A medico-topographical account of Jeypore : based on the experience of twenty years' service as Residency Surgeon and thirteen as Superintendent of Dispensaries at Jeypore, Rajputana / by T. Holbein Hendley.

Presented by the Jeypore Durbar.

The favour of an acknowledgment
to the Superintendent of Dispensaries, Jeypore,
is requested.

A Medico-Topographical Account

OF

JEYPORE,

Based on the experience of twenty years' service as Residency Surgeon and thirteen as Superintendent of Dispensaries at Jeypore, Rajputana,

BY

Brigade-Surgeon Lieut.-Colonel

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BENGAL MEDICAL DEPARTMENT;

HON. VICE-PRESIDENT OF THE INTERNATIONAL CONGRESS OF HYGIENE

AT BUDA-PEST, 1894, AND DELEGATE FOR RAJPUTANA

AT THE CONGRESS OF 1891,

&c., &c.

Calcutta:

PRINTED BY THE CALCUTTA CENTRAL PRESS COMPANY, LIMITED,

5 COUNCIL HOUSE STREET.

1895.

PREFACE.

I have written this work in the hope that it will be useful to my successors, who will, perhaps, be saved much time, if they are able to find in one volume a record of what has been done in the past as regards health and allied subjects in both the city and districts of Jeypore. I believe much money may also be gained to the State by the prevention of the unnecessary repetition of experiments.

A somewhat similar account would be of value if prepared for every station in the country, and it would be very easy for each medical officer to add notes to it from time to time, so as to bring the information up to date.

Since sending my manuscript to the press, I have read that the German Government has ordered the preparation by special officers of a history of this kind of each Military Cantonment in the German Empire.

With its usual liberality the Jeypore Durbar has been good enough to bear the expense of publication of this work.

T. HOLBEIN HENDLEY,

BRIG.-SURG.-LT-COL.

March 1st, 1895.

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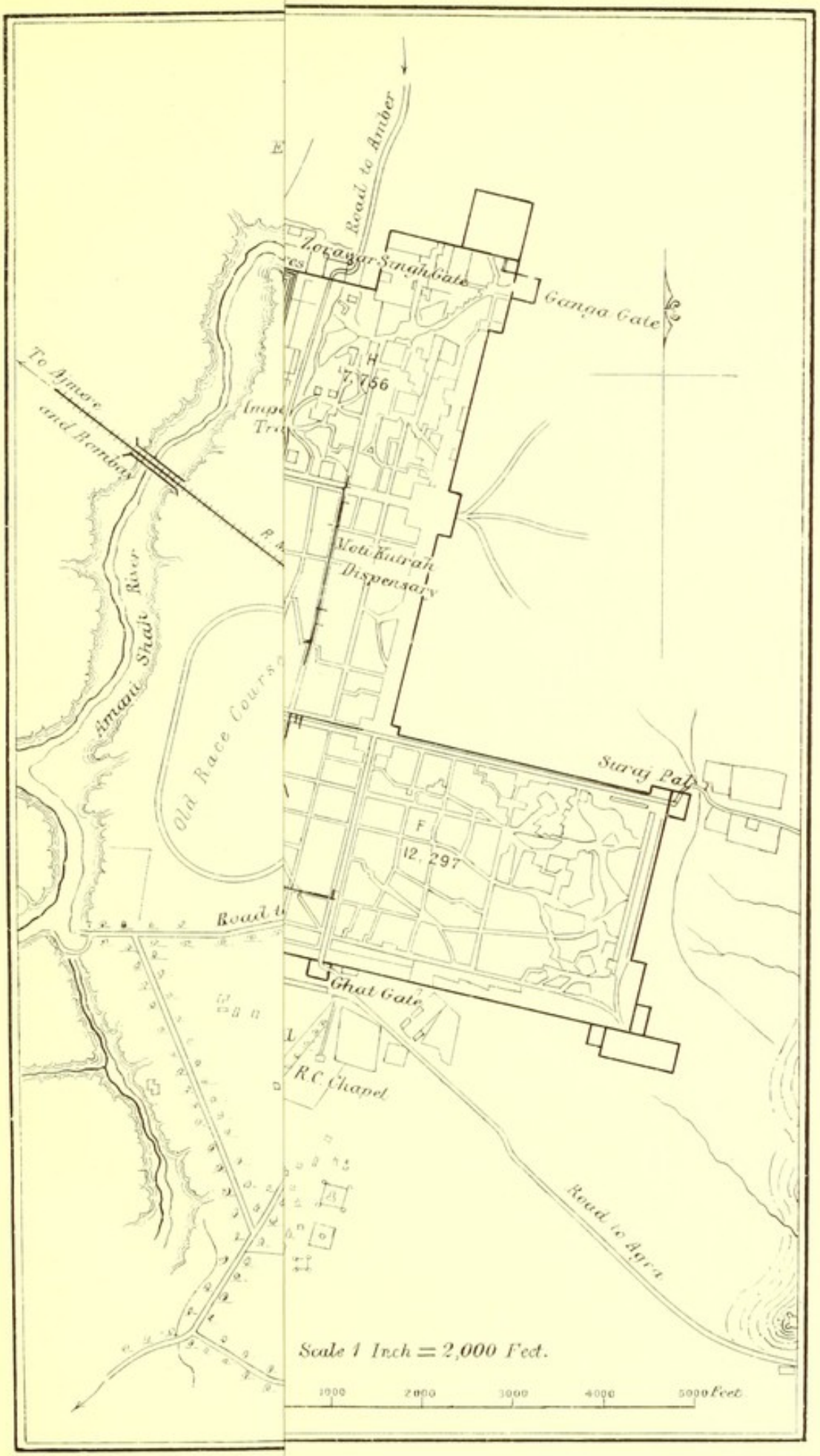

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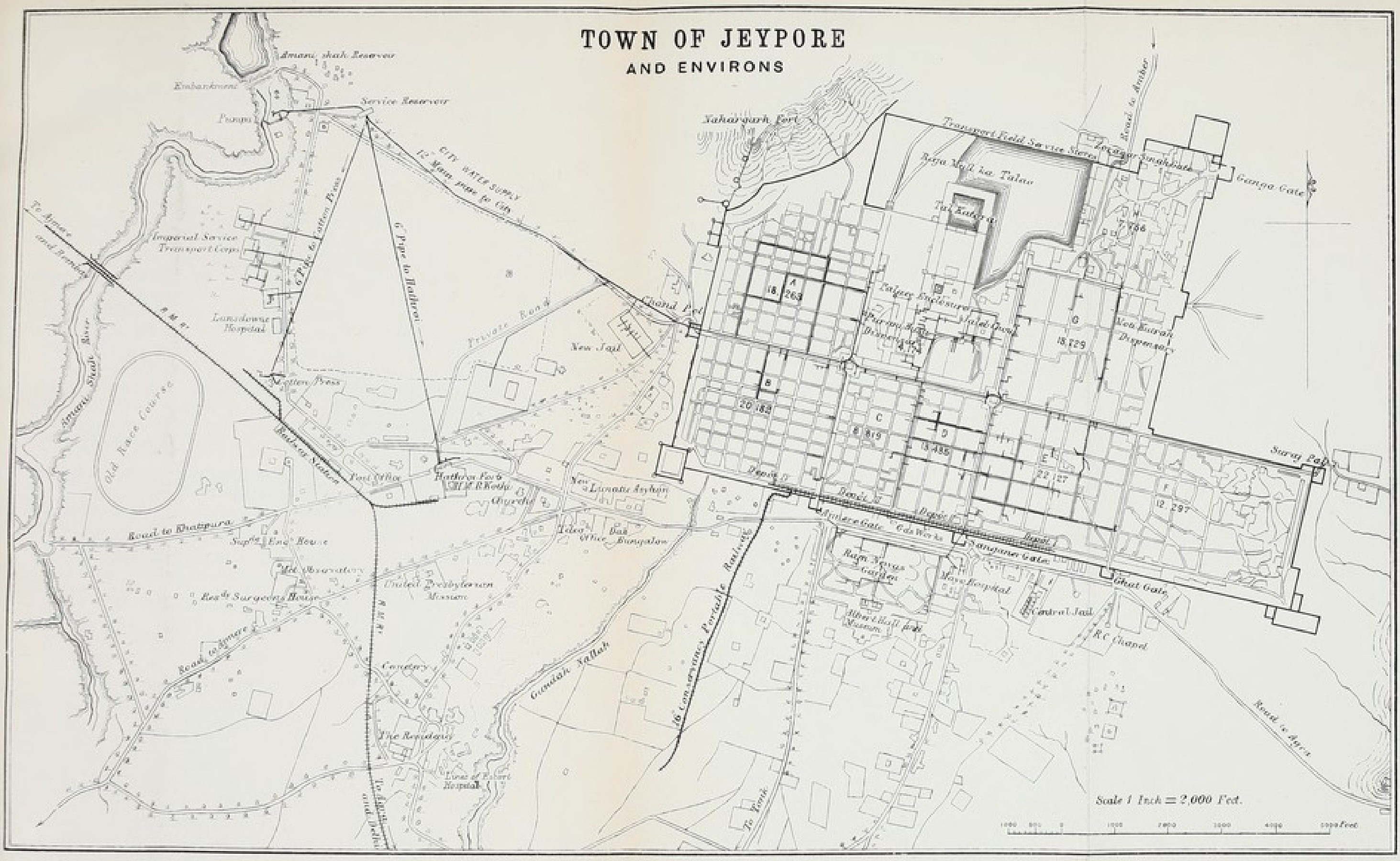

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A. *Purani Basti Chaukri.*
B. *Topkhana Desh Chaukri.*
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D. *Bishweshwarji Chaukri.*
E. *Ghat Chaukri.*
F. *Topkhana Hazuri Chaukri.*
G. *Ram Chandar Chaukri.*
H. *Gangapol Chaukri.*

Litho., S. I. O., Calcutta.

MEDICO-TOPOGRAPHICAL ACCOUNT OF JEYPORE.

GENERAL DESCRIPTION OF THE CITY.

JEYPORE (Jaipur, Jayanagar, The City of Victory, or of Jaisingh) is situated in Lat. N. 26° 54, 50″ 30‴, Long. E. 75° 49′ 37″ 49‴, and stands 1418·35 ft above the sea-level. These data relate to the Meteorological Observatory, which is 1⅜ miles west of the City, and they were fixed by the Grand Trigonometrical Survey of India. The height above sea-level is shown by a bench-mark in the wall of the Observatory Office, which stands at the north-west corner of the Natani-ka-Bagh, the Residency Surgeon's garden. The height of the barometer cistern is 1430·6 feet above sea-level. Jeypore by rail is 191 miles south-west of Delhi, 149 miles ~~east~~ west of Agra, 992 miles from Calcutta, and 699 from Bombay. It is on the Rajputana section of the Rajputana-Malwa Railway, and the station is 1⅜ miles from the Chandpol or West Gate of the City. The City stands on a small plain or in a basin, which is conjectured to be the bed of a lake, the prolongation of the present Man Sagar tank. On all sides, except the south, where the ranges diverge, are rugged hills, the summits of which, at important points, are crowned with forts. Nahargarh, the citadel, is built on the end of the ridge on the north-west, and overhangs the town, being about 500 feet above it. On the north the ridge slopes towards Amber, the ancient capital, which lies in a small valley in the centre of the hills at about five miles distant from the northern wall of the modern town.

Jeypore was laid out on a regular plan in 1728 by Maharaja Sawai Jaisingh II., who was one of the most celebrated chiefs of the Moghal Empire and a famous ruler of Jeypore. There exist in the palace library several alternative plans, which show that the present one was adopted after most careful consideration.

It is a rectangle with a large prolongation on the south-east and a smaller one on the north-east, and is divided into wards or chaukries as follows:—

DIVISION OF THE CITY OF JEYPORE.

NAME.	SITUATION.	POPULATION.		TOTAL.
		Males.	Females.	
Ghat Darwaza	South-East	10,597	10,418	21,015
Topkhana	South-West	10,532	10,043	20,575
Purani Basti	North-West	9,653	9,207	18,860
Ram Chunderji	North-West	9,164	8,885	18,049
Topkhana Hazuri	South-East	6,232	6,280	12,512
Bishweshwarji	South (East Central)	6,084	5,844	11,928
Modikhana	South (West Central)	4,916	4,652	9,568
Bazars		4,754	3,748	8,502
Gungapol	North-East	3,367	2,977	6,344
Sarhad	Environs of Palace	1,929	1,216	3,145
Brahmapuri	North	959	964	1,923
Total population within the walls		68,187	64,234	1,32,421

Besides those, there are the suburbs outside the walls :—

Name.	Situation.	Population.		Total.
		Males.	Females.	
	Western	7,738	4,683	12,421
	Southern	5,333	3,289	8,622
	Eastern	2,195	2,081	4,279
	Northern	571	476	1,047
Total Population of Environs		15,837	10,529	26,366
	Grand Total	84,024	74,763	1,58, 787

The Palace, including, in addition to the residence of the Maharaja, numerous public establishments as well as the houses of officials and servants, occupies the Central Section on the north. The principal street, 111 feet wide and 2 miles and 40 yards long, runs from east to west. It is crossed by two main streets of the same width, which form, at the points of intersection, squares with tanks in their centres. Two other equally broad streets run respectively from the South Wall to the Tripolia or Palace Gate and to the main road on the east.

These streets form the boundaries of the principal wards, which are still further subdivided in the central parts of the City by roads and lanes. They are parallel to each other, thus considerably facilitating drainage and sanitary operations. Most of the shops are situated in the principal streets, and the private residences in the smaller ones. Those shops that are owned by the State are marked with the sign of a trident over the door. As many of the rooms above the shops belong to houses in back streets and to different owners, there are complications as regards the rights of one man over another with respect to repairs, alterations, &c., as well as difficulties in sanitary matters. There appear to be no regular laws of easements, but the Courts of the Munsif and the Imarat, or Department of Buildings, exercise powers in such matters. Each case is, it is understood, judged on its own merits and by customary law. A charge or tax is levied when additional street doors, windows, or new erections, such as balconies, platforms, or projections into the street, are made, which serves to bring all disputed cases under cognizance of the State. When any man considers that his rights, as for example to lights or the construction of a new drain or latrine by a neighbour, are being infringed, he is not slow to apply to the courts for remedy.

Both the Municipality and the Imarat Department have certain powers of regulating the construction of buildings, but any important case is sure to be sent up to the Munsif's Court, and even for final decision, in disputed cases, to the State Council. The principal streets already named and one or two others are consolidated with kankar (carbonate of lime nodules); most of the others are hard enough to drive upon, but the surface is frequently very irregular from the presence of fallen stones, or bad drains, with here and there a deep hole, especially after the Rains.

In most of the streets large quantities of earth and rubbish have accumulated, because in the past very little of either was ever removed, thus altering the level of the surface, and so influencing the drainage. In eight years as much as 102,723 cubic yards of foul earth have been taken out of the southern portions of the City by a portable sanitary railway, to the great improvement of the wards so treated. Along the side of the main streets deep unpaved drains were constructed many years ago: most of them were formerly exposed, but are now covered with stone slabs, in which here and there

openings are left. As these drains run before the shops, are constantly fouled, are only periodically cleansed, and there is nothing to prevent the liquid portions of their contents from running into the soil, they are sources of danger as well as of annoyance. Moreover, the fall in most of them is not sufficient to carry off the storm water quickly enough.

DRAINAGE.

The great East and West bazar may be taken for practical purposes as the backbone of the City. It falls slightly from the East Gate for some distance, and then rises again.

There is a very slight slope towards the south for about three-quarters of a mile, in the direction of the Wall of the City, and a steep one for about the same distance down to the North Wall, especially at the east end of the town beyond the Palace, where the descent in some places is made by means of a *khura* or ramp. The storm water on the north escapes into the Palace tanks, or into a small river, connected with them, which conveys it into the Man-Sagar Lake at the end of the valley on the east side of the road, which leads to Amber, the old capital. The water on the west is caught in a rivulet that flows into the Ganda Nallah, a stream that leaves the City below the South Wall, and then runs on to join the Aman-i-Shah River at about 4 miles from Jeypore. It takes at least half an inch of rainfall to make this river run freely, and a less quantity to ensure a direct flow off into the northern tanks and streams. It is clear, therefore, that a good deal of the filth remains on the surface or is washed into the wells. Most of the wells are foul and the water is undrinkable from this and other causes.

