat and Hazara. These tracts are inhabited chiefly by Mussulmans, who gave 91 per cent. of the cases. Of the total, 51·7 per cent. were males and 48·3 per cent. females; and 39·4 per cent. were under one year. The attempt to establish female vaccinators in the Gujrat District proved an utter failure.

The very unsatisfactory condition of dispensary vaccination, as worked in the Punjab, has been before alluded to—only 79·6 per cent. of primary cases are reported as having been successful; but the supervision exercised seems to have been so nominal in its nature, that even this low figure cannot be regarded as representing an actual fact. At Ferozpoore the percentage of successful cases performed by this agency averaged only 36·5. In many places the supervision of the work seems to have been delegated to lumberdars and tehsildars, and some of the vaccinators are described as being incompetent and ignorant of the rudiments of their work. The district of Jhang would seem to be the only one in which dispensary vaccination succeeded fairly well.

Municipal and local fund vaccination.—The city of Delhi entertained 5 vaccinators, who performed 2,645 operations, with a success of 88·8 per cent. Lahore employed 3 men, who performed 1,862 vaccinations—not a very large number in a population of 85,000 persons—with a success of 93 per cent. Amritsar employed 5 vaccinators, who performed 6,645 cases, of which 93 per cent. succeeded. Other minor municipalities or districts employed 44 more vacci-

Cost of each successful case.

Increase of work due to regular establishment.

Falling off in dispensary cases.

Work in Hill States during hot weather.

Scene of regular season's work.

Assistance from chiefs.

Opposition.

Marked success in some districts.

Superintendent's party.

Female vaccinators.

Dispensary vaccination.

Municipal and local fund vaccination.

nators. The average combined success attained by this agency throughout the province, in primary cases, was 77·33, and the average number of cases performed by each operator was 695·14.

Vaccination in Native States of the Punjab.

Bhawalpore is the only one of the Native States in which vaccinators are entertained: 4 were employed, and they performed 12,472 vaccinations.

The Mandi and Chamba Rajahs have ceased to employ vaccinators.

Hakims.

Hakims were employed at Sirsa and Gujrat, but Dr. Bennett's account of their working in the latter district is not encouraging; for, he states, "if these men are allowed to practise vaccination in this imperfect manner, they will certainly bring the operation into disrespect, and thus do more harm than good."

Vaccination in Ladakh.

Ladakh.—Dr. Aitchison was welcomed by the people, who had, through the former exertions of Dr. Cayley, been made familiar with vaccination. He vaccinated a number of children at Leh, and then collected a supply of lymph. He then arranged to vaccinate the people along the line of his homeward march by sending operators ahead a few days in advance to the villages, which he inspected on his arrival. Thus he performed 1,621 operations.

Punjab plan is imperfect and insufficient.

The plan upon which vaccination is conducted in the Punjab is clearly an imperfect one, but with the present staff any attempt at concentrating vaccination after the Bengal system would seem to be out of the question. At the commencement of his report, Dr. Garden observes, alluding to the beginning of the season—"I had some difficulty in choosing where to begin;" and further on he remarks—

It will be seen from the account of vaccine operations in the large cities and towns, and in those districts where only a native superintendent with a staff of vaccinators is at work, that, with a few exceptions, the results are far from satisfactory. Opposition is met with, which can only be overcome by the presence of a European officer, and only then by his being able to remain a considerable time at each place. This is unfortunately not possible under the present conditions. The Superintendent-General is, during the greater part of the season, obliged to be in one or two districts where a large body of vaccinators are at work; and although he inspects, as far as possible, work in other districts, his visit to each is necessarily a hurried one; or, should he be forced to remain a longer time in one city, he must omit another. Most probably the greater part of the opposition met with could be overcome were he able to remain a longer time in those places where his presence is most necessary, and were he able to make more than one visit to it, should such be desirable. For instance, in the city of Delhi this year no real work was done until more than two months of the vaccinating season had passed, the Superintendent-General finding it impossible to leave the body of his work till then to go on a tour through the districts. The Ambalah tahsil, the Tarn Tarn tahsil of the Amritsar district, the city and tahsil of Lahore, are other examples."

Estimate of the sufficiency of vaccination.

Statement No. VIII appended to the Superintendent-General's report shows the population of the Punjab to be 17,481,189, which yields, at 30 per 1,000, a birth-rate of 524,431 annually; but as the number successfully vaccinated amounted to only 330,594, the amount of work done is considerably below the requirements of the province.

Small-pox.

There were registered 23,639 deaths from small-pox in the Punjab during the year.

VACCINATION IN THE CENTRAL PROVINCES.

Surgeon-Major J. Brake officiated as Superintendent-General.

General results.

The results of the year, as shown in the following statement, compare in every way favourably with those of the previous year. The number of cases has increased by 13,752, giving a percentage of success of 89·3 against 83·7 in primary cases. The total cost has diminished, and consequently the cost of each successful case has been less.

STATEMENT No. XVII.

Abstract Statement of vaccination in the Central Provinces during 1872-73 compared with three preceding years.

CIRCLE AND YEAR.	ESTABLISHMENT.						OPERATIONS.		PERCENTAGE OF SUCCESS.		COST.				Average cost of each successful case.				
	Superintendent-General.	Superintendent.	Deputy Superintendent.	Native Superintendent and Head Vaccinator.	Vaccinators.				Persons vaccinated.	Persons successfully vaccinated.	Primary vaccination.	Secondary vaccination.	Paid by the State.	Paid by local funds.		Total.	Paid by the State.	Paid by local funds.	PER CENT. OF TOTAL.
1872-73.	...	1	...	1	Vaccine establishment.	Dispensary.	Municipal and local fund.	Native State.	Total.	10	11,640	10,851	94.58	...	Rs. A. P.	Rs. As. P.	Rs. As. P.	...	As. P.
	...	1	...	1	...	...	...	...	...	10	19,822	17,594	91.46	...	4,029 0 8	4,029 0 8	100	...	1 9
	...	1	...	1	...	...	...	...	...	10	13,636	12,289	92.25	...	...	...	...	...	...
	1	10	7,773	6,523	87.01	...	480 0 0	1,698 14 4	2,118 14 4	22.65	77.35	5 2
Nagpore ...	1	...	...	1	...	...	...	...	50	71,378	60,308	87.61	61.64	...	6,039 7 0	6,039 7 0	...	100	1 7
Civil Stations ...	1	3	...	5	30	...	60	...	90	124,249	107,565	89.37	61.64	4,509 0 8	7,678 5 4	12,187 6 0	36.99	63	1 8
TOTAL	1	...	...	7	84	...	...	...	84	110,497	92,433	83.75	76.93	6,186 0 0	6,052 0 0	12,248 0 0	50.5	49.45	2 1
1871-72 ...	1	...	4	7	30	...	61	...	91	125,337	104,647	85.9	89.9	4,312 0 0	7,897 0 0	12,209 0 0	35.3	64.6	1 10
1870-71 ...	1	...	4	7	39	...	54	...	93	127,090	108,600	85	4	12,457 0 0	4,476 0 0	16,933 0 0	73.6	26.4	2 6
1869-70 ...	1	...	4	7	39	...	54	...	93	127,090	108,600	85	4	12,457 0 0	4,476 0 0	16,933 0 0	73.6	26.4	2 6

Constitution of establishment.

The system of vaccination has undergone no change, but the constitution of the establishment may be explained as follows. In the Satpoora districts, (Chhindwara, Seoni, and Betul), there is a provincial establishment consisting of three native superintendents and 30 vaccinators. In all the other districts, except Nagpur, the establishments are paid from local and municipal sources, and the number of men employed depends upon the sums of money thus made available. The arrangement at Nagpur is of an intermediate character. The native superintendent receives the pay of his rank as an hospital assistant from Government, and a similar sum from municipal funds. The establishment is under the control of the Superintendent-General of Vaccination, who receives all returns and reports. All vaccinators, during the non-working season, are attached to civil dispensaries, an arrangement which is found to answer.

Scene of work.

Vaccine operations were carried on throughout the year at Nagpur, Seoni and Bhandara. At Chhindwara and Nimar an attempt to keep up a continuous vesicle failed.

Lymph supply.

A supply of English lymph procured through the Superintendent-General of Vaccination, Bombay, in October, produced very various results; but Nagpur was able to meet all demands by the beginning of November,—a result which is highly creditable. Crusts, preserved from the previous season, were tried at Betul, Wardha, Damoh, and Hoshangabad, and proved almost worthless.

Small-pox.

Small-pox produced more than double the mortality which it occasioned in the previous year. Sagar was the only district which was wholly free from the scourge. From April 1872 to March 1873 there were 5,237 deaths recorded. April, May, February and March were the months of highest mortality, and October the lowest. Mr. Price gives the following encouraging particulars regarding the disease in his district, Chhindwara :—

The vaccine establishment commenced their operations in November 1870; in the early part of that year small-pox was present in an epidemic form throughout the district, and many children died; but although there was a large number of children who had had small-pox, still during the season the vaccinators were enabled to vaccinate no less than 18,000 children.

The following table shows the number of cases of small-pox, the number of deaths from the same cause, and the number of children vaccinated during the last three years :—

		Cases of <i>small-pox.</i>	Deaths from <i>small-pox.</i>	Number of children vaccinated.
1870	...	6,146	511	18,005
1871	...	360	65	9,272
1872	...	82	35	9,160

but in Chhindwara, mainly owing to Mr. Price's activity, the protection of the people has reached a high standard; indeed, the Superintendent-General states that no less than 990 per 1,000 of all children available in the district have been protected, as will be seen by the following table, in which he gives the number of children under one year of age operated upon during the season, and an approximate proportion to the number under one year available :—

No.	Districts.	Number of births from April 1872 to March 31st, 1873.	Number of deaths of children under one year of age from April 1872 to March 1873.	Difference, being an approximation to the number available for vaccination.	Actual number under one year operated upon.	Ratio per mille of children under one year operated upon to approximate number under one year available.
1	Chhindwara ...	8,128	2,284	5,844	5,788	990
2	Sambalpur ...	7,255	1,644	5,611	*5,548	*989
3	Betul ...	7,606	1,763	5,843	4,024	689
4	Nimar ...	6,160	2,424	3,736	1,695	454
5	Seoni ...	9,903	2,801	7,102	3,000	422
6	Jabalpur ...	16,023	3,265	12,758	3,580	281
7	Bhandara ...	10,588	2,219	8,369	1,942	232
8	Wardha ...	6,062	1,637	4,425	924	209
9	Hoshangabad ...	13,520	3,200	10,320	1,933	187
10	Nagpur ...	14,881	3,268	11,613	1,761	152
11	Sagar ...	15,628	3,748	11,880	1,726	145
12	Raipur ...	22,824	4,896	17,928	2,582	144
13	Bilaspur ...	12,244	2,931	9,313	1,173	126
14	Balaghat ...	3,668	830	2,838	187	66
15	Damoh ...	9,708	2,114	7,594	448	59
16	Upper Godavari ...	1,152	150	1,002	26	26
17	Mandla ...	4,053	622	3,431	62	25
18	Chanda ...	11,086	2,649	8,437	206	25
19	Narsinghpur ...	11,654	3,275	8,379	198	24

* The number operated upon in the Chandrapur Zamindari are deducted, but an unknown number of cases in the Singabaga, Rampar and Bharun Zamindaris are included which would reduce the percentage.

The Chief Commissioner in his resolution on the report says concerning this table:—

“It is interesting in so far that it serves to indicate in which district operations should be vigorously pushed on. The figures given in it, however, only show the population actually under registration, not the whole population of the province, and the table establishes in the most conclusive manner how little trust can even now, after much trouble and labour expended on them, be placed in the returns.”

“Thus the total of column 3 is 146,429, and this figure is said to represent for the whole province (except the feudatories) the number of children under one year of age available for vaccination. Now, the late census showed the number of children under one year of age to be 455,853, and though some deduction would have to be made on account of the feudatory States, yet enough has been said to show how erroneous any deductions drawn from the table would be. To take another instance, that of Chhindwara, the first district in the list, you give the available children as 5,844, whereas the census papers exhibit a total of 16,781 children, of whom 8,345 were males and 8,436 females.”

If the population be taken at 7,426,604 and the total number of successful vaccinations being 107,565, a long race has to be run ere vaccination can overtake an estimated birth addition of 222,798. Sufficiency of vaccination.

The Chief Commissioner in concluding his resolution expresses his satisfaction at the results of the year.

VACCINATION IN OUDH.

Dr. G. Sutherland, the Superintendent of Vaccination, furnishes the report, which is so brief as to convey very limited information.

In statement No. XVIII the results of the year are contrasted with those of previous years. An inspection of the figures is by no means reassuring as regards the future of vaccination in Oudh. With a staff almost the same as was employed in 1871-72, we have a falling off in the numbers vaccinated to nearly one-half, an increase in the total cost, the whole of which was paid by the State, and an enormous increase in the cost of each successful case. The only figure in the statement which shows a slight improvement is the percentage of success attained in primary cases, but even this is not much to boast of, for, with the exception of British Burmah, the ratio is the lowest attained by the vaccine establishment in any province in Bengal. Results of year compared with former years.

STATEMENT No. XVIII.

YEARS.	ESTABLISHMENT.							OPERATIONS.		PERCENTAGE OF SUCCESS.		COST.							
	Superintendent General.	Superintendent.	Deputy Superintendent.	Deputy Superintendent and Head Vaccinator.	Vaccinators.			Persons vaccinated.	Persons successfully vaccinated.	Primary vaccination.	Secondary vaccination.	Paid by the state.			Percentage of total.		Average cost of each successful case.		
					Vaccine Establishment.	Dispensary.	Municipal and local fund.					Native State.	Total.	Paid by state.	Paid by local fund.	Total.		Paid by state.	Paid by local fund.
1872-73	1	...	4	54	...	...	64	19,170	14,676	81.4	53.72	Rs. 7,477	...	7,477	100	...	A. P. 8 2
1871-72	1	...	4	31	...	25	56	37,663	27,612	80.22	65.7	5,309	1,237	6,546	81.1	18.9	3 10
1870-71	1	...	...	31	...	2	33	16,016	12,250	81.25	77.07	4,886	95	4,981	98.09	1.91	6 7
1869-70	1	...	...	31	...	...	31	7,139	5,644	79	15	3,582	...	3,582	100	...	10 2
1868-69	1	...	...	29	...	...	29	5,108	3,924	76	82	2,777	...	2,777	100	...	11 3
1867-68	1	...	...	13	...	...	13	3,177	2,360	74	28	1,338	...	1,338	100	...	9 1

Dr. Sutherland works upon principles which are not endorsed by the local Government, nor participated in by any other Superintendent throughout the Presidency, and it would seem not improbable that herein may be found the explanation, to some extent at all events, of the paucity of numbers vaccinated in the province of Oudh. The Superintendent apparently objects to district officials throwing the weight of their influence into the cause of vaccination, whereby would be secured the co-operation of the head-men of villages who would “order out the children” to be operated upon. He regards all this as undue The superintendent's views regarding vaccination.

influence, and particularly does he disapprove of the vaccinators being "armed with a parwanah," but as the Government resolution points out, "there is very little difference between the parwanah which the magistrate grants and the certificate with which the Superintendent himself armed the vaccinators," and the Chief Commissioner definitely states his opinion that the falling off in the numbers vaccinated demonstrates that the measures adopted during the previous year by the officer who was officiating as Superintendent of Vaccination were successful so far as numbers were concerned. The most abundant evidence exists as to the great value of properly exercised official influence,—in fact it is a vital principle necessary to the successful education of the people in the matter; but the question has been discussed, and the nature of the influence desired described in a previous page.

Work performed by each vaccinator.

Each vaccinator only performed 355 cases in five months, and the number of successful cases per cent. of population was 0.13. Twenty-four per cent. of the vaccinated were under one year of age, and nearly twice as many Mahomedans as Hindus were protected in ratio to their proportion of the population, and the cause is stated to be that they are less superstitious.

Sufficiency of vaccination.

According to statement A appended to the report, it seems that 14,576 successful vaccinations were performed amongst a population of 11,185,357 persons, which would give a birth-rate at 30 per mille of 335,553, but Dr. Sutherland trusts that vaccination may, this fact notwithstanding, "advance on its own merits, with the progress of education and the decay of superstition."

Chief Commissioner's resolution.

The Chief Commissioner observes at the conclusion of his resolution that "the only satisfactory feature in this report is that what has been done this year appears to have been done well.

VACCINATION IN RAJPOOTANA.

Work done.

Surgeon-Major W. J. Moore, the Superintendent-General of Vaccination, writes—

Sixty-eight thousand six hundred and forty-three vaccinations were performed during the year at a total cost of Rs. 7,168-9-11, or about 2 annas 8 pie per successful case. Of these, 61,653 were performed in the Native States, at a cost of 2 annas per successful case, and 6,990 in British Rajpootana, at a cost of 2 annas 8 pie per successful case. The percentage of success was, excluding unknown cases from the total, 80.05.

The following table shows the number of vaccinations performed in Rajpootana, and the cost:—

Districts.	Number of vaccinators employed.	Number of vaccinations performed.	Percentage of success.	Cost of vaccinations in each state.			Cost of each successful case per head.		
				Rs.	A.	P.	Rs.	A.	P.
Bhurtpoor	15	17,476	90.99	444	0	0	0	2	1
Jeypoor	15	14,982	77.70	.....	.....	.....	.....	.....	.....
Oodeypoor	2	1,083	91.14	288	0	0	0	4	8
Jhalra Patun	1	300	85.99	180	0	0	0	11	1
Kerowlee	2	2,190	90.81	72	0	0	.....	.....	.....
Kotah	2	967	87.43	250	0	0	0	4	11
Ujwar	14	12,332	89.55	2,161	15	10	0	3	11
Marwar	9	7,541	62.51	2,059	11	1	0	6	11
Tonk	1	2,358	47.39	312	0	0	0	3	3
Deolee	1	210	70.47	96	0	0	0	10	4
Serohi	1	959	84.02	360	0	0	0	6	1
Dholepoor	1	486	85.80	486	0	0	.....	.....	.....
Banswarra	—	236	84.72	.....	.....	.....	.....	.....	.....
Bickaneer	—	99	30.26	.....	.....	.....	.....	.....	.....
Anadra	—	8	75.00	.....	.....	.....	.....	.....	.....
Aboo	1	968	87.19	138	0	0	.....	.....	.....
Khairwarra	—	208	97.59	.....	.....	.....	.....	.....	.....
Ajmere and Mhairwara	7	6,990	83.46	896	0	0	0	2	8

Progress made.

During the last two years the British district of Ajmere has been included in the returns; but even deducting the number of vaccinations there performed, there is ample evidence of the progress of vaccination—"an extension certainly sufficiently slow, and scarcely protecting one per cent. of the presumed population of the 123,000 square miles of Rajpootana."

During the past year the number of vaccinators has remained the same, Establishment. excepting in Jeypoor, where an increase of five men has been sanctioned.

Each vaccinator performed 755 cases. In judging of the amount of work Number of cases performed by each vaccinator. done by a vaccinator, Dr. Moore observes that various circumstances have to be considered: "The feeling of the durbar on the subject, the amount of supervision the European superior is able to exercise, the character of the country whether more or less populated, and the distance of the villages." The actual support of the chiefs and darbars is quite exceptional.

Dr. Moore considers that there is no real obstacle in the attitude or feelings Attitude of the people. of the people to the complete vaccination of the whole of Rajpootana.

VACCINATION IN BRITISH BURMAH.

There was no change in the agency employed. Agency.

The work done exceeded that of the previous year, but is still considerably Results of season's work. below the maximum attained in 1870-71. The percentage of success has improved, but still stands at a low figure.

STATEMENT No. XIX.

YEARS.	Number vaccinated.	Number successfully vaccinated.	Percentage of successful cases.
1867-68	8,336	7,086	85
1868-69	8,251	5,832	70.68
1869-70	9,350	7,248	77.52
1870-71	23,144	18,101	78.68
1871-72	14,532	9,838	67.98
1872-73	16,377	11,565	72.59

Operations were confined to large towns. The civil medical officers who Unregistered results. are *ex-officio* Superintendents of Vaccination were satisfied that the returns were correctly rendered. In addition to the operations performed by the vaccinators of the department, cases were protected by the missionaries, and others were done in cantonments which were not included in the returns. Inoculators becoming converted. Inoculators were supplied with lymph and used it largely, and this is regarded as one of the most hopeful signs connected with vaccination in Burmah.

There were only 1,793 infant vaccinations out of the total, but the Number of infant vaccinations. Burmese are represented as having always been averse to having young children vaccinated.

There was much difficulty in starting the vaccine vesicle; both lymph and Lymph supply. crusts from Calcutta and the North-Western Provinces failed repeatedly, and it was not until January that real work began.

It has been found an impossibility to continue vaccination throughout the Work suspended during rainy season. rainy season in Burmah. The vaccinators are therefore to be attached to dispensaries during the non-working season as is done elsewhere.

The cost per successful case amounted to 1s. 4d. against 1s. 9d., in the Cost. previous year.

The population of the province according to the last census taken in Sufficiency of vaccination. August 1872 was found to be 2,747,148, distributed over some 95,000 square miles. With, then, such a small staff as 27 vaccinators, vaccination in Burmah can, of course, be but in its very infancy.

Small-pox caused 845 deaths, of which 644 were in the Pegu division, Small-pox. where it was introduced by inoculation, but there was no general invasion of the disease.

VACCINATION IN THE HYDERABAD ASSIGNED DISTRICTS.

Dr. R. T. Abbott, the Superintendent, furnishes the annual report.

The improved system which was introduced in 1871-72 and which was System. explained in last year's volume of this series, continued in operation and has worked well.

The number of vaccine operations performed has increased considerably, Work done. and the number of successful cases has increased by nearly 20 per cent., but

the percentage of success has slightly declined; about one-third of the successful cases were verified.

STATEMENT No. XX.

YEARS.				Number vaccinated.	Number successfully vaccinated.	Percentage of successful cases.
1868-69	...	...	...	13,098	7,963	64.1
1869-70	...	...	...	7,920	6,450	81.8
1870-71	...	...	...	19,638	16,584	85.2
1871-72	...	...	...	34,706	28,966	83.46
1872-73	...	...	...	44,153	33,734	82.6

The area and population of each district, as well as the number of operations performed in each, are shown in Dr. Abbott's report thus:—

DISTRICT.	Area.	Population according to census of 1867.	Number of persons vaccinated.		Number of vaccinations.		REMARKS.
			1872-73.	1871-72.	1872-73.	1871-72.	
Oomrawuttee	Square miles. 4,548	489,986	7,137	12,135	10	11	In 1872-73, 36 vaccinators worked the whole season, and 15 for 5 months only, whereas in 1871-72, 25 were at work the whole season, 1 for 5 months, 2 for 4 months, 7 for 3 months, and 2 for 2 months.
Ellichpur	Acres. 581,412	237,799	4,563	885	6	4	
Woon	1,708,070	343,426	10,396	850	8	1	
Bassim	Square miles. 2,427	260,905	8,147	702	7	1	
Akolah	Acres. 1,628,115	480,657	6,992	10,654	12	12	
Buldanah	1,669,530	365,779	6,918	9,480	8	8	

If the results are worked out it will be found that in the—

Bassim District	over 31	{ per mille of the population were operated on in 1872-73.
Woon	do.	30
Ellichpur	do.	19
Buldanah	do.	18
Akolah	do.	14
Oomrawuttee	do.	14

Castes of the vaccinated.

Dr. Abbott considers that an increase in the proportion of Mahommedans and Hindus operated upon as compared with "other castes" may be regarded as a satisfactory index as to the increasing popularity of vaccination. Of those vaccinated this year, 75.37 were Hindus, 5.12 Mahommedans, Christians .03, and 19.47 belonged to other classes, whilst the proportion of other castes receded from 2.6 to 2.4.

The percentage of castes vaccinated to population stood thus:—

CASTES.	Number vaccinated.	PERCENTAGE OF POPULATION.	
		1871-72.	1872-73.
Christians	15	4.9	1.6
Hindoos	32,415	1.4	1.8
Mahomedans	2,203	1.1	1.4
Other Castes	8,373	2.6	2.4

Sex of the vaccinated.

There has been an increase in the proportion of females operated on; 20 per cent. of those vaccinated were children, and 17 per cent. infants under one year of age.

Work suspended during hot season.

It is not considered desirable to endeavour to work throughout the whole year, as the vaccine vesicle in the Berars is found as a matter of experience not to thrive in the hot weather, and the people have a prejudice against re-vaccination. If, then, it was attempted to keep up the vesicle continuously, it could only be at the expense of numerous cases of failure, which would bring discredit on vaccination and create a deeper prejudice against it.

The great majority of the cases were operated on in two or more places. Number of cases.

Notwithstanding the largely increased numbers, the cost of each successful Cost. case has increased from 6 to 7 annas. There are several causes to explain this; there were more superintendents on higher grades of pay, more vaccinators were employed, many of whom drew pay during the recess, and at the close of the season, small-pox being prevalent in some places, that work almost came to a standstill.

The Resident highly appreciated Dr. Abbott's successful endeavours as head Resident's remarks. of the department in Hyderabad during the year, and thanks him for his report.

* In Appendix No. III to the General Report for 1871—a "Memorandum on the effect of the prohibition of inoculation by legal enactment in Bengal"—it was stated (page 164) that "Dr. Charles in giving a new stimulus to vaccination in Calcutta in 1865, found that, in order to protect the town properly, it was necessary to put the surrounding population and the communities living along the great routes which form the approaches to Calcutta by road and rail, into a position of safety from small-pox. Accordingly during the two following years he pushed vaccination into the mofussil in all directions, insisting on the strict observance of the Calcutta system, namely, domiciliary work, as perfect vaccination as possible, and constant supervision and verification by trustworthy competent agents." It ought to have been stated that Dr. Charles's predecessor, Dr. John Macpherson, had during his incumbency commenced and carried out with considerable success the scheme of throwing a belt of protection around Calcutta. It is also right to state that domiciliary vaccination was not commenced in Calcutta by Dr. Charles; it had been always in existence to a greater or less extent, but it was developed and carried out with unprecedented vigour and success by that officer.

Vaccination in the Presidency of Bengal.

Provinces.	Vaccination by	Number of Deputy or Native permanent Dispensary or Head Vaccinator.	Number of Vaccinators.	Total number of persons vaccinated.	PRIMARY VACCINATIONS.										RE-VACCINATIONS.				PAID BY THE STATE.				PAID FROM OTHER SOURCES.				TOTAL COST.				Number protected, &c., success-ful cases in the year per cent. to the population.	Average number of persons vac-cinated by each vaccinator.					
					A. Sex.		B. Caste.			C. Age.		D. Results.			Successful.	Unsuccessful, including those doubtful.	Unknown.	Total.	In primary vaccination.	In secondary vaccination.	Total.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.			Rs. A. P.	Rs. A. P.			
					Males.	Females.	Christians.	Hindoo.	Musulmans.	Other castes.	Under 1 year.	Above 1 year.	Successful.	Unsuccessful, in-cluding those doubtful.																					Unknown.	Total.	Successful.
					(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)			(27)	(28)	(29)	(30)	(31)
Bengal	Vaccine establishment	29	304	500,004	253,464	230,604	1,129	342,078	206,263	34,558	29,039	445,119	474,185	9,618	2,697	485,000	3,890	13,038	379	17,410	9870	23-44	70,728	0	3,813	13	0	80,548	6	0	8	2451-8					
	Dispensary vaccination	...	172	187,312	62,343	45,081	655	67,948	28,460	10,981	19,684	85,906	113,758	13,857	5,108	186,273	615	591	33	1,036	63-47	61-13	5,039	0	4,029	0	0	10,068	0	0	1	5	1000				
N. W. Provinces.	Vaccine establishment	37	302	414,410	199,596	166,235	1,170	90,801	61,110	241,721	96,280	298,551	323,244	41,327	30,200	394,831	9,254	8,225	2,126	19,585	88-66	62-88	82,201	3	11,806	7	8	94,167	11	2	4	6	1144-8				
	Dispensary vaccination	...	60	23,014	11,006	11,997	17	13,682	1,532	8,032	8,192	14,811	17,943	3,394	1,666	23,003	6	2	3	11	84-9	75	
Punjab	Vaccine establishment	28	111	291,776	147,355	131,598	33	111,903	198,334	39,624	98,397	199,156	264,937	4,897	9,134	278,023	1,004	1,375	444	2,825	88-19	47-2	51,698	0	9	.....	.....	51,698	6	9	3	1	2338-5		
	Dispensary vaccination	...	44	60,786	39,197	29,225	45	15,172	32,394	1,911	23,312	36,070	36,565	9,316	3,101	49,422	754	439	191	1,564	79-64	64-36	4,776	0	0	.....	.....	4,776	0	0	2	0	189	1162-2	
Central Provinces.	Municipal	...	57	39,633	22,796	14,653	80	13,077	29,815	3,877	13,387	23,902	20,596	7,768	3,345	37,349	1,018	678	578	2,574	77-33	69-02	.....	.....	.....	.....	.....	2,469	4	1	5	.....	605-1		
	Vaccine establishment	4	40	62,871	20,076	26,891	16	35,657	1,717	16,487	15,075	37,796	47,237	4,261	1,346	62,871	.....	.....	.....	.....	.....	91-71	.....	4,269	0	8	.....	.....	4,269	0	8	1	6	1321-7	
Oudh	Dispensary vaccination	1	50	71,379	42,933	27,709	178	40,061	4,212	16,393	24,400	46,244	59,903	8,461	3,373	70,944	403	262	77	734	87-61	61-94	.....	.....	.....	.....	.....	7,078	5	4	2	0	14	1427-5	
	Vaccine establishment	4	54	19,170	10,747	7,971	233	14,657	3,924	2	4,669	14,049	14,338	3,276	1,104	18,718	228	205	9	442	81-4	63-72	7,476	11	4	.....	.....	7,476	11	4	2	0	13	365	
Rajpootana	Dispensary vaccination	7	69	69,887	.....	.....	.....	.....	.....	.....	.....	.....	55,355	11,455	2,961	69,651	166	41	29	236	89-85	82-83	.....	.....	.....	.....	.....	7,168	9	11	2	0	.....	746	
	Vaccine establishment	...	27	14,377	.....	.....	.....	.....	.....	.....	.....	.....	11,565	4,367	445	16,377	.....	.....	.....	.....	73-49	.....	10,804	0	0	.....	.....	10,804	0	0	14	8	.....	606-5	
Hydrabad	Vaccine establishment	6	51	43,006	21,485	21,521	16	22,415	2,203	8,373	7,406	35,606	33,734	7,102	3,317	44,153	.....	.....	.....	.....	82-6	.....	10,764	7	10	.....	.....	14,881	14	0	7	0	154	819-2	
	TOTAL	...	135	1,397	17,09,710	825,994	735,985	3,796	688,906	490,312	377,069	303,181	12,08,654	14,79,100	128,768	66,457	17,28,145	17,433	24,636	3,868	45,928	91-99	41-44	2,54,447	7	1	34,854	4	3	2,96,470	5	3	2	1337-8		

(1) Sex, caste, and age of 1,742 cases not stated.
 (2) Sex of 77,969 cases not given.
 (3) Cases of 78,895 " "
 (4) Age of 80,383 " "
 (5) Result of 53,820 " "
 (6) 1,147 repetition cases are not included in this column.
 (7) 3416 " "

PART III.

HOSPITALS AND DISPENSARIES.

HOSPITALS AND DISPENSARIES IN THE BENGAL PRESIDENCY.