In 1880 out of 827 wells within the walls, only 49 contained pure water. No doubt, the soil which surrounds them has been rendered foul in a great degree by its contamination for the past 160 years with the excreta of men and animals. After heavy rain, the water in the lower Palace tank becomes so offensive that special arrangements have to be made for its exit. An embankment was built some years ago (1869) across the Ganda Nallah with the view of damming up the water in order that it might form an artificial lake in the public gardens on the south side of the City. The water thus stored up became so disagreeable that the embankment had to be broken up to allow of its escape by the old channel. It is now proposed to run off all excess of water from the Palace tanks, to reduce their size, to fill up and cultivate all lowlands lying near them so that stagnant water may not remain in the neighbourhood, and to construct a new road from west to east across the north of the City. These works would, it is believed greatly improve the health of the Palace and north side of the town.

WATER-SUPPLY.

Until the year 1872 the people had to depend upon the wells within the City for water for all purposes, but those who could afford it were in the habit of sending for their drinking water to certain wells which were reputed to contain a pure supply. They were chiefly situated outside the City. From the traces of excavated channels, still apparent, it is more than probable that water, in former times, was brought to the City by an open canal, which was supplied by an earthen *band* or embankment which was thrown across the Aman-i-Shah river, but the bed of this river has cut down 50 feet and now makes such a plan impossible. From the same stream, which runs about two miles to the west of Jeypore and drains about 25 miles of hills and uncontaminated country in that direction, the present supply is obtained. About 1840 a masonry embankment costing 4½ lakhs of rupees was built across the stream, and the water accumulated until it reached the top, when unfortunately it "got round the west abutment and carried part of the dam away." It is understood the water had run through a masonry duct to the City for a short time, hence it was a great disappointment to the citizens when failure occurred. Nothing further was done until 1874, in which year steam pumps were erected on the side of the stream just above the site of the old embankment, and water was pumped up from the river bed into a reservoir, whence it was conveyed, at first through the old

masonry duct, and from December 1875 by pipes, to the City. All objections to the water except those of the most conservative inhabitants, were met by the approval, in the first place of a committee of priests, pundits, &c., appointed by the Maharaja, and in the end, by the self-interest and convenience of the people.

The supply thus obtained proving insufficient, Captain (now Colonel) Jacob, C.I.E., the Engineer of the State, proposed and carried out a scheme by which a broad earthen mound was thrown across the river about 500 feet above the pumping station. As this *band* or embankment was constructed of the same materials as the banks of the stream, and was incorporated with them, and stones were first thrown into the bed of the river before the earthwork was commenced, so as to admit of a reasonable amount of filtration, and as sufficient arrangements were made for overflow of water, there was little fear of a repetition of the accident which had previously occurred. The results have been excellent. A lake a couple of miles long, with a breadth at the dam of 800 feet and a maximum depth of over 34 feet at the embankment in the monsoon, and a minimum depth of 14 to 15 feet during the past seven years, has been formed, and there is now an abundant supply of water.

In 1892 the daily average consumption was 897,884 gallons or a little over 5½ gallons per diem on the census population of 1891, *viz.*, 158,787. Colonel Jacob estimates the total consumption, including other sources of supply, within the City at 7·58 gallons per head per diem.

As there are two sets of engines with duplicates of all important parts there is little fear of failure of supply. Water is now distributed in greater or less degree to seven of the wards, and it is hoped that the remaining portions of the City will also reap the benefit ere long of a continuous and pure supply, as this is the most and indeed the only certain means of ensuring good health of the populace and especially of freedom from epidemics and particularly from cholera.

The following is an analysis of the water as drawn from a stand-post in Jeypore City.

IN 100,000 PARTS.

Total solids in solution	24
Lime	9·01
Magnesia	1·66
Sulphuric Acid	0·41
Chlorine equal to Chloride of Sodium 2·3	0·40
Hardness, Natural	18·0
Do. after boiling 15 minutes	9·6
Free and Albuminoid Ammonia	0·0075
Nitrates	...

"This water is of excellent quality, sufficiently soft for all domestic purposes, and does not contain more Albuminoid Ammonia than some of our best drinking waters."

The next analyses will give some idea of the quality of even the best Jeypore well waters. All are taken from wells outside the town. Those within the walls are very foul.

The supply from some of these wells is abundant. For example, although four pairs of bullocks were used continuously night and day to clean out the Residency Surgeon's garden well, it was found impossible to remove all the water. A stoppage of a quarter of an hour sufficed to raise the water level at once to the original amount.

As regards the State generally, Mr. Moir in his report on the forests of Jeypore, also notices that the quantity of water in some of the wells is astonishing, especially along the base of the bare hills of the Lalsot range, where he observed as many as ten leather buckets at work at once at some wells without apparently making any appreciable difference in the quantity of the water. On the other hand, I have seen a shallow well in a bad position emptied out in the case of a fire in less than an hour.

Results of Analyses expressed in parts per 100,000 made in Calcutta.

Source.	Total solid matter.	Chlorine.	Free ammonia.	Albuminoid ammonia.	Nitrogen as Nitrates and Nitrites.	Previous sewage contamination.	Hardness (Clark's scale).			Nitrates and Nitrites.	Behaviour of total solids on ignition.	Sulphates.
							Total hardness.	Temporary.	Permanent.			
Amanishah unfiltered water ...	20·0	1·3	·0104	·012	·061	...	15·0	3·0	12·0	present and Trace	No Blackening	Trace
Amanishah filtered water ...	16·0	1·2	·0072	·008	·061	...	15·0	3·0	12·0	Do.	Do.	Do.
Amanishah spring water ...	36·0	1·0	·008	·008	·14	...	30·0	6·3	23·5	Do.	Do.	Do.

Later Analyses made in Calcutta.

Source.	Parts in 100,000.								
	Total solid matter in solution.	Lime (Ca. O.)	Magnesia (Mg. O.)	Sulphuric Acid ($S. O_3$.)	Chlorine (equal to sodium chloride)	Hardness natural.	Hardness after boiling 15 minutes.	Free and albuminoid ammonia.	Nitrates.
Amanishah Water ...	24·00	9·01	1·66	0·41	1·40	18·00	9·60	0·0075	None.

Analyses made in Agra.

Source.	Total solid parts per million.	Chlorine, parts per million.	Total hardness, parts per million.	Fixed hardness, parts per million.	Parts per million.	
					Free Ammonia.	Albuminoid Ammonia.
No I. Amanishah, Jeypore, filtered water	2·2	1·5	8·00	4·5	0·012	0·013
No. II. Do., Do., unfiltered water	2·6	1·6	9·00	4·5	0·0066	0·044
No. III. Topkhana	3·6	4·6	1·4	1·5	0·040	0·015
No. IV. Hazari Burj	2·8	2·00	1·2	8·00	0·016	0·011
No. V. Tikkiwali	22·4	3·2	1·5	7·5	0·042	0·24
Jeypore Central Jail, Water of Well No. I	33·7	2·85	10	6	·09	·16
Do. Do., Do. No. II	124·28	12·85	11	8	·13	·15
Do. Do., Do. No. III	60·57	7·14	12	7	·10	·19
Engineer's Well	26·	2·14	7·5	6·5	·2	·13
Residency Surgeon's Well	48·85	6·42	9.	6.	·13	·1
Resident's Well	46·00	5·71	10·	5·	·29	·13

SANITATION.

Before any systematic attention was paid to this subject, the local arrangements were as follow. The night-soil, mixed with ashes and rubbish, was taken out on buffaloes, and sold to cultivators whose fields are chiefly on the south, south-west, and north-east of the City, close to its walls, the furthest being three miles distant.

In the rainy season very little filth was removed, and at no time more than a fraction of the whole. About 3,700 bigahs (a bigah equals two-thirds of an acre) of land were fertilized by 36,216 borahs or buffalo loads per annum. There were 380 buffaloes, and from four to six crops of vegetables or quick-growing crops were taken off the fields each year. The removal of the ordure took place early in the morning by unfrequented lanes; hence there was less unpleasantness than might have been anticipated. There were about 2,650 sweepers, earning about Rs. 9-2-0 per annum each, to which must be added perquisites, such as the cloth put over the dead, one pice per month from each family served (generally seven in all), the gift to each individual of a cake of flour each week, and a share of food left after caste feasts: of the above, 1,520 were private sweepers. They lived, as now, in certain quarters, usually near the City walls. There were 7,064 masonry and 3,395 earthen private latrines, which were used by about half the population. The other half frequented public places, the streets, waste lands, etc. Latterly the control of the sanitation has rested with a Municipality.

The defects of the above system are: (1) Only a small portion of the filth is removed. (2) At certain seasons accumulations occur, which are prejudicial to health. (3) There are not enough sweepers or buffaloes, and much of the time and strength of the former and indeed of the latter are wasted, because they serve families who live at parts of the town which are distant from each other. The conservative habits and vested interests of the sweepers in their walks or *birats* render a re-arrangement most difficult. (4) The soil of the streets and waste places is frightfully fouled, and thus domestic animals, that under such circumstances soon become fond of garbage, are encouraged to act as scavengers. (5) Scarcely any liquid excreta of men or animals are removed. It must be noted that the solid excreta of the larger domestic animals are converted, usually with the addition of straw, into cakes for fuel. This practice deprives the land of the most valuable means of nourishing it for agricultural purposes. Mr. Moir observes that fuel of all kinds is very dear in Jeypore, the first quality costing two to two-and-a-half maunds per rupee, the second three to three-and-a-half. The poorer classes use kemp (*Orthanthera reticulatus*) and karsana (*Crotularia Burbia*) shrubs and *upla* or dried cowdung mixed with straw, which Mr. Moir also considers a great loss to the country from an agricultural point of view, and a proof of the great necessity of forest conservancy so as to increase the fuel supply as much as possible and allow the manure to be applied to its legitimate purpose. I would also add the uncleanliness of the occupation which leads to contamination of food. (6) Enormous accumulations of rubbish occur.

Many attempts have been made to deal with this great question in a satisfactory manner. At present large quantities of rubbish and street sweepings are burned, or removed by a sanitary railway of 16 inches gauge, but chiefly from the central southern wards only. The following summary of the work done in 1892 is sufficient to give an idea of the value of the railway: foul earth and rubbish removed, 70,370 wagon loads or 5,62,456 cubic feet; 1,916 dead animals taken out one-and-a-half miles; fresh clean sand brought in for use in urinals and latrines. Large quantities of ordure were removed from 1887 for some years following, but none of this is now dealt with.

LIGHTING.

Since 1878 all the main streets, the large public institutions, and several of the more important roads beyond the walls, have been lighted by gas, which is manufactured from kerosine oil, in works on the south of the town close to the wall. In 1892 there were 670 jets, which consumed 2,884,170 cubic feet of gas at a cost of Rs. 9-0-1½ per 1,000 cubic feet. There are a few private consumers. The gas works are at the top of the town instead of at the bottom, which is of course a mistake, as extra pressure is required and much waste occurs. The Gas Works are now under the management of the Engineering Department, but were not constructed by it.

MARKETS AND FOOD.

There are no public markets in the sense of buildings, but certain places are frequented by dealers in various articles. Fresh vegetables are sold by *malis* or gardeners, or their wives, in the Chandpol and Ramganj bazars, wheat and other grains in the Chandpol and Jauhari bazars, meat at the Ghat Gate, and salt in the Chandpol bazar. Of course it would be very desirable to have public markets erected at convenient distances throughout the City, but it is to be feared it will be long before this is done. Want of space presents one difficulty. Grain is specially liable to become foul, as it is often cleansed on the tops of the public drains in the main streets. It is also parched and spread out on dirty cloths or bedsteads, but it is almost hopeless to expect advancement until the general sense of cleanliness is improved. The habits of the people are sadly defective as regards cleanliness. A poor man, for example, will wrap his cakes of flour in his waist band and eat them after many hours. A rich one will put his pân or *biri* in his hair or turban. Cowherds will keep the dust out of the brass pots in which they are carrying milk into the town by tying their *rumals* or handkerchiefs over them, and Brahmans, of spotless purity, all carry a cord with their lotah or drinking vessel, which is dipped day after day into the wells, thus defiling the water.

DISPOSAL OF THE DEAD.

There are three Christian grave-yards of which two are in use.

There are six important Mohamedan burial-grounds outside the walls, besides a number of smaller ones and isolated tombs, generally of "pirs" or saints, round which small graveyards are apt to be formed. The bodies of Hindus are cremated without the walls in several places, all of which are at a proper distance from habitations and the water-collecting grounds (at each of seven of them more than one hundred bodies are burnt annually).

The encroachments of religious persons and beggars for this and other purposes are constant and require great vigilance for their prevention. A man will begin by erecting a small hut in the hot weather to give water to passers-by, and end by taking in a large space of ground. Both burial and cremation are well done. The only complaints I ever heard were some years ago, when the bodies of young children (children without teeth), who had died from small-pox and are always buried and not burnt, were not sufficiently covered up.

FOOD.

The following table shows the average price of food-grains sold at Jeypore from January 1874 to December 1893.

Shown in seers per rupee.

Year.	Wheat.	Barley.	Bajra or Millet.	Remarks.			
				Comparative rates.	Death-rate.	Sickness.	Rainfall.
1874	14·79	20·67	17·06	Average.	Low.	.....	Low.
1875	16·95	24 08	22 07	Cheap.	Do.	.....	Moderate.
1876	19 83	28·01	26·17	Very cheap	High.	.....	Above average.
1877	16·44	22·00	21·22	Cheap.	Very high.	.....	Very low.
1878	11·00	14·52	13 22	Very dear.	Do.	.....	Average.
1879	11·01	16·92	15·31	Do.	Do.	.....	Heavy.
1880	13 92	22·58	20 69	Average.	High.	.....	Low.
1881	15·24	22 00	20·36	Do	Very low.	Healthy.	Average.
1882	16·43	24·25	20·28	Cheap	Do.	Little.	Do.
1883	16·35	23·54	20 93	Do.	Do.	Healthy.	Do.
1884	17·19	24·17	20·61	Do.	Very high.	Very great.	Do.
1885	18 81	27 83	24·52	Very cheap.	Very low.	Very little.	Above average.
1886	17 70	29 00	23·47	Do	Do.	Do.	Low.
1887	12·78	22·00	18·45	Dear.	Highest recorded.	Highest.	Very heavy.
1888	14·16	19·72	14 71	Do.	High.	High.	Heavy.
1889	15·46	22·31	19·58	Average.	Very high.	Unhealthy.	Average.
1890	15·09	21·38	18·20	Do.	Do.	Very great.	Do.
1891	13 15	18·11	15·13	Dear.	Lowest recorded.	Very healthy.	Low.
1892	13·14	19·40	16·14	Do.	Highest since 1874.	Very great.	Very excessive
1893	14 54	25·31	22·25	Average.	Low.	Healthy.	Above average.
TOTAL ...	303·8	447·80	390 37	.....	.....	.....	.....
Average...	15 19	22 39	19 5	.....	.....	.....	.....

SLAUGHTER-HOUSES.

These are situated outside the Chandpol, Sanganir, and Motikatra Gates respectively. An old Hospital Assistant and two Hakims or Musalman Physicians attend and supervise the arrangements, and are supposed to condemn bad meat. The number of prosecutions is very small.

RECREATION.

His Highness Maharaja Sir Sawai Ramsingh, G.C.S.I., the late Chief, whose benevolent feeling towards his people was the prominent feature of his character, devised and carried out as a famine work the scheme of laying out a large public garden in the neighbourhood of the City. Only a

few days before his death, while standing in the garden, he remarked to an old friend, a former Resident, and to me, that he was happy in knowing that, before his end came, he had provided ample means of recreation for the Jeypore people, as well as a good and free supply of pure water for their use.

The Ram Newas public garden, 74 acres in extent, lies on the south side of Jeypore between two of its principal gates. The Albert Hall, a large public museum of industrial art and educational models, etc., which is visited by about a quarter of a million persons annually, stands on its north side. The garden also contains a good zoological collection. It is frequented by the citizens in great numbers. Once a week the fine band of the Maharaja plays in it, and two cricket grounds and an open-air gymnasium are much used by the college boys and the youths of the City. The old feeling that playing energetic games and going through the gymnasium course in a public institution are undignified is gradually giving place to more sensible views.

There is also an excellent free public library in the centre of the town.

Jeypore is known as the "City of Pleasure," and the religious holidays, the processions, fairs, etc., are very numerous. The people are gay and easily pleased, and for a native of India the opportunities for enjoyment are unusually great. There are many gardens near the city, in which it is the practice, at certain seasons, to hold caste feasts, at which all members of the caste must attend, or at all events must contribute towards the expenditure.

Sometimes these feasts are a source of anxiety, especially when cholera is reported from neighbouring districts. Regulations are then made for reducing the numbers of feasts and of guests, and even for prohibiting them altogether, though this is done with some reluctance, as so many persons suffer pecuniary loss under such circumstances.

Arrangements are now being made for providing latrines for the accommodation of the people who attend these feasts. The number of feasts held in 1893 was as follow: On the south side of the town, 245; on the east, 275; on the north, 137: total, 657.