Number of Institutions.—The number of hospitals and dispensaries in operation throughout the year in the Bengal Presidency is exhibited in statement No. 1, but in it are not enumerated the hospitals and dispensaries belonging to Calcutta, which are noticed in detail further on under the heading "Calcutta medical institutions"; nor does it include temporary hospitals which were in operation for part or the whole of the year for special purposes, such, for instance, as those which were worked in the Burdwan district. On the other hand, British Burmah and Hyderabad have for the first time been assigned a place in the statement. The general result is a net increase of 33 dispensaries upon the number of the previous year.

STATEMENT No. I.

PROVINCE.	1869.	1870.	1871.	1872.
Bengal	155	157	160	170
N. W. provinces	132	137	131	135
Punjab	99	101	110	116
Central provinces	70	75	79	80
Oudh	22	23	23	29
Rajputana	44	57	68	74
British Burmah ... ..	...	...	14	14
Hyderabad ... ..	...	...	23	23
Total	522	550	608	641

Number of patients treated.—The number of patients treated in all the institutions included in the former statement is shewn in statement No. II, in comparison with the preceding year. The in-door patients have increased in number in all the provinces uniformly; and in all, except Rajputana and British Burmah, the out-door patients have also been considerably augmented.

STATEMENT No. II.

PROVINCE.	ATTENDANCE.				DIFFERENCE.			
	1871.		1872.		In-door.		Out-door.	
	In-door.	Out-door.	In-door.	Out-door.	Increase.	Decrease.	Increase.	Decrease.
Bengal	17,892	405,528	18,127	439,539	235	...	34,001	...
North-Western provinces	19,664	696,196	21,927	739,346	2,263	...	43,150	...
Punjab	23,752	636,270	27,234	755,564	3,482	...	119,294	...
Central provinces	8,630	284,039	10,186	292,645	1,556	...	8,606	...
Oudh	4,624	113,681	5,906	138,806	1,282	...	25,125	...
Rajputana	3,312	192,768	7,058	175,032	3,746	...	...	17,736
British Burmah	3,678	45,341	4,104	42,156	426	...	...	3,185
Hyderabad	242	33,738	619	41,983	377	...	8,245	...
Total	81,794	2,407,561	95,161	2,625,061	13,367	...	217,500	...

Number treated in each province in proportion to population.

The average number of patients treated in each province, and the proportion of the number treated to population.—The average number of patients shows a diminished result so far as Oudh and Rajputana are concerned. The proportion of treated to population has increased everywhere except in Rajputana, but in the case of that province there is reason to regard the figures with a considerable amount of doubt. Indeed very little dependence can be placed upon the figures contained in the latter column of statement III, but they furnish some sort of a relative comparison of the work done in each province.

STATEMENT No. III.

PROVINCE.	Average number of patients treated in each dispensary.	Proportion of the number treated to population.
Bengal	2,712	·68
North-Western provinces	5,639	2·46
Punjab	6,748	4·47
Central provinces	3,833	4·16
Oudh	4,990	1·29
Rajputana	2,461	1·84 ?
British Burmah	3,304	1·74
Hyderabad	1,852	1·95

Dispensaries classified according to the amount of work done.

In statement No. IV the dispensaries are classified according to the amount of work done in each.

STATEMENT No. IV.

PROVINCE.	NUMBER OF INSTITUTIONS IN WHICH WERE TREATED																			
	In-door.								Out-door.											
	0-25.	25-50.	50-75.	75-100.	100-250.	250-500.	500-750.	750-1,000.	Upwards of 1,000.	TOTAL.	0-250.	250-500.	500-750.	750-1,000.	1,000-2,500.	2,500-5,000.	5,000-7,500.	7,500-10,000.	Upwards of 10,000.	TOTAL.
Bengal	18	13	10	8	41	22	—	1	1a	114	6	12	8	17	64	39	12	8	21	168
Percentage	15·8	11·4	8·8	7	36	19·3	—	·8	—	97	5	10	7	14	54	33	10	7	18	135
N. W. provinces	5	9	12	9	32	19	8	—	3b	97	1	4	3	4	18	49	26	15	15	135
Percentage	5·1	9·2	12·3	9·2	33	19·5	8·2	—	3·1	—	·7	·9	·2	·9	13·3	36·3	19·2	11·1	11·1	—
Punjab	5	6	6	4	34	26	5	5	3c	94	—	1	1	3	11	37	32	14	17	116
Percentage	5·3	6·3	6·3	4·2	36·1	27·6	5·3	5·3	3·2	—	—	·8	·8	2·6	9·4	31·8	27·5	12·0	14·6	—
Central provinces	3	5	4	5	14	7	5	1	1d	45	—	3	—	1	30	23	8	8	3	76
Percentage	6·6	11·1	8·8	11·1	28·8	14·4	11·1	2·2	2·2	—	—	3·9	—	1·3	39·4	30·2	10·5	10·5	3·9	—
Oudh	2	2	1	2	5	13	1	1	—	27	—	—	—	—	4	11	8	3	1	27
Percentage	7·4	7·4	3·7	7·4	18·5	48·1	3·7	3·7	—	—	—	—	—	—	14·8	40·7	29·6	11·1	3·7	—
Rajputana	8	2	3	4	7	7	1	1	1f	34	—	3	2	3	14	13	5	3	4	47
Percentage	23·6	5·9	8·8	11·8	20·6	20·6	2·9	2·9	—	—	—	6·4	4·2	6·4	29·8	27·6	10·6	6·4	8·6	—
British Burmah	—	—	1	—	8	4	—	—	1e	14	1	—	—	2	4	5	1	—	—	14
Percentage	—	—	7·1	—	57·1	28·5	—	—	7·1	—	—	14·3	—	28·5	35·7	7·1	—	—	—	—
Hyderabad } Percentage }	Information not available.																			

- a. Dacca.
b. Agra, Allahabad Colvin Dispensary, and Benares.
c. Amritsur, Lahore Mayo Hospital, and Peshawar.
d. Hoshungabad.
e. Bangalore.
f. Jaipal Jail.

1. Dacca and Patna
2. Agra, Allahabad Colvin Dispensary, Azimgurh, Bareilly, Philibet, Benares, Bhooloopore, Budaco, Goruckpore, Kupra, Jounpore, Meerut, Narghat, Moradabad and Saharaspore.
3. Delhi, Amballa, Ruper, Jalandhar, Amritsur, Amritsur City, Tarun Tarun, Gurdaspore, Sealkote, Lahore Mayo Hospital, Ferozepore, Rawalpindoo, Dera Ismail Khan, Lohab, Dera Gazzo Khan, Banna and Peshawar.
4. Wardha, Rai Bahadur and Hoshungabad.
5. Bangalore.
6. Kama, Weir, Touk and Ajmer.

Proportion of institutions which treat interns as well as externs in each province.

Of the total number of dispensaries in Bengal, 67 per cent. treated in-door patients, 71 per cent. in the North-Western provinces, 81 per cent. in the Punjab, 59 per cent. in the Central provinces, and 100 per cent. in Oudh, against 67, 68, 85, 44, and 78, respectively, in 1871. It is thus seen that the great majority of institutions treat interns, but the statement also shows that the number of institutions which treat anything like a large number are very few.

Surgical operations.

An examination of columns 16 and 17 of table No. 1, and a comparison of them with those in the former year's report, show that a very great increase has taken place in the number of surgical operations which have

been performed. Excluding Burmah and Hyderabad, which did not appear in last year's table, the total numbers compare as follows: 176,868 against 146,277; but the number of major operations has greatly diminished, being 8,468 against 15,346; and this is chiefly due to the results registered for the North-Western provinces, where the figure has been reduced from 9,873 in 1871 to 2,357 in 1872. The Inspector-General of dispensaries of the North-Western provinces attributes this to a more strict classification, by which operations, which were formerly recorded as "major," have this year been more correctly returned as "minor" operations. The results attained in the province of Bengal show very remarkable and favourable figures; the total number of operations has been more than doubled, 19,832 against 8,547; and the increase is common to both major and minor cases. The other provinces maintain very closely the former year's results. Following will be found several interesting tables, giving in detail information concerning the operations performed in some of the more important institutions, &c.

Falling off in the number of major operations explained.

STATEMENT No. V.

PROVINCE.	IN-DOOR.			OUT-DOOR.		
	Males.	Females.	Children.	Males.	Females.	Children.
Bengal	79.23	17.96	2.79	65.95	18.51	15.53
N. W. provinces			No record.			
Punjab	84.34	15.66	...	74.91	25.08	...
Central provinces	84.63	12.07	3.28	64.42	20.24	15.33
Oudh						
Rajputana			No record.			
British Burmah						
Hyderabad	92.56	7.43	...	74.10	25.89	...

Age, sex, and caste of patients.—The records of age must, for obvious reasons, be very imperfect. As to caste, the very crude classification, which to save endless labour it has been necessary to adopt, gives but an incomplete idea of facts. The returns, too, vary so much in their mode of treating these details in the different provinces that they render uniformity of classification in a concise form difficult. Statements Nos. V and VI represent briefly collected from the returns and reports, all the information that can be conveniently put together.

Age, sex, and caste of the treated.

STATEMENT No. VI.

	Europeans.			Eurasians.			Hindoos.			Mahomedans.			Other Castes.		
	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.
IN-DOOR.	50			48			71.85			25.19			1.98		
	98.90	1.10	...	75.86	16.09	8.05	79.31	18.08	2.61	79.43	17.55	3.02	69.36	24.23	6.41
Central provinces	27			45			69.50			21.98			7.80		
	100	...	...	80.43	17.40	2.17	86.85	10.68	2.47	8.26	14.60	5.14	76.95	17.51	5.54
OUT-DOOR.	14			57			64.50			33.23			1.91		
	69.06	10.70	20.24	50.51	20.36	29.13	66.73	18.15	15.12	65.04	18.97	15.99	58.63	23.42	17.75
Central provinces	35			63			64.13			25.00			9.89		
	56.46	26.16	17.38	52.10	26.98	20.92	68.16	19.06	14.78	65.13	17.70	17.17	52.40	33.74	13.86

Results of treatment.—In every province the death-rate amongst in-patients was higher than during 1871—markedly so in the Central provinces and Oudh (8.5 and 8.3 per cent. against 13.2 and 12.4 respectively) and very slightly so in the provinces of Bengal and the Punjab. The percentages of cured and relieved amongst in-patients diminished in Bengal, the North-

Results of treatment.

Western provinces and the Central provinces, for which alone are figures given in columns 12 and 13 of table No. 1.

Finances.

Finances.—Table No. 2 sets forth in detail the financial position of the dispensaries in each province separately. Whilst the number of institutions has increased in Bengal and the Central provinces, their incomes have become smaller; but it is to be observed that all the dispensaries of Bengal have not furnished cash statements. Still the fact remains that with an increased demand there has been a relatively diminished supply. Government has been called upon to contribute a smaller percentage of the incomes of the Bengal and Punjab dispensaries. In this respect the North-Western provinces remain much in their original position, but in Oudh and the Central provinces the local Governments had to increase the proportions of their contributions. With the exception of Oudh, the local funds of all the provinces bore an increased proportion of the expense. European subscriptions formed only 6 per cent. of the united incomes of lower Bengal, the North-Western provinces, Punjab, the Central provinces, and Oudh, against 7·6 per cent. for 1871. In all a falling off is seen except the North-Western provinces, which displays a marked increase, 7·1 against 4·57. Bengal shows the most marked diminution, 7·4 against 13·7. In Oudh, too, European subscriptions have diminished by nearly one-half. It is, however, satisfactory to find that the contrary holds good of the relative amount of subscriptions obtained from natives, which in 1871 amounted to 19·5 and in 1872 to 22·3 per cent. of the total income. The North-Western and the Central provinces, however, show a falling off in this respect as compared with the previous year. The expenditure of the Punjab, of the Central provinces and of Hyderabad, exceeded the income, and in these cases invested capital had to be encroached upon.

Proportion of Government contributions.

Local funds bear an increased burden.

Voluntary subscriptions.

Expenditure in some provinces exceeded income.

Leper hospitals and asylums.

In Bengal.

Leper Hospitals and Asylums.—The statistics of the Calcutta Leper Asylum are given below. Of the 62 inmates who remained at the end of the year, 18 were Christians, 16 Hindoos, and 28 Mahomedans. Nearly Rs. 2,000 had to be expended on the repair of the Hindoo ward, and it is reported that the Mahomedan ward is in a dangerous state, but there are not the necessary funds to meet the required outlay.

STATEMENT No. VII.

	Males.	Females.	Children.
Remaining 31st December 1871	41	8	2
Admitted	32	11	1
Re-admitted	57	29	5
TOTAL TREATED.	130	48	8
Discharged	63	31	6
Absconded	...	...	...
Died	19	5	...
Remaining, 31st December 1872	48	12	2

There are leper asylums at Burdwan and Gya, but there is no information available concerning them.

In North-Western provinces.

The following table extracted from Dr. Walker's dispensary report gives at a glance the number of asylums in the North-Western provinces, the work done by each, and the source of income.

Dr. Walker goes on to give the following detailed and novel information concerning these institutions:—

AGRA.

One of the oldest and best managed of the local charities is that at Agra, which, as I gave no account of it last year, seems entitled to a few words of acknowledgment in this place.

This institution was founded during the famine of 1837-38, and has lived on during the mutiny of 1857 and the famine of 1861, doing an immense deal of good in its sphere.

The charity consists of a poor-house and a leper asylum, but its benefits are also extended to a large number of poor native Christian widows and to indigent travellers.

The poor-house is situated on the banks of the Jumna near the Bhurtpore Rajah's house, and is known as the "Dhurmsala."

The leper asylum is situated further up the Jumna, on an open plain facing the "Hukeem-ka-Bagh."

As there is a Government branch dispensary in a building attached to the Dhurmsala, the native doctor in charge attends to the sick of the poor-house. For this he receives no remuneration, but the managing committee allow him Rs. 2 per month for visiting the leper asylum patients, distant about three miles from his dispensary.

The establishment of the poor-house consists of—

				Per mensem.		
				Rs.	A.	P.
1	Native superintendent	...	...	15	0	0
2	Peons	...	...	8	0	0
2	Cooks	...	...	8	0	0
1	Bhistee	...	...	3	8	0
1	Washerman	...	...	1	8	0
1	Barber	...	...	2	0	0
1	Sweeper	...	...	4	0	0
TOTAL				42	0	0

The establishment of the leper asylum numbers—

				Rs.
1	Native doctor	..	...	2
1	Peon	...	...	4
1	Cook	...	...	4
1	Bhistee	...	...	3
1	Washerman	...	...	1
1	Barber	...	...	1
1	Sweeper	...	...	3
TOTAL				18

The superintendent is an old respectable Brahmin, who has been in charge of the poor-house since 1838, and of the leper asylum since 1860, when it was opened.

During the past year the poor-house had an average number of inmates of about 64, the leper asylum of 25. On the 31st December there were in the former—

Blind	{	Men	20	} 37
		Women...	...	...	...	17
Poor and infirm.	{	Men	10	} 25
		Women	...	...	...	9
		Children	...	...	...	6
And in the latter—							
Lepers	{	Men	17	} 28
		Women	...	...	...	9
		Children	...	...	...	2

ALLAHABAD.

Doing a similar work at Allahabad, the charitable association at that station manages three institutions—the poor-house, the leper asylum, and the strangers' home—besides giving aid largely to a number of pensioners connected with the several Christian denominations. The financial condition of this association is not, I am sorry to say, so prosperous as that of the similar body at Agra.

The receipts amounted during the year to Rs. 9,014-12-0, realized as follows:—

				Rs.	A.	P.
By station collections	...	...	...	5,250	0	0
From municipality	...	...	...	2,400	0	0
Interest on Government paper	...	...	...	364	12	0
Loan	...	...	...	1,000	0	0
TOTAL				9,014	12	0

A debt was incurred in working the charity last year of Rs. 534-14-10, to meet which a loan of Rs. 1,000 has been incurred.

ALMORAH.

The Almorah leper asylum is another institution which deserves more than a passing notice. Statistics regarding its population may be tabulated as under:—

			Men.	Women.	Children.
Remaining on 1st January 1872	...	...	57	46	4
Admitted during the year	...	...	11	8	1
		TOTAL	68	54	5
Died	Men. ... 8	Women. ... 4	15	8	0
Left	... 7	... 4			
Remaining on 1st January 1873	...	...	53	46	5

The finances of the asylum were rather straitened during the year; this led to a resolve of the committee to reduce the diet scale to the level of that given to non-labouring prisoners in jails. The measure caused great dissatisfaction amongst the inmates, and some of them left the asylum. After a trial of two months the scale was raised, although not to the former liberal standard, but the lepers now express themselves satisfied, and some who left the asylum have returned. The Reverend Mr. Budden, secretary to the committee of management, adds—“How far these unfavourable circumstances may have influenced the recent increase of mortality it is impossible to say. But in the last five months of the year there have been eleven deaths against one for the previous seven months.”

I am not prepared to say that the increased mortality in the later months of the year did actually result from the effects of the diminished rations: but there cannot be a question that to cure, or even to check, leprosy in an affected individual, his diet must be nourishing and in excess rather than deficiency. I am certainly of opinion that lepers could not be sustained long on the non-labouring rations of healthy prisoners without a marked increase in their disorder, and I think the committee have done wisely in retracing their steps.

BAREILLY.

In the Bareilly Asylum, 45 blind, 47 lepers, and 87 poor, were relieved during the year; and there remained on the close of the year 19 blind, 8 lepers, and 25 poor.

This institution had an income of Rs. 3,085-2-3 (exclusive of the previous balance Rs. 1,427-13-0); and as the expenditure amounted to Rs. 2,693-4-9, there was a balance in the hands of the committee on 31st December of Rs. 1,819-10-6.

BENARES.

RAJAH KALEE SHUNKER'S ASYLUM.

Of the 284 inmates of this asylum during the year, 71 died and 103 left of their own accord; the number at the close of the year being 110, namely:—

Blind,	...	Men	...	...	...	20	}	44
		Women	...	...	...	23		
		Children	...	...	...	1		
Lepers,	...	Men	...	...	...	4		4
Poor,	...	Men	...	...	...	28	}	60
		Women	...	...	...	22		
		Children	...	...	...	10		
Making up a total of ...								108

The daily average number of inmates during the year was 100.

The numbers receiving aid have fallen gradually for the past three years:—

Daily average in 1870...	...	...	...	136.6
” ” 1871...	...	...	...	115.9
” ” 1872...	...	...	...	100.0

And I remark that the establishment, which was reduced last year to a monthly charge of Rs. 124-8-0 from Rs. 149-8-0, has again risen in December 1872 to Rs. 130-8-6.

The labour of the inmates realized Rs. 49-8-6. Of the blind, 11 have been under instruction during the year. Of these, six left the asylum, one died, and four remained, of whom two can read well and two fairly.

BIJNOUR.

In the town of Nujeebabad in the Bijnour district, the municipal committee have also come forward and established a poor-house. It was opened in August last, and has since afforded support to an average of five men and one woman; a sum of Rs. 133 having been spent in the good work.

FURRUCKABAD.

In Furruckabad I visited the building used as a poor-house near the Amithee gate; it has been carefully planned, and is well adapted to its purpose. I was informed that a leper asylum had been built on the site of the old Nawab's fort, but not as yet occupied. On the date of my visit there were, however, several lepers in the building near the Amithee gate of the city.

The municipality maintains these institutions entirely; they devoted last year Rs. 520 to this object.

MEERUT.

In the city of Meerut a poor-house was established in 1864, chiefly to aid indigent European travellers, and afford them means for prosecuting their journey. As funds became available, the scope of the charity was extended,—a house was purchased, a European put in charge on a small salary, and a leper asylum and home for the blind and destitute organized.

On the 31st December 1872, there were—

Blind	..	...	...	...	...	...	1
Lepers	...	...	...	...	...	...	5
Poor	...	...	...	...	...	...	14

Amongst the poor are twelve native Christian widows, who receive stipends of Rs. 3 per mensem, and find a home in the asylum.

Besides the above, upwards of 100 European, Eurasian, and Native travellers, were provided with food, shelter, and relief during the year, and occasional distributions of grain were made to native mendicants as the funds could bear the expenditure.

SAHARUNPORE.

At Saharunpore there is a leper asylum established in the outskirts of the city. The place was well chosen, and the buildings and enclosure well adapted to their purpose. On the 31st December last there were 12 men and nine women located in this asylum. The municipality allow them Rs. 2 per month for food, and provide clothes and shelter on condition that they do not wander about begging. I think it a pity that the municipality do not complete the good work they have begun by erecting a second asylum in another quarter of the suburbs of Saharunpore, and thus separate the men from the women.

This separation of the sexes in leper asylums has been overlooked in almost every institution of the kind. In some cases I have found separate quadrangles erected, with gateways separating the two enclosures; but I have always found the inmates living together in one enclosure to the neglect of any regulation which may have been made on the subject.

The only cure for this is to put the two institutions so far apart that the inmates can have no excuse nor opportunity for living together.

SHAHJEHANPORE.

At Shahjehanpore a mixed poor-house and leper asylum is supported by the municipality. I have not seen the building, but am informed that the lepers have separate quarters from the poor and blind.

An average of 41 in-door paupers, four lepers, and 13 out-door paupers, including five *purda-nusheens*, were maintained at a cost of about one anna per head per diem.

In Punjab.

In the Punjab, leper asylums exist in the Ambalah, Jalandhar, Dhurmsala, Amritsur, Sealkote and Rawulpindee districts, of which that at Tarn Taran in the Amritsur district is the chief; but the dispensary report for 1872 does not give any history of their operations during the year. Full details were, however, recorded in the former volume of this series.

Instruction in midwifery.

Instruction in midwifery.—The task of imparting instruction in midwifery to the hereditary midwives of the country would seem to be almost hopeless. Everywhere, with one exception (Amritsur, in the Punjab) the history has been one of little else than failure. The following is the Surgeon-General's summary of the proceedings in the province of Bengal for the year:—

In Bengal.

Very little progress has been made in instructing native *dhais*. The following extract from a resolution, dated the 24th February 1873, represents the position in which the scheme stood towards the end of 1872:—

"The Lieutenant-Governor has now had before him the further reports of commissioners on the working of the scheme. In Cutwa, Ooterpara, and Serampore, women (one at each dispensary) are still under instruction, but not yet qualified for independent practice. In Hooghly a greater measure of success has attended Mr. Thompson's labors, for the head *dhai* can now be trusted with difficult cases, and two apprentices can now practise independently in simple labor, while two others are coming on fairly. It appears that at Hooghly opportunities for clinical instruction are not wanting, both at the hospital and at private houses.

"Rani Sham M-hini's dispensary has also been very successful in training *dhais*. Some of those educated there have set up in practice on their own account, their places being taken by others. The people are said to be coming gradually to appreciate the boon, and to be calling in the trained *dhais* more readily than was at first expected. The unusually favorable results at this place are no doubt attributable to the great interest taken in it by the Rani and her son-in-law and manager. The Lieutenant-Governor must congratulate them on the success of their enlightened efforts to benefit their poorer neighbours.

"At the following places the experiment has been continued with a certain amount of success:—

- (a)—At Moorshedabad the *dhai* has received oral instruction from the sub-assistant surgeon, and has attended 19 cases in the midwifery ward of the dispensary. She cannot, unfortunately, read or write, and is not fit for conducting complicated cases alone.
- (b)—At Julpigoree a *dhai* was entertained upon a stipend of Rs. 5, who proved very useful in attending the families of the amlah attached to the various Government offices, and also in attending difficult cases with the civil surgeon. No clinical instruction was possible in the dispensary itself; and as the *dhai* was amply paid by her private practice, the stipend was eventually discontinued.
- (c)—In the Mitford Hospital one only of the three women persevered to the end of a course of instruction provided for them by Dr. Wise, and she will probably take a leading position in private practice in the town. The Lieutenant-Governor has already said that he hopes the experiment will not be abandoned in Dacca.
- (d)—At Arrah a *dhai* was taught midwifery, but no lying-in cases came to the dispensary, and the people did not call her in at their own houses. She is, however, very useful in attending on private patients, and the magistrate wishes to keep her on in the hope that eventually she may get midwifery practice. This should certainly be done.
- (e)—At Mozufferpore a *dhai* was retained and trained, and six cases were confined by her under the superintendence of the sub-assistant surgeon. The civil surgeon thinks, however, none of the classes of *dhais* could be trusted to work alone. The experiment should not be given up as yet.

"6. In the following places, where it was hoped something might have been done, the experiment is said to have failed entirely, or not to have been attempted at all:—

- (a)—At Jessore and Nuddea no attempt was made to introduce the scheme.
- (b)—In the 24-Pergunnahs it was tried at Satkhira, and the sub-assistant surgeon was said to have taken much interest in it, but respectable women could not be got either as patients or *dhais*.
- (c)—In Chittagong the civil surgeon has not yet tried the scheme, but is ready to do so. He should certainly make the attempt. In Tipperah it was tried, but failed.
- (d)—In Gya, Chupra, and Chumparun, the attempt was abandoned after a time.
- (e)—In Bhagulpore *dhais* attended for a time, but gradually fell away, and nothing more has been done.
- (f)—At Hazaribagh and Purulia the scheme has been given up as hopeless.

Cutwa.
Oosterpara.
Serampore.
Hooghly.

Dinsapore.
Moorshedabad.
Dacca.

Arrah.
Mozufferpore.
Chittagong.

"7. The Lieutenant-Governor would wish that in places named on the margin a further trial should be made before abandoning altogether a measure which promises so much practical benefit, if prejudice can only be overcome."

The information contained in the reports adds little to this summary. The experiment exhibits most promise in Moorshedabad, where females apparently have less objection to resort to the dispensary for their confinements than elsewhere, and at Hooghly where the *dhai* obtains for herself and two apprentices considerable practice in the town; still the returns show that the dispensaries afford relief to a considerable number of this class of cases. The total number of cases of labor treated in dispensaries in 1872 was 104, of which 47 were cases of premature labor, 37 of natural labor, and 20 of difficult labor.

The record of the attempt in the North-West is scarcely more hopeful, if indeed so much so. The Inspector-General of dispensaries writes thus—

In the North-Western provinces.

I am forced to confess that for the most part this scheme has proved a failure. It is with the utmost difficulty that any native midwife in practice can be got to attend at any hospital for instruction, and it has hitherto proved almost impossible to get native women to come into a lying-in hospital. Instruction without illustrative cases can no more make a skilled practitioner than listening to a disquisition on limes and cements will make a skilled bricklayer. In most of the hospitals the attempt to teach these women has been given up; in others, the women engaged have become simply attendants in the female wards of the hospitals.

At Allahabad sub-assistant surgeon Ram Lall Chuckerbutty has been most persevering in carrying on the work of teaching, and his efforts deserve the acknowledgments of Government.

The sub-assistant surgeon reports that in March last eight women who had attended his class for more than a year were examined by Dr. Jones, officiating civil surgeon, Miss S. C. Seward, M.D. of the American Mission, Allahabad, and sub-assistant surgeon Baboo Kali Dass Nundy. The examiners thought the women able to practise as midwives, and gave them certificates accordingly.

Again, in December a second examination was held, when six women received certificates.

Those who left the class in March 1872 have been practising to some extent in the city of Allahabad, and have apparently given satisfaction. I note, however, that as yet their practice is confined to the wives of Eurasians and Bengalees resident in Allahabad.

Four labour cases were received into the hospital, and afforded a small amount of practical instruction to the class.

In the Benares sudder hospital four women were under instruction at the end of 1871, during 1872 one ceased to attend on account of bad health; the other three are still attached to the hospital, and are said by Dr. Cockburn to be useful to the sub-assistant surgeon in attendance on cases of difficult labour in which his services are required.

At Bijnour one woman has been under training during the year, and the civil surgeon believes that her services are more acceptable to the people on account of her training.

At the Boolundshuhur hospital one woman has been entertained, but she is simply an attendant on the female patients in hospital.

At Budaon the dispensary committee offered Rs. 7 per mensem to induce any of the recognized *dhais* to come to the hospital for instruction, but without success. The fact appears to be that no *dhai* in good practice will throw doubt upon her orthodoxy, and put her hereditary practice in jeopardy for the sake of a small monthly stipend.

At Cawnpore the results were similar to those at Budaon.

In the Etawah hospital there were five midwives attending for instruction from January to July 1872, and three from August to December. One of the five who had attended one or two labour cases with the civil surgeon, Dr. Sherlock, had acquired some practical experience, and is now occasionally employed by Eurasians and Europeans. The others have derived no substantial benefit from the theoretical instruction given them, and, although *dhais* by profession, it is said that they neither dare nor care to adopt the ways and means of practice which they have been taught.

At Goruckpore the new lying-in hospital was opened in November 1872, and from 1st December two women—a respectable Hindoo and Musulmance—were attached to it. Dr. Prentis reports that both women are sharp and intelligent, and are learning the rudiments of medicine and surgery, and to read and write Hindee. This is therefore to be regarded more as an isolated effort to train up female native doctors than to educate professional *dhais* into a knowledge of their work. Dr. Prentis mentions that no professional midwife could be got to attend the hospital, and as yet (April 1873) no women have been persuaded to come to the hospital to be confined.

In the Meerut hospital, Dr. Moir had four native midwives under training during 1872. They had learned something of bandaging and dressing, and a little knowledge of the principles of midwifery; but Dr. Moir adds that until women come to the hospital to be confined, the teaching given must be unsatisfactory. The worst feature of the case is that such *dhais* as come for instruction appear to lose their practice and become unpopular.

Dr. Moir suggests that a small sum should be offered to lower class women (say Rs. 3 or 4) to induce them to come to the hospital for their confinements, and thus make the teaching of the *dhais* really practical. I should think there would be little difficulty in arranging this, if I am to accept my own experience at Agra as evidence. There I had no doubt that the women of a small colony of Kunjurs, who lived in the neighbourhood, used to commit petty crimes simply in order that they might have the comforts of the prison hospital during their confinements.

In the Moradabad hospital two women received instruction during part of the year; one did not make much progress, and the other absconded. No intelligent city *dhai* was found willing to come to the hospital for instruction.

Dr. Kirton at Moozuffernuggur failed to induce any professional *dhai* to come to the dispensary for instruction.

Two women attended the Muttra hospital from May to December 1872; they made satisfactory progress in theoretical knowledge, but there is no evidence that they increased their practice by their attendance at the dispensary.

Contrary to the experience of others, Mr. Bond, civil surgeon of Ooraie, reports that six native women came voluntarily to the hospital for their confinement, and that the two women who had been in training during the year were useful in attending to these cases, as also in dressing and bandaging the female out and in-door patients.

At Shahjehanpore Dr. Harris examined, in September last, the five women who had been attending the midwifery class for the past year, and being satisfied that they were fit to conduct cases of labour in an intelligent manner, he gave them certificates accordingly. He then called a meeting of the most influential native members of the dispensary committee, and asked them whether they were desirous of continuing the experiment. All expressed themselves favourable to its continuance, but declined to renew their subscriptions to aid in carrying it out.

In the other districts of the province nothing was done in this direction.

Appended to Dr. Walker's report is a thoughtful memorandum on the subject by Dr. Hilson, civil surgeon of Moradabad, which is worthy of perusal, and which is given in full in the appendix (see p 155), as it places the matter in a clear light as regards the North-Western provinces.

In the Punjab the midwifery school at Amritsur may fairly be described as a great success, which reflects much credit on the energy and perseverance of the civil surgeon. The description given by the Inspector-General of dispensaries of this flourishing institution will be found at page 123, and need

not therefore be here repeated. The Lieutenant-Governor thus eulogises the management and working in his resolution on the report:—

His Honor notices the remarks of the Inspector-General on the working of the Amritsur midwifery training school, the condition of which, under the superintendence of the matron, and the careful supervision of the assistant surgeon, Dr. McKenzie, is very creditable. The admission of European women from regiments to receive instruction at this school is a feature in the year's report which has hope of great usefulness, and the Lieutenant-Governor fully concurs in the observations of the Inspector-General on the subject.

The native branch of the institution has now reached dimensions which warrant an extension of its range beyond the neighbourhood of Amritsur. The natural result of such a training school, if successful, would be to over-supply the needs of the immediate vicinity, and His Honor will be glad to receive proposals for inducing female pupils from a distance to avail themselves of the training of the institution.

The subject of providing separate wards for the better classes of natives at dispensaries has been kept well in view in the reports, but some difference of opinion exists as to the necessity. Deputy Surgeon-General H. Buckle, C. B., considered them unnecessary, as such people, if they required medical advice, would "naturally prefer taking lodgings in the bazaar, and get themselves seen as patients, sending for medicines." This is doubtless true; but it must not be forgotten that any such means as will induce the upper classes to become inmates of dispensaries is calculated to elevate the status of the institutions in the eyes of the general community. The Lieutenant-Governor of the North-Western provinces highly approves of the system, and "trusts that such out-buildings as can be occupied with comfort and privacy by respectable families, and specially by respectable females, will be constructed in every dispensary."

Separate wards in dispensaries for the better classes of natives.

Some of the reports allude to the advantages which would arise by providing accommodation in the shape of out-offices for the use of the friends of patients who may accompany them to hospitals. Such an arrangement would involve considerable outlay, but it would be an undoubted advantage, and the want of some such provision must have been experienced by most civil surgeons.

Accommodation for patients' friends.

On reading over the reports of the different provinces, a noticeable feature is the want of a uniform system of classification. This question is handled both in the Bengal and the North-Western provinces' reports; and, as will be seen by the following extracts, classification is not so easily arranged as might at first be thought possible. The Surgeon-General writes of Bengal—

Classification dispensaries.

In statement No. 1 the old classification, which was founded on the rules of 1865, and which is very simple and convenient, has been adopted. The new rules under which Government has decided to sanction dispensaries in future were promulgated in June. These rules involve a new classification of dispensaries. The institutions which were sanctioned during the year were, as statement No. 2 shows, classified in accordance with the new rules, but the re-classification of existing dispensaries has only been recently commenced and has not as yet been completed; no attempt has, therefore, been made to arrange dispensaries under the classes prescribed by the new rules.

It may, however, be useful to compare the old classification with the new. Class I—private and independent dispensaries—may come under the designation "main" or "branch," according as they are under the medical charge of a graduate of the medical college or of a "native doctor." The same remark applies to class II—"endowed dispensaries." Grade 1 of class III—Aided dispensaries—comes under the term "main," and grades 2 and 3, "branch." Special dispensaries, or dispensaries specially constituted under rule VI, may come under any class; and dispensaries established under rule VII correspond to the class of "sub-divisional" dispensaries of the old rules. The new classification depends entirely on the extent to which Government aid is granted, and rests rather on a financial basis than on the comparative importance of institutions. It will therefore always be necessary to arrange them on some other system by which the extent of their operations and relative utility may be indicated.

Dr. Walker suggests a classification for the North-Western provinces based upon the number of patients treated in each institution; but, as the Government resolution points out, this arrangement "makes no distinction between in-door and out-door patients. An institution with 100 out-door patients would rank higher than one with 20 in-door and 70 out-door ones. Another important point in the classification is the number of operations performed."

Classification of dispensaries.

Sale of Government
medicines.

Deputy Surgeon-General C. R. Francis, M. B., instructively discusses the matter of the sale of medicines by Government to the poor. There can be no question that the system is open to many abuses, and it is almost impossible, even with honesty on the part of subordinates, to carry out the intentions of Government in their entirety, in that the well-to-do are ready to purchase at a cheap rate, and the poor unwilling to purchase at any rate at all, that which they can get for nothing. Dr. Francis writes:—

How far the original intentions of Government have been fulfilled in this respect, I am not prepared to say. That a certain quantity of medicines have been sold from time to time since the commencement of the experiment is true enough, but from the inquiries I have made during the past year it is evident that much of the medicines has been consumed by persons for whom it was never intended; thus, purchases have been made by heads of families for the benefit of their own household: this I have strictly forbidden. There is another mode of disposing of the Government boon which is open to question. Indigo and tea planters and general farmers have purchased, for the benefit of the coolies employed on their plantations, and for the ryots on their fields; the question is "why should they not purchase in the general market at market prices?" There is, of course, no reason why they should not, and many do; but there are others who do not, and to whom the opportunity of purchasing at a lower price would be a temptation. It must be remembered that the prices asked by vendors at the large towns are very high, sufficiently so to deter many from buying on a large scale. It would be cheaper to import from England; but this involves trouble, which all would not take. I venture to recommend that, as Government has displayed this anxiety to place expensive medicines of known efficacy within reach of the poor by establishing depôts of them at charitable dispensaries, the supplies should consist of two lots—one for the poor, as originally intended, at the prices already fixed, with a view to continuing the experiment yet a little longer—the other for farmers and others at a higher rate, sufficient to protect the Government from loss, yet low enough to induce proprietors to buy. I am convinced that this last arrangement would, in many cases, lead to good results. The medicines would thus reach the poor who would not themselves come for them, be the price ever so low. I fear that, unless there be some intermediate agency, the benevolence of Government will be frustrated by the apathy of the intended recipients of the country. The ryot will not go to the dispensary to buy even quinine, although the quantity be apportioned to his own immediate requirements. This has been proved by Mr. W. Wilson, the civil medical officer of Maunbhoom. He made up small doses of this drug, but with little result. Admitting then, that if the poor are to be provided with quinine and castor-oil (the other medicines originally included in the list, chiratta, jalap, and cholera pills, being now left out) an agency is required; what is it to be? for there must always be a fear that in the process of downward filtration a good deal will be retained for the personal use of the distributors. The magistrate receives a report of epidemic fever having broken out in some part of the district and forthwith asks the civil surgeon for a large quantity of quinine: the civil surgeon indents on the Government stores and gets a supply. Now, if this quinine be made over to the magistrate for distribution, and he, in his turn, gives it to his subordinates with instructions, but a mere minimum will, it is to be feared, finally reach those for whom it was obtained. I believe that the better way would be to send the quinine to the headmen of the fever-stricken villages with instructions for use. A receipt should be taken for the quantity supplied, and an account kept of its distribution. A similar plan might be adopted in the case of the Government medicines intended for sale, *i. e.*, the headman might be furnished with medicines for use when required. He might be made the agent and his house the depôt; but would the poor buy? I think not, so long as they know they are likely to get medicine for nothing. We then come to the farmer: he, being especially interested in the welfare of his cultivators, would see that they got the medicine, he himself paying for it. I am afraid that there is no other way in which the Government scheme can be satisfactorily carried out. If the farmer be not allowed to purchase from the Government stores at the reduced rates, I fear that the scheme will be a failure, as, although the medicines will still be sold, I am satisfied that proprietors and middlemen generally will, unless forbidden, be the purchasers, and not the poor themselves.

The Surgeon-General lays it down that to extend the privilege to the employers of labor would interfere unduly with private trade, and that the "sale ought to be limited to those who are strictly unable to provide themselves elsewhere."

Dr. Francis' remarks, however, suggest other aspects of the general question which deserve to be borne in mind.

Dengue.

A very noticeable feature of the year was the epidemic of dengue which overspread the presidency. The history of the advance of the epidemic throughout Bengal, the North-West provinces, and Rajpootana, is so graphically given in the reports that a few extracts are quoted. The Surgeon-General thus epitomises the information contained in the reports of the civil surgeons Bengal.

Dengue commenced to attract notice in Calcutta towards the end of 1871. The disease continued to prevail during the cold weather and increased rapidly as the hot weather advanced. It continued to rage epidemically during the hot weather and rains, and few escaped its attack. Very few deaths were caused by it, though the symptoms—violent fever and racking pains—were exceedingly severe during the few days of acute suffering, and the attack was apt to be followed by prolonged debility and rheumatic or neuralgic affections. Cases of relapse were also not unfrequent. The epidemic subsided towards the close of the rains. Cases began to occur in Howrah and Hooghly in December 1871, but the disease did not spread to the suburbs or surrounding district till March or April. All the suburbs of Calcutta were visited and the epidemic extended all over the district of the 24-Pergunnahs. It arrived at different localities at different times and could always be traced to importation. The outbreak generally lasted for about three months from the date of the first to that of the last case. The epidemic was carried to different parts of the province, and followed the great routes of human intercourse. It appeared along the East Indian line of railway, and was carried to Eastern Bengal by the Eastern Bengal railway and the steamers plying to Dacca, Cachar, and Assam. It also spread to Midnapore and Orissa along the grand trunk road. Following the disease along these great routes, we find that it appeared early in the year at Serampore, Hooghly, and Chinsurah, and gradually spread throughout the surrounding district. It broke out in Burdwan in April, and invaded the whole district, prevailing most generally and severely in July, August, and September. The reports of the inspecting medical officers of endemic dispensaries show that few localities escaped, and that the sufferings of dengue were superadded to the more serious sickness caused by the fever. It appeared in Raneegeunge in May, and continued to prevail during the two following months. The disease reached Moorshedabad in April and spread into the district, prevailing from April to September. The civil surgeon reports that about three-fourths of the people were attacked. It was carried across the Ganges to Rajshahye in July, and a limited number of cases occurred in Rampore Beaulah, Nattore, Pooteah, and Lalpore. The disease did not spread into the district. Bhaugulpore was visited in June, but the disease did not attack the station severely, nor spread into the surrounding district. In June, Maldah was attacked, and cases continued to occur till November. The disease was imported into Monghyr from Calcutta about the middle of April and spread far and wide. It disappeared in August. Jamalpore suffered much during the same period. It broke out in Patna in June and spread to Bankipore, Dinapore, and many parts of the district, lasting till August. In August, dengue broke out in Gya and continued to rage till November. Most of the inhabitants were seized, and the disease visited many parts of the district. It ceased in November. It prevailed in Chuprah from August till December. The district was not much affected. It broke out in Arrah in August and in Buxar in July. To the east of Calcutta, dengue spread to many parts of Jessore and Nuddea in June and July. It broke out in Dacca in June, and continued to prevail till November. Its importation from Calcutta was clearly proved and many parts of the district suffered. It appeared in Sylhet in August, lasting till October. The only station on the Assam route affected was Goalparah, where a few cases occurred among the European residents in May. Along the south-western route, the disease spread to Midnapore, Balasore, Pooree, and Cuttack. It broke out in Midnapore in July, in Balasore in the same month, in Pooree in September, and in Cuttack in October.

Dengue in Bengal.

The disease was also conveyed to Chittagong in June and prevailed there till September.

All the districts not specified in the preceding narrative escaped the disease.

Dr. Walker states of the North-Western provinces—

In the North-Western provinces.

The prevalence of dengue fever amongst the communities bordering on the line of railway was a marked feature of the nosology of the year. Its absence from stations and cities not in direct railway communication with Calcutta, as well as the comparative freedom of the prisoners in the jails of the province, indicate that the contagion is not of so intense a character as marks the progress of many other diseases. The amount of distress, however, caused by this plague was very great; and although fatal only in cases complicated by other diseases, it might certainly have caused a far larger mortality, and been productive of much less misery. There were two cases of dengue imported into Roorkee, but the disease did not spread.

The following is Dr. Moore's account of the invasion of Rajpootana:—

In Rajpootana.

Dengue fever in Rajpootana has not been so severe as in many other places. It was severely prevalent in Agra, to the north of Rajpootana, and at Deesa at the extreme south of Rajpootana, months before any information of its occurrence in this province reached me. Instructions to report the presence of the disease, accompanied by a full and detailed statement of the symptoms, framed for the guidance of the native doctors, were early forwarded to all the dispensaries, so that there is no manner of doubt that the malady was weeks ere it passed the few miles intervening between Agra and Bhurtpoor in the north, and between Deesa and the Serohi border in the south. While whole establishments and whole regiments at both the military stations named were more or less prostrated by dengue, the various towns of Rajpootana remained free from the pest, until, with the disease declining around, it was hoped this province might altogether escape. The first intimation of dengue in Rajpootana came from the village of Boyatra, quite in the south-west of Marwar, not far from the Runn of Kutch, and on the borders of Sind. Here the disease appeared in the end of August, showing the red eruption with the characteristic pain of the joints. Part of the Marwar political agency being then on duty in these districts, medicines were despatched by Dr. Hendley for the relief of the sufferers. From enquiries made it would appear that the malady had been

introduced across the intervening sandy districts from Sind, between villages in which country and the town of Boyatra more than the ordinary amount of intercommunication had recently taken place. On the 22nd of September the malady was reported as at Serohi, and on the 29th at Anadra at the foot of Mount Aboo, having been doubtless introduced to both places along the main-road from the neighbouring cantonment of Deesa. It was also reported to prevail about this period in various villages of the Serohi state, but the epidemic did not advance further north than Erinpoorah, and it is questionable if it passed up the Aboo Ghaut to the station on the hill. Several suspicious cases were certainly seen in this neighbourhood, but none which would not have been put under ordinary headings, had not dengue prevailed, as about the same time or on the 28th of August Dr. Spencer of Bhurtpoor in the north-east of Rajpootana, reported dengue in that city, and this officer writes that before reaching Bhurtpoor the malady had attacked the men on the "chowkees" on the Agra and Bhurtpoor road so universally that scarcely a man was available for work. Here there is tolerably direct evidence of the conveyance of this contagious disorder from one populous centre to another. And having thus at length penetrated Bhurtpoor, it raged during the whole of September, gradually subsiding in October. For some time it was reported that business was at a stand-still, and that nothing was talked of but the red fever. Dr. Spencer calculated that about 80 or 90 per cent. of the people in the city were attacked, and 500 cases were treated at the dispensary. Curiously enough, neither the sowars of the Political Agent's escort, nor the prisoners in jail, with one exception, were attacked by the disease, although the latter were on extramural labor, and although no particular precautions were used with regard to the former, excepting that they did not go much to the city. And still more curiously, the men of the jail guard were all attacked without communicating it to the prisoners—a fact in strange contrast to the manner in which, as afterwards mentioned, the malady spread through native households, and a fact not easily explainable, as although in the jail isolation certainly was more practised as part of the general jail system than in native houses, still such isolation could scarcely have been sufficient to prevent the entrance of a malady so eminently contagious as dengue fever. Neither did the disease spread in the districts, although the Maharaja moved during the height of the epidemic to Deeg, taking the malady with his camp to that city, but only communicating it to 29 persons. The Political Agent's camp also left Bhurtpoor on the 17th December, marching in an opposite direction to Biana. Here 10 people were attacked, but the malady did not spread to any of the adjoining villages.

About the 25th of September the disease appeared at Ülwar, also in the north of Rajpootana, in the person of a clerk of the jail just returned from Lucknow. At Kotepoollee a few cases occurred in November. At Jeypoor, although many cases were reported, the full characteristic symptoms were not observed.

We have thus the history of the entrance of dengue into Rajpootana by the great trunk road to the north, and by the great trunk road to the south. But to the east and west there are no great roads. In the latter direction there is the sandy semi-desert district between Western Rajpootana and Sind. To the east is a generally hilly country through which communication is tedious and difficult. From neither of these points is there any evidence of the importation or even the appearance of the malady. The Jhalra Patun, the Kotah, Pertabghur, Indurgurh, and the Tonk dispensaries fringing the eastern frontier of Rajpootana are silent on the subject, no cases of dengue having occurred in these localities. To the west, Biccaneer, Jessole (excepting six cases) and Jhodpoor dispensaries give negative reply to the question of the occurrence of dengue, although it is believed some cases did occur at Jodhpoor, being probably the extreme limit of the southern invasion passing from Boyatra *via* Jessole to Jodhpoor. It is therefore evident that from the north and from the south only did the disease penetrate Rajpootana.

Neither did it appear at any places in the centre of the province excepting Jeypoor, in Ajmere, in Nusseerabad, and in some of the surrounding villages, all localities near the great trunk road. In September the malady was reported at Moerah, two-thirds of the distance on the trunk road between Bhurtpoor and Jeypoor. At Jeypoor a number of cases were returned as dengue, but Dr. Valentine states he saw no instance where all the characteristics of the disease were well marked. At Ajmere, dengue appeared of a mild nature, but still evidenced by the distinctive symptoms, and gradually dying away during the earlier part of November. It was traced to travellers who had arrived from Jeypoor at Beawur. Again, on the great trunk road some suspicious cases occurred in October.

The above is the history of dengue in Rajpootana during the past year, and if any evidence were wanting of the extraordinary contagiousness of the disease, the account thus given would supply it. It may perhaps be an assertion, not proved, that dengue cannot spread otherwise than by contagion with an infected people, but, on the other hand, no doubt can remain that it can spread by such communication. Dr. Spencer notes, the "domestic servants going to and from our houses to the city of Bhurtpoor were all attacked," while, as already mentioned, the Political Agent's escort not going to the city escaped. Dr. Spencer also states he knows of many instances where every inhabitant in a household of fourteen and upwards was attacked, but he knows of no instance, nor has he heard of any, where out of a large family only one was attacked. The case of the Bhurtpoor jail, where only one inmate was attacked, must therefore be considered almost without a parallel.

Being of so decidedly contagious a nature, it is somewhat remarkable that the epidemic did not spread more rapidly into, and more thoroughly over, Rajpootana. Had it not been known to prevail at other places during the cold season, it might be perhaps permissible to

attribute the cessation of the malady to that cause. But from the literature of the disease, it is known it may prevail during the cold season of the year, and any such explanation of its decline in Rajpootana is therefore untenable. But as dengue diminished in these districts at the same time as it declined generally throughout the country, its cessation may be attributed to those ill-understood influences guiding the rise, progress, and decline of all epidemics.

Although comparatively so little dengue was observable in Rajpootana, and although I myself saw no clear instance of dengue or any malady which would not, had dengue not been prevalent, have been recorded without question under some other heading, still very many of the cases of paroxysmal fever coming under my notice were more than ordinarily complicated with pains in limbs of a rheumatic character. Pains in the limbs and joints preceding, accompanying, or following fever, are sufficiently common in ordinary seasons; but I can state that in the months of September and October last such painful affections were very much more than usually complained of. The observation was made at Aboo and on the line of march to Ajmere, when paroxysmal fever was more than commonly prevalent at even that season of the year, and when certainly no case answering in the least to the description of dengue was discoverable. It is a well-known fact that during cholera seasons diarrhoea and bowel complaints are more frequently seen than at other periods. During epidemics of measles, catarrhs unattended with eruptions are also prevalent. Such conditions have been presumed to depend on a peculiar epidemic constitution of the atmosphere, and under such view it would not seem improbable that the same influences producing dengue may have excited those pains, one of the chief symptoms of dengue, which accompanied the ordinary paroxysmal fever of the period and the districts.

There is nothing worthy of remark to record with regard either to the symptoms of dengue as observed in Rajpootana, or as to the treatment of the malady. The symptoms appear generally to have been those of fever accompanied by a sometimes recurring reddish colored rash, and accompanied or succeeded by more or less persistent pains of a rheumatic character. As regards treatment, the circular sent round for the use of the native doctors in charge of dispensaries adopted Dr. Charles' belladonna plan. Dr. Spencer of Bhurtpoor speaks of camphorated oil externally applied being useful to allay the itching and pains of the malady.

The history of the Burdwan fever for the year—that mysterious subject The Burdwan fever. of all-absorbing interest—is thus succinctly chronicled by the Surgeon-General:—

At the close of the year 1871 twenty-five dispensaries were in operation, distributed in three circles, to each of which an inspecting medical officer had been appointed for the purpose of directing and supervising relief measures, and reporting on the circumstances of the prevailing epidemic. The circles and dispensaries were as follows:—

MUNGLECOTE CIRCLE.	BURDWAN CIRCLE.	ROYNA CIRCLE.
Inspecting officer, assistant surgeon T. Robinson, M. B.	Inspecting officer, sub-assistant surgeon Denoo Bundhoo Dutt.	Inspecting officer, sub-assistant surgeon Tara Prosono Roy.
Munglecote. Munglecote (2nd.) Chanoke. Dianhaut. Arore. Ausgram. Mahatta.	Baldangah. Laccoordie. Kunchunnagar. Kattrapotta. Seraitikur. Mahachanda. Golshe. Koormon Polash.	Meeral. Polashun. Digulgram. Jate Sreeram. Aklokey. Khond Ghose. Katna Bheel. Dharan. Royna. Gatan.

As dispensaries were located according to the reported severity of the disease, the foregoing list indicates not only the number and locality of the dispensaries, but the parts of the district where the fever was worst. It appears that northern, middle, and southern Burdwan were affected, the southern part of the district on each side of the river Damoodah and between that and the Dalkissur being more severely and generally visited, while the eastern and north-western sections of the district were comparatively healthy. One assistant surgeon, five sub-assistant surgeons, and twenty-four native doctors had been sent to afford medical relief to the fever-stricken, and a depôt of medical stores had been opened at Burdwan. Food and blankets had also been distributed to some extent; for the people who had been prostrated by the disease had become impoverished, and it was thought that the cold of the winter nights either aggravated the attack, or induced relapses. It is worthy of note that the prisoners in the Burdwan jail, the police throughout the district, and the vaccinators belonging to the metropolitan circles of vaccination, suffered severely from the prevailing sickness. As the weather became warmer the fever subsided somewhat; new cases were not so numerous, but the sequela of the past season kept the dispensaries open and the subordinates at work. There was a marked aggravation of the disease in April, attributed to showery weather and sudden changes in the temperature. Towards the end of June aggravations and fresh outbreaks were reported from the northern and southern parts of the district. The Jehanabad thanah had been included in the Burdwan district, and the reports from this quarter indicated

severe and wide-spread sickness. The disease abated somewhat in July, but in August and September it began to increase around Burdwan, and in many parts of the district which had been affected in the previous season. During the month of October, the reports indicated rather an abatement than a re-crudescence, and the health of the district was said to contrast favourably with the corresponding season of 1871. Heavy rain fell from the 23rd to the 26th of October, and this was followed early in November by a general aggravation of the severity and virulence of the disease. Bad forms of remittent fever were now observed, and severe affections of the spleen and the chest became more common. Head complications were also frequent. The parts of the district mainly involved were those already indicated, the eastern and north-western portions still remaining comparatively free. During the fortnight ending 7th November there was an increase of 2,455 in the average daily attendance, which in the week ending 14th November amounted to 8,611 cases. Jehanabad suffered very severely, and it became necessary to open many dispensaries in the tract lying between the Damoodah and Dalkissur rivers, which appears to have been the most generally and seriously affected. During December acute sickness abated, but dysentery, chronic fever, spleen, dropsy, and cancrum oris—sequelæ of acute fever—were very prevalent. Dr. French, in the excellent and exhaustive report which he submitted on the subject, writes—“At the close of the year the fever and general sickness were decreasing, but still there was lamentable suffering all over the district, but particularly in the south or Jehanabad circle, to the north and north-west, and around Burdwan. For the week ending 31st December 1872, the daily average sick attending the dispensaries had gone down to 7,142.” He thus summarises the events of 1872:—“The epidemic fever from 1871 continued to rage all over the south and western portions of the district with great severity, except at Kaheapore near Cutwa, the eastern portion of the district, as Culna, Poorboshati, Cutwa, Mymaree, &c. Places which were nearly depopulated in previous years were comparatively free from fever. The progress of the fever is steadily westward or north-west. The newly-attached portions of the districts of Hooghly and Bancoorah were very bad indeed at the close of the rains, and from that time up to the end of December. As happened in previous years, the great sickness at the end of the rains and commencement of the cold weather of 1871 increased until December. In January, February, March, and up to July, it steadily decreased. In July it began to increase, and steadily went on increasing until it reached its maximum height in October and November. In December it again began to decline, and has continued to do so ever since. In the hot season of 1872 the fever was worse than in that of the previous year; but the fever of the rains and cold weather of 1872 was milder, and did not rage to such an extent as in the corresponding period of 1871.” Dr. French surmises that the mortality in affected localities amounted to one-third of the population. The civil surgeon characterises the disease as a malignant form of malarious fever, and considers it similar to that which prevailed in Mauritius in 1866-67. He attributes it to over-population, over-crowding, diminished food supply, defective sanitary arrangements, and the silting up of rivers and water-courses.

Fever of a similar type was noted in the Beerbhoom and Midnapore districts of Bengal and around Serampore.

Fever in the Saharunpore district.

In the North-Western provinces a localised outbreak of an affection bearing a strong resemblance to the Burdwan fever, is thus spoken of by the civil surgeon of the Saharunpore district:—

I would make a few remarks on the subject of fever, on account of which this district has gained a most unenviable reputation. The number of cases treated in the dispensary as out-patients during 1872 was 1,123,—358 less than in 1871, and much less than half of the number treated in 1870.

The whole history of the fever of this district, as far as I can obtain information on it, led me to anticipate what has proved to be the case, that fever would yearly become less prevalent and markedly less severe in its nature until it assumed the character of the usual autumnal ague, such as it has done this year—a fact well recognized by the natives who talk of it as the usual fever. The disease has now assumed what may be called its endemic form (dependent on geological and climatic conditions) as distinguished from the epidemic such as occurred or rather reached its height in 1818-19, 1829, 1844, 1851, and 1870. As, however, might well be expected, the secondary effects of the fever, specially enlarged spleen, continue marked for years after the cession of the epidemic. The constitutions of those affected during the epidemic are so damaged that mortality still remains high for years. The mortality returns of the year show a total of 14,839 deaths from fever, or at the rate of 17.208 per mille of the population. No trust, however, can be placed in these figures. The total of deaths may be correct, but accuracy or knowledge can hardly be expected from the friends of the deceased who name the disease, or from the illiterate chowkeedar who reports it. During the winter months bronchitis, pleurisy, and pneumonia are very common complaints in this district, and contribute very largely, I believe, to swell the totals of deaths from fever.

In spite of this high mortality, there can be no doubt that the fever of the past year was by no means severe. From a few places reports were sent in of fever being very prevalent, and a large number of quinine pills—each containing $2\frac{1}{2}$ grains—were distributed through the civil authorities. These, I may mention, are prepared in the dispensary (from quinine supplied by the magistrate) by the dispensary subordinates, and distributed through the agency of the tehsildars, &c. That they ever reach the poor and indigent, is another matter.

An interesting point is brought out in the reports of the North-Western provinces and the Punjab, *viz.*, that the operation of lithotrity, which in England is gaining so much ground, is apparently unsuited to the natives of India, who do not seem to be endowed with the necessary patience and hopefulness which are essential to ensure success.

Lithotrity unsuited to natives.

In studying the various reports from which this part of the present volume is compiled, one cannot but regret that more information is not given in some of them concerning the public health and general sanitation—a mere statement of the condition of each separate building, of the finances, of the numbers of sick, and of the qualifications of the native doctors, with a very brief disquisition upon each of these topics, however useful and necessary, can hardly represent all that can be gleaned with advantage from the manuscripts submitted by every civil surgeon in a province.

Defects in some of the provincial reports.

HOSPITALS AND DISPENSARIES IN LOWER BENGAL.

CALCUTTA MEDICAL INSTITUTIONS.

Below are tabulated all the medical institutions which are in operation in the town and suburbs of Calcutta, and the results obtained by each are compared with those of the previous year:—

Calcutta medical institutions.

STATEMENT No. VIII.

INSTITUTIONS.	1872.				1871.			
	PERSONS TREATED.			Died per 1,000 treated.	PERSONS TREATED.			Died per 1,000 treated.
	In-door.	Out-door.	Total.		In-door.	Out-door.	Total.	
1. Medical college hospital ...	5,163	42,213	47,376	115.80	4,395	43,450	47,845	126.28
2. General hospital ...	3,443	...	3,443	45.30	2,546	...	2,546	36.52
3. Native hospital and dispensaries ...	1,540	144,894	146,434	68.18	1,441	135,904	137,345	69.39
4. Municipal pauper hospital...	5,467	...	5,467	277.67	4,520	...	4,520	272.12
5. " police " ...	2,835	...	2,835	22.92	2,163	...	2,163	22.65
Total Calcutta institutions ...	18,448	187,107	205,555	...	15,065	179,354	194,419	...
6. Sukea street dispensary ...	90	11,298	11,388	111.11	89	10,753	10,842	16.85
7. North suburban hospital ...	726	...	726	26.31	749	...	749	240.32
8. Sumboo Nath Pundit hospital, Bhowanipore ...	178	6,379	6,557	112.36	76	5,827	5,903	78.94
9. Alipore dispensary ...	179	6,074	6,253	106.15	162	5,032	5,194	117.28
10. Arratoon Apcar dispensary ...	...	8,402	8,402	...	...	8,305	8,305	...
11. Howrah hospital ...	1,184	11,874	13,058	119.93	1,184	9,977	11,161	88.68
Total suburban institutions...	2,357	44,027	46,384	...	2,260	39,894	42,154	...
GRAND TOTAL ...	20,805	231,134	251,939	...	17,325	219,248	236,573	...

There were 15,366 more persons treated in these hospitals and dispensaries than in 1871, and the increase is common to both in-door and out-door patients. This result is very satisfactory, and indicates progress and increasing popularity of the means of medical relief which have been offered to the people. It might be thought that the epidemic of dengue which raged had much to do with the favourable appearance of the statistics; but there were only 2,293 cases of this disease treated, and the year otherwise was by no means an unhealthy one. The age and sex of 250,243 cases are recorded, 40,779 being females, 47,213 children, and 162,251 males—a percentage of 64.9 males, 16.3 females, and 18.8 children, the percentages given by the census returns under these headings of the total population being 58.5, 26.5, and 14.8.

Dengue cases treated.

Age and sex of treated.

Women therefore, it would appear, do not attend in proportion to their numbers. The castes of 105,349 patients are recorded. Of these, 8,313 were Europeans, 9,503 Eurasians, 33,615 Mussulmans, 49,537 Hindus, and 4,381 other castes, being respectively percentages of 7.8, 9.0, 31.9, 47.1 and 4.2. The proportions, according to the census, of these classes to the total population are Europeans and Eurasians 4.77, Mussulmans 29.6, Hindus 65.0 and other castes 0.56. Europeans and Eurasians, Mussulmans, and other castes, therefore avail themselves of medical aid more readily than Hindus. Separating in-door from out-

Castes of treated.

Calcutta and provincial hospitals contrasted.

door, and metropolitan from provincial patients, the proportions of those classes are shewn below :—

STATEMENT No. IX.

CLASSES.	PER CENT. OF TREATED.					
	IN-DOOR.		OUT-DOOR.		TOTAL.	
	Metropolitan.	Provincial.	Metropolitan.	Provincial.	Metropolitan.	Provincial.
Europeans ...	24	50	3.9	14	7.91	15
Eurasians ...	7.3	48	9.4	57	9.01	57
Hindus ...	46.3	71.85	47.3	64.15	47.02	64.46
Mussulmans ...	20.7	25.19	34.7	33.23	31.90	32.91
Other castes ...	1.7	1.98	4.7	1.91	4.16	1.91

Death-rate.