EDUCATION.

Free education is provided for all, and, with the assistance of scholarships, it is possible for the poorest youth to qualify up to the B. A. or even M. A. standard of the Universities. This subject is briefly alluded to, as it makes it probable that enlightenment will spread, especially amongst the nobles and official classes who require it most (it being a great difficulty at present to provide intelligent persons for the public services in most Native States), and thus greatly influence the attitude of the public in future towards the prevention of disease and the improvement in sanitation, for I am convinced that no general advance can be made until the public are fully sympathetic. Moreover, it is to the college here that we have to look for our inspecting staff, which must be intelligent, and on which we must rely for the observance of any regulations that may be made for the improvement of the health and comfort of the people. Sanitary primers are studied in the colleges and schools, and attempts are about to be made to give special lectures on sanitation and elementary hygiene to the officials as well as to the senior students.

Since 1866 there has been a School of Art in Jeypore, in which attention has been paid to technical education. It is hoped that ere long the Indian Universities will so encourage this branch of knowledge as to induce masters and pupils to take it up more energetically, as it will be of great value from the standpoint of the engineer and physician. The more we can increase domestic knowledge by establishing really practical educational museums and technical, as well as the ordinary

schools, etc., the more we shall elevate the people and help on our schemes for improving their bodily as well as mental health. It is not desirable that a few experts only should be trained, but that the whole populace should be taught a few elementary truths of a scientific and practical character, so that they may, not only follow intelligently the efforts that are being made for their good, but assist in carrying them out. Ignorance and prejudice are the great foes sanitarians have to contend with.

MEDICAL AID.

The people of Jeypore, until the late Maharaja's accession, were treated when sick by—

(1.) Baids or Hindu physicians, of whom very few were learned. In fact, most of them knew little more than a few Sanskrit verses or shloks which they recited as guides to the selection of particular remedies when they thought they were dealing with the disease to which these texts referred. State Baids are still subsidized in many villages.

(2.) Jain priests or *jaties*, and other priests. These depended chiefly upon the Amrit Sagar, an abridgment of Susruta, Charaka and other well-known Sanskrit authors which was drawn up in 1779-1803 by order of Maharaja Partap Singh, one of the Chiefs of Jeypore.

(3.) Hakims or Mohamedan physicians, who practised the Yunāni or Greek (more correctly Arabian or humoural) system of medicine. Very few of them were educated. One or two of these are still attached to each of the State regiments.

(4.) Jarrahs or barber-surgeons, a very poor and ignorant set of men, who bled, drew teeth, applied the actual cautery, and bandaged limbs in cases of fracture. They have great influence still, especially with the women.

(5.) Sathyas or couchers, who practised reclination of the crystalline lens in case of cataract.

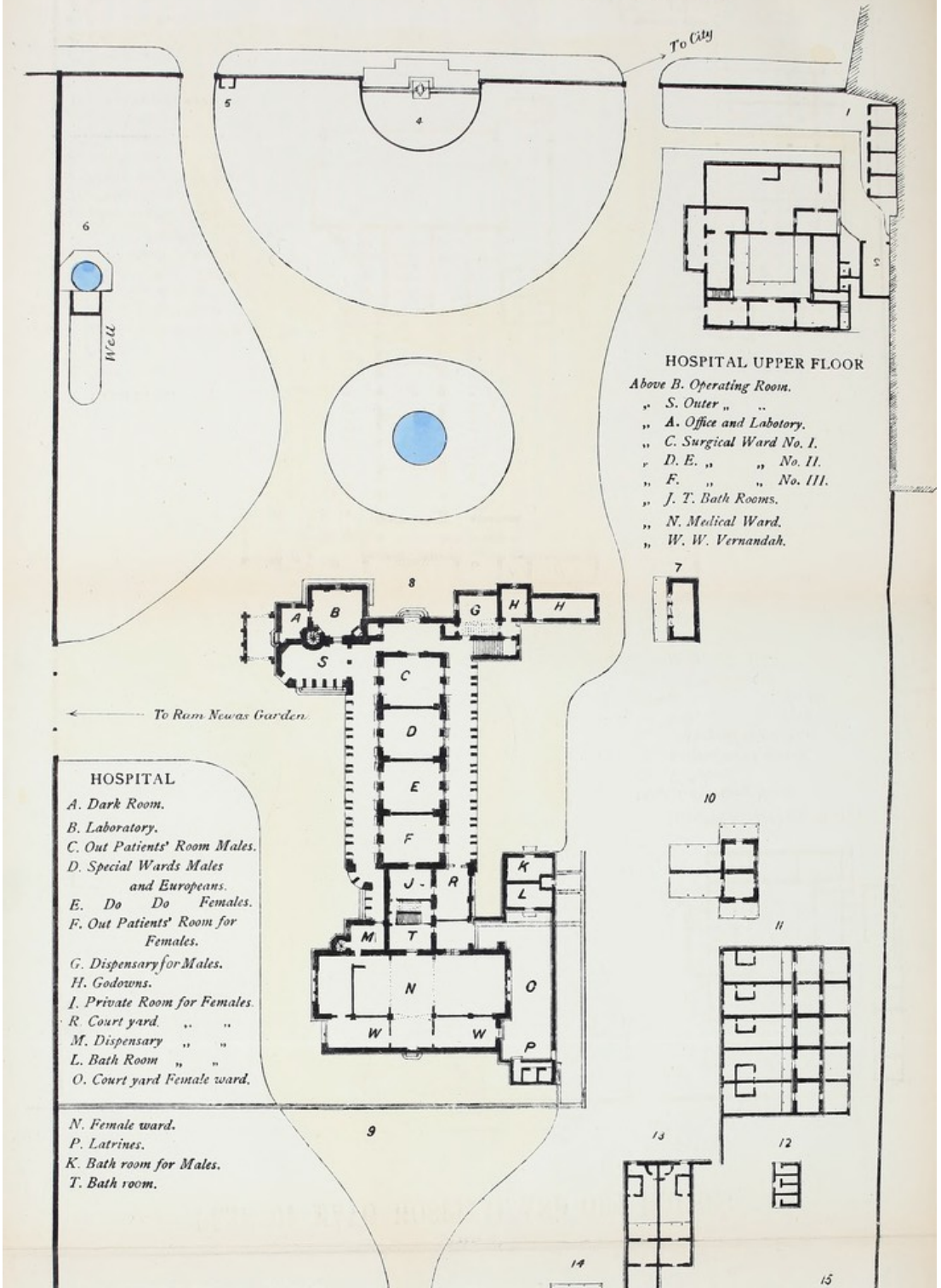
(6.) Bairagis or Hindu, and fakirs or Musulman, devotees; wise women; clever persons who drive out diseases by the aid of the jharu or broom and charms.

(7.) Pansaries or Druggists, at whose shops Baids are accustomed to sit and practice. There are no regulations for the sale of poisons, hence there are great risks of accidents occurring. Something ought to be done in this matter. Besides all these the people resorted to temples, make pilgrimages and listened to any one (especially to the priests) who had a word to say on the subject of their diseases, and adopted the advice of any plausible individual. At the present moment it is the fashion for Hindu mothers to take their children to on old fakir who has set up a hut two or three miles from the town. Some time ago a sweeper used to sit outside the jail gates and pretend to drive out diseases with his broom. Hindus mix up religion so much with every action, particularly where eating and drinking are concerned, that they fear to use strange, and especially European, drugs, which may, they think, contaminate them. Of course the greatest care is taken in our hospitals to meet this difficulty, but no doubt it is a cause for the fewer attendance of people of this class than of Mohamedans.

All the above named practitioners still exist, but have less power and practice than formerly, especially in the case of Mohamedans. The great evil is that no one is satisfied to persevere long in any course of treatment. It ought to be added here that immense efforts are now made by both European and Indian dealers and inventors to sell quack and patent medicines of all kinds. The Hindu quack, who sells oils which are said to be prepared according to the Ayurveda or Medical Scripture, is quite as energetic as the European who pushes his Elixir Vitæ or Cancer Drops. Boys may be seen at the band stand distributing stories in Hindi and Urdu, the aim of which is to recount

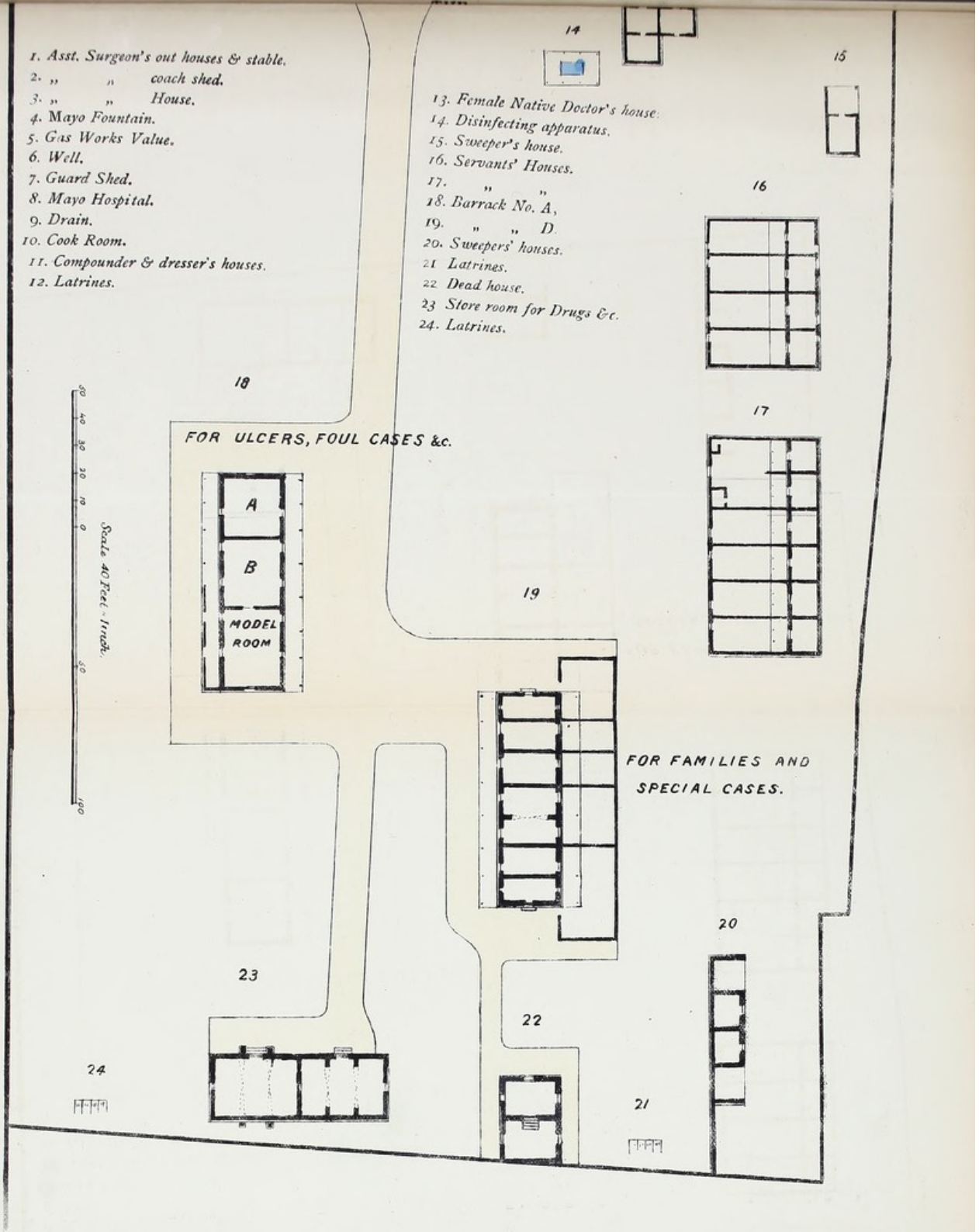
THE

PLAN OF MAYO HOSPITAL AND OUT HOUSES.



1. Asst. Surgeon's out houses & stable.
2. " " coach shed.
3. " " House.
4. Mayo Fountain.
5. Gas Works Value.
6. Well.
7. Guard Shed.
8. Mayo Hospital.
9. Drain.
10. Cook Room.
11. Compounder & dresser's houses.
12. Latrines.

13. Female Native Doctor's house.
14. Disinfecting apparatus.
15. Sweeper's house.
16. Servants' Houses.
17. " "
18. Barrack No. A,
19. " " D.
20. Sweepers' houses.
21 Latrines.
22 Dead house.
23 Store room for Drugs &c.
24. Latrines.



the virtues of Mother Seigel's Syrup. Many of the vernacular pamphlets, which are now circulated through the post by vendors of so-called Ayurvedic drugs, are quite as disgusting as similar publications that at one time were such a nuisance in Europe, and their distribution certainly ought to be prohibited by legislation.

Bishop Heber mentions in 1825 that Dr. Simpson, the Agency Surgeon, took charge of a poor Brahman whose hand his own medical adviser, Dr. Smith, had amputated for a tumour of the wrist, so no doubt thus early European surgical aid was available for those who cared for it. The treaty with Jeypore was only signed in 1818, and the agency was established on the 18th March 1821. Dr. Simpson was the first British medical officer who was stationed at Jeypore. It was not however until 1844 that a dispensary was opened in Jeypore by the Council of Regency which managed the State affairs during the minority of the late Maharaja Sawai Ram Singh. Good work was done in this institution, and also in a branch which was opened in 16th May 1860 in another part of the City. Dr. Burr, who was Agency Surgeon for a long period (about 18 years—from 1854 to 1872) as well as Superintendent of the State medical institutions (succeeding Dr. Wright, who had also been some years Surgeon of the Agency), conducted a medical school in which youths were trained for work in the country towns. As soon as they were qualified to practise, several district dispensaries were started, *viz.*, at Mahwa, Dausa, and Hindown (20th May 1870). The Raja of Khetri, a feudatory of Jeypore, had opened, between 1865 and 1868, three dispensaries on his own estate. Progress has been regular since that date, and the State may now be considered to be fairly supplied with dispensaries, inasmuch as, with the exception of small areas, most of the people are within a day's march of medical aid. Some of the more wealthy nobles have been very liberal in this matter. The Raja of Khetri maintains three dispensaries, of which the one at Khetri serves as a small hospital. The Rao Raja of Seekur has one, and has just built a good hospital. The Rao Raja of Uniara has a dispensary; and the Rao Bahadur Thakur Govind Singh of Chomu keeps up another one, to which has been added a fully-equipped hospital.

Jeypore City is amply supplied with medical institutions.

The Mayo Hospital, which was built to commemorate the visit of Lord Mayo to Jeypore in 1869, was opened in 1875. It stands close to the Sanganir Gate of the city and on the east side of the public gardens. It can accommodate 100 patients, and is generally well filled. There are out patient rooms, quarters for the staff, two small cottage hospitals which are divided up so as to suit families, and a dead house in which about sixty autopsies, chiefly on suspicious cases, are performed every year. A *post-mortem* table with perforated iron top has just been procured from Turin. By a simple arrangement of flues and fuel a draught is created by which all foul odours are removed. There is also a medical store from which the district and all dispensaries in the State are supplied with drugs and instruments, and a hot-air chamber is available for disinfecting bedsteads, beds, clothing, etc., Drugs and instruments are purchased for the most part in England. Tinctures containing opium can be made at cheaper rates locally, as no duty is payable on the opium. Acids and some other articles are cheaper in India, but in all probability the unfavourable state of exchange will render it necessary to purchase drugs more freely in the country. The buildings cost Rs. 1,84,400 and additions are being constantly made. In the north-west and north-east wards of the city and in the palace enclosure there are also dispensaries, which suffice for the ordinary wants of the north side of the town; and a charitable dispensary is also attached to the Lansdowne Hospital near the Railway Station, at which travellers and the poor in that neighbourhood are treated. Medical assistance is moreover always available, as it has been since 1821, at the Residency Hospital, two miles to the south-west of the city. Under control of the Residency Surgeon (who is also Superintendent of Dispen-

saries) there are two fully qualified medical men and seven male and two female Hospital Assistants, who are nearly always present in Jeypore. Their services are becoming more appreciated, as will be clear from the following table :—

Table showing Attendance at the Jeypore Hospitals.

Hospital or Dispensary.	No. of years.	In and out patients (new cases).	Remarks.
Mayo Hospital	22	273,371	
Purana Busti	22	199,919	
Moti Katra	21	211,984	
Palace	13	30,952	
Lansdowne Hospital ...	3	11,789	
Temporary Dispensaries .	8	16,844	
Total ...	89	744,859	

The Lansdowne Hospital is primarily intended for the treatment of the sick of the Imperial Service Transport Corps. It was founded by His Excellency the Viceroy, the Marquis of Lansdowne, in November 1890.