The death-rate of the hospitals compares favorably with the rate of the previous five years, and was 132 per mille, or, excluding cholera, 127 per mille. The Surgeon-General in his report to Government compares the hospital death-rate with that registered by the municipality, and observes that "the figures exhibit a remarkable concord, and they agree in indicating a most marked improvement in the health of the town during the last three years. The following statement exhibits the death-rate of each hospital in comparison with former years :—

STATEMENT No. X.

Death-rate of each of the metropolitan hospitals.

YEAR.	DEATH-RATES PER 1,000, INCLUDING CHOLERA.				DEATH-RATES PER 1,000, EXCLUDING CHOLERA.			
	Medical College Hospital.	General Hospital.	Chandney Hospital.	Pauper Hospital.	Medical College Hospital.	General Hospital.	Chandney Hospital.	Pauper Hospital.
1864 ...	219.6	88.8	227	...	165.8	54.6	123	...
1865 ...	214.7	69.9	202	...	172.2	52.8	142	...
1866 ...	242.9	98.5	236	...	184.4	53.5	132	...
1867 ...	148.5	63.9	166	243.2	124.9	45.2	123	240.1
1868 ...	175.7	72.2	201	266.8	150.6	48	134	256.9
1869 ...	179.4	53	175	207	141.5	37.2	116	187.1
1870 ...	138.7	52.9	115	308	127.4	39.5	81	222.7
1871 ...	126.2	36.5	69	272.1	125.3	30.5	51	209.4
1872 ...	115.6	45.3	68	277.6	100.5	34.0	55.4	274.5

Diseases treated.

The following statement shows the diseases under which most admissions took place, and the death-rate caused by each disease. The table accounts for 79 per cent. of the sickness, and 89 per cent. of the mortality.

STATEMENT No. XI.

	GENERAL HOSPITAL.						MEDICAL COLLEGE HOSPITAL.						NATIVE HOSPITAL.			MUNICIPAL PAUPER HOSPITAL.			MUNICIPAL POLICE HOSPITAL.			
	EUROPEANS.			NATIVES.			EUROPEANS.			NATIVES.			NATIVES.			NATIVES.			NATIVES.			
	Treated.	Died.	Died per 1,000.	Treated.	Died.	Died per 1,000.	Treated.	Died.	Died per 1,000.	Treated.	Died.	Died per 1,000.	Treated.	Died.	Died per 1,000.	Treated.	Died.	Died per 1,000.	Treated.	Died.	Died per 1,000.	
Small-pox	796	1	1.25	290	1	3.34	127	3	23.60	44	6	135.66	72	2	2.78	863	11	1.27	2,835	68	2.40	
Fever	17	11	647.06	1	7	304.3	57	27	473.70	15	2	133.33	86	66	767.4	12	11	916.7	...	...	...
Cholera	350	5	14.29	166	3	18.1	299	31	103.7	136	5	36.70	239	68	284.5	...	...	...	...	...	...
Phthisis	227	42	185.90	4	18	692.3	7	4	571.4	140	2	14.30	456	11	24.1	906	...	...	...	...	...
Syphilis	54	19	351.85	48	8	166.6	107	65	607.5	42	22	523.80	69	36	521.7	27	7	259.2	...	...	...
Leprosy	80	1	1.25	39	2	51.3	47	...	...	25	...	1,000	239	126	527.2	4	4	1,000	...	...	...
Anaemia	6	1	166.66	3	...	...	2	...	...	...	...	...	36	...	...	...	...	...	...	...	...
Dropsy	1	1	1,000.00	2	...	...	6	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Paralysis	6	2	333.33	7	...	...	22	2	90.9	...	...	...	63	3	47.6	1	...	...	...	...	...
Tetanus	54	1	18.50	83	13	156.6	23	14	608.7	28	4	214.3	86	8	93.02	25	...	...	...	...	...
Bronchitis	7	4	571.40	7	1	142.8	30	12	400	5	...	...	18	7	388.8	12	...	...	...	...	...
Pneumonia	188	8	42.50	103	11	100.8	140	47	335.70	6	...	...	424	157	370.3	246	7	28.4	...	...	...
Dysentery	101	3	15.70	63	8	126.9	70	5	71.40	31	4	129.03	562	263	467.9	75	6	80	...	...	...
Diarrhoea	14	...	...	9	...	...	14	2	142.80	16	3	187.50	4	...	...	1	...	...	...	...	...
Hernia	...	...	...	...	...	...	...	...	...	...	...	...	41	17	414.6	...	...	...	...	...	...
Ascites	43	8	186.04	27	3	111.1	26	6	230.80	6	1	166.66	15	3	200	8	4	500	...	...	...
Liver diseases	34	3	88.20	11	1	90.9	26	3	116.4	82	2	62.5	429	69	160.8	35	1	28.6	...	...	...
Spleen diseases	1	...	...	1	...	...	81	6	74.1	31	4	129.03	...	...	...	...	...	...	...	...	...
Elephantiasis scroti	34	1	29.40	49	...	...	80	5	62.5	131	9	68.70	26	...	...	26	1	38.5	...	...	...
Abscess	86	4	102.6	43	...	...	48	3	62.5	50	1	20	520	253	486.5	43	12	279.1	...	...	...
Ulcer	39	...	...	4	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Debility	1	1	1,000	...	...	...	24	9	375	...	...	...	12	...	...	...	...	...	...	...	...
Opium poisoning	88	1	11.3	125	1	8	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcohol	96	4	52.6	332	8	24.1	324	30	92.60	439	20	45.6	19	1	52.6	57	...	...	...	...	...
Injuries
TOTAL	2,537	124	48.9	1,482	91	61.4	1,715	316	184.2	1,204	84	69.8	4,688	1,464	312.3	2,527	58	2.27	...	...	...
All other diseases	906	32	35.3	716	34	47.4	715	94	131.4	336	21	62.5	779	54	69.3	308	7	22.7	...	...	...

The diseases to which most of the sickness was due were, intermittent fever, dengue, injuries, dysentery, diarrhœa, ulcer, continued fever, spleen disease, debility, dropsy, syphilis, cholera, phthisis, remittent fever, abscess, and bronchitis in the order of the number of cases treated. Those from which most deaths occurred were diarrhœa, dysentery, ulcer, cholera, dropsy, phthisis, debility, and remittent fever; and the most fatal diseases in relative order, typhoid fever, cholera, dropsy, phthisis, tetanus, pneumonia, opium poisoning, diarrhœa, ulcers, debility, ascites, and remittent fever.

Small-pox has almost become a thing of the past in these returns.

The number of cases of cholera exceeded that of 1871, and the increase took place mainly during the latter months of the year. Three-fourths of the deaths from cholera in Calcutta occurred in the northern division of the town. The Surgeon-General lays stress upon the importance of ascertaining accurately the residence of all cholera cases. The statement below gives detailed information regarding cholera in the various hospitals in comparison with the deaths registered by the municipality :—

STATEMENT No. XII.

YEARS.	NO. OF CASES TREATED.				NO. OF DEATHS.				Deaths registered by the Municipality.
	Medical College Hospital.	General Hospital.	Chandney Hospital.	Municipal Pauper Hospital.	Medical College Hospital.	General Hospital.	Chandney Hospital.	Municipal Pauper Hospital.	
1864	763	174	210	...	415	88	128	...	...
1865	595	102	246	...	324	47	126	...	...
1866	998	177	453	...	499	188	251	...	6,826
1867	312	78	195	41	153	48	83	21	2,268
1868	565	120	253	106	235	65	130	57	4,178
1869	468	61	270	95	260	44	129	50	3,592
1870	236	76	109	44	104	37	46	23	1,560
1871	96	27	24	32	44	16	16	16	790
1872	133	93	42	69	83	42	22	36	1,142

Veneral diseases.

The number of persons treated for the various forms of venereal disease, and for primary syphilis separately, is given in statement No. XIII. Both sets of figures show a most satisfactory annual decrement, but it is to the latter set that attention is particularly deserving, as exhibiting the effects of the working of Act XIV of 1868 on the general population, for with the former is incorporated gonorrhœa, an affection which it is proved by ample evidence is not capable of being controlled by legal enactment. In the seven years for which figures are given, whilst venereal diseases of all kinds have diminished by 51 per cent., primary syphilis has diminished by 69 per cent., so far as applicants for hospital treatment are concerned.

STATEMENT No. XIII.

YEARS.	Cases of venereal diseases of all kinds treated.	Cases of primary syphilis treated.
1866	13,152	5,879
1867	13,083	5,943
1868	11,153	4,684
1869	10,103	3,753
1870	8,330	2,736
1871	7,305	2,154
1872	6,529	1,845

The cost of the various Calcutta medical institutions and the share which Government contributed towards their support, are shown in the following statement:—

Total cost and proportion paid by Government.

STATEMENT No. XIV.

Name of Institution.	Paid by Government.		Other sources.		TOTAL.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
Native hospital and dispensaries	26,083	10 0	18,872	1 3*	44,955	11 3
Medical college hospital	1,17,490	0 0	6,122	0 0	1,23,612	0 0
General hospital	1,19,254	0 0	10,351	0 0	1,29,605	0 0
Municipal pauper hospital	.....	.....	32,141	0 0	32,141	0 0
Police Chowkedari hospital	.....	.....	15,926	6 8	15,926	6 8
Sukea Street dispensary	6,069	9 9	.....	.....	6,069	9 9
North suburban hospital	1,944	7 11½	7,499	7 9	9,443	15 8½
Bhowanipore dispensary	4,130	13 5	935	4 8	5,066	2 1
Alipore	3,136	0 6	255	0 0	3,391	0 6
Garden Reach	407	15 10½	1,055	0 0	1,462	15 10½
Howrah hospital	5,906	6 2	21,536	9 2	27,442	15 4

* From endowment, and subscriptions and donations.

MEDICAL COLLEGE HOSPITAL.

Surgeon-Major D. B. Smith, M. D., who officiated as principal and first physician to the hospital during the absence on furlough of Surgeon-Major N. Chevers, M. D., furnished an interesting and detailed report.

Medical College hospital.

The following statement compares the numbers who availed themselves of the advantages of the hospital in its various departments. The number of in-door patients exceeded that of 1871 by 768, but the figures show a decrease in the number of out-door patients of 1,237. This diminution is, however, said to be only apparent and not real, and is attributed to the improved system of registering the out-door attendance which was established, by means of which the entry of a single individual as having attended more than once for the same complaint, was effectually prevented. There was a marked increase in the number admitted into the midwifery ward.

Number treated.

Apparent diminution in number of out-door patients.

STATEMENT No. XV.

CLASSES OF PATIENTS.	1872.	1871.
In-door patients (medical and surgical)	3,565	3,143
Midwifery ward (in-door)	1,063	745
Eye infirmary	535	507
Total In-door	5,163	4,395
Out-door patients (medical and surgical)	24,644	25,491
Admission room	649	763
Dispensary for women and children	11,892	12,049
Ophthalmic dispensary	3,981	3,963
Dental dispensary	1,047	1,184
Total Out-door	42,213	43,450
GRAND TOTAL	47,376	47,845

A reduced death-rate has again to be recorded. The mortality was highest amongst natives and lowest amongst Europeans, whilst Eurasians held an intermediate position. Of the 4,628 cases treated (exclusive of the eye infirmary), 535 were fatal, giving a mortality of 115·8 per 1,000 against 126·28 in 1871, 138·7 in 1870, and 179·4 in 1869; of the total deaths, 114 were patients who were classed as moribunds (who died within 24 hours after their admission). Excluding these, the death-rate would be reduced to 90·9 per 1,000 treated.

Death-rate according to age and sex.

STATEMENT No. XVI.

YEAR.	DEATH-RATE PER 1,000 AMONG ADULTS.								
	EUROPEANS.		EAST INDIANS.		NATIVES.				
	Males.	Females.	Males.	Females.	Males.	Females.			
1870	70.11	42.01	79.92	55.24	210.11	185.18
1871	45.51	45.87	57.30	50.80	190.54	176.07
1872	53.2	40.0	79.60	41.10	177.90	149.50

Deaths after surgical operations.

The number of major surgical operations performed during the year was 211, of which 36 died. The ratio of deaths to operations was therefore 170.6 per 1,000. Deaths from pyæmia and septicæmia were few as compared with other years—six in all—and bore a proportion per cent. to other causes of 16.66. The marked decrease which has taken place from this cause in the mortality is very probably due to the thorough drainage of the vicinity of the hospital, “which may render such morbid influences as are liable to arise in such institutions still less virulent.” The mortality amongst medical cases was 167.6 and amongst surgical cases 99.4 per 1,000.

Pyæmia and septicæmia.

Number of obstetric cases.
Education in midwifery to dhais.

There were 191 confinements in the obstetric ward against 146 in 1871. Four *dhais* were under tuition, training to become qualified midwives. To three of them certificates were granted after they had passed a simple form of examination. Neither the principal of the college nor the professor of midwifery anticipate much success from the system, but Government has directed its continuance.

Diet expenses.

The sanctioned rates of dieting for European and native sick are 12 annas and six annas, respectively, for each patient daily. The actual expenses of the institution fell considerably short of the allowance sanctioned by Government.

Building.

Several minor improvements have been accomplished in the building, but no progress was made towards the construction of a new building. On this subject the Government resolution remarks:—

“The idea of erecting a new building had to be abandoned for want of sufficient funds. It was found that a new hospital and college on an approved plan and on a new site would cost not less than 15 lakhs of rupees. As the funds at the disposal of Government would not admit of so large an outlay, an ineffectual appeal was made to the native public through the British Indian Association and to the Justices of the Peace to contribute a portion of the required expenditure. Nothing has been done towards improving the present buildings, owing to the objections raised by the Medical college authorities to any plan that could be undertaken with reasonable means. The requirements of the college and hospital are, however, steadily increasing, and the Lieutenant-Governor has no option but to do what he can with the money he can make available. He has already contributed to the municipal funds a large sum of money for effecting a thorough drainage of the neighbourhood, and the college council has been asked to aid His Honor with suggestions for improving the present college and hospital buildings.”

THE PRESIDENCY GENERAL HOSPITAL

Presidency General hospital.

Surgeon-Major J. Ewart, M. D., continued in the office of Surgeon-Superintendent, and Surgeon-Major W. J. Palmer, M. D., and Surgeon S. C. Mackenzie, M. D., occupied as formerly the offices of 1st and 2nd resident medical officers respectively.

Increase of accommodation.

The amount of hospital accommodation was greatly increased during the year by the transfer of the building in which the sick of the European regiment stationed at the fort from the military authorities to the surgeon-superintendent on August 14th, 1875. The hospital is now a purely civil institution, with ample accommodation for 285 sick Europeans, but on an emergency as many as 315 could be provided for.

Present capabilities.

The statement below exhibits the results of the year in comparison with those of the preceding six years. There was a considerable increase in the daily average number of sick, and this was chiefly due to the prevalence of dengue. The mortality rate, though greater than that of 1871, presents a favourable figure. If, however, the death-rates of the two years, exclusively of cholera, be compared, the cause of the increase during 1872 becomes at once apparent. By excluding cholera, the mortality undergoes a reduction of 11·2 per mille.

STATEMENT No. XVII.

YEAR.	Average daily sick.	Treated.	Died.	Ratio of deaths per 1,000 treated.	CHOLERA.			DEATH-RATE AMONG		
					Treated.	Died.	Ratio.	Men.	Women.	Children.
1866	153·60	2,416	238	98·50	177	118	666·6	100·39	62·50	71·94
1867	145·35	2,377	152	63·94	78	48	615·3	63·69	42·25	104·93
1868	168·72	2,449	177	72·27	120	65	541·6	70·33	78·65	85·88
1869	171·05	2,641	140	53·01	61	44	721·3	53·50	48·14	54·42
1870	167·16	2,551	135	52·92	76	37	486·8	50·30	57·00	90·90
1871	161·25	2,546	93	36·52	27	16	592·5	36·91	23·52	61·22
1866 to 1871	161·19	14,980	935	62·41	539	328	608·53	59·09	50·06	78·50
1872	182·25	3,443	156	45·30	94	42	446·8	46·88	34·14	45·20

Dr. Ewart draws attention to the very insanitary state of the river bank, and his report contains a table showing the localities from which cholera cases which were admitted from the shipping came. He states that both Dr. Lewis and Dr. Cuninghame have been much struck with the remarkably insanitary state of those portions of the river bank from which the greatest number of cholera cases have been sent to hospital.

The necessity for the early treatment of cholera cases is insisted upon, and to meet this object, a dispensary is about to be established on the river side near Prinsep's ghât. Dr. Ewart believes all medicines to be useless when the stage of collapse is reached. He points out, too, that in dysentery, when it is properly treated in the early stages, it is very seldom that a cure is not effected; but that exactly the opposite holds good when the disease has been allowed to run on to extensive ulceration or abscess of the liver. Under such circumstances, and for other reasons, the proposed river-side dispensary ought to prove of very great utility, and to diminish the number of admissions of moribunds into the General hospital.

Dysentery occasioned 188 admissions, and the death-rate to the total number of these cases treated was 42·55, which is excessively favorable as an hospital result.

Typhoid fever has always had a place in the hospital annual returns; there were 17 cases with 11 deaths in 1872.

THE CALCUTTA HOSPITAL NURSES' INSTITUTION.

The Surgeon-General writes of this institution as follows: "This institution, which supplies nurses to the Medical college and General hospitals, continues to pursue its course of usefulness. It has been determined to increase the staff of nurses at the General hospital. The principal medical officers of both hospitals bear warm testimony to the value of the services rendered by the nurses belonging to this institution. Its funds are in a satisfactory condition."

THE NATIVE HOSPITAL AND ITS BRANCH DISPENSARIES.

Surgeon-Major C. Macnamara continued to superintend this charity.

The report contains a brief history of the Native hospital and its attached dispensaries. The hospital was established in 1792 by private subscriptions, and was then located in a house in Chitpore Road; but this was soon found to

be too small, and the hospital was removed to its present site in Dhurmtollah Street in 1796, and the Government monthly donation was increased from its former figure, Rs. 600, to Rs. 1,000. In 1825 the Gurranhatta and Park Street dispensaries were established in connection with the hospital, and large donations were obtained from various quarters. In 1831 the governors undertook the charge of the Leper asylum, but this was discontinued in 1835 and made over to the District Charitable Society. The Chitpore Road dispensary was opened in 1841. A branch dispensary also existed at Garden Reach, but this was closed in 1862.

Statistics.

The number of persons who applied for relief, the daily averages attendance, and the number of surgical operations are exhibited in the statement below.

STATEMENT No. XVIII.

		Native Hospital.	Park Street Dispensary.	Chitpore Dispensary.	Gurranhatta Dispensary.	TOTAL.
Treated	{ In-door ...	1,540	...	...	...	1,540
	{ Out-door ...	63,355	32,203	25,294	24,042	144,894
Daily average attendance	{ In-door ...	62	"	"	"	62
	{ Out-door ...	436	207	194	238	1,075
Surgical operations...	{ Capital ...	92	...	...	...	92
	{ Minor ...	4,107	2,103	2,465	2,330	11,005

The aggregate number of patients treated has increased considerably. The number of Government servants who received medical aid was 3,320 against 4,843, but no explanation is afforded of this falling off. The total expenditure of the year was Rs. 44,956, and the hospital stock or property was valued at Rs. 5,18,283-3-9.

Expenditure.

Mortality.

The deaths of in-door patients amounted to 105, being 68 per 1,000 of total treated. Of the major surgical operations, 24, or 26 per cent., died, but a return will be found appended giving details of all important surgical operations.

MUNICIPAL PAUPER HOSPITAL.

Pauper hospital.

Dr. C. O. Woodford was the superintendent, and had under him an apothecary and four native doctors.

Class of patients admitted.

This hospital is the receptacle for all the sick and dying natives picked up in the streets by the police, and who formed one-quarter of the total admissions; of those who have been rejected from other hospitals, who formed one-half of the admissions, and of voluntary applicants for admission, who formed one-fourth of the total.

Mortality.

The mortality of the hospital must therefore be very high, as is proved by the large number of patients who die either on their way to the hospital, or shortly after their arrival there. A special enquiry was made during the year into the causes of this very high death-rate, but nothing could be added to the reasons which the foregoing paragraph suggests, and which, indeed, seem amply sufficient. Excluding moribunds, the mortality was 202.

STATEMENT No. XIX.

YEAR.	Total treated.	Died.	Died per 1,000 treated.	Died within 24 hours.	Died within one week.	Died within one month.	Died within three months.	REMARKS.
1868 ...	4,841	1,626	335.88	455	440	528	203	The cases brought to this hospital from the Medical College, &c., are not patients of those hospitals, but applicants for admission, who are not considered suitable cases for them, and are forwarded on here under orders from Government for the following reasons—"moribund," "incurable," "no accommodation," &c.
1869 ...	5,340	1,421	264.23	457	406	402	156	
1870 ...	3,975	1,075	270.44	374	324	241	136	
1871 ...	4,283	1,230	287.18	282	395	412	141	
1872 ...	5,467	1,518	277.66	303	494	542	179	

The average daily sick was 283 against 233 in 1871, giving an increase of 50 patients a day, "which can in no way be accounted for, as very few cases indeed of dengue fever were admitted." Daily average sick.

The building underwent repairs during the year. The superintendent draws attention to the necessity for lighting it with gas. The grounds are not in any way enclosed, and consequently there is a difficulty in properly guarding the place. Building and grounds.

MUNICIPAL POLICE HOSPITAL.

The admissions have been more numerous on account of dengue, but the deaths and sick-rate are below the average. The Surgeon-General, in his report to the Bengal Government, observes: Police hospital.

"In the native army the annual rate of admissions per cent. of strength is 137.5, of daily sick 4.41, and of deaths 1.83. Taking into account the different conditions of service of the two bodies of men, the comparison is not unfavourable to the Calcutta police force." Sickness of police force compared with that of native army.

The statement below compares the statistics of the year with previous years:—

STATEMENT No. XX.

YEARS.	Strength.	PER CENT. OF STRENGTH.			Deaths per cent. of treated.
		Admissions.	Deaths.	Daily Sick.	
1868	3,183	61.04	2.80	3.3	4.5
1869		64.40	2.07	3.5	3.05
1870		59.03	1.40	3.4	2.3
1871		64.00	1.54	3.29	2.26
1872	3,033	89.60	2.14	3.2	2.3

PROVINCIAL HOSPITALS AND DISPENSARIES IN LOWER BENGAL.

Exclusive of the institutions which have been already described, there were 173 hospitals and dispensaries in operation in 1872. There were 19 new dispensaries opened and 3 abolished, leaving a net increase of 16 institutions—a number which compares favorably with the last few years. At the end of the year there were 170 dispensaries in operation. Number of institutions.

The new rules, under which Government has decided to sanction dispensaries in future, were promulgated in June, and they involve an entirely different system of classification. The newly opened dispensaries have been classified in accordance with these rules, but the re-classification of existing dispensaries has not yet been completed. The new classification depends entirely on the extent to which Government aid is granted, and rests rather on a financial basis than on the comparative importance of institutions. Classification of dispensaries.

One hundred and sixty-eight dispensaries submitted returns, and of these 114, or 68 per cent., received in-door patients, so that no advance has in this respect been made upon the preceding year. Of the institutions which treated in-door patients, 43 per cent. afforded aid to less, and 57 per cent. to more than 100 patients, figures which differ but very slightly from those of 1871. Only one institution (the Mitford hospital at Dacca) treated more than 1,000 in-door patients. Of out-door patients, 25.6 per cent. of institutions treated less than 1,000, and 74.4 more than 1,000, against 27.5 and 76.5 for the previous year. Only two (Dacca and Patna) treated more than 10,000. Proportion of institutions which treat in-door patients.

The attendance increased by 8 per cent., but this was almost entirely limited to out-door patients, the number of in-door patients treated being only 1.2 per cent. more than in 1871. Statement No. XXI exhibits the number Attendance.

Mortality.

treated and the mortality among in-patients during the past six years. The total attendance has increased by 33,875, but the rate of mortality of in-patients has slightly increased.

STATEMENT No. XXI.

YEARS.			In-patients treated.	Out-patients treated.	Total.	Mortality among in-patients per cent.
1867	...	...	17,054	318,895	335,949	18.09
1868	...	...	16,598	346,845	363,443	18.34
1869	...	...	18,055	367,757	385,812	16.94
1870	...	...	17,481	384,960	402,441	16.17
1871	...	...	17,892	405,528	423,420	15.41
1872	...	...	18,118	439,177	457,295	16.07

The Surgeon-General in his report to the Bengal Government adds:—

Grand total of all patients treated throughout the province of Bengal during the year.

If to the total attendance is added the total of sick treated in the "Calcutta medical institutions" and in the special dispensaries established during the year in the districts of Burdwan, Beerbhoom, Midnapore, and Hooghly, the grand total of cases which obtained medical relief in Government hospitals and dispensaries amounts to 2,098,457 treated in 316 institutions against 617,676 in 1871 and 578,988 in 1870. The average daily number of in-door patients treated in the 168 dispensaries under report was 869.01 against 900.49, 889.09, and 860.59 in 1871, 1870, and 1869, and the average daily attendance of out-door patients 5,264.02 against 4,703.39, 4,322.25, and 3,862.88.

Class and number of subordinates.

The classes of subordinate medical officers holding immediate charge of dispensaries did not undergo change of any consequence; they were as follows: 1 house surgeon, 45 sub-assistant surgeons, 43 hospital assistants, 73 apothecary and vernacular licentiate class native doctors, and 8 locally entertained native doctors.

Surgical operations.

The number of "major" surgical operations increased from 956 to 1,559, and of "minor" from 7,591 to 18,273. The records are more complete than they hitherto have been on this point, as very precise instructions as to the classification of operations were issued in May. The death-rate of all major surgical operations was 3.65 per cent. against 3.8 in 1871.

Mortality after operations.

Statement No. XXII consists of a comparative abstract of the diseases treated in 1872 in the provincial dispensaries of Lower Bengal. "It is curious to find," observes the Surgeon-General, "that the number of general diseases has been undergoing, among in-door patients, a decrease during the last three years (35.15, 32.49, and 31.99), and the number of local diseases are increased (47.38, 48.50, and 49.15). The other classes are small and have not undergone much change. The same feature is observed as regards out-door patients." It thus appears that there was more cholera than in 1871, a slight increase in the prevalence of fever, and widely spread epidemic of dengue.

Diseases treated.

STATEMENT No. XXII.

No.	DISEASES.	IN-DOOR PATIENTS.		No.	OUT-DOOR PATIENTS.	
		1872.	1871.		1872.	1871.
1	Small-pox ... ..	.05	.09	1	.01	.01
2	Fevers	13.58	13.62	2	19.15	19.33
3	Cholera	2.91	1.46	3	.61	.36
4	Rheumatism	4.05	4.49	4	6.27	6.32
5	Syphilis	4.76	5.51	5	2.73	3.05
6	Cancer ... ..	.67	.74	6	.05	.04
7	Scrofula ... ..	.88	1.08	7	.36	.34
8	Anæmia ... ..	.64	.96	8	.43	.35
9	Leprosy ... ..	.64	.62	9	.41	.44
10	General dropsy	2.84	2.79	10	.54	.41
11	All other diseases ... ..	.97	1.13	11	.72	.91
Total of general diseases ...		31.99	32.49		31.28	31.59

STATEMENT No. XXII,—*concl'd.*

No.	DISEASES.	IN-DOOR PATIENTS.		No.	OUT-DOOR PATIENTS.	
		1872.	1871.		1872.	1871.
12	Neuralgia ...	21	29	12	1.84	1.71
13	Ophthalmia ...	63	1.60	13	2.22	3.46
14	Inflammation of the internal ear ...	07	11	14	2.63	3
15	Goitre ...	02	01	15	3.30	3.75
16	Coryza ...	02	01	16	21	27
17	Bronchitis ...	1.03	1.13	17	2.42	2.50
18	Asthma ...	25	21	18	54	59
19	Diseases of the mouth ...	45	40	19	87	70
20	„ of teeth and gums ...	11	17	20	1.95	2.03
21	Dyspepsia ...	89	77	21	4.11	4.24
22	Dysentery ...	11.66	10.23	22	2.26	2.24
23	Ascaris Lumbricoides ...	06	06	23	87	19
24	Diarrhœa ...	5.83	6.60	24	2.63	2.77
25	Constipation ...	07	07	25	1.07	5.81
26	Colic ...	53	51	26	5.42	1.43
27	Diseases of the rectum and anus ...	43	57	27	35	37
28	Liver diseases ...	66	37	28	68	55
29	Spleen diseases ...	5.25	5.79	29	8.33	6.33
30	Gonorrhœa ...	44	56	30	1.31	1.49
31	Bubo ...	35	46	31	68	75
32	Hydrocele ...	28	23	32	36	41
33	Abscess ...	87	61	33	1.61	1.45
34	Diseases of the skin ...	38	39	34	3.24	3.01
35	Ulcer ...	5.88	5.11	35	4.69	4.85
36	Boil ...	19	35	36	78	1.11
37	Whitlow ...	06	15	37	22	28
38	Parasitic skin diseases ...	46	40	38	3.85	3.48
39	All other diseases ...	12.07	11.34	39	6.42	5.59
Total of local diseases ...		49.15	48.50		64.86	64.47
40	Debility ...	1.93	1.59	40	79	70
41	Poisons and poisoned wounds ...	39	73	41	15	13
42	Injuries ...	16.54	16.69	42	2.92	3.11

Statement No. XXIII shows the principal causes of mortality among in-door patients. Principal causes of mortality.

STATEMENT No. XXIII.

DISEASES.	1872.		1871.	
	Died per cent. of treated.	Died per cent. of total deaths.	Died per cent. of treated.	Died per cent. of total deaths.
Small-pox ...	33.33	10	17.64	11
Fevers ...	8.70	7.35	8.21	7.25
Cholera ...	55.98	10.13	47.12	4.46
Syphilis ...	2.20	64	3.75	1.34
Leprosy ...	31.03	1.23	26.36	1.05
Scrofula (phthisis) ...	45.79	1.68	37.11	2.61
Anæmia ...	19.82	79	23.97	1.49
General dropsy ...	35.41	6.25	38.27	6.93
Paralysis ...	10.39	27	10.75	36
Tetanus ...	50	44	42.86	44
Bronchitis ...	18.72	1.20	11.88	87
Pneumonia ...	32.12	93	32.22	1.05
Dysentery ...	41.33	29.98	42.32	28.10
Diarrhœa ...	36.74	13.32	38.35	16.43
Liver diseases ...	9.24	37	43.28	1.05
Spleen diseases ...	10.83	3.54	13.41	5.04
Ulcers ...	6.01	2.30	5.47	1.81
Debility ...	26.07	3.12	29.12	3.01
Injuries ...	4.81	4.94	4.92	5.33
All other diseases ...	7.59	11.42	6.90	11.27

The mortality from cholera is greatly in excess (10.3 against 4.46). Dysentery shows a larger figure and diarrhœa a smaller one.

The caste and sex of the patients treated are shown in the following statement in percentages of the total, in contrast with the year 1871; of the total number treated, 66.45 per cent. were males, 18.51 per cent. females, and 15.04 children, being a considerable increase in the proportion of women and children treated as out-patients. Caste and sex of patients.

STATEMENT No. XXIV.

	EUROPEANS.			EURASIANS.			MAHOMEDANS.			HINDOOS.			OTHER CASTES.		
	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.	Males.	Females.	Children.
In-door 1872 ...	50			48			25.19			71.85			1.98		
	98.90	1.10	...	75.86	16.09	8.05	79.43	17.55	3.02	79.31	18.08	2.61	69.36	24.23	6.41
In-door 1871 ...	2.95			.91			26.24			67.85			2.05		
	93.9	6.1	...	56.7	17.1	26.2	79	18.2	2.8	79.1	18.2	2.7	73.8	21.3	4.9
Out-door 1872 ...	.14			.57			33.23			64.15			1.91		
	69.06	10.70	29.24	50.51	29.36	29.13	65.04	18.97	15.99	66.73	18.15	15.12	58.83	23.42	17.75
Out-door 1871 ...	.48			.91			34.56			62.26			1.69		
	72	24.7	3.3	44.3	21.8	33.9	67.1	17.9	15	69.3	17.2	13.5	59.2	23.2	17.6
Total 1872 ...	.15			.57			32.91			64.46			1.91		
	73	9.4	17.6	51.3	29.3	28.4	65.4	18.9	15.7	67.3	18.1	14.6	59.2	23.5	17.3
Total 1871 ...	.58			.91			34.3			62.49			1.71		
	76.73	20.71	2.55	44.8	21.6	33.6	67.5	17.8	14.7	69.8	17.2	13	60	23.1	16.9

The income of the dispensaries and its source are shown in the following statement:—

Income.

STATEMENT No. XXV.

Year.	Total Income.	PERCENTAGE OF INCOME TO THE TOTAL INCOME RECEIVED FROM					
		Government.	Local funds.	Interest on invested capital.	European subscriptions.	Native subscriptions.	
1867 ...	2,28,918	48.23	18.90	6.88	9.74	16.22	
1868 ...	2,67,467	43.24	22.06	7.51	9.44	17.72	
1869 ...	2,82,689	46.84	18.66	6.52	8.81	19.15	
1870 ...	2,94,788	41.45	21.17	6.23	9.99	21.15	
1871 ...	3,08,773	43.71	†16.15	5.44	13.70	20.94	
1872 ...	*2,91,601	38.61	‡17.40	7.09	7.47	29.43	

* Exclusive of Rs. 40,612, the cost of medicines, books, and forms, &c., supplied by Government.

† 4.07 from municipalities and town committees, and 12.08 from all other local sources.

‡ 3.97 " " " " and 13.43 " " " "

The income amounted to Rs. 17,172 less than in 1871, but this is owing to the exclusion of the Calcutta medical institutions, which, if excluded from

the returns of 1871, would cause an increase of Rs. 44,253. The average income of each dispensary was Rs. 1,767. The income fell short of expenditure by Rs. 8,137, and this deficit was made up by drawing upon the balance of the previous year. The proportion of income derived from Government was less than in any of the preceding five years. Subscriptions from natives show a satisfactory increase (Rs. 21,622). The diminished percentage of support derived from Europeans is wholly due to the removal of the Calcutta medical institutions from the account.

The following statement shows the mode of expenditure under its various heads :—

STATEMENT No. XXVI.

HEADS OF EXPENDITURE.		1867.	1868.	1869.	1870.	1871.	1872.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Average cost of each diet ...		0 1 6	0 1 5	0 1 7	0 1 9	0 1 11	0 1 5
Total expenditure ...		Rs. 2,42,981	Rs. 2,57,653	Rs. 2,74,957	Rs. 2,92,402	Rs. 2,97,378	Rs. 2,99,738
Percentage of expenditure to total expenditure on account of—	Medical officers' salaries ...	5-47	2-81	2-60	2-01	3-58	3-47
	Ditto subordinates' ditto ...	39-98	44-22	43-33	37-72	38-08	36-56
	Servants' wages ...	14-26	16-28	16-01	21-26	22-18	19-13
	English medicines purchased ...	91	1-46	1-39	1-55	2-12	1-63
	Native ditto ditto ...	4-01	3-84	3-99	3-55	3-59	3-38
	Diet of patients ...	12-35	11-38	12-02	11-00	11-29	8-67
	Wines and spirits ...	1-22	1-30	1-35	1-23	1-11	3-33
	Repairs and construction of buildings, and house-rent ...	6-21	6-07	8-71	11-70	7-80	13-81
	Miscellaneous—clothing, furniture, &c. ...	7-83	8-12	8-07	7-02	8-39	9-10
	Surplus income invested ...	7-71	4-48	2-48	3-35	1-85	3-92

There has been an increase of expenditure for building and miscellaneous purposes, and marked decrease under the heads of diet, stimulants, and salaries of medical officers. The balance in hand has fallen from Rs. 1,03,564 to Rs. 95,427.

The Surgeon-General notes that in some places the dispensaries have been placed under the control of the municipal committees, and he considers this an excellent arrangement. Dispensary committees have, as a rule, shown great apathy, though some improvement has taken place as to the number of meetings held.

Desirability of placing dispensaries under municipal committees.
Dispensary committees.

Very little progress has been made in the matter of instructing *dhais* or native midwives. The experiment exhibits most promise in Moorshedabad. The Lieutenant-Governor has ordered that a further trial be made at certain select places before altogether abandoning a measure which, he considers, promises so much practical benefit. The total number of cases of labor treated in dispensaries in 1872 was 104, of which 47 were cases of premature labor, 37 of natural labor, and 20 of difficult labor.

Instruction in midwifery to *dhais*.

The Surgeon-General's report considers the details of the meteorology of the year. The most prominent circumstances were a high temperature and deficient humidity of the hot months, a scanty rainfall, followed by a warm, moist, cold weather.

Meteorology.

The public health was influenced by epidemics of dengue, fever, small-pox, and cholera. The latter disease nowhere assumed serious dimensions. Fever prevailed extensively in the Burdwan division; the police, the prisoners in the jail, and the Government vaccinators all suffered from it. In the hot season it was worse than at the same time of the previous year. Twenty-five dispensaries were at work in Burdwan in December 1871, eighty were opened during the year, making a total of 105. The number of cases treated was 1,275,035, and four assistant surgeons, sixteen sub-assistant surgeons, and seventy-three native doctors were deputed to the fever-stricken localities during the year in addition to those at work at its commencement. Dengue commenced in Calcutta towards the end of 1871, and thence spread far and wide, but some few districts escaped.

Public health.

Sale of medicines by Government.

The following statement shows the results of the sale of medicines at cost prices to natives. The proceeds of sales exceeded those of the previous year by Rs. 1,029-15-8, but it will be seen that quinine accounts for 90 per cent. of the total sales. The only other article which is in extensive demand is castor oil. The sale of all other articles has been discontinued:—

STATEMENT No. XXVII.

	QUININE.		CHERRYBIA.		JALAP PULV.		CASTOR OIL.		CHOLERA PILLS.		Total amount of sale.
	Quantity sold.	Value.	Quantity sold.	Value.	Quantity sold.	Value.	Quantity sold.	Value.	Quantity sold.	Value.	
	lb. oz. d.	Rs. A. P.	lb. oz. d.	Rs. A. P.	lb. oz. d.	Rs. A. P.	Doz. B.	Rs. A. P.	No.	Rs. A. P.	Rs. A. P.
Half-year ending 30th September 1872	136 15 5 & grs. 40	7,798 10 2½	24 10 0	9 2 9	17 9 3	71 12 2	20 2	169 11 3	1,189	28 1 2	Rs. 6,068 10 0½
Half-year ending 31st March 1873	135 7 13	7,655 7 3½	47 2 0	18 12 4	38 6 0	159 10 6	20 9½	172 4 3	1,664	39 19 6	Rs. 6,046 12 7½

* Including 4 annas and 6 pie, being the value of one empty stoppered bottle sold at Maldah.

† " 9 annas, being the value of two stoppered bottles sold at Maldah.

" 2 annas and 7 pie, being the value of Potas Nitras sold at Kamroop.

" and 4 " 2 " " " Nitro and Sulphur sold at Seebaugor.

Sale of trusses at Dacca.

Dr. Wise's scheme for the sale of trusses on a similar principle has entirely failed.

Inspections by deputy surgeons-general and civil surgeons.

The amount of inspection work done by deputy surgeons-general and civil surgeons is shown below:—

STATEMENT No. XXVIII.

CIRCLE.	Number of sudder dispensaries.	Number inspected by Deputy Surgeons-General.	Number of outlying dispensaries.	Number inspected by Deputy Surgeons-General.	INSPECTED BY CIVIL SURGEONS.					
					Once.	Twice.	Thrice.	Four times.	Often.	Not inspected.
Presidency ...	18	16	59	5	16	17	8	2	10	7
Dacca ...	16	14	19	1	6	5	4	2	...	2
Dinapore ...	19	19	34	31	8	7	7	3	2	2
TOTAL ...	53	49	112	37	30	29	19	12	12	11

Examination of civil surgeons in the vernacular.

During the year orders were issued concerning the examination of civil surgeons in the vernacular of their districts, whereby their services must be rendered more valuable to the people. Henceforth every civil surgeon will be required to satisfy Government within a reasonable time that he is acquainted with the language of the people amongst whom he has to work.

Remarks by deputy surgeons-general.

Deputy Surgeon-General H. B. Buckle, C. B., had but recently assumed charge of the Presidency circle at the time the report was due. His remarks are therefore necessarily brief. He considers that there is proof of the increasing popularity of dispensaries, and he is of opinion that the inspections of branch dispensaries have been fairly carried out by civil surgeons.

Presidency circle.

Dinapore circle.

Deputy Surgeon-General C. R. Francis, M. B., in an elaborate and very interesting analysis of the working of the Dinapore circle, urges the publishing of the dispensary reports, or portions of them, in the vernacular, as a means of making the objects of Government more clearly known, and giving those natives who might be induced to subscribe an opportunity of knowing what is really going on. Dr. Francis considers the attempted sale of Government medicines a failure in practice.

DISPENSARIES IN THE NORTH-WESTERN PROVINCES.

Surgeon-Major W. Walker, M. D., the Inspector-General of Civil Hospitals and Dispensaries, wrote the report.

Number of institutions.

The statement below shows the number of institutions which were at work during the year, and their classification. Of the total 135 institutions, 93 received in-door patients and 42 gave relief to out-door patients only. The increase in the number of dispensaries is nominal, being due to the separate record of those dispensaries which before existed, and whose returns were

formerly included with those of the parent institutions, and also to the inclusion of the Ramnuggur hospital, which, being supported by the Forest department, had not hitherto been reported upon by the Inspector General of dispensaries. The attendance shows an increase of 45,413 patients, but Dr. Walker entertained "grave doubts as to the accuracy of the returns." The death-rate amongst in-door patients amounted to 13·17 per cent. of treated, against 10·5 in 1871, and 11·1 in 1870.

Attendance and death-rates.

STATEMENT No. XXIX.

EUROPEAN HOSPITAL.	SUDDER.		BRANCH.		TOTAL.	PATIENTS TREATED.		TOTAL.
	1st Class.	2nd Class.	1st Class.	2nd Class.		In-door.	Out-door.	
1871	33	7	45	46	131	19,664	6,96,196	7,15,860
1872	33	7	48	46	135	21,927	7,39,346	7,61,273

Dr. Walker suggests the classification of all civil dispensaries according to the number of patients treated, but the Government resolution upon the report thus comments upon the recommendation,—

Proposed classification of dispensaries.

"You have divided the dispensaries of the province into seven classes, according to the number of patients treated during the last seven years, the first class consisting of those treating above 20,000 patients annually, and the seventh, of those treating less than 1,000. It does not, however, appear to the Lieutenant-Governor that this principle of classification is altogether correct, inasmuch as it makes no distinction between in-door and out-door patients. An institution with 100 out-door patients would rank in your list higher than one with 20 in-door and 70 out-door ones. Now, each in-door patient is of far more importance than many out-door ones; it is obviously unfair to place in the same category in-door patients, who undergo a regular and systematic medical treatment, with out-door patients, who merely pay a casual visit and are prescribed for. The two classes are different in kind, and can hardly be added together as the test of the work done by a dispensary. It would be better to classify hospitals (*i. e.*, institutions which receive in-door patients) separately from mere dispensaries. The latter would be classed by the number of their out-door patients, the former by the number of beds, *i. e.*, the accommodation they offer, and by the numbers actually received and treated. Some allowance might further be made in these superior institutions for out-door patients also; but obviously, these should count for much less than the others. Another important point in classification is the number of operations performed, especially capital ones."

Paragraph 5 of the same resolution thus tabulates the principal diseases amongst in-door and out-door patients:—

Principal diseases treated.

NAME OF DISEASE.	IN-DOOR PATIENTS.				NAME OF DISEASE.	OUT-DOOR PATIENTS.			
	1872.		1871.			1872.		1871.	
	Order of prevalence.	Number of cases.	Order of prevalence.	Number of cases.		Order of prevalence.	Number of cases.	Order of prevalence.	Number of cases.
Local injuries	1	6,007	1	5,816	Skin diseases	1	162,551	1	146,343
Fever	2	2,641	2	2,439	Diseases of the digestive system	2	112,043	3	107,146
Diseases of the digestive system	3	1,669	3	1,418	Fever	3	106,605	2	118,856
Skin diseases	4	1,521	5	1,375	Rheumatism	4	50,232	4	44,276
Dysentery	5	1,268	6	881	Diseases of the respiratory system	5	47,407	5	41,485
Diseases of the urinary system	6	1,207	4	1,402	Eye diseases	6	33,425	6	30,630
Diarrhoea	7	988	7	759	Ear do.	7	28,263	7	27,352
Syphilis	8	800	8	781	Diarrhoea	8	24,036	9	20,207
Diseases of the nervous system	9	734	11	566	Local injuries	9	21,021	8	21,493
Do. respiratory system	10	701	9	632	Dysentery	10	20,030	11	16,625
Rheumatism	11	698	10	614	Diseases of the nerves	11	18,957	10	18,362
Eye disease	12	379	12	286	Do., urinary system	12	15,039	13	15,155
Ear do.	13	52	13	35	Syphilis	13	14,551	12	16,100

The total number of surgical operations performed shows a falling off of 4½ per cent. The total number was 53,707 against 56,284 in 1871. Dr Walker remarks upon the importance of operations as a chief means for securing the popularity of dispensaries, and he considers the number of important surgical operations performed to be a "crucial test" of the efficiency and popularity

Surgical operations

of an hospital. An abstract of the principal surgical operations performed during the year is thus given in the report:—

STATEMENT No. XXX.

Operations.	Total number of operations.	Number successful.	Number unsuccessful.	Number unknown.	Number died.	Number remaining under treatment.
Hip-joint amputation ...	...	...	...	...	...	...
Thigh amputation ...	15	7	...	...	7	1
Leg amputation ...	24	14	...	...	9	1
Foot amputation ...	9	6	...	...	2	1
Shoulder-joint amputation ...	4	2	...	...	2	...
Arm amputation ...	15	9	...	...	5	1
Fore-arm amputation ...	15	14	...	...	1	...
Excision of knee-joint ...	1	1	...	...	...	...
Excision of elbow-joint ...	1	...	...	...	...	1
Ditto of other joints ...	5	3	...	...	...	2
Dislocations reduced ...	665	622	2	27	1	13
Hernia ...	17	15	...	...	2	...
Ligature applied to arteries ...	14	14	...	...	...	...
Large tumours and cancers removed ...	172	141	...	13	8	10
Lithotripsy (adult) ...	3	1	...	2	...	...
Hæmorrhoid (operated on) ...	103	97	4	2	...	...
Hare-lip ...	5	5	...	...	...	...
Cataract (operated on) ...	112	67	17	18	1	9
* Other capital and important operations ...	654	505	2	82	42	23
TOTAL ...	1,834	1,523	25	144	80	62
<i>Lithotomy.</i>						
Age up to 5 years ...	117	100	1	...	9	7
" 6 to 10 " ...	127	101	1	1	11	13
" 11 to 20 " ...	88	78	...	1	2	7
" 21 to 30 " ...	64	52	...	...	9	3
" 31 to 40 " ...	43	38	...	...	2	3
" above 40 " ...	94	72	...	...	11	11
TOTAL ...	533	441	2	2	44	44
GRAND TOTAL ...	2,367	1,964	27	146	124	106

Mortality after operations.
Lithotomy.

This table shows a very great falling off as compared with that contained in the previous year's report, and this is attributed to some extent to a more strict classification. It also exhibits a death-rate of 5.2 per cent. against 1.48. Lithotomy cases gave a mortality of 8.2. The total number of stone cases was 533, of which Moradabad contributed 70, Budaon 59, Gorruckpore 51, and Bareilly 40. The mortality according to age was as follows:—up to 5 years, 7.6; 6 to 10, 8.6; 11 to 20, 22; 21 to 30, 14.0; 31 to 40, 4.6; above 40, 11.7. Comparing these percentages with the results attained during the previous ten years, the mortality was unusually high amongst children, very low amongst lads between 11 and 20, and low amongst cases advanced in years.

Sources of error in the returns.

The report indicates two sources whence error has crept into the returns. He has found that separate doses of medicine have been given out and reckoned as "return visits" of patients who may have attended once and subsequently simply sent for the medicine, or medicines have been prescribed for patients who have never been seen, and names and diseases recorded in the books upon the haphazard description of an ignorant messenger. Again, he has found a large number of fatal cases wrongly entered in the returns as resulting from minor operations; for instance, death following the opening of an abscess in an old man in the last stage of consumption; tetanus after a fracture; puncturing to relieve a dying dropsical patient, and such like, have been occasionally entered by subordinates as "deaths from minor operations." With regard to the first-named abuse and source of error, the Lieutenant-Governor in his resolution prohibits "the giving out of medicines to any other but patients themselves except for the use of purdahnusheen females, and in special cases where, from old age, infirmity, or sickness, the sufferers are unable to present themselves in person. Where such is the case, and the officer in charge is satisfied of the nature of the disease, His Honor sees no harm in the case being entered in the register with a note of the cause of non-appearance of the patient."

Finances.

Very minute details are given concerning the finances of the dispensaries. The receipts during the year, including cash balances, were Rs. 3,14,201-6-9; the

invested capital amounted to Rs. 2,86,300 and disbursements to Rs. 2,21,291-1-10, being a very considerable increase under all three heads. From the last item the sum of Rs. 11,529, contributed by one dispensary to another should be deducted. The cost of each patient was 4 annas $7\frac{3}{4}$ pie against 4 annas $5\frac{1}{4}$ pie, an increase of $2\frac{1}{2}$ pie. The other noticeable features are a diminution in the donations from municipalities of Rs. 7,167, a diminution of subscriptions from natives of Rs. 10,203, an increase in European subscriptions of Rs. 6,192; an increase of "endowments and contributions" amounting to Rs. 14,356, of miscellaneous receipts amounting to Rs. 1,645, and of interest amounting to Rs. 827. "According to the census of the dispensaries," observes Dr. Walker, "the local subscriptions ought to have amounted to Rs. 52,236; the actual amount realized was Rs. 1,12,774, that is, more than double required by the rules." In four districts (Dehra Doon, Jhansie, Lullutpore, and Mynpoory) local subscriptions came short of the Government demand. The professional treatment of each case cost anna 1-11 against annas 2-1. Medicines cost 5-6 pie and diet Re. 1-3- $11\frac{1}{4}$ per patient.

On the subject of inspection visits to branch dispensaries, irregularity is again complained of. Inspection of branch dispensaries.

Female medical education has made no progress during the year. Dr. Humphrey's school at Nynce Tal, and Miss Swain's at Bareilly, hardly existed. Baboo Gunga Proshad's school, also at Bareilly, the Inspector-General of dispensaries thinks, is more likely to send out female native doctors that will be acceptable to the mass of the people than the others, as Hindu and Mahomedan, as well as Christian girls, are there intended to be educated. Female medical education.

In the district of Mozuffurnuggur two temporary dispensaries under the charge of two pensioned native doctors were in operation throughout the autumnal sickly season. They treated 1,581 cases, chiefly fever, rheumatism, ophthalmia, bronchitis, dysentery, and diarrhœa in two months. In the Saharunpore district four extra hospital assistants were employed chiefly in treating cholera which prevailed in an epidemic form; a few cases of fever, dysentery, diarrhœa, and other diseases were also treated, and the total number amounted to 1,781. Special temporary measures of medical relief.

A special cholera hospital was established by the municipality of Allahabad, but was found to be practically useless.

On the subject of general health, so far as the reports touch upon the subject, the prevalence of dengue is noted amongst the communities bordering on the railway line. It did not appear in stations or cities not in direct railway communication with Calcutta, and the inhabitants of the jails were comparatively free from its invasion. At Roorkee there were three cases of imported dengue, but the disease did not spread. Cholera prevailed pretty widely, and visited Allahabad, Banda, Bareilly, Boolundshuhur, Budaon, Dehra Doon, Etawah, Gorruckpore, Meerut, Mirzapore, Moradabad, Saharunpore, and Ramnuggur. Fever of a malarious type was especially prevalent in the Allahabad, Boolundshuhur and Meerut districts. Dr. Garden of Saharunpore believes that malarious fevers observe cycles of intensity, but that it so damages the constitutions of those affected during the epidemic, that the mortality remains high for years. Small-pox is accredited with a mortality of 6 per 1,000 of the population in Saharunpore district, but elsewhere it does not appear to have been much observed. Goitre has always been very common in the Gorruckpore and Bustee districts. A particular form of paralysis is known to be common in some portions of the Allahabad district. Public health.

The report devotes a long section to an account of the working of the leper asylums, poor-houses, &c., which exist in the North-Western provinces. There are ten such charitable institutions, one at each of the following places, — Agra, Allahabad, Almorah, Bareilly, Benares, Bijnour, Furruckabad, Meerut, Saharunpore, and Shahjehanpore. During the year, 2,075 sick and indigent persons were cared for in them; of these, 707 were blind, 699 were lepers, and 669 paupers. About half were males, one-third females, and the remainder children. At the end of the year there were 572 inhabitants of these institutions. The total expenditure incurred was Rs. 26,791-12-3, of which Government paid Rs. 2,328-9-0, municipalities Rs. 8,512-6-2, and private subscriptions Rs. 15,950-13-0. The asylum at Bijnour only commenced operations in Leprosy asylums and poor-houses.

September 1872. In the Saharunpore asylum, which receives lepers alone, 292 were treated, and each received Rs. 2 monthly in addition to clothing and shelter. The Meerut institution also gave shelter, food and pecuniary assistance to upwards of 100 European, Eurasian, and Native travellers. The institution at Shahjehanpore is a mixed poor-house and leper asylum. It has a daily average of 41 in-door and 13 out-door persons receiving relief, but besides these, 20,811 during the year, or 57 individuals daily received charity.

There were 38 charitable dispensaries at work in the Meerut circle. The deputy surgeon-general, Dr. Beatson, inspected all the sudder institutions with one exception. Dr. Beatson reports that the superintendents, as a rule, do their duty towards these institutions honestly and conscientiously, and that in his experience, the magistrates and their assistants never move on duty in the district where a dispensary is placed without visiting it. He adds, "and no one can doubt the great benefit to the popularity of the dispensary by their displaying an interest in it."

The several buildings, viewed as a whole, all over this circle, are very good, indeed, some of the sudder ones are of most superior construction, while the others are all most suitable and in excellent repair. Separate accommodation for females and respectable classes has also been provided at the sudder dispensaries. No complaints have been received regarding the insufficiency or inferior quality of the European medicines supplied. Regarding the popularity of these institutions, Dr. Beatson adds :—

I am quite confident that a well managed dispensary has a very firm hold upon the confidence of the people, every year growing and rapidly acquiring such a mastery over their feelings that they would not see it closed without regret, and even much alarm. But it is useless to add that the character of the subordinate is almost every thing in the account, and therefore it is that I have lamented the necessity of sending the young and inexperienced, though, perhaps, fairly educated, to such important posts. I believe a more liberal view is now entertained by the Government, and a little extra outlay will be sanctioned so as to secure the services of men of wider experience and, just as essential, if the confidence of the people is to be won, of more advanced years.

Regarding midwifery in dispensaries, Dr. Beatson writes :—

There is, I fear it must be admitted, but very trifling progress here; the system is crude, and its development under existing conditions improbable; perhaps it is well such is the case, for a pack of low-caste *dhais* with a nominal qualification would only serve to strengthen the hold which the indigenous *dhai* now exercise over the imaginations of her dupes.

On the subject of the training of native medical pupils, the deputy surgeon-general is of opinion that as the system obtains a footing among native society, a better class of lads will be found to enter, and that medical officers will also evince a greater interest in their training.

Deputy surgeon-general J. Pattison Walker, M. D., inspected 45 of the 47 institutions in operation in the Allahabad circle at the close of the year 1872.

The civil surgeons as superintendents of dispensaries visited the sudder institutions daily, or very frequently, but the branches are in some cases very inadequately visited.

The superintendents expressed themselves as generally satisfied with the professional qualifications and conduct of their subordinates.

The dispensary buildings generally are reported to be suitable and in good state of repair. Fittings and furnishings sufficient. Regarding indigenous drugs, there did not appear to be any real difficulty in obtaining adequate supplies of good quality in the bazars of sudder stations. The supply of surgical instruments for sudder dispensaries was generally considered satisfactory, but branch dispensaries were sometimes imperfectly provided.

The attendance, contrasted with that of former years, clearly indicates the markedly increasing popularity of these charitable institutions. On this subject Dr. Walker writes :—

"The only satisfactory data available for estimating the popularity of the several dispensaries are those which indicate how freely the indigent sick have availed themselves of their advantages everywhere; there are always so many in urgent need of medical and surgical aid, that a small attendance indicates that a dispensary is absolutely or relatively unpopular, for it seems improbable that successful and considerate treatment free of cost should fail in due course to become known in a gradually widening circle. In some places amateur hakeems

Inspection of dispensaries in the Meerut circle.

Buildings.

Midwifery in dispensaries.

Native medical pupils.

Inspection of dispensaries in the Allahabad circle.

Conduct and qualifications of medical subordinates.

Buildings.

Medicines.

Surgical instruments.

Attendance.

have private dispensaries at their homes, furnishing prescriptions to those patients who can afford to purchase drugs from the grocer druggists, and supplying medicines gratuitously to the sick-poor. These amateurs, when popular, cause a diminished attendance at the Government charitable dispensaries, which thus become relatively unpopular."

DISPENSARIES IN THE PUNJAB.

Surgeon-Major A. M. Dallas filled the office of Inspector-General of dispensaries for the Punjab. The total number of institutions was 116, of which 99 worked according to the grant-in-aid rules, and 16 supported wholly by municipalities. In addition to these is the Mayo hospital at Lahore, an institution which has been separately reported on by the principal of the Lahore medical school, Dr. T. E. B. Brown, but its statistics are contained in Mr. Dallas's report in order to show the total amount of medical relief given by Government to the people. The classification of the 99 grant-in-aid dispensaries was as follows: 1st class 14, 2nd class 31, and 3rd class 54. Seven new dispensaries were opened and one closed during the year; the net increase upon the number of last year was 10. There were 10 additional dispensaries admitted in 1872 to the benefits of the grant-in-aid rules, but there were 5 less supported by municipal funds.

The attendance increased from 658,333 to 782,798, or 17 per cent. It would thus appear that, according to the last census, one person in every 23 in the province applied for gratuitous medical relief. Female admissions increased by 26 per cent., a fact which the Lieutenant-Governor considers to be strong testimony to the growing appreciation by the people of the care bestowed upon in-patients. The following table, extracted from Mr. Dallas's report, shows that the increase took place in the attendance of every class of patient, in-door and out-door, male and female, and compares these several items with those of the previous year:—

Years,	IN-DOOR.			OUT-DOOR.		
	Males.	Females.	Total.	Males.	Females.	Total.
1871	19,609	3,292	22,901	473,079	158,075	631,154
1872	22,248	4,163	26,411	563,126	188,613	751,739
Increase	2,639	871	3,510	90,047	30,538	120,585

It is observed that some part of this increase is in a measure to be attributed to the general unhealthiness of the year.

The daily average attendance of in-door patients was 988, and of out-door 5200·7. The average duration of residence of each in-door patient was 13·28 days, and of attendance of out-door patients 2·52 days.

The death-rate amongst in-door patients was 6·98 per cent. of treated, or 0·68 more than the previous year.

The dispensary report does not contain any record of the diseases treated, but there is a return of all surgical operations which were performed. There were 3,407 major operations, with a mortality of 167. There were 967 cases of lithotomy, of which 98 died. Of the total operations for stone, no less than 228 were performed in the Rawalpindi division, but the Inspector-General is unable to say whether this fact is due to the greater frequency of vesical calculus in that region, or to other causes. The other important surgical operations include amongst others 111 amputations, 173 extractions of cataract, 19 ligatures of arteries, 240 removals of large tumours, 386 dislocations reduced, 667 fractures set, 1 case of trephining, 3 of craniotomy, and 4 of extirpation of the eye-ball.

The financial position was satisfactory at the close of the year. Under every head of income there was an increase to be recorded, except the interest from money invested, which shows an almost nominal decrease (only Rs. 36-12-11). Government contributed Rs. 92,058, being an increase of Rs. 8,623. The amount paid by municipalities increased by nearly one-third of the total sum sub-

scribed in 1871, and the subscriptions from natives showed the very marked increase of Rs. 13,354, being equal to more than half of the total subscriptions of 1871, but this is thus explained in the Government resolution on Mr. Dallas's report,—“The amount of private subscriptions received from natives was swelled this year by the munificent donation of His Highness the Maharaja of Kashmir, amounting to Rs. 21,000, which was mentioned in last year's review, but appears in the accounts of the year 1872. This raised the subscriptions of this class considerably above those of 1871, whereas there would have been otherwise a large falling off.” The subscriptions from Europeans increased by Rs. 621-4-2. As with income so with expenditure, every item displays an increase, except one, *viz.*, the amount expended from dispensary funds for European medicines. The Inspector-General considers the increased expenditure to be only commensurate with the increased attendance. At the end of the year there remained a balance of Rs. 42,193 to the credit of the dispensaries of the province. The cost for country medicines per patient treated was $2\frac{7}{10}$ pies, for dieting in-door patients annas 11-1, and for contingencies 4 pies.

Dispensary committees.

Dispensary committees existed in 68 places only, and the supervising duties of these bodies were performed in a lax and unsatisfactory way. At five places where committees existed, only one meeting was held, and at nine places only two meetings. The Inspector-General is well assured of the advantages to be gained by a good working committee.

Midwifery school at Amritsar.

An interesting feature of the report is the description of the successful working of the midwifery school at Amritsar in connection with the lying-in hospital. Mr. Dallas writes as follows:—

On the 1st of January there were seven pupils on the rolls; three more were admitted during the year; one of these was passed in March, one was obliged to leave the school on account of bad health, and two were dismissed on account of misconduct. Some European women have been sent from regiments to be instructed at this school. There were three of these women present when I visited the institution. I think the attendance of these women should be encouraged in every way. One or two well-trained midwives in a regiment would be an invaluable aid to the medical officer, and, in his unavoidable absence, would prove most useful in simple cases. These European women were, after a certain time, to be examined by the professor of midwifery in the Lahore medical school, who would grant them certificates according to the knowledge he found them possessed of.

It is proposed to build a proper lying-in-hospital, and this certainly is not before it is wanted, for I must say the present building is in no way suited to the purpose, and I hope a suitable building will be very soon provided.

This school can now educate more midwives than Amritsar and its neighbourhood needs, and if its field be not extended, it will have to be closed. This I should regret much to have to report, and I can see no reason why such an undesirable end should be brought about. The other districts of the province send up to the Lahore medical school male pupils to be educated in medicine and surgery, and that which these districts do for male students at Lahore, they should, I think, do for females at Amritsar. There can be no question that properly trained midwives are very much wanted all over the province, and were they freely supplied, as they might be, from this school, they might, I believe, be instruments in more ways than one in saving infantile life.