As regards medical attendance on the well-to-do classes at their own houses a few words may be not out of place, because the subject bears upon the development and prosperity of the locally trained profession in India, and particularly in Native States. Throughout the east there has been for ages a well established idea that physicians should be paid by the State, and the man who takes fees from neither the rich nor the poor has been highly praised and flattered. When some time ago a dispensary was built by a rich banker in North Rajputana many men said, "It is bad ; it is the business of the State to do this." Perhaps this was only the reflection of a general want of independence of character, but it is nevertheless a great evil, as it prevents the growth of a local medical profession which cannot exist unless well paid. It is this which compels graduates of our Indian Universities to keep open shops and to resort to payment for drugs and so to over-drugging instead of seeking direct remuneration for their professional advice. A French Abbé once wrote that the peasant regards his own personal illness as a trouble to which the fee is an added misfortune, whereas the sickness of his cattle is met by willing payment for drugs and for the veterinary surgeon's services, because beasts are property and must be saved to prevent loss. This is the view not only of the peasant but of many rich natives of India outside perhaps the limited area around the Presidency towns ; hence the veterinary surgeon has much more chance than the medical man. Big fees are sometimes given, at times perhaps, for ostentatious reasons, but really only serve to mislead and betray the medical student, as on the whole the assistant surgeons and hospital assistants make very poor additions to their incomes from that source, while dispensaries and hospitals are crowded by many who wear gold ornaments yet think it no shame to rob the doctor and the public.

The difficulties of medical attendance are moreover very great, as it is uncertain how far the sick man will follow advice, and as a rule the skilled practitioner is only called in as a last resource to

enable the friends to say that everything that was possible was done for the deceased. On the whole, therefore, the qualified practitioner who has no public appointment has rather a difficult position in India outside the greatest centres of population.

VACCINATION.

Before dealing with the prevailing diseases of the city, one or two other heads require consideration, amongst them being vaccination and arrangements for dealing with epidemics.

VACCINATION.—The following extract from my annual report of 1884 summarizes the history of vaccination in Jeypore :—

Vaccination was established at the end of 1860 by Dr. Burr, who taught four men and employed them in the city. In 1861-62 three of these vaccinators worked in the district. In 1865-66 it is especially recorded that 856 children were operated upon in Shekhawati. The vaccinators have generally worked after Christmas each year in the districts since that time, and work was done in 1869 in Shekhawati, and in most years up to 1880 in Jhunjhunu, Khetri, or other portions of that province, or in Tourawati. The statement in the report for 1883 that not a single case had been operated upon in Shekhawati is therefore erroneous. In the report for 1882 it was observed " that the Superintendent decided during the last cold season, instead of scattering the vaccinators over the State, to concentrate the work upon the Jeypore Nizamut, and that the same plan had been followed the next year, the nizamuts of Dausa, Gangapore, and Hindown having been selected for the purpose. This method was adopted because it had become evident that the old plan did not sufficiently bring into prominence the great advantages of vaccination, and to ensure better supervision, as it is quite impossible for the inspecting officers to see the work done all over the whole State, which embraces 14,527 square miles of territory."

The dispensary system of vaccination is one which was believed to be discouraged in Rajputana, and indeed throughout India, for several important reasons, the principal being that it tends to keep women and children, whose attendance it is most desirable to encourage, away from those institutions; in the second place it gives rise to extra claims for travelling and other allowances on the part of hospital assistants, and enables them to make excuses for neglect of their proper duties. Moreover experience has shown, especially during the past cold season here, that the work of the native doctors in our outlying district dispensaries is in nine cases out of ten very inferior to that of the vaccinators.

Complaints have been made during the writer's inspection tour, especially in Uniara, that parents object to bring their children to the dispensary for treatment when sick, because the hospital assistant takes the opportunity of either vaccinating them there or of following them up to their homes for the same purpose. In a new dispensary like Uniara such a reputation is almost fatal to its success. When outbreaks of small-pox have been reported near a dispensary, the hospital assistant has sometimes in former years been ordered to vaccinate in the town, but has been warned never to perform the operation in the dispensary building. When small-pox is abroad, parents are not inclined to raise the same objection as at other times.

The temptations to introduce a dispensary system are great, as the numbers of course increase immensely, but the disadvantages seem to outweigh the advantages. Perhaps, when the hospital assistants attain to a higher standard of education than at present, the system may be feasible, but in the opinion of the writer, of this report the change should only be made when it can be done throughout Rajputana.

The people have been always persuaded to submit their children to the operation of their own free will.

Attempts to extort money or to use force have been punished from the days when Dr. Burr first vaccinated in Jeypore, and a perusal of the reports of the different officers who have been in charge of the work will show that throughout much tact and patience have been expended in overcoming the prejudices of a people who, twenty-five years ago, resisted in this direction every effort for their good. Even now service in the vaccination department is by no means devoid of danger or discomfort, as many of the men have been beaten by villagers who could not understand the good the men hoped to do for them.

One female vaccinator was employed from November 1883 to April 1884. The Durbar refused to sanction her employment for a further term. As children of the age suitable for vaccination are not under the purdah, and in any case the work of a female in a zenana could not be inspected there, the decision of the Durbar cannot be objected

to. If the father of a child is willing, the purdah is no obstacle to its being brought out, so that a man may operate upon it.

There is no doubt that there is an increased belief in the efficacy of the operation, and that, although there is still a good deal of opposition, it arises more from ignorance than from any other cause. The following table of the mortality from small-pox in the city of Jeypore proves that much good has been done:—

Mortality Table—Small-Pox, 1875—1892, Jeypore City.

	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	18 Years.	Mean.	Order of months in fatality.
January	...	2	71	3	1	29	373	...	...	1	14	30	...	...	4	75	...	49	653	36·28	5
February	4	21	147	10	1	91	99	...	...	11	35	25	...	...	9	42	...	26	521	28·94	6
March	7	41	468	53	1	91	84	3	...	29	72	24	7	...	9	21	1	48	909	50·44	3
April ...	32	118	444	111	25	75	1	10	4	78	98	84	13	...	43	7	2	66	1161	64·50	1
May ...	37	181	184	75	32	44	1	20	4	131	60	38	5	3	55	4	3	31	911	50 61	2
June ...	26	79	39	24	18	22	...	19	2	110	35	16	5	...	22	2	1	2	422	23·44	7
July ...	13	38	10	5	4	17	...	11	3	70	14	4	...	...	9	2	...	1	201	11·17	9
August	3	18	2	4	4	4	...	2	...	31	4	...	...	...	...	...	...	...	72	4.00	10
Sept. ...	1	2	...	...	1	2	...	2	...	12	...	1	...	...	1	...	...	...	22	1·22	11
October	...	1	...	...	2	12	...	...	...	...	1	...	...	...	...	...	...	...	16	0 80	12
Nov. ...	...	1	1	1	2	268	...	...	...	5	1	...	...	...	3	...	2	...	284	15·78	8
Dec. ...	...	15	...	...	3	796	...	1	1	6	37	...	1	...	9	...	23	...	891	49 50	4
TOTAL...	123	517	1367	286	93	1451	508	68	14	484	371	172	31	3	164	15	31	220	7062	...	...

Some doubt arises from the inclusion by most natives of fatal cases of measles and small-pox under the same head; hence is it not desirable to work out further details from the figures. The actual mortality in the districts is unknown, but as vaccination is quite as active there as in the city, it may be held that the death-rate has diminished in similar proportion. The needle is used in all cases, and three full-sized vesicles are required. No cases are returned as unsuccessful, unless the operation has been performed twice and the last time from arm to arm. Doubtless, children of the rich and of officials sometimes escape being vaccinated; and in a few cases there is reason to fear that bribes are given and taken, but the offence is most difficult to prove as neither party will incriminate the other. Indeed bribery is by many considered to be but a venial offence. A few children have been vaccinated throughout the summer and rainy seasons with a view of keeping up the supply of lymph. Since about 1884 we have depended almost entirely on this source for lymph, and, with care in selecting cases, there is no difficulty in securing good vesicles; but it is specially necessary to prevent friction of the arms, and to be sure that the children are strong and healthy. Animal vaccine has not been established. A declaration was obtained from the Durbar that there was no objection to it, but great difficulty arose in procuring calves owing to local prejudices.

EPIDEMICS.

Whenever reports are received of outbreaks of small-pox, vaccinators are at once despatched to the neighbourhood to operate upon all children as yet unprotected. In the case of reports

of cholera, the hospital assistants on the reserve list are sent, or compounders and vaccinators, who at that season are generally at leisure, as the two latter can distribute medicines. Special proclamations are made warning the public to be careful as regards drinking impure water, eating unripe fruit, or stale food, attendance at feasts, etc. When epidemics have actually begun, fairs and feasts are generally prohibited altogether. All large fairs are usually attended by a reserve hospital assistant. Hospital assistants are occasionally sent to attend great nobles; and female hospital assistants, of whom there are two attached to the Mayo Hospital, are also sometimes asked to attend at the country houses of the wealthy in urgent cases.

As regards the city of Jeypore, the services of these women are available on payment by the rich but for nothing for the poor, as for example in midwifery cases. The fee paid by the wealthy varies, as one of the women says, from Rs. 2 to Re. 1 or As. 8, or *nothing* per visit.

Large quantities of cholera pills are distributed through the police and other officials.

When cholera is likely to be brought in by rail, special arrangements are made for the attendance upon, and isolation of, sufferers at the railway stations.

BIRTH-RATE.

Although the birth-rate return of the city of Jeypore, which is attached, may not be altogether reliable, on account of omissions and neglect on the part of parents and sweepers to make reports, there is one feature which is constant throughout the whole eleven-year period, and that is that the births in the last half of each year far exceed those of the first half, and in August, September, and October are almost double those of March, April, and May. For example, the average rate for September is 510·82 and for May only 256·73.

The following table shows the order of the months as regards conception and birth :—

Order.	Birth.	Order.	Conception.
1	September.	1	December.
2	October	2	January.
3	August.	3	November.
4	November.	4	February.
5	December.	5	March.
6	July.	6	October.
7	January.	7	April.
8	March.	8	June.
9	June.	9	September.
10	February.	10	May.
11	May.	11	August.
12	April.	12	July.

In order to ascertain the cause of this inferior fecundity in certain months, and with the view of discovering whether it was due to the habits of the people, I sent copies of the return to selected hospital assistants, and to men of different classes and castes, with a request that they would give me their ideas on the subject. I received a number of interesting replies, of which the following is an abstract of the information afforded :—

(1.) The months in which conception is most frequent are December, January, November, February, March, and October. Both men and women have been exhausted by the heat of the summer and rainy seasons, as well as by the fevers which prevail during the autumn, and only begin to recover their strength in October and November. In December and January they are at their maximum vitality, and begin to fall off in February and March; but in July and August they are at their lowest ebb.

(2.) In the cold season the people live together in small rooms, hence husbands and wives are more brought together, whereas in the hot months they sleep apart on the roofs of the houses or in the open squares and streets. In the rainy season, in addition to all parties suffering more from fevers and other diseases, there is a disinclination for intimate association, as the rooms are hot and close.

(3.) It is customary in the cold season to take rich food and tonics, by which the vital powers are increased. Stimulants, such as alcohol and spices, are also taken.

(4.) Girls are more frequently sent to their husbands' homes in the winter.

(5.) Women are less troubled with menstrual irregularities in the winter, hence are more likely to become pregnant.

(6.) The Shastras or sacred writings ordain that men should be well fed with clarified butter, milk, sessamum, wheat, maize, sweetmeats, ginger and spices, and live in warm rooms in the two divisions of the cold season, *viz.*, Hima or Hemanta and Shishir, or from 14th November to 11th March. It is the custom in most Indian houses for both men and women to take good food with spices in the winter lest their strength should fail in the hot months. Susruta and other authorities advise comparative abstinence from sexual intercourse in the summer, and many people follow this advice on religious and medical grounds.

(7.) Food is abundant in the winter in most households, because weddings are rare, and economy is not required, and the popular belief is that in the cold season there is greater strength to enjoy it. This of course is in accordance with the facts, as both sexes can now take more exercise and hence suffer less from dyspepsia. The Shastras enjoin the use of good food by married people when desirous of offspring.

(8.) There are several great festivals in the winter, especially in Rajputana, at which time husbands and sons all try to be at their own homes, returning for this purpose from distant provinces where they are engaged in trade.

Birth return for Jeypore City from 1882—1892.

Months.	1882		1883		1884		1885		1886		1887		1888		1889		1890		1891		1892		Total.		Average.		Conception	Birth
	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b
January ...	6	367	7	301	7	328	10	274	7	338	7	377	8	280	7	348	7	299	10	276	3	319	83	3502	7	318·36	1	December	1	September
February ...	8	236	10	241	8	317	12	227	8	327	8	339	9	242	12	224	10	264	10	276	11	287	107	2980	9	270·91	2	January	2	October
March ...	9	190	12	156	9	294	11	244	12	275	10	302	6	307	8	275	9	279	7	301	10	290	103	2913	10	264·82	3	November	3	August
April ...	10	180	11	216	10	278	9	283	10	288	11	293	11	237	9	264	11	248	7	301	12	277	111	2865	11	260·45	4	February	4	November
May ...	12	130	9	256	11	268	8	286	11	285	9	308	10	238	11	220	12	237	9	287	9	303	111	2824	12	256·73	5	March	5	December
June ...	10	180	8	288	12	261	7	315	9	312	12	291	12	228	10	249	5	303	12	259	8	314	105	3000	8	272·73	6	October	6	July
July ...	7	253	6	356	6	389	6	366	6	393	5	401	7	286	6	360	3	439	6	406	5	424	63	4073	6	370·27	7	April	7	January
August ...	4	453	2	471	2	500	3	530	5	439	3	508	4	412	5	411	2	441	1	618	4	487	35	5270	3	479·09	8	June	8	March
September ...	1	500	3	459	1	528	2	540	4	452	1	552	1	508	3	479	1	503	2	552	1	546	20	5619	1	510·82	9	September	9	June
October ...	2	467	1	496	4	441	1	592	1	519	2	546	3	493	1	510	6	399	4	527	2	538	27	5428	2	493·45	10	May	10	February
November ...	3	458	4	456	3	478	5	467	2	494	4	453	2	507	2	491	4	397	3	532	3	513	35	5246	4	476·91	11	August	11	May
December ...	5	414	5	433	5	410	4	477	3	476	6	378	5	367	4	430	8	295	5	423	6	421	56	4524	5	411·27	12	July	12	April
TOTAL ...		3828		4129		4492		4601		4598		4748		4105		4262		4104		4758		4719		48,244		4385·81				

a.—Order of months.

b.—Order of births.

JAILS.

Before 1865 the prisons were wholly inadequate to the wants of the State, and several very severe and fatal epidemics of "yellow or jail remittent fevers," as they were called, which were due to overcrowding and great want of sanitary measures of any kind, occurred. Still earlier, however, the late Maharaja and his advisers were aware of the necessity of providing improved accommodation.

The principal jail had been attached to the Kotwali, where the cubic space per man at the time of the last outbreak was only 85 cubic feet. It is no wonder that the death-rate was 25·2 of the prisoners treated.

A new jail was built on a site selected in 1856 by Sir Henry Lawrence when he was Agent to the Governor-General. Part of it was first occupied in December 1864, but it was not quite completed until some time later. It is thus described by Dr. K. Burr, who at that time was Agency Surgeon and Medical Officer of the Durbar :—

This new jail is a very fine building, and will, when completed, be capable of accommodating 1,000 men, giving each of them between 400 and 500 cubic feet of air ; it has also a fine extensive hospital capable of holding 100 men, and another for the women sufficiently large to treat 50 patients.

Unfortunately this scheme was not fully carried out, as there were only enough barracks to afford accommodation for 450 or 500 prisoners at the outside. There was only sufficient cubic air space for that number ; but the jail rarely had less than 700 prisoners in it, and latterly usually had nearly 1,000 and sometimes even 1,200 or 1,300 inhabitants. Moreover, the hospital buildings were encroached upon for other purposes, and there was no female hospital at all, a portion of a ward being set apart for the sick women.

From a health point of view, the custom of releasing a large number of prisoners on the *Salgira* or Maharaja's birthday somewhat mitigates the evil conditions of prison life.

General control of the sanitary arrangements of the jail was made over to me as Superintendent of Dispensaries in 1881, and in February I prepared a report, after which a committee sat and made the following recommendations :—

(1.) Prevention of overcrowding either by sending only the more important cases to the jail or by enlarging the building.

(2.) Provision of a new manufacturing ward, separate wards for boys and lunatics, a quarantine ward, and a new hospital.

(3.) Improvement of the conservancy, which is at present very defective.

(4.) Abolition of the long chain, which would admit of better night conservancy arrangements being adopted. To carry out this suggestion, iron gratings and doors must be constructed in all the wards.

(5.) Slight improvement in diet and clothing, especially of the sick.

(6.) Laying on water to the jail from the city mains, repair of wells, and construction of new water channels and drains.

(7.) Construction of raised bed-places in the hospital and repairs to the building.

(8.) Use of bullocks instead of prisoners for watering the jail garden.

(9.) Changes in the hospital staff.

(10.) More control over the jail guard.

Improvements began at once. Rs. 12,035 were spent in 1881 in laying on water and in erecting latrines, etc., and the diet was greatly improved. In short, recommendations Nos. 3, 5, 6, 8, 9, and 10 were carried out. Further improvements took place in 1882 as follow :—

(1.) A large manufacturing shed was built.

(2.) New latrines were constructed.

(3.) Gratings were made in one ward.

(4.) Raised bathing-places were built in the hospital.

(5.) Ventilators were put into the roofs in some of the wards.

Work under all these heads was carried on in 1883, 1884, and 1885, so that in the latter year it was at last possible to abolish the use of the long night chain.

In my report for 1885 I again drew attention to the overcrowding, and stated that it was proposed to add more barracks to lessen the evil.

In 1886 the project was still under consideration, and in 1887 it was decided to erect a new jail (chiefly for short-term prisoners) on the west side of the city, and work was begun in 1887 by constructing a wall. The new barracks were proceeded with in 1888 and 1889, and on the 1st May of the latter year 323 prisoners were transferred to the new jail from the old one.

The mortality fell almost at once ; but other circumstances tended to this good result, as, for example, improved diet and clothing.

The expenditure on jail buildings in 1889 was Rs. 45,119.

Some of the improvements were due to the experience gained by a visit I paid to the Lahore, Delhi, and Lucknow jails early in the year, and the new buildings were the result of much enquiry and of valuable advice afforded by the Surgeon-General with the Government of India, the Inspector-General of Prisons in the Punjab, the Chief Medical Officers in Rajputana and many other specialists.

In 1890 Rs. 14,484 were spent on the new jail and Rs. 19,112 on the old one, in the latter chiefly in building solitary cells, latrines, and bathing platforms.

In all but one barrack in the new jail raised bed-places were provided ; but this great reform has not been carried out in the old prison, and cannot be until ample accommodation is obtained.

Even now, in 1894, that jail is far too overcrowded ; but earnest endeavours are being made to remedy the evil, as it is well known that the mortality is still capable of reduction.

In 1891 new diet scales were introduced, which seemed to have a good effect, but the year was a healthy one.

The mortality was higher in 1892, though less in 1893, but can never be as low as it ought to be as long as the overcrowding exists. Certain difficulties as regards discipline, admission without passing the men through a quarantine ward, furnishing clothing and extramural labour, still tend to increase the death-rate.

In 1891 more latrines were built in the old jail, as well as a new mill-house, which gave more hospital space, and removed a source of danger to all the prisoners, as the grain was liable to be fouled, and of annoyance to the sick from the noise of the grinding, and even of harm from the irritation of the particles of flour, especially in pneumonia cases.

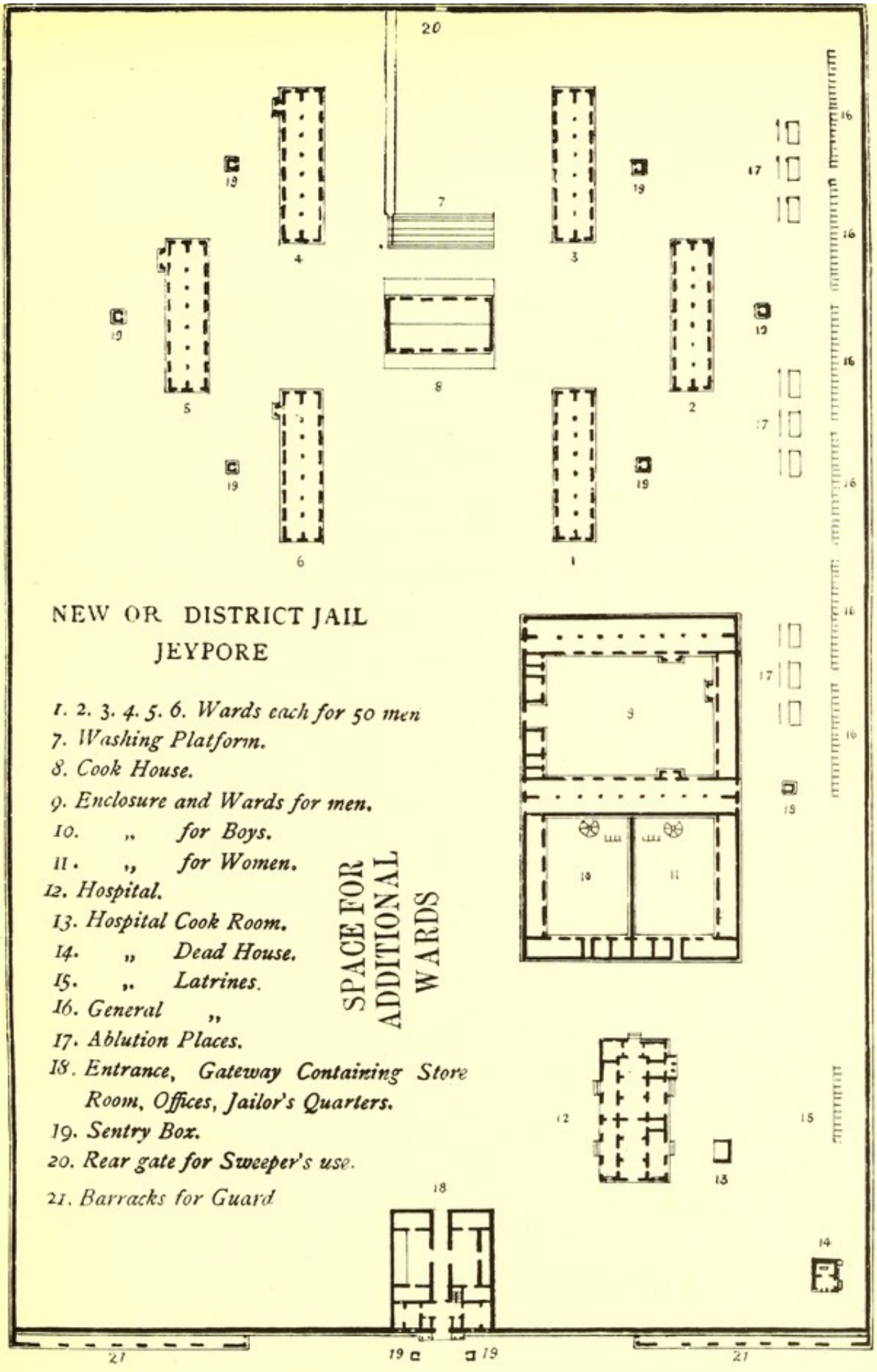
In 1892 Rs. 9,297 were spent in improvements in the old jail, and in 1893 a small expenditure was also incurred.

In 1892 and 1894 iron beds were provided for the worst cases of sickness in the hospital.

It is now proposed to still further improve the accommodation in the old prison, which, although at the time of its construction it was considered to be as good as any of the jails in British territory, is certainly not up to the requirements of the present day. It will probably be found that by building new barracks in the district jail, and perhaps by adding a female prison and quarantine ward to the central or old jail, the principal difficulties will be overcome.

In case of epidemics the prisoners have been usually sent out for a time to a large garden, attached to which is a large covered hall. Cholera cases were sent into straw huts.

The following table shows the average strength, sickness, and mortality of the jails since 1876 :—



NEW OR DISTRICT JAIL
JEYPORE

1. 2. 3. 4. 5. 6. Wards each for 50 men
7. Washing Platform.
8. Cook House.
9. Enclosure and Wards for men.
10. „ for Boys.
11. „ for Women.
12. Hospital.
13. Hospital Cook Room.
14. „ Dead House.
15. „ Latrines.
16. General „
17. Ablution Places.
18. Entrance, Gateway Containing Store Room, Offices, Jailor's Quarters.
19. Sentry Box.
20. Rear gate for Sweeper's use.
21. Barracks for Guard

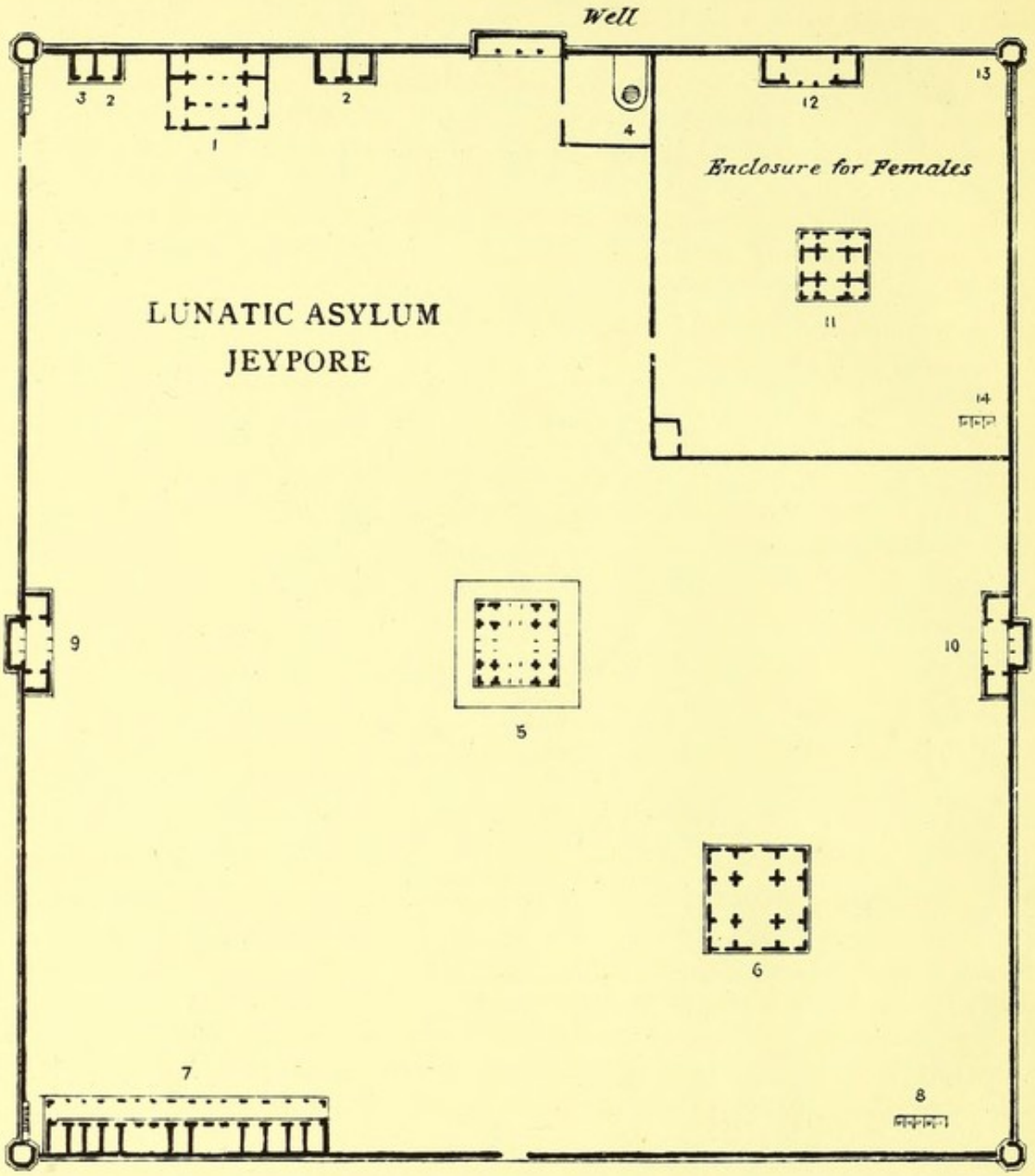
SCALE 100 FEET 1 INCH.

Table of number of prisoners in the Jeypore Jails, from 1882—1892

Months.	1882.	1883.	1884.	1885.	1886.	1887	1888	1889.	1890.	1891.	1892.	Total.	Average 11 years.
January ...	620·29	636·90	866 32	929·12	938·38	1034·54	950·29	1172·74	1213·27	1240·46	1217·01	10819·32	983 57
February ...	546·28	629·17	845·51	922·06	918·75	935·06	996·17	1177·25	1178·45	1237·01	1056 36	10442·07	949·28
March ...	560·76	630·41	800·47	900·44	909·19	886.44	1067·54	1163·70	1169·05	1218·73	1083·31	10390 04	944 55
April ...	596·2	604·79	752·46	922·19	908·49	926·80	1139·60	1153·40	1172·92	1236·59	1080·42	10493·86	953·99
May ...	613·49	655·99	836·22	922·16	916·09	954·22	1196·19	1163·63	1166·56	1275 72	1120·41	10820·68	983·70
June ...	617·56	647·66	813·76	936·83	917·91	967·80	1241·76	1188·79	1190·16	1264·88	1163·15	10950·76	995·48
July ...	635 74	691 57	811·29	1004·76	939·96	973·25	1266·06	1223·09	1206 56	1273·30	1195·25	11220·83	1020.07
August ...	610·64	738·22	788·40	1032·67	941·96	954 35	1279·25	1274·76	1185·49	1306 91	1133·07	11245·73	1022·33
September ...	612·36	713·93	783·66	923·19	887·76	974·36	1133·50	1244·89	1168·88	1165·29	1147·71	10755·53	977·78
October ...	559·35	726·31	815·26	939·93	929 87	986 83	1133·89	1244 67	1190·74	1170 97	1168·40	10866·22	987·84
November ...	605·09	743·59	819·90	935·36	960 23	1013·96	1137·16	1234·96	1186·36	1183·72	1194·01	11014·34	1001·30
December ...	623·06	776·51	838·58	952·06	988·15	993·61	1147·87	1238·50	1207·01	1200·68	1219·17	11185·20	1016·84
TOTAL ...	7200·82	8195·05	9771·83	11320·77	1156·74	11601·22	13689·28	14480·38	14235·45	14774·26	13778 27	130264·07	11836·73

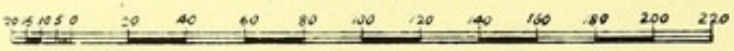
Table of Attendance of the Sick in the Jeypore Jails from 1882—1892.

Months.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	Total.	Mean 11 years.	Mean mortality.
January	63	65	57	61	108	45	42	84	91	81	95	792	72·	3·09
February	33	52	84	70	86	38	48	41	83	56	51	642	58·36	1·54
March	74	46	108	105	81	49	54	74	104	72	45	812	73·81	2·72
April	68	70	91	116	91	48	71	91	145	103	47	941	85·54	4·09
May	73	62	83	127	99	73	62	80	72	110	59	900	81·81	2·09
June	85	79	74	127	101	66	60	79	77	100	50	898	81·63	2·
July	109	104	126	138	114	76	69	100	106	86	69	1097	99·72	2·90
August	111	141	155	175	98	88	71	90	131	119	81	1260	114·54	3·90
September	75	106	120	138	121	91	96	106	113	107	105	1178	107·09	4·36
October	54	81	123	132	79	69	82	113	136	78	111	1058	96·18	4·27
November	56	83	124	111	70	79	74	85	93	66	73	914	83·09	5·27
December	75	70	88	120	66	57	86	81	72	62	63	840	76·36	4·18
TOTAL ...	876	959	1233	1420	1114	779	815	1024	1223	1040	849	11332	1030·18	40·45



1. *Hospital assistant's Quarters.*
2. *" " Servants.*
3. *Guards.*
4. *Well.*
5. ***Males, ward for day use.***
6. *" " " night.*
7. *Cells, Hospital, and Dispensary.*
8. *Latrines for males.*
9. *Guard and Food store.*
10. *Attendants.*
11. ***Females, ward for day and night use.***
12. *" " " day use only & stores,*
13. *" warders.*
14. *" Latrines*

Scale 80 Feet 1 inch.



The prisoners in the central jail are chiefly engaged in intramural labour; those in the district jail are employed on public works and in the gardens of the State.

The above history is given in detail in order that it may be seen that the great subject of prison accommodation has been steadily studied by the medical officers, and that their recommendations have also been carried out by the Jeypore Government as far as seemed possible at the time.

Much has been done also in the districts with the view of lessening the jail population, and it is proposed to erect more small prisons at the nizamuts.

There is a good jail at Malpura, which is built on a new plan, and most of the old jails in the different centres have been much improved.