During the year, 446 cases of labor were conducted by the pupils in the city, and 18 were managed in the hospital; of these 49 were abortions, 17 miscarriages, 3 cases of turning, 2 cases of craniotomy, 3 breech presentations, 6 plural births, 1 case of deformed pelvis, 1 case retained placenta, and 1 of hæmorrhage before labor. This shows an increase of 40 cases attended out of hospital, and 5 attended in hospital over the numbers for 1871.

Government subscribed Rs. 770, and the municipal funds Rs. 1,436-15-6 toward the support of this well-conducted institution. The total expenditure was Rs. 2,306-15-6.

Students at the Lahore medical school.

There were sixteen students from the various districts studying at the Lahore medical school at the end of the year. Thirteen remained from the previous year, three new students were admitted, and two passed their final examinations. Ten districts contributed these students. All were admitted to the Hindustani class, but the Inspector-General urges the advantages to be derived from sending up lads who would be able to receive instruction in English as a qualification necessary to the acquirement of a really scientific knowledge of the profession.

The report records particulars concerning each individual dispensary in the province chiefly derived from personal inspections, but there is nothing in these details calling for remarks in a general report.

Deputy surgeon-general T. Hastings gives a summary of the working of the charitable dispensaries in the Lahore circle.

There were 39 dispensaries, inclusive of the Mayo hospital, open on the 31st December 1872, and of these five were opened during the year, *viz.*, one 2nd class and two 3rd class, in the district of Jhang; one 3rd class dispensary in Gurdáspur district; and one 3rd class dispensary in Gujránwala district.

Mr. Hastings inspected 19 dispensaries, *viz.*, four 1st class; nine 2nd class; five 3rd class; and one local dispensary, including the Mayo hospital.

The out-station dispensaries are visited by civil surgeons with more or less frequency, and, as a rule, they look closely into the working of them, and so their superintendence becomes really effective. The dispensaries are also visited by commissioners, deputy commissioners and other Government officials. The Viceroy visited the Mayo hospital and Mooltan dispensary, and was pleased to express himself quite satisfied with the management and arrangements of both. His Honor the Lieutenant-Governor of the Punjab also always visits the dispensaries at stations through which he passes, and these visits have a very wholesome effect on the dispensary establishments.

The assistant surgeons are mentioned as being all good men, and of them Juswant Roy at Mooltan and Futteh Singh at Siálkot are reported as being very good and successful operators, and deserving of special mention. Second class hospital assistant Bishen Dass, superintendent of hakeems in the Gujrát district, is a very successful operator, and some other of the hospital assistant class are well spoken of.

The dispensary buildings, especially those of the 1st class, are excellent, but there is a great variety in the accommodation and in the condition of those of the 3rd class, some of them being very good, while at Batála the building is described as a hovel.

Furniture is described as being generally sufficient.

Medicines and instruments at sudder stations are quite sufficient; the dispensary committees sanction the purchase by the medical officer of medicines and instruments in England, and in this way Dr. Gray brought out from England some £50 worth of the most modern instruments for the Mooltan dispensary.

The funds of the dispensaries generally are in a satisfactory condition.

In consequence of the unusually heavy rainfall, the sickness (intermittent and remittent fever principally) was greater than usual.

Chest diseases have been prevalent during the cold weather, and cholera in the Gujrát, Gujránwala, Gurdáspur, Siálkot, and Lahore districts during the months of July, August, and of September especially.

At most of the dispensaries there have been a large number of operations, *viz.*, at Mooltan, Siálkot, Amritsar, Shahapur, Gurdáspur, &c., &c., and as usual, in some of the districts, stone cases form a considerable number of the total operated on.

At most dispensaries in which in-door patients are received there are separate small apartments for female patients in which their privacy and comfort are secured. Several dispensaries have accommodation, comfortably furnished, for two or three European patients.

Mr. Hastings mentions the great interest taken by civil surgeons and by assistant surgeons in the welfare and working of the dispensaries, but he cannot speak in the same terms of the hospital assistant class generally; some hospital assistants apparently get through their duty as a task, and with but little personal interest in it. He also writes: "I am certainly of opinion that the people appreciate the dispensaries, and that they are popular as a rule; the sudder dispensaries are certainly so; there is more doubt about those in charge of hospital assistants only."

There is a leper asylum at Tarun Tarun, in which those who are afflicted with the disease are fed, lodged and clothed at the expense of Government. The civil surgeon of Amritsar visits this asylum periodically, and the hospital assistant in charge of the dispensary at Tarun Tarun affords medical aid to the lepers.

Rawalpindi circle.

Deputy surgeon-general G. Banister inspected 12 of the 30 dispensaries situated in the Rawalpindi circle. He speaks well of the popularity of these institutions, especially of the Peshawar city dispensary, which, apart from its local operations, which are very considerable, is invested with political considerations of no small importance, for it attracts not only a large number of patients from the adjoining independent territories, but even many from far off distances in Central Asia. Dr. Banister mentions, however, that in a few instances he found the internal accommodation of the dispensaries to be appropriated by the sick of the police and other Government employés. This arrangement, no doubt, detracts much from the popularity and usefulness of the institutions in question.

All the dispensaries inspected, with the exception of that at Attock, where the medicine supply was found to be inadequate and the instruments old, appear to be well supplied with both medicines and instruments.

The medical subordinates in charge are, as a rule, favorably reported on.

Umballa circle.

Deputy surgeon-general J. N. Tresidder summarizes his inspection of the dispensaries in the Umballa circle for 1872-73, and from his report the following information is derived :—

Number of dispensaries.

There were 35 dispensaries, and they consisted of six 1st class, nine 2nd class, sixteen 3rd class, and four local; the latter not subsidized by Government. All these were personally inspected in detail by Mr. Tresidder during the season from October 1872 to April 1873.

Inspections by civil surgeons.

Civil surgeons have visited their respective dispensaries not less than four times in the year, with but very few exceptions, and many have been inspected much more frequently, and the result of these inspections is marked by the efficient working of these institutions. The civil officers by their frequent visits to the dispensaries have also shown a great interest in their working.

Conduct of subordinates.

The conduct and attention of the subordinate medical officers, with but few exceptions, were highly satisfactory.

Buildings.

The dispensary buildings were mostly in a satisfactory condition as to their state of repair and the accommodation they afforded for patients, and the conservancy and cleanliness of all was well looked after.

Fittings.

The furniture in these institutions is described as being ample. In some of them hot and cold water baths are to be had, and in all the large institutions, means of ablution are provided.

Supply of medicines.

The supply of medicines was ample in all dispensaries as a rule, and the medicines were well cared for. Mr. Tresidder suggests that the medicine labels issued from the medical department should be printed in English, Oordoo and in Hindee on the same label.

Instruments.

Instruments in all the dispensaries are ample, and in fair order. As a prevention against rust, Mr. Tresidder recommends all instruments to be covered by a layer of wax (made thin by the addition of turpentine). This, he says, if properly applied, will, even in the dampest climate, prevent all injury from rust, and when required for use the wax is instantly removed by dipping them in hot water.

Attendance.

During the year 1872, over 217,330 patients have received medical aid and relief from the 35 dispensaries in this circle; 723 major and 10,223 minor operations have been performed. In the major operations are included, 283 cases of stone, as well as many amputations. Surgeon Calthrop is mentioned as evincing a great interest in ophthalmic surgery, and amongst the medical subordinates the following are mentioned as being "excellent operators, careful and successful" viz., 1st class hospital assistant Goury Sunker of Umballa; Mir Mahomed Ali at Jalandhar; 3rd class hospital assistant Chairagooddeem, Gurgaon, and 4th class native doctor Khoda Bux, Karnal.

Prevailing diseases.

Disease most prevalent is fever; dysentery and bronchitis also prevail. The inhabitants of the Sirsa district suffered least from fever; the Gurgaon districts suffered much from bowel complaints. The greatest mortality has been from fever which, in Hissar, Delhi, Rohtak, Jalandhar and Umballa has been very considerable.

Finances.

Finances were found generally to be sufficient for the proper working of the institutions.

Accommodation for females.

Female patients. In all dispensaries where in-patients are received there is separate accommodation for females, in which comfort and privacy are secured for them.

Books and records were all up to date, and tolerably well kept.

Mr. Tresidder is averse to the employment of "baidis" and "hakeems" as medical practitioners; they are generally most ignorant, and know nothing of the science of medicine as taught by the Arabic or by any other authors. He proposes that the money now spent on these "baidis" and "hakeems" should still be distributed amongst them, but that they should be compelled to receive instructions at dispensaries and hospitals, and should not be allowed to practise in the districts and cities unless they have received a certificate of sufficient competence. The natives of the districts in the Umballa circle have, however, great confidence in the skill and professional competence of these "baidis" and "hakeems."

THE MAYO HOSPITAL AT LAHORE.

Surgeon-Major T. E. B. Brown, M. D., the principal of the Lahore Mayo Hospital. medical school, submitted the annual report. The year was marked by a succession of epidemics which materially influenced the attendance and mortality of the hospital. Several improvements were made in the building, the chief of which was the erection of a detached building for the reception of European Building. lunatics and cases of *delirium tremens*, and an elaborate system of baths have been constructed by utilizing the rooms in the towers at the end of the hospital. A library has been established for the use of European patients, Library. and already 260 volumes have been collected. There were 28,254 new patients treated during the year, of which 26,565 were out-patients, and 1,869 in-patients, being a total increase upon the previous year of 2,690. Of Europeans there were 880 out-patients and 135 in-patients, and of Eura- Attendance. sians 1,353 and 37, respectively. This apparently singular difference is accounted for by the fact that most of the Eurasian patients have friends, and many have comfortable houses, and therefore they are less disposed to become inmates of the hospital than Europeans, though equally ready to obtain advice and medicines as out-patients. Of Mahomedans, 13,214 attended as out-patients and 919 were admitted into hospital, while of Hindus and Sikhs there Caste of patients. were 8,573 out-patients and 558 in-patients, and of all other castes there were 2,545 out-patients and 50 in-patients. Thus it appears that Mahomedans formed the majority of the patients.

The proportion of the sexes and of children who daily attended at, or were Sex of patients. treated in, the hospital are thus tabulated:—

Average daily attendance of out-patients—			Average daily sick of in-patients—		
Males	...	115.76.	Males	...	54.77
Females	...	55.83.	Females	...	12.66
Children	...	24.89.	Children	...	5.77
		196.48.			73.20

This indicates that women have attended in larger numbers than before.

The deaths amounted to 218, or 12.4 per cent. of treated against 129, or Mortality. 10.5 per cent. during 1871. The most fatal diseases are thus tabulated,—

Malignant cholera, causing	...	...	...	26 deaths.
Small-pox	...	...	...	4 "
Ague	...	...	...	17 "
Remittent fever	...	...	...	18 "
				65
				Total epidemic diseases

Of the non-epidemic diseases, the following caused the greatest mortality:—

Pneumonia	...	...	...	25 deaths.
Dysentery...	...	...	...	38 "
Diarrhoea	...	...	...	17 "
				80 "
				Total

These 7 diseases account for 145 out of the 218 deaths, leaving only 73 deaths to be attributed to all other causes.

The mortality from cholera was 73.3 per cent. of the total cases of cholera treated, the reason of this high rate being that it was only those cases which were in such a desperate state as not to permit of removal to the special cholera hospital that were kept at the hospital for treatment.

Malarious fever.

There were 6,372 cases of malarious fevers treated, more than three times the number treated during 1871, amongst out-patients, and four times as many amongst in-patients, an occurrence which is attributed to the increased rainfall of 1872. There were 17 deaths attributed to intermittent and 18 to remittent fever, against a total of 5 in 1871. In noticing this, the Government resolution points out the necessity for a careful diagnosis of fevers, and quotes the opinion of the sanitary commissioner of the province "that many cases of continued contagious fevers are reported under the head of intermittent and remittent fever." Dengue only gave four admissions. Dysentery and pneumonia as sequels to the malarious fever caused a large additional mortality. The development of the maggots of flies in various parts of the body caused 81 patients to be treated as externs and 15 as interns. Dr. Brown writes:—

Dengue, dysentery, pneumonia.

Maggots in the tissues.

A singular affection which occurs every autumn at Lahore, and is scarcely named in any nosology, is the development of maggots of flies in the various parts of the body. It generally takes place in debilitated persons who are suffering from wounds or ulcers, or sometimes the maggots develop themselves in the nose without any solution of continuity having been previously visible. There can be no doubt that these animals are produced from eggs deposited by flies in the injured flesh. The young animals are at first nourished by the liquids of the parts, and often cause no pain for a time, but as they become larger they attack the solid tissues and move about freely, causing great agony.

They burrow under the skin in various directions, and often destroy important structures; in some cases they have been known to penetrate from the nose through the orbit into the brain and thus to cause death. They are, however, easily killed by the addition of oil of turpentine, or carbolic acid dissolved in oil, and can then be readily removed by the forceps. It is, however, found that the patient requires careful watching for many days, otherwise fresh crops of the animals appear, whether developed from eggs deposited with the first maggots, or subsequently inserted by the flies, which appear to be particularly attracted by these cases. It is therefore essential to protect the injured parts by a screen of muslin placed at a little distance round it, as well as to continue the remedies for many days. When all the animals have been destroyed and removed, the sore generally heals remarkably quickly. Of these cases there were no less than 81 among the out-patients and 15 among the in-patients during the past year.

Major operations.

There were 122 major operations performed, and in 15 of these cases the results were fatal. Lithotomy was performed 38 times with 7 fatal cases, and lithotripsy twice, one of the patients dying. A table of all the important surgical operations will be found appended.

Minor operations.

Of minor operations, there were 16,886, or 323 less than last year.

Finances.

During the year the Maharaja of Kashmir gave a donation of Rs. 7,000 to the Mayo hospital, and Government added Rs. 800 to the amount allowed for dieting, owing to the increased number of patients. Subscriptions from Europeans amounted to Rs. 1,014-8-0, and from natives to Rs. 282-15-0, while the municipal committee granted Rs. 500. The report does not contain an exact statement of income and expenditure.

DISPENSARIES IN THE CENTRAL PROVINCES.

Number of institutions.

The report for the year is furnished by Surgeon-Major J. F. Barter, the inspector general of dispensaries, who visited during the year most of the institutions, to the number of which no additions or deductions were made, and of which there were 80, 45 regularly constituted hospitals, and the remainder dispensaries, some of which treat a very limited number of in-door patients. By a reference to statement No. II at the end of the report, it is seen that the lunatic asylum at Nagpur, and three branch dispensaries (Pachmari, Shahpur and Atern) wherein no patients were treated, are included in the above total of institutions. Excluding these, the actual number of institutions furnishing returns was 76.

Number treated.

The total number of patients treated was 302,831, of whom 292,645 were out-patients and 10,186 were in-door patients. These figures represent an increase of 18 per cent. amongst in-door patients and of 3 per cent. amongst out-patients. The average daily attendance and the sexes of adult patients are thus indicated:—

Daily attendance.

Average daily attendance of out patients—			Average daily sick of in-patients—		
Males	...	2208-09	Males	...	318-86
Females	...	606-06	Females	...	65-58
Children	...	453-51	Children	...	16-86
Total	...	3087-66	Total	...	401-30

Amongst new out-patients, Hindus constituted 64 per cent. and Mahommedans 25 per cent. About one Mussulman female to every four males attended, and the number of children was very nearly the same as that of the females. The proportion amongst Hindus was one female to about every $3\frac{1}{2}$ males, and about one-fourth less children than females. Of interns, 79 per cent. were Hindus, females to males, being as 1 to 8; and 22 per cent. Mahommedans, with 1 female to about $5\frac{1}{2}$ males. A much greater proportion of Mahommedan than of Hindu children were treated in hospital.

Notwithstanding the augmented number of the total treated, the average daily attendance of both out-door and in-door patients decreased somewhat.

The percentage of deaths amongst house patients was 13.2, or nearly double that of the previous year. The reports do not contain any sufficient explanation of this circumstance. Of major operations there were 463 performed, and of minor 12,266. The former included 98 cases of stone in the bladder, all of which turned out satisfactorily.

The year cannot be said to have been a particularly healthy one. The public health was good in the districts of the Jabalpur division, and in portions of Chhattisgarh, but not elsewhere. Cholera appeared in eight districts. Small-pox was more prevalent than in the preceding year, and visited every district except Sagar. The mortality from fever was exceptionally high during the latter months of the year, when, too, bowel complaints were numerous.

Of the total number treated, 76,944, or 26 per cent. are returned under the head of "fever," and in this are included 16 cases of enteric fever. Small-pox shows only 25 entries, which makes it clear that it is not usual to apply for medical relief for this disease. There were 481 cases of leprosy treated, of whom those treated as externs did not improve, but those who were admitted into hospital were relieved—a result due, no doubt, to good food and proper care generally. Sunstroke gave 105 admissions with 97 recoveries, splenitis gave 3,005 admissions, and cutaneous disease no less than 55,809, whilst unimportant affections such as dyspepsia, constipation, &c., account for 22,000 cases.

Subscriptions from natives amounted to Rs. 17,525, being a decrease of 13 per cent. on 1871, and the amount realised from Europeans was Rs. 5,339, or a decrease of $17\frac{1}{2}$ per cent. The subscriptions from natives increased in 9, and decreased in 10 districts, and the subscriptions from Europeans decreased in 14 and increased in 5 districts. The chief commissioner, remarking on the general nature of this falling off, considers the explanation to be that the necessities and wants of the various dispensaries were not prominently brought to the notice of Native and European gentlemen, and adds his opinion "that when subscriptions fall unduly low, it will only be necessary for civil surgeons to draw the attention of the deputy commissioners to the fact, and the matter may with all safety be left in their hands." The expenditure slightly exceeded the receipts (Rs. 1,05,573 against Rs. 1,05,369). There was a sum of Rs. 12,260 invested, but the balance in hand was reduced from Rs. 26,804 to Rs. 17,722.

The report contains a detailed notice of each dispensary in the province, from which the following items are culled:—

At Nagpur, the old city hospital is about to be replaced by a handsome building which is in course of construction.

The importance of having dispensaries located actually within towns is insisted upon, and examples are given of great success having been attained by the simple removal of dispensaries from positions close to, into the centre of towns.

A new female ward has been added to the Wurdah sudder dispensary, but it is stated that as to the admission of in-door female patients, the Wurdah dispensary is the worst in the province, the total of the year having been only 13.

At Chanda, on the contrary, the large proportion of females attending (111 in-door and 3,408 out-door) is striking.

The Kamtha branch of the Bhandara dispensary is considered to be one of the neatest and best kept branch hospitals in the province.

The Raipur main dispensary underwent considerable repairs during the year.

The Sumbulpur main dispensary is reported to be in a bad state.

Bilaspur.
Jabalpur.

Additional accommodation is required at Bilaspur.

A plan and estimate are being prepared for an hospital for Jabalpur city, but there has been great difficulty in securing a good site. The city branch is described as being admirably placed,—imposing, exceedingly neat, well managed, and in first rate order.

Seoni.

One of the causes of the falling off in attendance at Seoni is thus stated by the civil surgeon :—

At the early part of the year it was considered necessary, since wealthy natives would not contribute towards the support of this institution, that they be compelled to pay for any medicines supplied to them ; this, I believe, caused a panic among the poor, who thought that they also should have to pay, and they therefore would not resort to the dispensary for treatment. But Dr. Barter attributes it to the unpopularity of the hospital assistant.

Dispensaries in the
Hoshangabad
district.

The finances of the dispensaries of the Hoshangabad district were in a bad way. "As a last resource, the octroi was increased at Hoshangabad, and this will have to be done at Sohagpur and Seoni, and, I fear, eventually at Harda" writes the civil surgeon, who adds,—“These institutions are now labouring under great disadvantages, as only the very worst cases can be taken in, the funds not admitting of the free admission of in-door patients.” The midwife employed at the sudder hospital is reported to be of great service.

The minor dispensary “may be described as on the cottage hospital plan,” there being several detached buildings, some affording separate accommodation for each patient, others giving room for half a dozen or so in each ward. The portion set apart for females is entered by a separate gate.

Seroncha district.

In the Seroncha district, in addition to the main dispensary “the deputy commissioner notes that a dispensary to all intents and purposes exists at Dumagudien where externs are treated and interns received. It is supported by private subscriptions ; it is not, however, one of the sanctioned dispensaries in the Central Provinces, and probably on this account no returns have been received from it.”

Inspection.

From deputy surgeon-general Ross' inspection report of the dispensaries situated in the Saugor circle, the following has been extracted :—

There were 40 dispensaries, 9 main, 30 branch, and 1 attached to the public works department at work in the Central provinces during 1872. All were inspected by the deputy surgeon general. The branch dispensaries with one exception were thoroughly and effectually inspected once a quarter by civil surgeons. As a rule, all the hospitals were in good repair, and the fittings and furnishings were throughout of a uniform and ordinary description. In several instances civil surgeons did not keep their branch dispensaries adequately supplied with Europe medicines. Head-quarters were generally sufficiently supplied ; the surgical instruments were found in many instances to be blunt and not ready for use. Dr. Ross is of opinion that the attendance fairly shows the appreciation of the dispensaries by the people. At his inspection he conversed with the chief men of each town, and had no reason to disbelieve their assurances of popularity and utility ; there seem to be various complications in the way dispensary accounts are kept, which render it difficult to get medical officers to report under one form either as regards income or expenditure. At only one station, Hoshungabad, is any attention being paid to midwifery in dispensaries. Here one *dhai*, educated by Dr. Cullen, attends as a regular hospital nurse, and is much sought after by the town people. Asylums for the blind and lepers do not exist in these provinces, and would appear to be much needed, especially for the former.

DISPENSARIES IN OUDH.

Deputy surgeon-general C. Archer, M. D., of the Lucknow circle, furnished the report.

Number of
institutions.

There were 28 hospitals and dispensaries at work in Oudh during the year, of which 14 rank only as branch dispensaries. This shows an increase of 1 dispensary and 4 branch dispensaries upon the number of the previous year. The total number of patients treated was 144,712, of whom 5,906 were interns and 138,806 externs. The daily average number of in-door patients was 285·17, and of out-door patients was 1358·82. The mortality amongst in-door patients was 12·48 per cent. of treated. The proportion of persons who received charitable medical relief was 1·29 per cent. of the population. There were 372 major and 6,357 minor operations performed.

General statistics.

Balrampur Hospital.

An important event in the history of the year was the opening of the Bulrampur hospital at Lucknow, which took place on the 1st of April. Dr. Archer thus describes the institution and its origin :—

This admirable building was opened for the reception of patients on the 1st April 1872 ; it is situated on an elevated plateau to the west of the Chutter Munzil and Kaishur Bagh, and

has been erected at the sole expense of the Maharajah of Bulrampur, who has supplemented the gift by funding a lakh of rupees for the monthly pay of the establishment; latterly he has in addition given the very handsome sum of one thousand rupees monthly for the purpose of establishing a medical vernacular school, which is to be shortly opened, and as this school will be associated with each district municipal committee in the province, the nucleus of an excellent medical school for Oudh will be formed, which will be in active operation immediately. The elevation of the main wards is 27 feet, while that of the female and the European wards is 29 feet. The whole hospital has been divided into five wards, each being built in distinct blocks, quite separate from one another; each patient in the main wards has a superficial area of about 92.125 square feet, and a cubic space of 2026.7 cubic feet, while those in the female wards have an average space of 93 square feet, and 2229.3 cubic feet, and those in the European wards get as much as 137.5 square feet, and 3,300 cubic feet per head. The contagious ward is a distinct building having two rooms, each 22 feet long and 15 feet broad, and can well accommodate four to six patients. The ventilation is perfect, both through the doors and also through the skylight windows constantly kept open. All the buildings are pukka of the best kind. No better building could have been planned for a hospital according to the recent improvements in hygiene. The ground round the hospital is perfectly free and open, with a slight exception. Cook-houses are two, one for Hindus, and one for Mahomedans, both situated at the eastern side of the compound, at a distance of about 125 feet from the wards. They are quite separate from each other, and are perfectly fit for their purpose. Dry earth is freely used in the latrines.

Each ward has an urinal attached to it at the corner, quite separate and beyond the current of the winds blowing through the wards. The latrines are two, one on the north and the other on the south, on each extremity of the compound, being 68 feet distant from the wards, and 75 feet to the west of the contagious diseases ward and the assistant surgeon's quarters. Each consists of eight seats in two compartments. Latrines and Urinals.

The ground is so elevated that no artificial drainage has been found necessary. Drainage.

Water-supply is sufficient in quantity, supplied from a well in the compound; further arrangement is in preparation for supplying a tank to each ward; the water of the well is of the first quality.

Seven thousand five hundred and ninety-two were treated from the date upon which the hospital was opened to the end of the year, and of these 98 died, but Dr. Archer explains that the greater number of these were brought to the hospital in an absolutely moribund condition. On the day when he inspected the institution there were 41 in-door and 79 out-door patients. He anticipates great increase in these numbers when the medical school is fully established. Both this and the King's hospital, Lucknow, were under the superintendence of surgeon-major H. M. Cannon, M. B. The latter building is a fine structure and is in excellent repair, in which a daily average of 32.45 in-door and 146.47 out-door patients were treated, being a considerable increase under both heads upon the previous year. King's Hospital, Lucknow.

The chief commissioner notices the absence of branch dispensaries in the Rai Barelli district, although there is a large balance to the credit of the dispensary fund. Rai Barelli.

Two branch dispensaries are reported to have been opened in the Pratabgurh district, but their names or separate statistics are not included in the returns. During the prevalence of cholera in this district, two hospital assistants were attached temporarily to the staff of the civil surgeon. The dispensary is reported on as inefficient, and the designs of a new building have been approved of. Pratabgurh.

Cholera was very fatal in all parts of the Sultanpur district for a considerable period during the year. Sultanpur.

The dispensary at Bharaiich has been condemned as being unfit for its purpose, and subscriptions are being collected wherewith to erect a new building. The deputy surgeon-general reports that the hospital is one of the best conducted dispensaries in Oudh. Malarious fever prevailed extensively at Kheri. The lock-hospital and charitable dispensary at Sitapur are under the same roof, but the former is about to be removed to a convenient spot within cantonments. Bharaiich.
Kheri.
Sitapore.

Statement No. 1 appended to the report shows the total receipts from all sources to have amounted to Rs. 57,394, the expenditure to Rs. 57,525, and there was a balance at the end of the year of Rs. 13,649-15-0. Subscriptions increased from Rs. 29,758-6-1 to Rs. 32,847-10-8, of which Europeans subscribed 3.74 per cent. and natives 28.28 per cent., Government contributing 41.8 and local funds 26.15 per cent. Finances.

Fever caused almost precisely the same percentage of admissions to total treated amongst out-door and in-door patients, and the mortality of in-door Chief disease's treated.

fever patients was 7·6. Dysentery gave 5·9 per cent. of admissions with a mortality of 27 per cent., and diarrhœa 5·6 with a mortality of 37·9 per cent. Cholera caused 2·32 per cent. of in-door admissions and a mortality of 53·2 per cent. amongst them.

DISPENSARIES IN RAJPOOTANA.

Dispensaries in Rajpootana.

Surgeon-Major W. J. Moore, superintendent-general of dispensaries, furnished a most interesting and ample report.

Number of institutions.

The number of dispensaries, the details of whose working is embraced in the report is 74, of which 8 belong to British Rajpootana (Ajmere and Mhairwarra), 3 to departments of the Government, and 63 to Native States. Deducting the jails of the latter, in number 10, 53 dispensaries proper have been working in the Native States; deducting the Ajmere jail, seven dispensaries in British Rajpootana.

Statistics.

Excluding Jeypoor and Khetree, the total number of patients treated was 182,090. In 1871 the total was 196,836, but then the numbers treated in Jeypoor and Khetree (31,765) were included; so that the present year really shows a vast excess. Of the former number, 157,954 were treated in Native States, and 24,136 in British States, the cost per head being almost identical in both. A table at paragraph 29 of the report shows that, excluding jails, the total number of patients treated was 178,280, of whom 3,341 were in-door and 174,939 out-door patients; the average daily attendance of in-door patients was 141·2 and of out-door 1447·00, and females bore a proportion of 18·17 per cent. to total attendants. The death-rate of in-door patients was 9·23 per cent. of treated.

Percentage of diseases treated to total treated.

The proportion per cent. of the principal diseases to the total treated was as follows:—

Intermittent fever 20·23; remittent fever ·82; cholera ·37; rheumatism 4·37; syphilis 2·57; leprosy ·20; ophthalmic affections 4·69; thoracic affections 5·39; dysentery and diarrhœa 6·0; spleen 2·17; guinea-worm ·97; diseases of skin 9·61; abscess and ulcers 12·52; wounds and injuries 2·52.

Chief diseases of the year.

Concerning the chief diseases of the year, Dr. Moore writes:—

Malarious fevers and skin diseases were the most prevalent maladies, causing the largest number of applicants at the dispensaries. In 1871 an epidemic of guinea-worm was very prevalent, when 1,723 cases were treated in the Ajmere dispensary. This gradually declined from the beginning of last year, during which period the smaller number of 927 guinea-worm cases was admitted. Dengue fever appeared in October last, attacking a considerable number of persons in Ajmere and the vicinity, but it did not spread through the district, and had quite disappeared by the end of the year. The origin of the dengue was traced to travellers who had arrived from Jeypoor. The vital statistics show two deaths from cholera and 136 from small-pox; but neither of these maladies became generally epidemic in British Rajpootana.

Comments on the chief diseases treated.

Commenting upon the table of diseases treated in the dispensaries, he writes as follows:—

Malarious disease—This table, like those given for former years, shows that certain localities maintain an unenviable notoriety as presenting a considerable proportion of malarious fevers. Of these, Indurghur, Khairwarra, Aboo, Sambhur, Marwar, Deolee, Beawur, and Bickaneer, may be noted—localities so different in their latitude, their meteorology, their geological aspect, the nature of the vegetation, the condition of the water, the food, and even the habits of the people; so different, in short, as regards the numerous influences forming a climate, and the numerous influences affecting a population, that the prevalence of malarious disease at such localities is scarcely explainable under the marsh malaria theory. That there is a connection between ground moisture and paroxysmal or aguish maladies has been too often fearfully demonstrated to admit of doubt. But whether there be really any poison produced, or whether atmospheric vicissitudes, always more marked where a moist and saturated earth exist, are the causes of paroxysmal maladies, must be regarded as *sub judice*. Bhurtpoor, Indurghur, Khairwarra, Banswarra, Aboo, and the neighbourhood of the Sambhur salt lake, are shown by the above table, and by preceding tables for former years, to be the most malarious places in Rajpootana. The percentage of aguish maladies to total treated at these places has invariably, during the past five years, or since this series of tables has been framed, been greater than that shown for any other localities. And all these neighbourhoods present, *par excellence*, those conditions which we sum up under the term malarious. Bhurtpoor, for instance, is almost surrounded by jheels and marshy ground; Khairwara, Banswarra, and Indurghur, are among low hills and thick jungles; Mount Aboo is composed of granite rock, presenting numerous cup-like depressions filled with an alluvial soil, and from which cup-like hollows water cannot escape by drainage. The Sambhur salt lake is simply a vast salt marsh, emitting

in large quantities the, at least nasally, powerful sulphurated hydrogen, if not the more subtle malaria. In all these neighbourhoods water is near the surface; and the ground, therefore, more or less saturated with moisture, constantly drying under a tropical sun, while vegetation, especially during the rains, is, excepting at Sambhur, powerful and luxuriant. The prevalence, therefore, of malarious fevers at such places is what would be expected, and what might be foretold with certainty. But the explanation of the prevalence (although not ordinarily so great a prevalence) of paroxysmal fevers in other districts intervening between the Aravallis and the Indus, and forming part of Western Rajpootana, cannot be thus rendered in complete accordance with the theory of malaria. In the greater portion of Marwar, in Mullancee, in Jeysulmere, in Bickaneer, paroxysmal fevers and other maladies generally presumed to be connected with malaria are sufficiently common. But throughout these tracts, sand and sandstone are the chief geological characteristics; water is 300 or even 400 feet from the surface; the monsoon scarcely averages more than 7 inches; vegetation is extremely scanty; and there are neither tanks, jheels, nor rivers, from drying beds of which malaria could escape. The only similarity between the various items combining to form what we call climate in the east and the west, the north and the south of Rajpootana, is the regular occurrence of the hot and cold weather, and the periodical greater or less power of the sun. The monsoon rains have a range from 7 inches in the east to 35 at Ajmere, and 40 at Deoli to 120 inches at Aboo; the characteristics of the earth's surface vary from black soil to sand, from granite to sandstone, from ferruginous rocks to conglomerate and limestone; the condition of the water varies from the sweetest to the most brackish, and is not only undrinkable, but even unfit for agricultural purposes; the depth of the water from the surface varies from four to as many hundred feet; agricultural operations are from sheets of irrigated land in the east to scanty rain crops of bajree in the west. But malarious diseases, presumed to be the product of certain conditions of the earth's surface, prevail throughout. The only characteristics, indeed, common to the whole of the extensive tracts of country named, are those atmospheric changes and vicissitudes of temperature which, felt more acutely where ground saturation prevails, are nevertheless extremely powerful in the semi-desert districts, where rapid changes, especially in the autumnal season, from the tropical heat of day to the bitter cold of night, are most trying to both man and beast. Indifferently fed, poorly clad, badly housed, working under a tropical sun by day, and exposed to the sudden colds of night, the inhabitants of most parts of India, especially of the western district of Rajpootana, are certainly from childhood predisposed to paroxysmal disease, even if such disease is not thereby excited. For many years past I have paid great attention to the subject of malaria and of malarious fevers, the result being an increasing conviction that the theory of malaria does not satisfactorily explain the prevalence of so-called malarious maladies, which, while ordinarily more severe and prevalent on ground saturated with moisture, are nevertheless often very common on tracts of country where there is no such saturation. The conclusion appears, therefore, inevitable that such ground saturation, or what we are accustomed to speak of as malarious conditions, can only be additional and furthering causes of the origin of paroxysmal maladies; the true cause probably lying hid in subtle meteorological changes, or in atmospheric vicissitudes, with which we are not yet sufficiently acquainted. This, however, is not the place for argumentative disquisition. It is merely intended to display the facts as presented by the Rajpootana dispensary returns, and to draw what would appear to be the correct inference from such facts. I will, therefore, merely mention in conclusion of this part of the subject, that (as is occurring at Aboo at this present time) a sudden change of wind from any direction, but especially from the north-east, will in these districts be almost universally accompanied by numerous cases of paroxysmal fever. And it is not to be supposed that such winds bring malaria on their wings, but rather that their chilling action on the human system excites a more or less severe cold impression, followed by the feverish paroxysm.

"There was," says Dr. Moore, "more than sufficient of cholera to mark the year 1872 as emphatically a cholera season," and he thus summarises his account—

Jhallawar, Pertabghur, Oodeypore,	}	south of Rajpootana.	the province, were shadowed by epidemic cholera during the hot weather of 1872, while in the north of the province the malady prevailed in Jeypoor, in Bhurtpoor, and in Ulwur.
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Intervening localities as Tonk, Kerowlee, Ajmere, and Mhairwarra, Boondee, and Kotah, were, with the exception of the few isolated cases, as above detailed, free from the disease. The sandy districts to the west, as Marwar, Mullancee, Bickaneer, and Jeysulmere, as usual, remained uninfluenced.

In the last report the extraordinary prevalence of guinea-worm in certain parts of Rajpootana, notably in Marwar and Ajmere, was noticed, and the subject of guinea-worm made matter of enquiry. The returns for the year (1872) under review show a very considerable reduction in the ratio of guinea-worm cases treated. In 1871, for Marwar, the figures were 3.93 per cent. on total; for 1872 it is only .25 per cent. In Ajmere the proportion was for the first year named 11.42; for 1872 only 6.18; and similar variations for other places might be quoted. This evidently shows that guinea-worm, like other maladies, becomes epidemic and then subsides, there being, as shown in last report, a seasonal maximum of the disease, occurring in the months of June, July and August. It was also there mentioned that neither geological nor meteorological peculiarities have any effect on the prevalence of the malady. For

the worm may be contracted alike on the saline plains of Marwar, and on the black soil of Kotah and Patun, in the western tracts where the rainfall scarcely averages 5 inches *per annum*, to the districts bordering on Central India, where the monsoon is seven times more plentiful; on ground, as in Mullanee, where water is 300 feet from the surface; and in Jhallawar, where it approaches within a tenth of that distance. Neither do ordinary barometric or thermometric conditions seem to exercise control, for the guinea-worm is endemic in Bombay, where the atmosphere is moist and the temperature comparatively equable; and in Marwar, where the air is dry, and hot winds blow as from a blast furnace, and where ice at night is often succeeded by a powerful sun during the day. In Bickaneer, where water is 400 feet from the surface, where people do not wash in the wells, where bheestees' mussuks are not used, where the surface is sand, and the substratum sandstone and gravel, guinea-worm is very prevalent. If the description given of Bickaneer be attentively considered, confidence in the connection of guinea-worm with either drinking or bathing water will, perhaps, be shaken. I am not at present in a position to advance with confidence any new theory with regard to the origin of guinea-worm, but the subject will not be lost sight of. Two facts with regard to the malady have been already elucidated by the Rajpootana dispensary reports, *1st*, that the malady (as clearly demonstrated in last report) is not contracted at Mount Aboo, or on granite formation 2,800 feet above the surrounding plain; *2ndly*, that washing in the slime or dirty water of wells is *not* the cause of introduction of the worm into the system; for the people of Bickaneer, who do not wash in wells or tanks for the very good reason that there are no wells or tanks for such purpose, nevertheless suffer to a considerable extent from guinea-worm. It may also be added that if guinea-worms are really inhabitants of wells, light is not necessary for their existence, for at Bickaneer some of the wells are 300 feet deep and 3½ feet wide, the bottom being total darkness. The above would tend to the deduction that the *ova* of guinea-worms must be inhabitants of the ground or of the air, and not of water, although perhaps they may be called into activity by even the scanty monsoon rains falling on the parched sand of the semi-desert regions.

Surgical operations.
Native practitioners.

There were 300 major and 9,961 minor operations performed.

An interesting description is given of the native practitioners, and examples of their extreme ignorance cited, but Dr. Moore is convinced that it would be good policy to obtain the services of such persons, to give them instruction for a time, and then to employ them in some branch dispensaries.

Female assistant at
Tonk.

At Tonk a *dhai*, who has also been taught vaccination, has been entertained with the object of receiving females, and the arrangement seems to be working successfully.

Finances.

The total cost of the whole of the dispensaries in Rajpootana was Rs. 41,707, being 3 annas and 7 pie per patient treated. The cost in the Native States alone was Rs. 36,742, or about 3 annas and 8 pie per head.

Dengue.

The report contains a history of the introduction of dengue into Rajpootana. The disease was prevalent in Agra, on the north, and Deesa, on the south, for months before it entered the province. In August it appeared in a village not far from the Runn of Kutch, whither it had been introduced across the sandy districts from Sind. In September it appeared at Serohi, and shortly afterwards at Anadra at the foot of Mount Aboo. At the end of August, Bhurtpore was attacked, and for a time business was at a stand-still, so general was the spread; but curiously, neither the sowars of the political agent's escort, nor the prisoners in the jail, with one exception, were attacked. Full extracts from Dr. Moore's report have been made in the general remarks of this compilation, and repetition is therefore needless.

Opium eating.

The subject of opium eating and its effects had been fully discussed by Dr. Moore in a former report, but fancying that some fallacy might have crept into the statistics upon which his conclusions were based, he instituted a new enquiry, limiting his investigations to a few selected dispensaries. The result is shown in the following table, and the conclusion arrived at was, that the percentage of people to population using opium in Rajpootana is not so great as is commonly imagined, but whether the upper ranks of society are as abstemious is doubted:—

Number of institutions supplying returns...	...	13
Number of patients questioned	...	36,636
Number of persons using opium	...	4,139
<i>Percentage to total using Opium.</i>		
Male	...	63.32
Female	...	10.74
Children	...	25.94
Total percentage of persons using opium	...	11.32

Dr. Moore considers that the supposed ill effects of the consumption of opium on the constitution has been greatly exaggerated.

Of the meteorology of the year it is written:—

Meteorology.

In last report the prevalence, towards the close of 1871, of north-east winds was noted, and the bronchial affections then so prevalent attributed chiefly to this cause. The weather at the close of 1872 was much milder than in the preceding year, and there is in the dispensary returns a diminution observable in the ratio of bronchial maladies for the last two months of 1872, compared with the same period of 1871. The rainfall for 1872 was 32 inches, 18 inches of the whole falling in August.

The localities of the mission dispensaries have not been selected with judgment, for in many instances small towns, where Government dispensaries already existed, have been chosen, and in such places there is not scope for two institutions. "If", observes Dr. Moore, "missionary work requires the support of medicine and surgery, such support, I submit, should be rendered with discrimination, and not, I think, be brought forward in localities where it is not required for the physical welfare of the inhabitants."

Mission dispensaries.

Supervision by civil surgeons was efficiently performed throughout the province.

Supervision.

DISPENSARIES IN BRITISH BURMAH.

The report was written by deputy surgeon-general C. Murray Duff, M.D. British Burmah division.

The general health of the province is stated to have been exceptionally good, notwithstanding that dengue-fever prostrated about 80 per cent. of the inhabitants for a time. At Akyab, during the month of February, there occurred an endemic visitation of pleuro-pneumonia, which at the time caused much alarm. The deaths were said to be numerous, but all who were brought to hospital recovered. After its disappearance cholera appeared at Akyab, also in an endemic form. In May cholera disappeared, but it returned in July.

Public health.

The number of dispensaries remained unchanged, *viz.*, fourteen.

The total number of persons treated in the dispensaries amounted to 46,260, being 2,768 less than during the preceding year. Of these, 4,104 were treated in hospital and 42,156 were out-door patients. The falling off was entirely amongst out-door patients, the in-door patients comparing favourably as to numbers with those of 1871. The average daily attendance of the year shows an increase over that of 1871 of 14.13, the increase of the in-door cases being 25.13, and the decrease of out-cases 11.

Statistics.

The following table shows the percentages of special diseases to total admissions:—

Diseases.	In-door.	Out door.
Fevers	24.66	16.38
Cholera	0.39	0.03
Rheumatism	4.77	5.67
Syphilis	3.99	2.41
Chest diseases	2.22	4.94
Dysentery	4.65	2.21
Diarrhoea	3.94	3.22
Skin diseases	5.87	5.09
Injuries	28.07	7.13
Other diseases	15.54	38.86

The death-rate amongst in-patients was 8.88 per cent. of total treated: only 19 major operations are returned with a mortality of 12.50 per cent.

The income of the dispensaries amounted to Rs. 1,71,357, including the cash balance, and their expenditure to Rs. 1,39,755-9-0. Of the income, Government contributed Rs. 1,17,563-14-3, the remainder being made up from subscriptions and donations.

Finances.

At Akyab there were 61 European patients admitted, being 27 in excess of the previous year, and the increase was due to the prevalence of pleuro-

Europeans treated at Akyab and Moulmein.

pneumonia which broke out in February, and disappeared in March. There were 109 Europeans treated at Moulmein, and there were 4 casualties amongst them.

Caste and sex.

The report does not contain information as to the caste and sex of those treated, but it is stated that future reports will embody these details.

DISPENSARIES IN THE HYDERABAD ASSIGNED DISTRICTS.

Dr. R. T. Abbott, the inspector-general of dispensaries, submitted the report.

General health.

It is stated that there was more sickness in the province in 1872 than in 1871.

Number of institutions.

The number of institutions remained, as in the former year, twenty-three.

Number treated.
Sex of treated.

The total number of patients treated was 42,602 against 33,980, of whom 41,983 were out-patients, and of this number 10,871 were females, representing a considerable increase upon the result of the previous year. The number of in-patients increased by 195, the total being 619. In only one district, Bassim, was the attendance less than in 1871. The most common diseases of the two years is thus compared, as to their frequency, amongst those who applied for medical or surgical relief:—

Most common diseases.

Diseases.				1871.	1872.
Ague	...	...	...	8,080	9,937
Diseases of digestive system	...	...	...	5,251	4,818
Do. cutaneous system	...	...	...	4,944	5,937
Do. intestine system	...	...	...	2,325	4,553

Surgery.

The number of operations performed was 17 major and 1,546 minor. Of the former 3, and of the latter 29, were unsuccessful.

European medicines.

The insufficiency of the quantities of European medicines supplied was complained of, and measures taken for rendering it adequate in future.

Finances.

The expenditure exceeded the income by Rs. 2,081, and the difference had to be met from the balance of the previous year, but Dr. Abbott considers that the additional expenditure is more than compensated for by the improvement in the buildings and increased attendance. The subscriptions from Europeans and natives largely decreased. From the former the almost nominal sum of Rs. 15 was collected in the Akolah district against Rs. 234-2-7 in the previous year, and nowhere else was a single rupee collected from Europeans. From natives Rs. 430-13-3 were obtained against Rs. 1,840-6-0 in 1871. Local funds contributed 75 per cent. of the income, and Government 23·5 per cent.; Europeans 0·04 and natives 1·29 per cent.

TABLE No. I.
Showing the statistics of the dispensaries in the provinces of the Bengal presidency for the year 1872.

1	2	3						9	10		11	12		13	14		15	16		17	18
		NUMBER AND CLASS OF PATIENTS TREATED.							DAILY AVERAGE AT- TENDANCE OF.	IN PATIENTS.		PROPORTION PER CENT. OF FE- MALES TO MALES.			OPERATIONS.						
		In-door.			Out-door.					Total treated.	In-door.	Out-door.	Ratio per cent. to treated of—	Mortality.	In-door.	Out-door.	Major.	Minor.	Proportion of pati- ents treated per cent. to the total population.		
Provinces.	Number of dispen- saries.	Males.	Females.	Children.	Males.	Females.	Children.	In-door.	Out-door.											Cured and relieved.	Mortality.	In-door.	Out-door.	Major.	Minor.	Proportion of pati- ents treated per cent. to the total population.
Bengal ...	170*	14,363	3,256	508	289,892	81,371	68,266	869.01	5254.02	70.06	16.05	22.66	28.69	1,559	18,273	.68					
North-Western Provinces ...	135	21,927	739,346	...	782,798	73.78	13.17	865.50	6241.50	...	...	...	...	2,367	51,340	2.46	
Punjab ...	116	22,968	4,266	...	566,012	189,552	...	988.00	5200.79	...	6.98	18.37	33.49	3,407	60,203	4.47					
Central Provinces ...	80†	8,631	1,230	335	188,524	59,252	44,869	401.3	3087.65	79.49	13.28	14.26	31.43	463	12,266	4.16					
Oudh ...	28	5,906	188,806	...	144,712	285.17	1358.82	285.17	1358.82	...	12.48	.....	.....	372	6,357	1.29			
Rajputana ...	74	7,058	175,032	...	182,090	141.23	1447.00	141.23	1447.00	...	9.23	18.17	18.17	800	9,961	1.84					
British Burmah ...	14	4,104	42,156	...	46,260	198.58	294.04	198.58	294.04	...	8.88	.....	.....	19‡	...	1.74			
Hyderabad ...	23	573	46	...	31,112	10,871	...	23.10	439.65	...	13.57	8.03	34.94	17	1,546	1.95					

* Of these, disease statements were received from 168 only.

† Includes 1 Lunatic Asylum.

‡ Includes 11 Jails.

TABLE No. II.

Showing the sources and proportion of different sources of Income and proportion of different items of Expenditure in Dispensaries in the several Provinces of the Bengal Presidency for the year 1872.

1	2	3	INCOME—PERCENTAGE OF THE TOTAL RECEIVED FROM						9	EXPENDITURE—PER CENT. OF THE TOTAL UNDER EACH ITEM.										20
			4	5	6	7	8	+		10	11	12	13	14	15	16	17	18	19	
Provinces.	Number of dispensaries.	Total income. †	Government grants.	Local funds.	Interest on invested capital.	European subscriptions.	Native subscriptions.	Total expenditure. †	Medical officers' salaries.	Medical subordi- nates' salaries.	Servants' wages.	Native medicines purchased.	English medi- cines purchased.	Diet of patients.	Wines and Spirits.	Repairs and con- struction of build- ings and house- hold furniture, &c.	Miscellaneous, clothing, furni- ture, burials, &c.	Surplus income invested.	Average cost of each patient.	
		Rs.						Rs.											Rs. A. P.	
Bengal	170*	291,601	38.61	17.40	7.09	7.47	29.43	299,738	3.47	36.56	19.13	1.63	3.38	8.67	.33	13.81	9.10	3.92	0 10 5	
North-Western Provinces	135	226,877	46.07	24.14	6.25	7.14	16.40	232,405	...	41.31	15.92	5.06	...	6.81	.25	11.96	14.33	4.86	0 4 10	
Punjab	116	218,276	35.54	40.16	.58	5.91	17.81	209,468	53.86	53.86	...	5.43	1.68	8.76	...	11.87	7.83	10.56	0 4 3	
Central Provinces	86†	90,640	44.57	29.70	.50	5.89	19.34	106,821	58.24	58.24	...	5.37	1.18	8.55	.44	7.22	7.52	11.48	0 5 7	
Oudh	28	57,394	41.83	26.15	...	3.74	28.28	57,525	54.92	54.92	...	6.39	1.46	9.31	...	...	17.49	10.43	0 6 4
Rajputana	74	...	...	...	...	...	...	41,707	76.36	76.36	...	8.69	...	7.52	7.43	...	...	...	0 3 7
British Burmah	14	139,904	81.86	12.04	...	4.90	1.20	139,756	17.11	17.11	...	.31	...	5.93	...	70.45	6.19	...	3 0 4
Hyderabad	23	33,317‡	23.58	75.07	...	.04	1.29	35,398§	62.76	62.76	...	5.70	1.31	2.71	...	23.90	3.26	...	0 13 3

* Of these, cash statements were received from 164 only.

† Includes 1 Lunatic Asylum.

‡ Exclusive of balance in hand and estimated cost of Europe medicines supplied by Government.

§ Inclusive of estimated cost of Europe medicines supplied by Government.

TABLE No. III.

1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		
	CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.		CLASS I.—GENERAL DISEASES.		CLASS II.—LOCAL DISEASES.	
	ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.		ORDER A.		ORDER B.	
PROVINCES.	Class of patients.		Fever.		Cholera.		Other diseases of Order A.		Rheumatism.		Syphilis.		Scrofulous diseases of glands.		Anæmia.		Other diseases of Order B.		Of the Nervous system.		Of the Eye.		Of the Ear.		Of the Nose.		Of the circulatory system.		Of the absorbent system.		Of the ductless glands.		Of the respiratory system.			
	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.		
Bengal	In	1957	87	230	5597	48	207	405	272	476	220	28	154	63	1982	530	2931	209	1504	138	91	07	16	11	20	05	20	01	194	2244	194	2244				
	Out	1913	...	60	...	62	...	628	...	273	...	22	...	43	...	131	...	201	...	317	...	301	...	38	...	32	...	330	...	345	...					
North-Western Provinces	In	1204	1075	136	5838	100	1918	318	315	364	275	26	1034	62	2541	315	22	334	1362	172	105	23	884	37	1656	08	2322	04	05	2727	320	2311				
	Out	1441	...	76	...	150	...	679	...	186	...	20	...	16	...	87	...	206	...	479	...	382	...	37	...	03	...	14	...	106	...	641	...			
Central Provinces	In	3004	898	32	4468	163	641	437	358	319	92	12	1538	107	734	249	2282	246	1235	241	325	18	...	20	952	08	4444	02	...	...	...	...	...
	Out	2545	...	13	...	210	...	511	...	130	...	10	...	27	...	62	...	203	...	501	...	222	...	21	...	01	...	27	...	...	...	...	...
Oudh	In	1651	760	232	6328	...	...	488	115	406	208	...	...	...	...	40	1917	305	1303	164	109	25	606	...	...	...	...	...	...	...	...	...	...
	Out	1590	...	105	...	...	...	196	...	275	...	...	...	...	...	81	...	193	...	298	...	161	...	...	...	...	...	...	...	...	...	...	...
Rajpootana	In	Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.		Information not available.				
	Out	2496	148	39	8125	...	...	477	102	399	1037	...	...	...	...	44	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
British Burmah	In	1638	...	03	...	...	...	567	...	241	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Out	2730	651	...	...	32	...	646	125	404	400	...	...	...	...	271	6882	193	1608	113	...	16	...	16	...	...	...	...	...	...	...	...	...	...
Hyderabad	In	2135	...	49	...	229	...	342	...	123	...	13	...	...	...	125	...	293	...	409	...	224	...	22	...	...	...	...	...	...	...	...	...
	Out	2135	...	49	...	229	...	342	...	123	...	13	...	...	...	125	...	293	...	409	...	224	...	22	...	...	...	...	...	...	...	...	...	...

T.—Treated.
D.—Died.

TABLE No. III—*contd.*

PROVINCES.	Class of patients.	CLASS II.—LOCAL DISEASES— <i>contd.</i>																												REMARKS.				
		OF THE DIGESTIVE SYSTEM.														OF THE GENERATIVE SYSTEM.										CLASS III.					CLASS IV.		CLASS V.	
		Dysentery.		Diarrhea.		Other diseases of the digestive system.		Of the urinary system.		Male organs.		Female organs.		Affections connected with pregnancy.		Affections connected with, or consequent on, parturition.		Organs of locomotion.		Cellular tissue.		Of the cutaneous system.		Conditions not general or local.		Poisons.		General.			Local.			
T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.			
Bengal	{ In	11-65	41-33	5-82	36-74	9-03	12-10	3-32	4-38	88	4-34	70	8-37	...	...	1-55	7-09	1-00	4-40	7-51	5-42	2-21	26-11	39	14-08	81	29-27	15-71	4-00			
	{ Out	2-26	...	2-63	...	24-96	...	2-48	...	69	...	23	...	...	...	48	...	2-05	...	13-24	...	79	...	14	...	18	...	2-73	...		
North-Western Provinces	{ In	5-78	42-27	4-50	45-24	7-61	10-48	5-50	6-29	61	4-48	30	8-03	1-0	8-7	1-10	1-12	1-30	4-57	6-93	5-39	1-83	4-9	1-44	16-77	90	23-40	27-39	3-16					
	{ Out	2-71	...	3-25	...	15-15	...	2-08	...	97	...	16	...	0-05	...	30	...	2-71	...	21-90	...	65	...	18	...	18	...	2-84	...					
Central Provinces	{ In	11-37	37-70	6-24	28-03	5-01	5-49	3-07	4-79	47	6-25	0-8	...	0-2	...	0-28	3-02	0-7	5-61	12-23	6-03	8-0	5-0	5-9	11-47	50	9-83	4-39	3-80					
	{ Out	2-59	...	2-73	...	13-42	...	2-00	...	36	...	13	...	...	...	28	...	1-04	...	22-74	...	37	...	30	...	35	...	2-14	...		
Oadh	{ In	5-92	27-14	5-67	37-91	10-72	8-84	4-35	6-61	...	...	49	10-34	...	...	1-05	3-22	...	...	8-23	3-91	...	...	1-03	8-2	14-78	6-18	13-05	10-86	
	{ Out	3-33	...	3-15	...	10-14	...	2-90	...	...	...	36	...	...	...	3-6	...	...	...	20-11	...	...	...	0-6	...	3-38	...	14-07	...	
Rajpootana	{ In	Information not available.																																
	{ Out	Information not available.																																
British Burmah	{ In	4-65	17-80	3-94	40-12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5-67	10-24	...	...	...	...	28-07	3-99	15-54	17-22	
	{ Out	2-21	...	3-22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5-09	...	...	...	...	...	7-13	...	...	...		
Hydrabad	{ In	...	...	...	...	24-39	9-27	1-93	...	1-0	...	1-6	...	...	...	48-89-86	...	5-87	4-17	7-43	6-32	3-23	1-5	8-0	...	9-68	1-0	38-86	...	
	{ Out	...	...	...	...	27-27	...	2-36	...	3-8	...	1-0	...	...	...	34	...	2-33	...	14-03	...	5-1	...	3-8	...	2-25	...	...	...		

TABLE No. IV.
Return of Major Surgical Operations performed at the Lahore Mayo Hospital during the year 1872.

Distinguishing marks.	OPERATIONS.	OUT-PATIENTS.				IN-PATIENTS.										
		Remaining from December 1871.	New operations performed during the year.	Total.	Cured or relieved.	Otherwise.	Died.	Remaining.	Remaining from previous year.	New cases operated.	Total.	Cured.	Relieved.	Otherwise.	Died.	Remaining.
215 p.	Operations on the eye	...	...	...	...	...	...	...	5	39	44	19	7	16	...	2
215	Iridectomy	...	...	...	...	...	...	...	...	5	5	1	3	...	...	1
221	Iridesis	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1
	Amputation of the shoulder-joint	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	" arm above the wrist for injuries	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	" elbow for disease	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	" thigh	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	" leg	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	Excision of necrosed bone	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	Amputation of the fingers	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
225 p.	Removal of calculi by lateral lithotomy	...	...	...	...	...	...	...	3	38	41	28	2	1	...	3
	" " lithotripsy	...	...	...	...	...	...	...	...	2	2	1	...	...	...	1
	Paracentesis of abdomen	...	...	...	...	...	...	...	...	5	5	1	3	...	...	...
	Operation for occluded vagina...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...
	" for harelip	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
	Removal of tumours	...	...	...	...	...	...	...	...	3	3	...	...	...	...	...
	Tenotomy	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...
	Tracheotomy	...	...	...	...	...	...	...	...	3	3	1	1	...	...	...
	Turning performed for arm presentation	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...
	Extraction of foreign body, by incision, from urethra	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...
	Operation for strangulated inguinal hernia	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...
	Reduction of dislocation	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...
	TOTAL	...	2	2	2	2	2	2	9	122	131	72	17	19	15	8

T. E. B. BROWN,
Principal, Lahore Medical School.

"Luththem," a spare man, aged 30.—Had suffered nearly three weeks from a large abscess in the calf of the right leg, and from rigors and fever. The abscess was at first incised freely, but shortly after pus burrowed in all directions and the knee-joint became involved, necessitating removal of the limb. Amputation of the thigh was performed, and the patient seemed to improve for a time, but diarrhoea set in, followed by fever, gradual emaciation and bed sores, and he died, the stump, however, remaining healthy. Admitted 24th March. Operation 1st May. Died 30th June 1872.

"Junnee," a spare woman, aged 25. Was admitted with a sloughing wound upon the middle portion of anterior aspect of left leg, of one month's standing.—The entire limb was diseased up to the knee-joint, rendering amputation necessary at the lower third of the thigh: but the patient continued to suffer from pyemic fever, hepatic disease, and bed sores. She died. Admitted 4th. Operation 9th. Died 23rd June 1872.

"Farreed," a spare man, aged 27.—Admitted 8 hours after the accident, with compound comminuted fracture of both bones of right leg, with much bruising of soft parts, extending from the knee downwards. Injuries caused by the wheels of a railway carriage passing over the injured limb. When reaction was perfectly established, amputation was performed at lower third of the thigh. Patient progressed favorably, the stump healing, till about the third week after operation, when greater part of remaining portion of the shaft of the thigh bone was found diseased, pus burrowed along the bone up to the hip-joint, and rigors and fever supervened. He gradually sunk. Admitted 17th. Operation 18th July. Died 14th August 1872.

"Modhoo," a spare man.—Admitted with simple fracture of middle third of both bones of left leg and much bruising of the soft parts, caused by a bale of cotton falling upon the limb. Violent fever set in next day, followed by mortification of the limb, the diseased action extending up to the thigh. Amputation of the thigh was performed at its lower third on fifth day after admission, but patient gradually sunk. Admitted 13th. Operation 18th. Died 19th August 1872.

"Sheik Summundally," a spare man, aged 50.—Admitted with compound comminuted fracture of both bones of left leg, caused by a large bar of iron falling upon the injured limb. The wound extended the whole length of the leg, the soft parts were much bruised, the bones broken into several pieces, and patient was very low from loss of blood. After reaction was established, amputation of the thigh was performed at its lower third. Patient still in hospital. Admitted 6th. Operation 6th November 1872.

"Abdool Kadin," a spare man, aged 35.—Admitted with compound comminuted fracture of right tibia, compound fracture of the fibula, and two extensive wounds upon the leg and foot. Amputation of the leg was performed below the knee-joint, but patient died of traumatic delirium. Admitted 30th April. Operation 1st May. Died 5th May 1872.

1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	...	...	...	...	1	...
8	...	...	...	...	...	...	...	...	...	...	6	8
...	...	...	...	...	...	...	...	...	...	...	1	...

Amputation of thigh

Amputation of leg

Carried over

TABLE No. V.—(continued).
Return of Surgical Operations performed by Surgeon-Major C. Macnamara in the Calcutta Native Hospital during the year 1872,—(contd.)

DESCRIPTION OF OPERATION.	Number operated on.	DISCHARGE						Total.	Died.	Remaining.
		Cured.		Believed.	Incurable.	Transferred to other Diseases.	Absconded.			
		In Hospital.	Out of Hospital.							
Brought forward	8	1	...	...	...	...	6	8	1
Amputation of leg	1	...	...	...	...	...	1	1	...
Amputation at shoulder-joint	1	...	...	...	...	...	1	1	...
Amputation of arm	1	...	...	...	...	...	1	1	...

REMARKS.

"Horromoney," a spare woman, aged 36.—Admitted with compound fracture of lower third of both bones of right leg, the end of the upper portion of the tibia protruding from a small wound. As patient was in a debilitated condition, a conservative plan of treatment was adopted, but this having proved unavailing, the leg was amputated at its upper third. Patient progressed favourably for about a fortnight when diarrhoea set in, followed by fever of a low type and sloughing of stump. She gradually sank. Admitted 9th September. Operation 22nd October. Died 2nd November 1872.

"Jemie," a spare lad, aged 16.—Admitted on the fourth day after the accident, with right fore-arm and even portion of the upper arm in a state of mortification, which resulted from a deep wound over the wrist joint, caused by the bursting of a soda-water bottle. The ulnar artery had been divided, and the patient had lost a great deal of blood. Amputation was performed at the shoulder-joint; but the patient gradually sank. Admitted 17th. Operation 18th. Died 18th January 1872.

"Fukkeserchund Bhuttacharjee," a man, aged 45.—Admitted with compound comminuted fracture of lower end of right humerus, compound comminuted fracture of head of the radius, fracture of the coronoid process of ulna, which was also fractured at its middle third, the end of the bone protruding through the wound in the fore-arm, and its styloid process also fractured. Injuries caused by an accidental fall off the roof of a two-storied house. Amputation of the arm was performed, but patient died of traumatic delirium. Admitted 17th. Operation 17th. Died 22nd January 1872.