For some years past, under the present Chief Member of Council, Rao Bahadur Kantee Chunder Mookerjee, C.I.E., two new dispensaries and a certain number of schools and police stations (thanas), as well as other public buildings, have been erected, and new jails will now be built in the same manner.

KOTWALI.

Prisoners who are under trial are kept in the Kotwali, in the prison portion of which considerable improvements have been made.

Moreover, there is rarely any danger of overcrowding, and the stay of the occupants is very short.

LUNATIC ASYLUM.

The number of lunatics requiring incarceration is not very great, but a small asylum near the Ghat Gate of the city is provided for them. There are on an average about 40 inmates.

It has long been felt that the accommodation and supervision were inadequate and a new series of buildings has been erected in a walled garden near the Government Telegraph Office outside the south-west corner of the city at a cost of about Rs. 22,000, in which it is hoped that the unfortunate sufferers will not only be well housed but placed in a position which will render them as happy as it is possible for men and women in their painful condition to be.

METEOROLOGY.

The following tables summarize the meteorological conditions of Jeypore. The observatory is of the first class, and is supplied with automatic as well as the ordinary instruments. It has been in working order at its present site since January 1881, but, as observations of the thermometer and direction of the wind and rainfall had been made on the same spot since 1875, statistics are available for obtaining correct means of the temperature, humidity, wind force and direction for 19 years, of cloud for 18 years, and of the rainfall for 27 years.

The following instruments are in use: *Osler's anemograph*, which has recorded continuously since 1881 on the same spot, the direction, force, and velocity of the wind, and the rainfall; the *Meteorograph of Van Rysselbergh and Schubart*, which has registered, more or less perfectly since 1882, the readings, every ten minutes, of the dry and wet bulb thermometers, of the barometer, and the direction and (for a short time) velocity of the wind, and the rainfall.

The following instruments are read at 4 A.M., 10 A.M., 4 P.M., and 10 P.M. every day, and on the 7th, 14th, 21st, and 28th of every month every hour :—The barometer, dry and wet bulb thermometers, several rain gauges, the anemometer and earth thermometers at the surface, and at depths of 4 inches, 6 feet, 3 feet, and 10 feet. The movements of the cloud and direction of the wind are also noted.

The following instruments are read daily :—Earth thermometers at 20 and 45·6 feet ; maximum and minimum thermometers of several kinds. For many years synoptic observations were also taken for the American Government. The institution is of great importance, as it is almost on the water-shed of India, and stands in perhaps the most inter-continental position of all the great Indian observatories.

The following observations are also made at all the dispensary towns :—Rainfall ; at 8 A.M., and temperature direction of the wind and cloud at 10 A.M. and 4 P.M.. All Hospital Assistants, who come to Jeypore, are taught at the Observatory to read the ordinary instruments.

SUMMARY OF CLIMATIC CONDITIONS, FOR ELEVEN YEARS.

The following is a brief summary of the climate of each month showing the variations during the eleven years from 1882 to 1892 (both years inclusive) or for a sun spot period.

A brief account of the climate of each month for the north of India from the reports of the Meteorological Reporter with the Government of India is also given for comparative purposes.

January.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem.	Total	Resultan	Miles.
Mean	28·584	60·6	0·84	3·09	45	3·45	7·8	243·5	N20°E	87·3
Highest	28·880	84·5	2·57	...	...	...	10·1	...	...	...
Lowest	28·195	35·0	0·07	...	...	...	0·1	...	...	...
Greatest range in one day	0·196	42·2	...	...	...	...	...	...	...	...
Lowest range ...	0·003	3·9	...	...	...	...	...	...	...	...
Mean range	0·101	25·8	...	...	...	...	...	...	...	...

Variations from Means of 11 years from 1882 to 1892 or a sunspot cycle.

January.

Years.	Barometer Mean 28·564 ins.	Tempr. of Air Mean 160·6°	Saturation 100 R. Humidity Mean 45 p. cent.	Inches Rain Mean 0·84 ins.	Wind Mean 87·3 miles.	Hours of Sunshine. Mean 7·8 hours.
1882	+ ·024	+ 1·6	+ 12	+ 0·20	+ 4·0	
1883	− ·025	+ 0·2	+ 19	+ 0·38	− 2·1	Exposed from 1st February 1884.
1884	+ ·035	− 0·3	− 9	− 0·77	+ 18·8	
1885	+ ·040	− 0·8	− 1	− 0·32	+ 5·6	− 0·2
1886	− ·009	+ 0·4	+ 15	− 0·26	+ 13·2	+ 0·3
1887	− ·094	− 2·4	− 3	− 0·12	+ 11·7	− 0·5
1888	+ ·033	− 4·8	− 5	+ 0·24	− 2·7	− 0·7
1889	+ ·010	+ 2·0	− 9	− 0·20	− 1·3	0·0
1890	− ·039	+ 2·9	− 19	− 0·84	− 8·4	+ 0·9
1891	+ ·018	− 1·0	− 2	− 0·04	− 15·6	+ 0·3
1892	+ ·009	+ 3·0	+ 10	+ 1·73	− 23·0	+ 0·4

JANUARY.

WEATHER OF NORTH INDIA.—January may be termed the first month of the north-east monsoon proper. The normal features are moderate temperature and large daily range of temperature, moderate amount of aqueous vapour in the air, and a large range of humidity caused by the large diurnal variation of temperature (frequently giving rise to heavy mists at night), clear skies and fine bright weather with light to moderate winds, which are generally opposite in direction to those that prevail in the south-west monsoon. In Northern India the weather is disturbed at intervals by shallow depressions or feeble cyclonic storms, which usually produce large and marked temperature changes. Always a warm wave (5° to 10° above normal) precedes each

storm, and a dry cool wave follows in the rear. (Meteorological Reporter with the Government of India.)

With the exception of December the barometer is at its highest. The maximum variations were +04° in 1885 and —094 in 1887. January is the coldest month of the year. Only twice in 11 years, *viz.*, in 1883 and 1884, was December colder. The fluctuations from the mean are very small. The maximum variations being —4.8 in 1888, and +0·3 in 1892. The mean range is lowest of the dry months (*i. e.* of all except June to September). The relative humidity of the month, *viz.*, 45, is higher than any except the three monsoon months (July, August, and September). The variation is, however, somewhat greater than the other months, as, for example, in 1890 it was—19 and in 1883 (*i. e.* of all except June to September) +17 and in 1886+15. The rain follows the humidity except in the case of the month of June, in which the fall is greater, as the monsoon occasionally begins toward the end of the month ; the number of days of rainfall is also much higher in June, being 6·81 to 3·09. The variation is between −1·73 in 1892 and—0·84 in 1890, the average being 0·84. The cloud accords with the rain. The average number of hours of sunshine for eight years was 7·8 per diem, or 243·5 for the month, out of a possible 325·2 hours, the variation being small, *viz.* +0·9 in 1890. and −0·7 in 1888. The velocity of the wind is 87·3 miles per diem, to which it has risen regularly through the months from November the lowest. The variation is small, *viz.*,—23·0 in 1892 and +18·8 in 1884. The resultant of direction is N. 20° E.

February.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem.	Total.	Resultant.	Miles.
Mean	28·543	63·9	0·14	1·36	34	2·99	8·9	254·2	N80°W	103 1
Highest	28·823	97·6	0·92	...	...	...	11·2	...	...	...
Lowest	28·208	34·8	0·06	...	...	...	1·0	...	...	...
Greatest range in one day	0·198	39·9	...	...	...	...	...	...	...	...
Lowest range ...	0·004	13·1	...	...	...	...	...	...	...	...
Mean range ...	0.106	28 0	...	...	...	...	...	...	...	...

February.

Years.	Barometer Mean 28·543 ins.	Tempr. of Air Mean 63·9°.	R. Humidity Mean 34 ins.	Rain Mean 0·14 p. cent	Wind Mean 103·1 miles	Sunshine Mean 8·9 hours
1882	− ·022	− 0·6	+ 8	− 0·14	+ 19·4	...
1883	+ ·003	− 1·9	+ 11	− 0·14	+ 18·4	...
1884	− ·007	− 0·6	+ 2	− 0·08	+ 36·2	− 1·1
1885	− ·012	− 3·2	− 2	− 0·14	− 5·4	− 0·1
1886	+ ·028	− 0·8	+ 3	− 0·14	− 2·1	+ 0·6
1887	+ ·007	+ 0·7	− 16	− 0·14	− 13·7	+ 1·0
1888	+ ·024	− 0·5	+ 6	+ 0·78	− 1·3	− 0·8
1889	+ ·021	+ 1·3	+ 5	+ 0·33	− 2·5	− 0 1
1890	+ ·002	+ 3·6	− 12	− 0·14	− 14·0	− 0·1
1891	+ ·029	− 2·1	− 5	− 0·14	− 17·4	+ 0·2
1892	− ·069	+ 3·9	+ 4	− 0·04	− 17·6	+ 0·7

NORTH INDIA.—February is usually the last month of the cold weather in North India. Temperature increases rapidly, more especially in the latter half of the month, and pressure decreases slowly. Cold weather storms occur chiefly, thunderstorms at irregular intervals. The general character of the air movement is similar to that of January.

JEYPORE.—From December to July the mean barometric readings fall and rise from July to December. The variation is smaller than in January. The greatest were —0·069 in 1892 and + ·029 in 1891.

The temperature of February is higher than in January (60·6) or December (62·3), though the mean range is a little lower than that of the latter month.

The variation is smaller even than in January, *viz.*, − 3·2 in 1885 and + 3·9 in 1892. The relative humidity (34) falls from this month to May, when it slightly rises, but does not exceed that of February until June. The fluctuations are smaller, being − 16 in 1887 and + 11 in 1883.

After April, November and December, it is the least rainy month in the year. The maximum fall in 11 years was only 0·92. The cloud and sunshine are greater than in January; and the velocity of the wind is also higher. The resultant of direction was N. 80° W.

March.

	Barometer.	Temperature.	Rain			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem.	Total.	Resultant.	Miles.
Mean	28·449	75·6	0·39	1·81	27	3·09	8·7	270·7	N20°W	121·5
Highest	28·508	108·8	1·67	...	..	...	11·4	...	...	...
Lowest	28·121	55·5	0·01	...	...	...	0·1	...	...	...
Greatest range in one day	0·163	42·8	...	...	...	...	...	...	...	...
Lowest range ...	0·018	10·4	...	...	...	...	...	...	...	...
Mean range ...	0·110	29·1	..	...	...	...	...	...	...	...

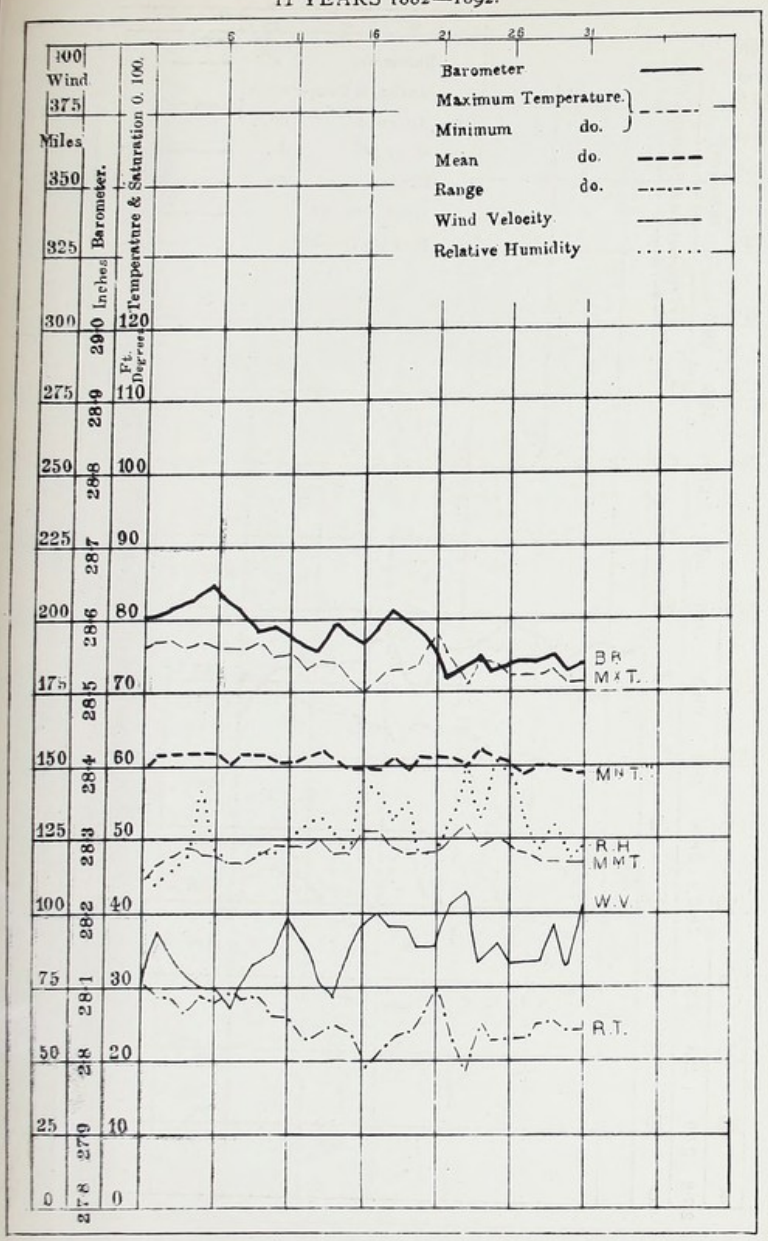
March.

Years.	Barometer Mean 28·449 ins.	Tempr. of Air Mean 75·6°.	R. Humidity Mean 27 ins.	Rain Mean 0·39 p. cent	Wind Mean 121·5 miles.	Sunshine Mean. 8·7 hours.
1882	− ·026	+ 1·5	+ 4	− 0·39	+ 23·2	...
1883	+ ·003	− 2·0	+ 16	− 0·18	+ 57·5	...
1884	+ ·007	+ 0·1	− 4	− 0·28	+ 31·5	+ 0·1
1885	− ·043	− 0·1	...	− 0·37	− 9·4	+ 0·1
1886	+ ·005	− 1·4	+ 8	− 0·33	+ 6·9	− 0·2
1887	+ ·045	− 0·2	− 11	− 0·38	− 14·0	+ 0·7
1888	− ·004	+ 1·9	− 2	− 0·24	− 3·1	+ 0·4
1889	− ·064	+ 2·5	− 2	+ 0·32	− 20·7	+ 0·2
1890	+ ·045	− 0·4	+ 4	+ 1·28	− 22·5	− 1·5
1891	− ·028	− 5·8	+ 4	+ 1·05	− 30·5	− 0·4
1892	+ ·059	+ 3·9	− 9	− 0·39	− 18·4	+ 0·9

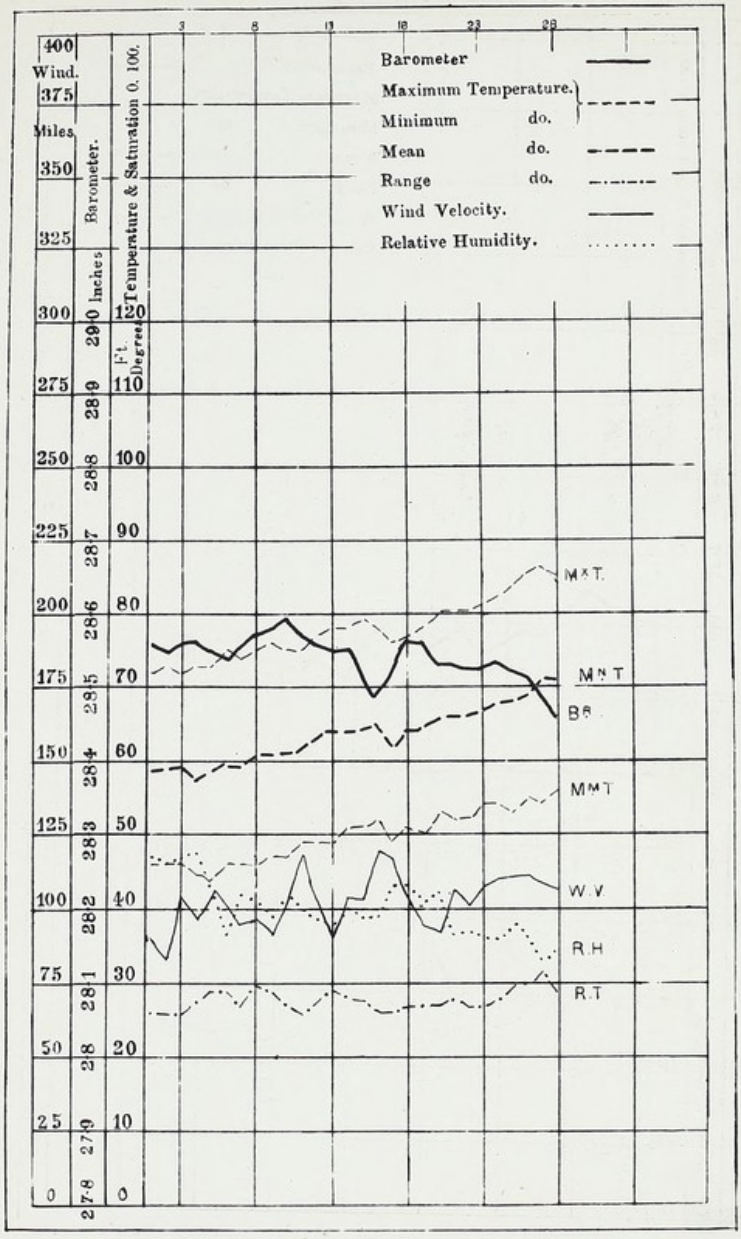
NORTH INDIA.—March is usually the commencement of the warm weather in North India. The temperature rises 10°. The slow change from the cold weather, distribution of pressure to the hot weather, and S.-W. monsoon distribution commences in March.

JEYPORE.—The barometer falls rapidly in this month, and the fluctuations are considerable, being in 1892 + 059 and in 1887 and 1890 + 045 and in 1885 —043. The temperature has rapidly increased to a mean of 75·6 with a maximum of 108·8 or 11·2, and a minimum of 55·5 or 30·7 over February. The range of 29·1 is slightly higher. The fluctuations are greater than in the preceding months. The relative humidity has fallen to 27, but rain has increased to 0·39. There is more cloud but also

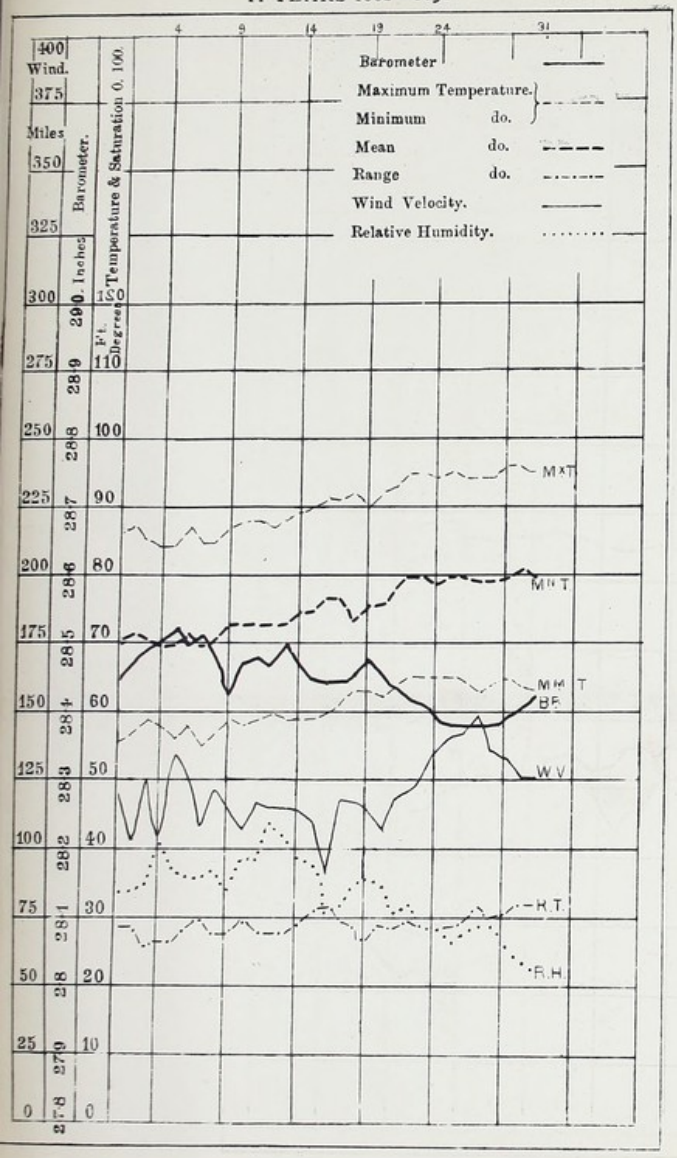
JANUARY MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



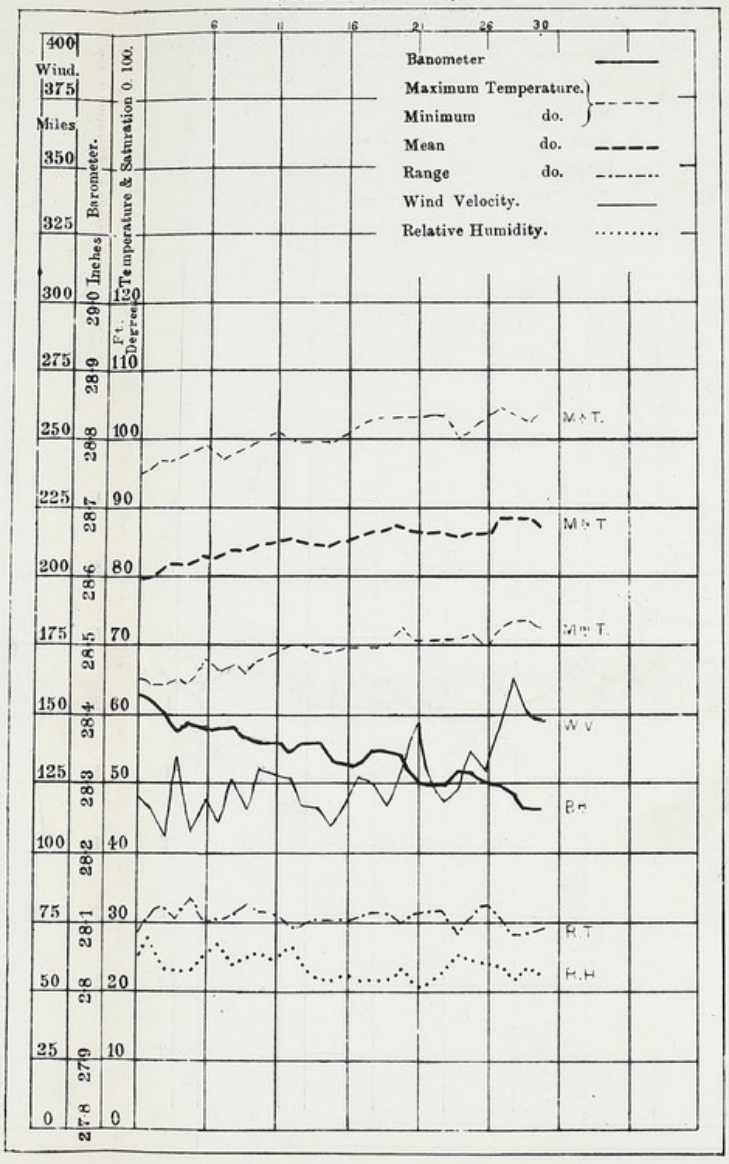
FEBRUARY MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



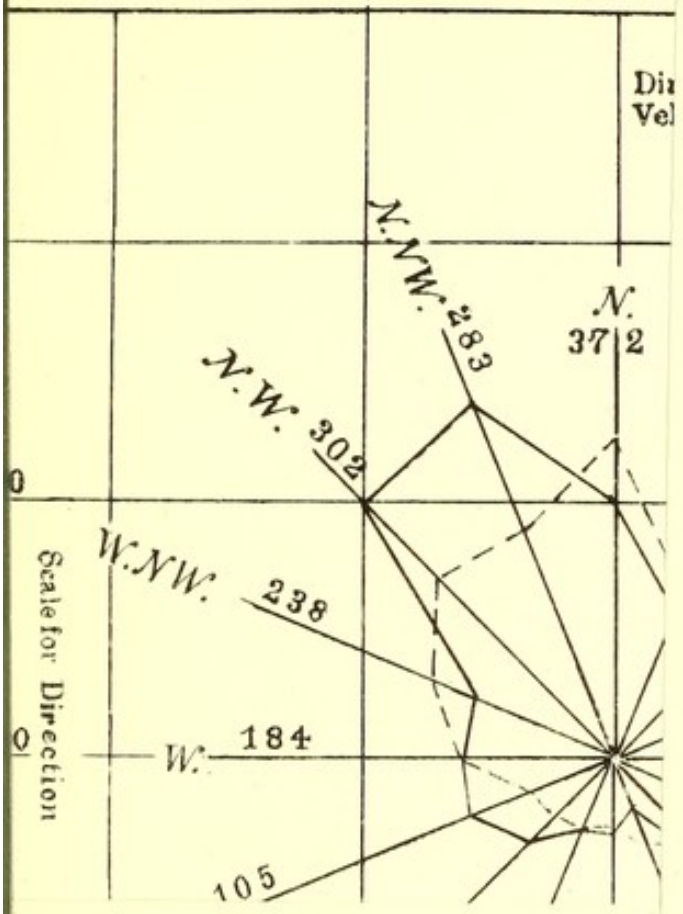
MARCH MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



APRIL MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



MEAN WIND OF JANUARY FOR 1



more sunshine as the days are lengthening. The wind velocity has increased, and the resultant has changed to N. 20° W.

April.

	Barometer.	Temperature.	Rain.			Cloud.	Hours of Bright Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem	Total.	Resultant	Average Miles per Diem.
Mean	28·348	85·6	0·08	0·90	20	2·38	8·8	265·1	N39°W	127·7
Highest	28·548	111·2	0·44	...	...	...	11·8	...	...	...
Lowest	28·084	51·1	0·02	...	...	...	0·4	...	...	...
Greatest range in one day	0·166	41·3	...	...	...	...	...	...	...	...
Lowest range ...	0·019	14·8	...	...	...	...	...	...	...	...
Mean range	0·112	31·1	...	...	...	..	...	...	...	...

Variations in a sunspot cycle of 11 years from 1882 to 1892.

Years.	Barometer Mean 28·348 ins.	Tempr. of Air Mean 85·6°.	R. Humidity Mean 20 p. cent.	Rain Mean 0·08 ins	Wind Mean 127·7 miles.	Sunshine Mean 8·8 hours.
1882	− ·016	− 1·4	+ 3	...	+ 6·9	...
1883	− ·018	+ 2·1	+ 4	− 0·08	+ 35·7	...
1884	+ ·011	− 2·2	− 4	− 0·08	+ 40·5	+ 0·3
1885	+ ·042	− 4·5	+ 5	− 0·06	+ 1·7	− 0·8
1886	+ ·008	...	− 2	− 0·08	− 9·4	+ 0·5
1887	+ ·011	+ 0·8	− 6	− 0·03	− 22·6	+ 0·9
1888	− ·022	+ 0·1	− 2	+ 0·36	+ 0·1	+ 0·2
1889	+ ·014	+ 0·2	+ 1	+ 0·13	− 18·2	− 0·8
1890	− ·002	+ 1·2	− 1	− 0·05	− 1·4	+ 0·3
1891	+ ·033	− 0·4	+ 1	− 0·04	− 36·1	− 0·6
1892	− ·051	+ 4·9	+ 2	− 0·08	+ 2·7	+ 0·1

North India.—April is the second month of the hot weather period or season in North India. Temperature increases more or less steadily (about 10° in Upper India), and a corresponding change in the distribution of pressure is produced. It falls rapidly. In the interior of North India the winds blow over the river plains and valleys. The chief disturbances of the month belong almost exclusively to the class of hot weather storms, which usually give no rain but are dust storms in North India (Meteorological Reporter with the Government of India).

JEYPORE.—The barometer has again fallen rapidly in this month, but with less variation, being – 051 in 1892 and + 042 in 1885.

The temperature has risen 10 degrees ; but the maximum only 2·4. The mean range amounts to 29·1, slightly more than in March. April is the driest month in the year, the relative humidity being only 20 and the mean rainfall 0·08. The cloud proportion is small, as also the sunshine. There is more wind than in March, and the resultant is N. 39° W.

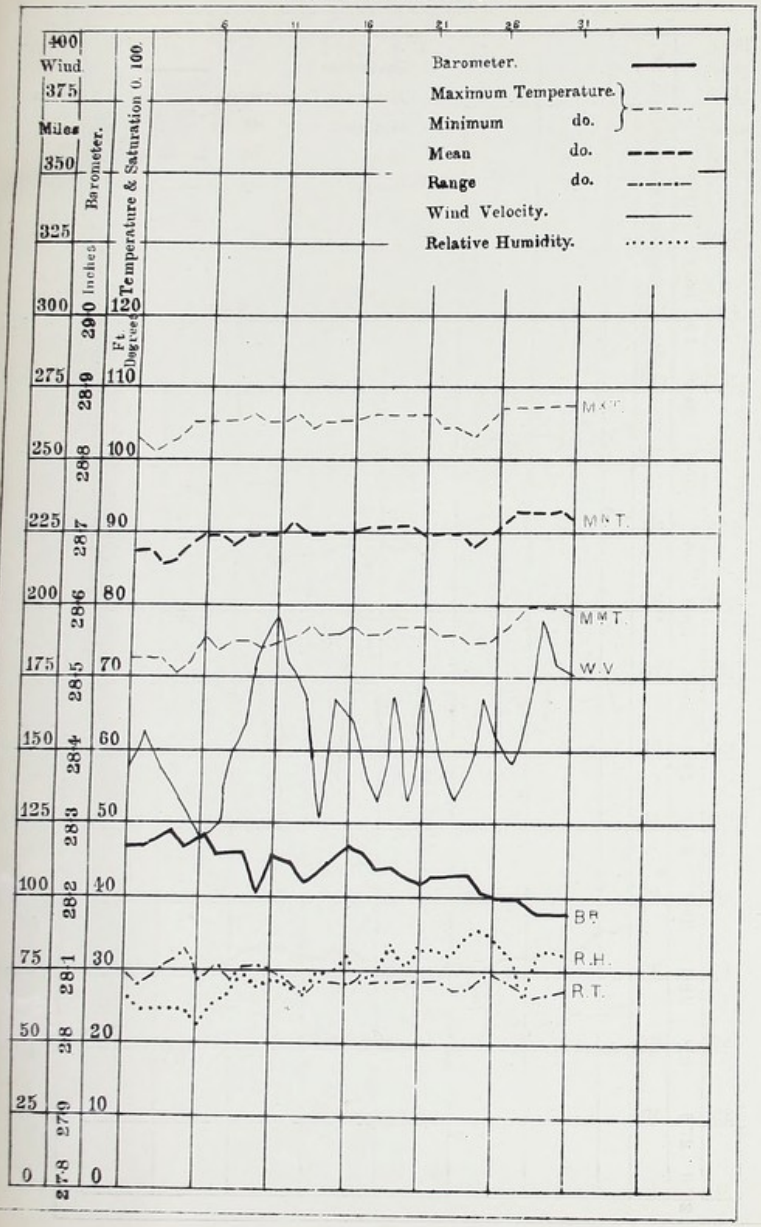
May.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Day of fall.	Humidity.		Per Diem.	Total.	Resultant.	Miles.
Mean	28·244	90·6	0·47	3·00	25	2·24	8·4	262·2	N45°W	154·9
Highest	28·586	115·8	2·05	...	...	...	11·9	...	...	...
Lowest	27·991	61·9	0·02	...	...	...	0·3	...	...	...
Greatest range in one day	0·170	40·4	...	...	...	...	...	...	...	...
Lowest range ...	0·011	3·6	...	...	...	...	...	...	...	...
Mean range	0·107	29·2	...	...	...	...	...	...	...	...