"Rutton," a lad, aged 16.—Admitted four days after an accident, which induced a gangrenous wound of the left hand. The morbid action had already involved the fore-arm and was extending to the upper arm, when amputation was performed at its lower third. Patient progressed favourably for a fortnight, when rigors and fever set in, soon followed by diarrhoea, and he gradually sank. Admitted 27th. Operation 30th January. Died 18th February 1872.

TABLE No. VI.

Annual Return of Surgical Operations performed in the Medical College Hospital during the year 1872.

Nature of operations.	Age.	Number of dis-eases.	Diseases or Injuries.	Remained.	Performed.	Total.	Cured.	Relieved.	Unrelieved.	Died.	Remaining.	Fatal complications.	REMARKS.
Operations on the Eye.													
Iridectomy	...	136	...	...	...	1	...	...	...	...	...	...	...
Extraction of the lens	81, 72	152a	Hard cataract...	...	...	1	1	...	1	...	...	...	...
Excision of the eyeball, total	14*	...	Sloughing of globe	...	...	1	1	...	...	1	...	Great anæmia and enlarged spleen...	...
Excision with contents of orbit	30	1022	Rupture of globe from injury	...	...	1	1	...	...	...	...	...	1 Von Graefe's, 1 flap operation. The result of intermittent fever and salivation.
	13	183	Glioma of orbit	...	...	1	1	...	...	...	...	...	...
	...	446	Malignant tumour of orbit	...	...	1	1	...	...	...	...	...	...
Ligature of Arteries.													
1 Anterior tibial, 1 internal iliac and femoral, 1 palmar arch	51, 29 & 30	253	1 Traumatic aneurism of dorsalis, 1 of femoral at Poupert's lig, and 1 of palm of hand	...	...	3	3	...	...	...	1	...	...
Excision of Joints.													
Excision of joints	...	760	Necrosis of elbow joint (complete excision)	...	...	1	1	...	...	...	...	...	Abandoned.
	10	772	Bony ankylosis	...	...	1	1	...	...	...	...	...	Ditto.
	12	774	Necrotic disorganization	...	...	1	1	...	...	...	...	...	Ditto.
	30	1103	Comp. com. fracture of humerus	...	...	1	1	...	...	...	...	...	...
	35	1111	Dislocation with fracture of humerus	...	...	1	1	...	...	...	...	...	...
Reduction of Dislocations.													
	6	1193	Dislocation of hip	...	...	1	1	...	...	...	...	...	...
Excision of Bones.													
Frontal bones, partial	...	1004d	Comp. fracture with depression (skull)	...	...	1	1	...	...	...	...	...	...
	5*	760	1 caries of tibia, 1 caries of metatars	...	...	2	2	...	...	...	...	...	...
	...	1002	Contused and lacerated wound of scalp, bone exposed	...	...	1	1	...	...	1	...	...	...
Ditto ditto	35	760	Necrosis	...	...	1	1	...	...	...	...	...	...

Annual Return of Surgical Operations performed in the Medical College Hospital during the year 1872, - (contd).

Nature of operations.	Age.	Number of diseases.	Diseases or Injuries.	Remained.	Performed.	Total.	Cured.	Relieved.	Unrelieved.	Di'd.	Remaining.	Fatal complications.	REMARKS.
Removal of Tumours,—contd.													
(Knife) B Non-malignant	43	824	Fibrous tumour	...	1	1	1	...	...	...	...	...	Thigh.
Ditto	69*	300	Myeloid "	...	1	1	1	...	...	1	...	...	Lower jaw, which was partly removed.
Ditto	60	824	Fatty "	...	1	1	1	...	...	...	...	...	Head.
Ditto	30	824	Euchondroma	...	1	1	1	...	...	...	...	...	Sub-maxillary region.
(Scissors)	28	608	Warts	...	1	1	1	...	...	...	...	...	Prepuce.
Ditto	20	466	Condyloma	...	1	1	1	...	...	...	...	...	Perineum and anus.
(Knife)	21, 27, 28	441	Glandular tumour	...	3	3	3	...	...	1	...	...	Neck 1, head 1.
Ditto	30, 35	824	Secous cystic tumour	...	1	1	1	...	...	...	...	...	Head.
Ditto	23	824	Dermoid cyst	...	1	1	1	...	...	...	...	...	Head 1, leg 1.
Ditto	22, 24	824	Sebaceous tumour	...	1	1	1	...	...	...	...	...	*Partial recurrence.
Ditto	†	610	Elephantiasis of scrotum...	...	12	43	39	1*	...	8	7	...	
						5	3	...	...	...	...	...
						3	3	...	...	...	...	...
		685	Elephantiasis of labia and clitoris	...	...	3	3	...	...	...	1	...	
Removal of Calculi.													
By lithotomy	{ 6, 31, 40	570	Vesical calculus	...	5	5	5	...	...	...	...	...	Lateral operation in all.
" lithotripsy	{ 49, 50	...	Ditto	...	1	1	1	...	...	...	...	...
	48	...		...	...	...	...	...	...	...	...	...
Licistones.													
Tracheotomy	28*	293	Chronic laryngitis	...	1	1	1	...	...	...	...	...	Thoracic tumour.
For hernia, opening sac	50, 60	6 e 480	Strangulated inguinal hernia	...	2	2	2	...	...	1	...	...	Exhaustion.
Ditto without	30, 40	...	Ditto	...	...	...	...	...	...	1	...	...	Sloughing of scrotum choleraemia
Ditto radical cure	24, 26, 46	5 480	Reducible "	...	3	3	3	1*	...	...	...	...
For fistula in ano	17, 20, 45	400	Fistula in ano	...	3	3	3	...	...	...	...	...
Perineal section	†	698a	Urethral stricture and perineal fistula	...	3	3	3	...	...	...	...	...
Ditto	†	819	Perineal abscess and retention of urine	...	3	3	3	...	...	...	...	...
Internal urethrotomy	†	698b	Organic stricture of urethra	...	1	1	1	...	...	...	...	...	By Holt's dilator.

TABLE No. VII.

Table showing the results of the major or more important Surgical Operations performed in the dispensaries of Bengal Proper during the year 1872.

CLASS.	NATURE OF OPERATIONS.	Total number of Operations.	RESULTS.				REMAINING.	
			DISCHARGED.					
			Cured.	Relieve	Otherwise.	Died.		
Operations on the eye and its appendages	Artificial pupil	1	—	—	1	—	—	
	Iridectomy	7	6	—	1	—	—	
	Solution of lens	2	1	1	—	—	—	
	Depression of lens	25	24	1	—	—	—	
	Extraction of lens	42	23	3	9	—	7	
	“ of foreign bodies	14	14	—	—	—	—	
	Puncture of globe	1	1	—	—	—	—	
	Staphyloma excised	4	3	—	1	—	—	
	Excision of (Total	5	4	—	1	—	—	
	Eyeball } Partial	1	1	—	—	—	—	
	Removal of tumours (deep and large)	1	1	—	—	—	—	
	“ of cancers	1	—	—	—	1	—	
Ditto on arteries	Protrusion of eyeball...	1	—	1	—	—	—	
	Ligature	2	2	—	—	—	—	
Ditto on veins	Aneurism, operation on (Incision)	1	—	—	—	—	1	
	Obliteration of varicocele	1	1	—	—	—	—	
Ditto on joints	Dislocations reduced	584	495	11	66	4	8	
	Stiff and deformed joints extended	2	2	—	—	—	—	
	Incision of joints	1	1	—	—	—	—	
Ditto on bones...	Excision of joints	2	2	—	—	—	—	
	Excision of bones	56	46	3	6	1	—	
	Operations on ununited fracture	2	2	—	—	—	—	
	Arm	20	15	—	—	3	2	
Amputations	Fore-arm	12	10	1	1	—	—	
	Wrist	1	1	—	—	—	—	
	Palm	1	1	—	—	—	—	
	Thumb	1	1	—	—	—	—	
	Fingers	14	12	2	—	—	—	
	Thigh	4	1	—	—	3	—	
	Leg	18	12	—	—	6	—	
	Foot	6	2	—	—	4	—	
	Toe	6	3	2	1	—	—	
	Penis	12	8	1	1	1	1	
	Ear	1	—	—	—	—	1	
	Removal of tumours	Removal of tumours	144	127	8	2	2	5
Ditto of foreign bodies	“ of foreign bodies	25	25	—	—	—	—	
Ditto of calculi	Calculi vesicæ	111	87	—	4	13	7	
	“ urethræ	14	13	1	—	—	—	
Incisions	Lithotrixy	5	3	1	—	—	—	
	Tenotomy	1	1	—	—	—	—	
	Hernia	25	16	—	7	1	1	
	Perineal section	11	6	1	1	3	—	
	Abscesses	158	149	1	1	5	2	
	Sloughing scrotum removed	1	1	—	—	—	—	
	Artificial anus	4	3	—	1	—	—	
	Harelip	8	8	—	—	—	—	
	Cicatrix	25	19	—	2	—	4	
	Reparative operations	Extroversion of bladder	1	1	—	—	—	—
		Vesico-vaginal fistula	2	2	—	—	—	—
	Operations not classified	Paracentesis of abdomen	98	55	3 ³	4	5	1
Internal piles, removed		30	12	4	13	1	—	
Elephantiasis scroti, removed		15	13	—	—	1	1	
Serotal tumour, removed		7	6	—	—	—	1	
Elephantiasis of female genitals, removed		6	6	—	—	—	—	
Paracentesis of bladder		1	1	—	—	—	—	
Mechanical obstruction to the action of uterus; delivery by forceps		1	—	—	—	1	—	
Obstetric operations	Evisceration	1	—	—	1	—	—	
	Turning	3	3	—	—	—	—	
	Craniotomy	7	5	—	—	2	—	
	Removal of fœtus	1	1	—	—	—	—	
	Removal of fetal remains	1	1	—	—	—	—	
	Child mutilated and removed	1	1	—	—	—	—	
TOTAL		1,559	1,260	75	125	57	42	

APPENDIX No. I.

REPORT ON THE EPIDEMIC OF CHOLERA

AT LAHORE IN 1872.

THE numerous cases of cholera that occurred among the pilgrims returning from the Hurdwar Fair in April last, rendered it a matter of certainty that the epidemic would shortly appear at Lahore. This station, however, remained free for a considerable time after the disease had been heard of at Kurnal and Umballa, and, indeed, several other places further north and off the grand trunk road, such as Hooshyarpore, Goordaspore and Jummo, suffered before Lahore.

This probably was partly due to precautions taken by the civil officers to turn off the bands of pilgrims as far as possible from the great line of human communication; the Jummo pilgrims, moreover, in returning to their country, would *naturally* take the route just indicated.

2. The arrival of the cholera at Lahore, however, was looked upon simply as a work of time. Cholera, to the best of my belief, has never of late years existed at Umballa, without sooner or later, in the same season, reaching Lahore. Accordingly, we were prepared for its reception. The building known as the leper asylum, near the railway station, was made over to me by the deputy commissioner for a cholera hospital, and arrangements were made for examining the passengers arriving by train from the eastward, as soon as there appeared to be sufficient reason. It was further predicted, almost with certainty, from the experience of former years, that the first cases would occur in the neighbourhood of the railway station.

3. On the 9th of May a case of cholera was reported at Jalandhar; the patient was attacked in a railway carriage; he was detained at Jalandhar, and the carriage was cut off from the train and fumigated; nor was it possible for this carriage to have been sent on by any mistake to Lahore, for at that time the temporary bridge over the Beas had not been opened for passenger traffic. Our machinery was immediately put in motion for examining the arrivals by railway, and the first train examined was the evening one; on May 10th, no cholera cases, however, were discovered. But on May 12th, while no cholera had been heard of on the line of railway nearer than Jalandhar, a woman fell sick in the lunatic asylum and died in 14 hours. This was a poor, sickly, very idiotic woman; she had been in the asylum for two years, and had not been out of it. All the rest of the institution was healthy, and day after day passed on without another case. This non-occurrence of other cases was so unusual in the lunatic asylum, in which, at the commencement of an epidemic, cases have heretofore always followed each other in rapid succession, that I reported this case as a sporadic one; nevertheless no precaution was omitted, which I should have taken with genuine cholera, to disinfect the place. Eleven days after this, on the 23rd of May, another woman was attacked with purging and vomiting, but she brought up a quantity of the skin of a cucumber, and soon began to improve. This case had certainly some of the characters of choleraic diarrhoea, but the cucumber was believed to be the cause, and the woman recovered. On the 25th, however, another woman fell sick, and died. As 13 days had elapsed since the first case, I believed this third one also to have been sporadic, but on the 26th I was undeceived. Across the fields, to the northward of the asylum, 790 (measured) feet from the female ward, and with the male ward intervening, there is a walled garden (Goormuck Sing's) lying low and watered by the canal, at the far side of which, 1,225 feet from the female ward, lived a Eurasian and his family. This man had been deputy superintendent of the lunatic asylum, but had left it on March 30th, one month and 13 days before the first case of cholera. His children had been over to the asylum after they left, but none of them had been into it.

4. On the morning of the 26th of May, two of these children were attacked with vomiting and purging at the same moment, and died within a few minutes of each other, after about seven hours' illness. In the afternoon of the same day, a third child was taken ill, and died next morning, and on this next morning (27th) a fourth child was attacked, but eventually recovered. On the 28th a native servant of the family fell sick. It was thus rendered evident that the first cases within the asylum were but the commencement of an epidemic, and others now rapidly succeeded them. On the 2nd of June another woman was attacked; on the 5th a man in a distant locality of the asylum; and on the 7th another woman. On the morning of the 8th June, the women, 56 in number, were moved out, and not another case occurred amongst them till July 28th, when they were attacked afresh in their new abode. The case of the 28th of July was followed by a second on August 4th, and a third on August 6th. This was the last case of the season. The women were brought back to the asylum on August 8th, exactly two months after they left it, and have remained free from cholera ever since.

Disposal of the women when moved out.

5. The women, when moved out on June 8th, were located in the old leper asylum, three quarters of a mile off, towards Anarkullee, which was intended for a cholera hospital, but in which no cases had yet been treated. The vacated female ward of the lunatic asylum was now made the cholera hospital, and all cases that fell sick in the asylum were immediately transferred to it: it was also open to outsiders, and one man from the railway was admitted, and treated in it. On the 19th of June the women were removed from the leper asylum, for reasons to be shown hereafter, to a place a mile and a half beyond the asylum towards Shalimar, on the north side of the Umritsar road, near the village of Chintghur.

Harmless male ward

6. But to return. On the 5th of June, it has just been stated, a case of cholera occurred amongst the male lunatics; another soon followed, and by the 14th there had been some in every locality of the asylum which was regularly inhabited by lunatics, except the dangerous ward, the inmates of which were kept separate from the rest. On the morning of the 15th June all the male harmless lunatics were moved out, with the exception of 7 healthy men, who were kept to do the cooking, baking, &c. The number moved was 149. They went away to an old tomb, which, in anticipation, had been partially prepared for their reception; it is known as Alee Murdan Khan's tomb, and is situated on the south side of the Umritsar road, near Chintghur, close to the place where the women (as just stated) were afterwards sent on the 19th. Thus, after the 19th of June, the men and women were within a very short distance of each other, and were attended by the same native medical establishment.

One man, Doola Singh, who had been some time in the hospital with Bright's disease, was attacked as soon as he arrived at the tomb; he was instantly sent back to the female ward—now the cholera hospital—and died in the evening. This case, of course, was fairly referable to the lunatic asylum, and not to Chintghur. On the following day, June 16th, four cases of less severe type occurred; of these, three were at once sent to the female ward, and recovered; the fourth began to mend so soon that he was kept at the tomb, but a few days afterwards he had a relapse, was sent into the asylum, and died. There were seven male cases after this at Chintghur, including an attendant, up to the 19th of July; all of which were of a mild type, mostly entered as choleraic diarrhoea, and all recovered. Thus, excluding the first case, Doola Singh, which belonged to the lunatic asylum, there were 11 male cases altogether at Chintghur between June 15th and July 19th, of which only one died. On July 31st there was a fresh outbreak, corresponding to that amongst the women close by on the 28th. Three men fell sick between the 31st July and 5th August, all of whom died. The case on the 5th August was the last amongst the male lunatics. The harmless lunatics returned to the asylum on September 13th.

Dangerous ward.

7. Let us now turn to the criminals and others confined in the dangerous ward. The harmless lunatics, be it remembered, moved out of the asylum on the morning of the 15th of June, leaving behind seven of their own number, and the inmates of the dangerous ward. Up to this time not one of these last had suffered. On the very next day, however, June 16th, a duffadar on duty in the dangerous ward fell sick with choleraic diarrhoea, and on the 17th four of the lunatics in the same ward were attacked; two died the same day, and a fifth case on the 18th. It was rather a difficult matter to find a place for these dangerous characters to move to, as the women, at this time, occupied the leper asylum, the only building suitable, being walled all round; the difficulty was overcome by the deputy commissioner, Mr. Hawkins, who found a new place for the women close to Chintghur, where the harmless males were located; the women therefore were removed to this place, as already related, on the 19th of June. On the morning of the 20th, the criminals and dangerous lunatics, 50 in number, took their place in the leper asylum. Here they remained perfectly well for five days; but on June 25th, a warder suddenly fell sick and died the same day; a second warder was attacked on the 26th, then a lunatic and a third warder. On the 27th two more cases occurred, both lunatics; all these were at once transferred to the female ward in the lunatic asylum. On the 28th the dangerous lunatics were moved back to their own ward in the lunatic asylum, which, during their absence, had been scraped and re-leaped. The leper asylum now again became the cholera hospital, and a few cases that still remained sick in the female ward were removed to it. No fresh cases occurred amongst the dangerous lunatics after they went back to the lunatic asylum.

This terminates the history of the disease among the lunatics. We have seen that it affected successively the female ward, the harmless male ward, and the dangerous ward. Altogether 39 lunatics were attacked, of whom 25 died, or 64 per cent; 5 attendants were attacked, of whom one died, or 20 per cent.

Certain localities of the asylum remained free.

8. It is worth while now to consider for a moment the localities within the asylum which were not affected. These were—*1st*, the male and female quarantine ward; *2nd*, a small courtyard, in which was the cook-house, and in which also the warders lived; *3rd*, a small off-set of the dangerous ward, in which were seven solitary cells. When the harmless lunatics went away, we have seen that seven healthy men remained behind to assist in the cooking, as all the food was still prepared in the asylum and sent out to the lunatics who had moved. These seven men, for the most part, stopped in the cook-house during the day and slept in the quarantine ward at night. When the dangerous lunatics went, there were eight men left in the off-set of the dangerous ward, in which were the solitary cells; of these eight, three were removed within three days, so that only five remained. No cases occurred from first to last in any of these three localities, though the lunatics in them drank the same water as the others, and those that remained behind in the asylum continued to drink the same. The places named are the only new localities in the asylum, all the others having been used for many years, under the Sikh rule, as a depôt for troops.

Whether or not the saturation of the soil of the old part with animal excretions affected the health of the lunatics, it is impossible to say; but the immunity of the new portions of the asylum is worthy of note.

There are some apparent exceptions to the statement, that the court-yard, where the cook-house was, remained from first to last unaffected; for the warders slept there, and three warders were attacked with cholera; all of these, however, fell sick while in attendance on the dangerous lunatics in the leper asylum, to which two of them had removed at least five days before their illness, and one (Lall Khan) two days before; the last-named, moreover, had been continually on duty in the infected wards of the lunatic asylum up to the time of his leaving it.

9. An outbreak of cholera amongst a small body of 273 persons has a peculiar interest, as its course can be more accurately observed than amongst larger masses. Drinking water not the cause.

The first important point that we learn from the history of this outbreak is, that it was not due to any poison conveyed in the drinking water. This is evident from the fact that eleven days elapsed between the first and second cases. Had the cholera poison been conveyed in the drinking water in the first instance, several persons must have been affected, for it is impossible to conceive that only one person should have drunk the poison, or that there was only one susceptible individual among the 273 lunatics; indeed, the rapid spread of the disorder afterwards proves that there were *many* susceptible persons.

Again, it cannot have been the drinking water that *kept up* the disease; otherwise some of the eight men in solitary confinement, and seven harmless lunatics that were left behind when the others went away, would probably have suffered; while the fact of the dangerous lunatics and the women remaining well, on their return to the asylum at different periods during the height of the epidemic, although they drank from the same source as before, proves that the water was not contaminated at those times. The water was supplied from the same well to the inmates of the lunatic asylum throughout the whole epidemic; it was not boiled, and was purified only by being passed through the filters described in my report for 1871, when the lunatics went out to their new domiciles, as the water was then obtained from wells whose purity had not been tested by experience; and as there were no filters, it was boiled for ten minutes, and medicated with a small quantity of sulphate of iron as a prophylactic.

Secondly, we learn that, however the disease was introduced, the pertinacity with which it adhered to the lunatics was due to some favouring element within the asylum; for in the case of the women and the dangerous lunatics, it ceased absolutely when the people moved, in the former case for fifty days, and in the latter for five days; and in the case of the harmless lunatics, it lost its virulence completely, all the cases but one recovering, till, on the 19th of July, it died out entirely. The same inference may be drawn with reference to the leper asylum from the fact that the fresh outbreak among the dangerous lunatics in that building, on the 25th of June, was completely arrested by their going back to the lunatic asylum, from which the poison had now been eradicated. The second outbreak, among the women at Chintghur, also ceased on their returning to the lunatic asylum on August 8th; but as it likewise ceased about the same time, without moving, amongst the harmless lunatics in close proximity to them, we cannot be sure that its cessation was *caused* by their return. I believe that the great efficacy of these moves was due to the mode in which they were conducted; the lunatics were made to leave every personal appendage behind them, each individual being stripped, bathed, and dressed in clean clothes before starting; the same precautions were taken, as far as possible, with the attendants. Effects of moving the lunatics.

Thirdly, we further learn that to move to a moderate distance is sufficient, provided every personal appurtenance be left behind. One mile and a half proved ample in the case of the harmless lunatics when they went to Chintghur. Three quarters of a mile, from the lunatic asylum to the leper asylum was sufficient for the women and the dangerous lunatics. The same distance, from the leper asylum back to the lunatic asylum, answered for the dangerous lunatics on the occasion of the second outbreak. A moderate distance sufficient.

10. We cannot infer from this epidemic alone that the condition that favored this spread of cholera within the asylum was a permanent one; in fact, the immunity from cholera, when the lunatics came back, would seem at first sight to prove that the insalubrious condition was not permanent; and I think it must be admitted that the sanitary condition of the place was improved by the cleaning, scraping, and leeping which were carried out in each ward before the lunatics returned to it; but the *continued* freedom from the disease is most probably to be explained by the fact that no fresh poison was afterwards introduced. Reason of immunity on return

11. The question how the disorder originally got into the asylum it is impossible to solve. To me it appears certain that there must have been cholera in the neighbourhood, of which we were not aware; for cholera, as far as experience teaches us, is not generated spontaneously, nor has it a permanent home in the Punjab, but is always introduced from without. The wind cannot carry the poison to any great distance, and, if it had carried it into the lunatic asylum, it would, in all probability, have affected more than one person. Mode of first introduction inexplicable.

It is not impossible that the clothes of the woman who was first attacked may have been soiled with some choleraic evacuation while in the hands of the *dhoby*; and if so, it is easy to conceive how this might have been introduced into her mouth. As every other mode of access seems to be excluded, the practical lesson to be learnt from this is, to have the washing in future done on the premises, and to have all the clothes boiled, for which arrangements have now been made.

J. B. SCRIVEN, *Civil Surgeon,*
Superintendent, Lunatic Asylum.

The history of the United States of America is a story of growth and change. It begins with the first settlers who came to the shores of the continent, seeking a new life and a better future. These early pioneers, whether they were explorers or laborers, laid the foundation for the nation that would follow.

As the years passed, the United States grew in size and power. It expanded its territory across the continent, from the Atlantic coast to the Rocky Mountains and beyond. This expansion was not without conflict, but it was a necessary step in the nation's development.

The American Revolution was a turning point in the country's history. It was a struggle for independence, a fight to establish a new form of government based on the principles of liberty and justice for all. The Revolution led to the signing of the Declaration of Independence and the creation of the United States Constitution.

The Constitution established a system of checks and balances, designed to prevent any one branch of government from becoming too powerful. It also guaranteed the rights of citizens and provided a framework for the nation's governance.

Over the years, the United States has faced many challenges, both at home and abroad. It has fought wars, experienced economic crises, and dealt with social issues. But through it all, the nation has remained a beacon of hope and a symbol of freedom.

Today, the United States is a powerful and influential country. It has a rich history and a bright future. It is a land of opportunity, where people from all over the world can come to live and prosper. The history of the United States is a story of resilience and achievement, and it is a story that continues to inspire and guide us today.

APPENDIX No. II.

Memorandum by DR. HILSON, Civil Surgeon of Moradabad, on the training of Midwives in the North-Western Provinces.

AN attempt has been made in the Moradabad dispensary to impart to native women a knowledge of midwifery, but with indifferent success.

At the end of 1871, a young woman, who had been trained in Dr. Humphrey's school at Nynce Tal, was entertained on a salary of Rs. 25 *per mensem* to give instructions to a class of females in the dispensary, but her knowledge of the subject, both practically and theoretically, was found to be too imperfect to enable her to undertake such a duty.

After she left, a professional *dhai* of the city was engaged on a salary of Rs. 6 *per mensem*, the amount allowed by Government; but she never manifested any interest in her work, and did not remain more than three weeks.

She was succeeded by two women—one a Chamaree, the other a Musulmanee—who had never practised as *dhais*; but although they have received instruction for more than a year, I cannot say that they have profited much by it.

One of them has shown a desire to learn, and besides attending several lying-in women, either alone or with the assistant surgeon, has made herself useful in ministering to the wants of the female in-door patients at the dispensary; but she is so stupid that I despair of her ever becoming a good midwife. The other woman never evinced much desire to learn anything, and ultimately absconded.

The chief obstacle in the way of having midwives trained in the English system is the difficulty of finding females who are willing to learn, or, being willing, possess sufficient intelligence and capacity to enable them to profit by what they are taught.

If suitable candidates were forthcoming in sufficient numbers so that the best might be selected, there would not be much difficulty in training them so as to turn them out useful midwives; but unfortunately no native of a good caste cares to allow any of his female relatives to undergo a course of instruction in midwifery by itself, because he sees the risk of her social position being degraded, and the contemptuous title of *dhai* applied to her. Hence it is only among the lowest and most ignorant classes at present that any students can be got.

It has been suggested that the ordinary *dhais* of the country should be instructed as being more likely to find employment among the native community; but to accomplish this is not so easy a matter as might at first be supposed.

In the first place, the *dhai* (in this part of India at least) is generally an old woman of very low caste, who has adopted a line of practice from which she cannot be persuaded to deviate. Her occupation embraces not only the delivery of the lying-in woman, but also the performance of a number of menial duties for several days subsequent to the birth of the child, and she has inherited the right, which is seldom or never interfered with, of attending a certain number of families.

In short, she has a permanent appointment congenial to her tastes, and the duties of which are not very onerous, and if her remuneration for professional services be small, she usually manages to eke out her income by spinning, teasing wool, &c., &c., and thus to lead a happy and contented life in which there is no element of ambition.

If a woman of this kind is asked to come to the dispensary to undergo a course of instruction in English midwifery, she sees the certainty of her daily duties and professional practice being interfered with, and finds herself called on to learn something which she has always associated in her mind with cutting or some repulsive operative procedure—all this, too, on a salary perhaps not greater than she can earn at home; while her daily expenses are probably increased by having to pay some one to look after the junior members of her family, and perform certain household duties during her absence at the dispensary.

It is not to be wondered at that she declines the offer made to her, nor do I think that any attempt should be made to educate these women; because it is almost certain to meet with failure, or at least be productive of results little commensurate with the labor and expense entailed. To engraft a knowledge of English midwifery on their absurd superstitions and prejudices is a task almost impossible of accomplishment; and if a certain degree of success were to attend the efforts of the teacher, I fear the practice of the woman would always be vitiated by the taint of the erroneous principles with which her mind was originally imbued.

But supposing the *dhais* were capable of becoming efficient midwives,—of what service would they be?

In Moradabad, which may be taken as the type of a city in the North-Western Provinces, there are about 60,000 inhabitants.

According to the municipal returns of births for the last four months (no more are available) about 2,000 children are born in it annually; and as far as I can judge from my own experience, from that of the assistant surgeon, from the dispensary returns, and from talking on the subject with *dhais* and others capable of forming an estimate, only 16 or 18 (or less than one per cent.) of these little creatures ever manifest the slightest disposition to loiter or be tardy during their advent into the world.

It may reasonably be supposed, also, that only one-half of that number require any manual interference to facilitate their birth.

Labour, in fact, is usually so easy a process among native women owing to the smallness of the child's head, and the simple life led by the mother, that in the vast majority of cases the assistance of a *dhai* is all that is necessary.

Is it worth while, then, to train in midwifery only a large number of women when so small a percentage of labour cases demand anything more than the most ordinary skill on the part of the attendant?

Surely a few well-educated women would be sufficient for the purpose.

But it may be urged that the *dhais*, in addition to their purely obstetric duties, might find useful employment in treating the diseases peculiar to females; but to this it may be replied that these complaints are generally of a very obscure nature, and often so difficult to treat satisfactorily, that the interference of a *dhai* would be likely to do much more harm than good.

Another important consideration should not be lost sight of.

The English system of medicine is gradually becoming popular in this country; and, what was not the case formerly, respectable Mahomedans and Hindoos of the highest castes now eagerly seek to be instructed in it.

This can only be attributed to the fact that Government has been at some pains and expense to make the position of an assistant surgeon and a native doctor a respectable and a fairly paid one.

Would a similar result, it may be asked, have ensued if only prejudiced *hakeems* and ignorant *chamars* had been selected for instruction; surely not: and hence it may be predicted that so long as none but *dhais* and low-caste women are taught midwifery, the more respectable and intelligent classes will decline to have anything to do with it.

I would respectfully suggest that Government, instead of trying to convert an ignorant *dhai* into a useful midwife, should at once take the bull by the horns, and institute a new and respectable order of female medical practitioners or *hakeemesses*, who should be educated in the civil hospitals throughout the country, and who should practise midwifery *merely as a branch of their profession*.

If sufficient remuneration were offered, say Rs. 10 or 15 a month, a few intelligent women—either Mahomedans, Christians, or of respectable Hindoo caste—might be induced to undergo a course of training which should last for three years, during which period they should be instructed not only in midwifery, but also, as far as possible, in the principles and practice of medicine, surgery, anatomy and materia medica, including the use of indigenous drugs. At the end of three years the woman who had proved herself most skilful, and had profited most by the instruction she had received, should be permanently attached to the dispensary on a fixed salary, while the others might be discharged and allowed to earn a livelihood as best they could.

If the latter were replaced by new pupils taken from different parts of the district, and these in turn instructed for a similar period, we should have, in the course of a few years, scattered over the country a class of women who would not only be capable of rendering aid in difficult cases of labour, but would also be a boon to the sick inmates of the zenana.

The less intelligent might not always be able to get a lucrative practice, but they would doubtless resort to other means of increasing their income as the *dhais* do at present.

That this class of women would soon become popular is the opinion of many educated natives with whom I have conversed on the subject, and there can be little doubt that they would serve to fill a blank in the community until the advancing light of education puts an end to the seclusion of women.