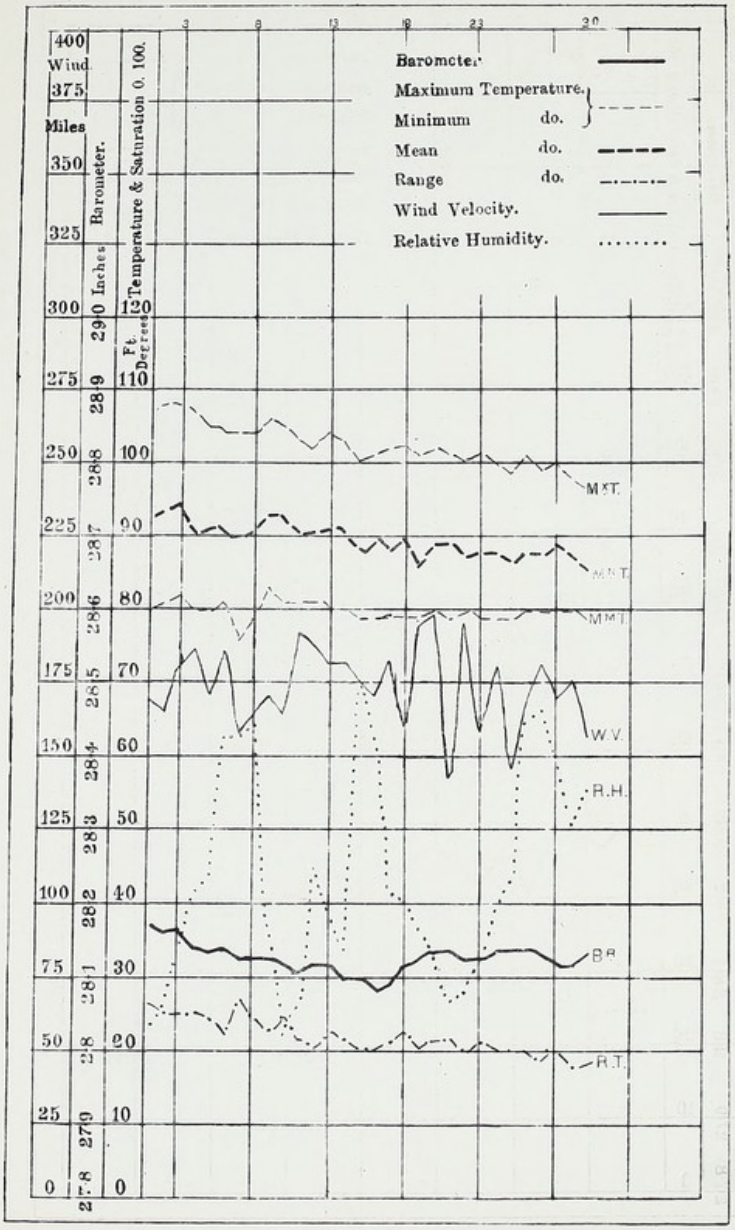
May.

Years.	Barometer Mean 28·244 ins.	Tempr. of Air Mean 90·6°.	R. Humidity Mean 25 p. cent.	Rain Mean 0·47 ins.	Wind Mean 154·9 miles.	Sunshine Mean 8·4 hours.
1882	+ ·001	– 1·3	+ 9	– 0·02	+ 11·5	...
1883	– ·035	+ 8·6	+ 15	+ 1·58	+ 59·1	...
1884	– ·017	+ 0·9	– 1	– 0·47	+ 23·7	+ 1·1
1885	+ ·091	– 6·0	+ 5	+ 0·20	– 17·8	+ 1·1
1886	– ·007	+ 1·1	+ 7	– 0·13	– 13·0	+ 1·0
1887	– ·035	+ 3·5	– 8	– 0·47	+ 1·9	+ 0·7
1888	– ·008	+ 1·2	– 7	– 0·47	– 18·2	+ 0·6
1889	+ ·038	+ 0·7	– 4	– 0·15	– 22·6	– 0·7
1890	– ·026	+ 2·1	– 6	– 0·45	+ 7·8	– 1·0
1891	+ ·023	– 1·3	...	+ 0·09	– 41·7	– 0·4
1892	– ·021	+ 0·6	– 7	+ 0·34	+ 10·1	– 1·8

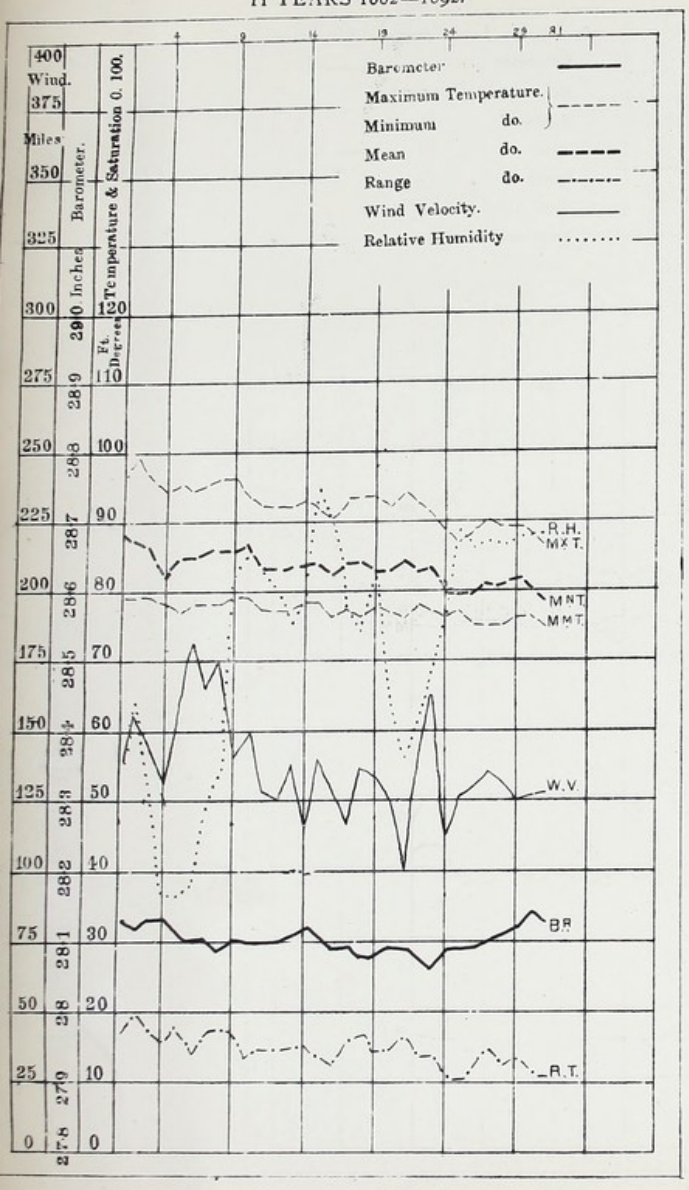
MAY MEAN OF 4 DAILY OBSERVATIONS FOR
11 YEARS 1882—1892.



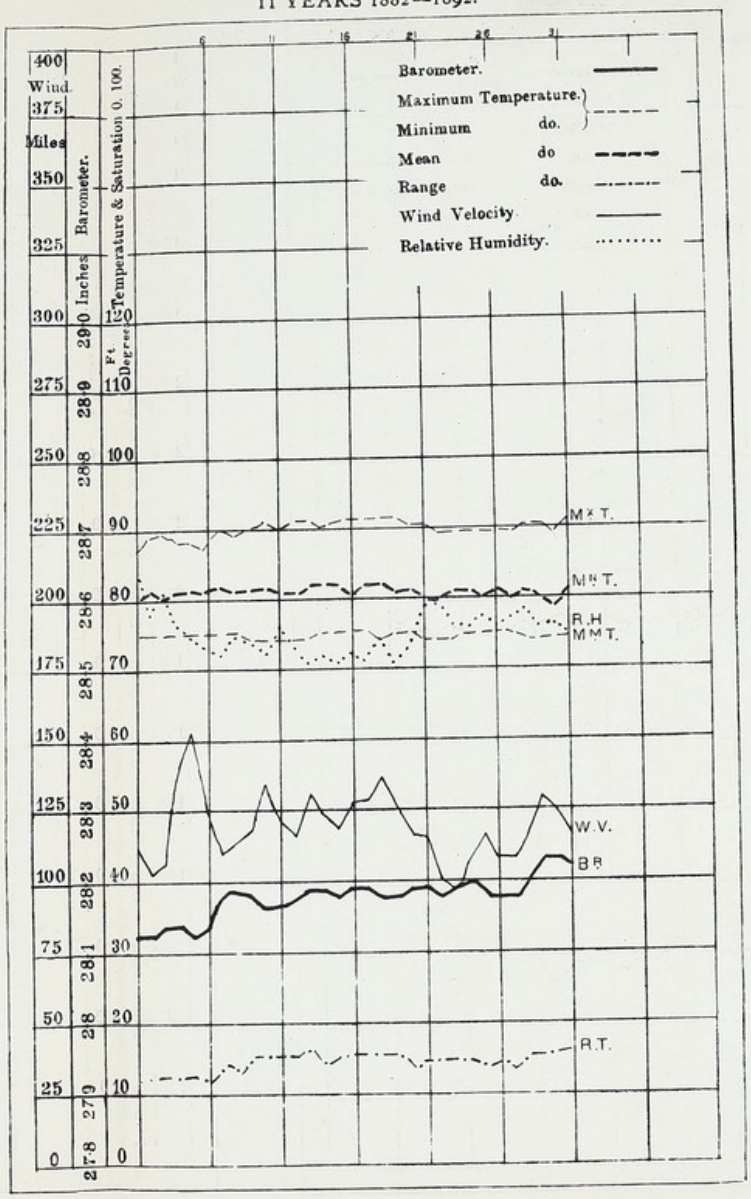
JUNE MEAN OF 4 DAILY OBSERVATIONS FOR
11 YEARS 1882—1892.



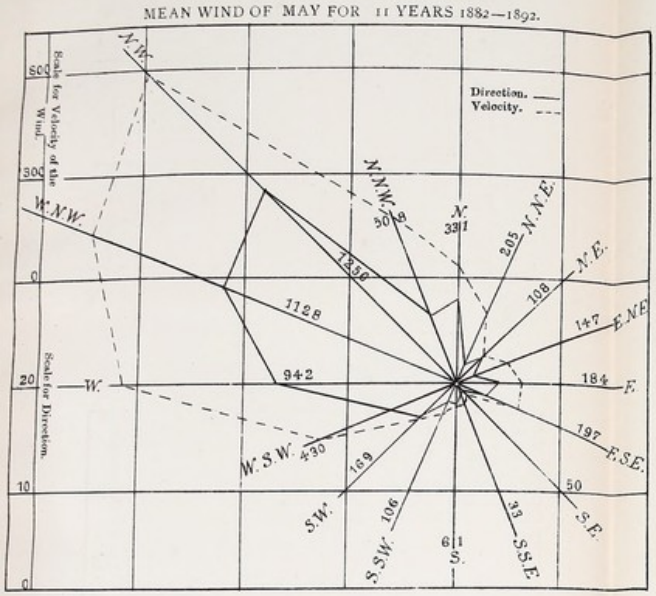
JULY MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



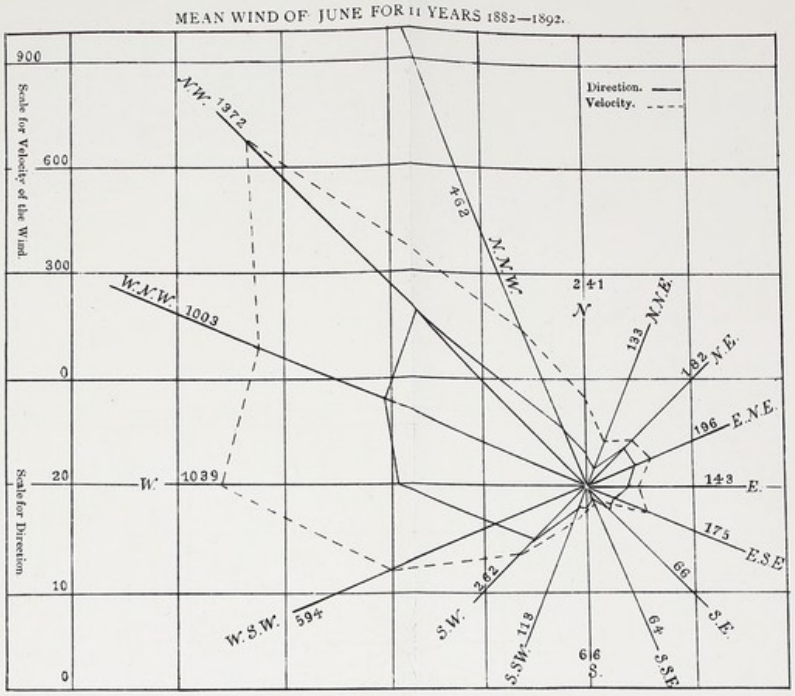
AUGUST. MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



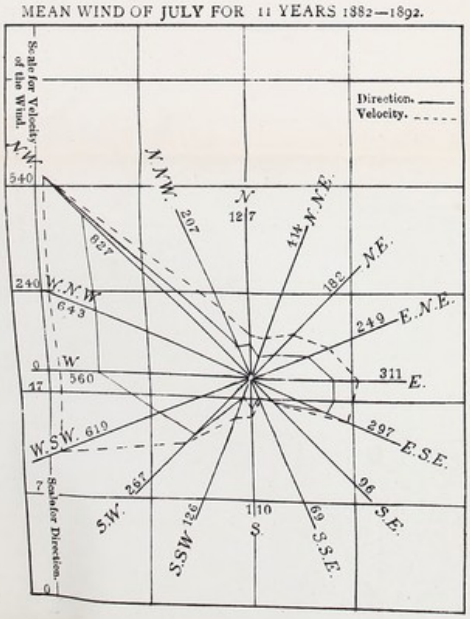
MEAN WIND OF MAY FOR 11 YEARS 1882—1892.



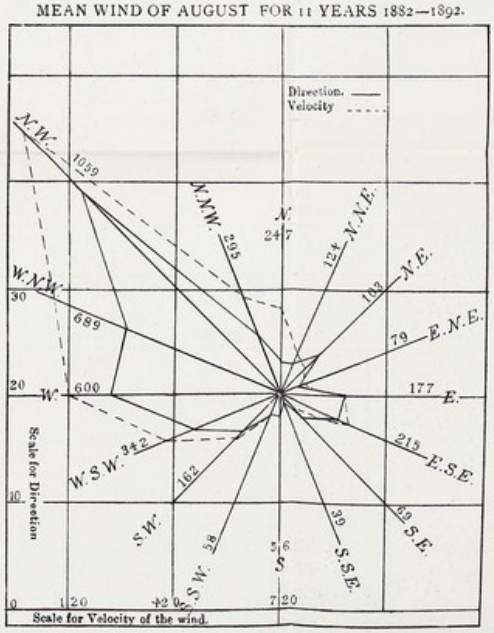
MEAN WIND OF JUNE FOR 11 YEARS 1882—1892.



MEAN WIND OF JULY FOR 11 YEARS 1882—1892.



MEAN WIND OF AUGUST FOR 11 YEARS 1882—1892.



NORTH INDIA.—May is usually the last month of the hot weather season in India, and completes the temperature and pressure conditions essential to the establishment of the S.-W. monsoon. Before the third week of the month the area of maximum temperature is usually in Sindh, the S.-W. Punjab and West Rajputana, where it continues until the third or fourth week of September, the maximum being in the last week of May or first of June. Pressure decrea se rapidly. The air is very dry, temperature is excessive, and the skies are clouded with dust. There are at intervals thunder storms or dust storms.

JEYPORE.—The mean barometric reading is more than a tenth of an inch less than in April with variations of +091 in 1885 and —035 in 1883 and 1887.

The temperature has increased 5° or to 90·6°, with a minimum of 61·9 or 10·8° more than in April ; the mean range being 29·2 or somewhat less. Rain has risen to 0·47 with as much as +1 58 in 1883.

The humidity is only 25, but there are more rainy days than in the three preceding months with heavier falls. There are less cloud and sunshine. The wind has increased in velocity and has a resultant of N. 45° W.

June.

	Barometer.	Temperature	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem.	Total.	Resultant	Miles.
Mean	28·135	90·5	2·19	6·81	41	4·22	6·6	198·0	N60°W	174·7
Highest	28·392	116·3	4·36	..	...	...	12·0	...	...	...
Lowest	27·880	71·1	0·31	...	...	...	0·2	...	...	...
Greatest range in one day	0·171	35·3	...	...	...	...	...	...	...	...
Lowest range ...	0·006	6·4	...	...	...	...	...	...	...	...
Mean range ...	0·102	22·7	...	...	...	...	...	...	...	...

June.

Years.	Barometer Mean 28·135 ins.	Tempr. of Air Mean 90 5°.	R. Humidity Mean 41 p cent.	Rain Mean 2·19 ins.	Wind Mean 174·7 miles.	Sunshine Mean 6·6 hours.
1882	− 032	− 0·6	+ 13	− 1·11	− 12·7	...
1883	− 015	− 1·6	+ 16	+ 0·96	− 9·5	...
1884	+ ·023	− 0·5	− 3	− 0·43	+ 58·5	+ 1·1
1885	+ ·014	− 0·9	+ 5	+ 1·14	− 5·4	+ 0·7
1886	+ ·017	− 1·3	...	− 0·58	− 24·3	+ 0·8
1887	+ ·002	+ 0·6	− 5	− 0·44	− 29·8	− 0·3
1888	− ·005	+ 2·1	− 11	− 1·88	+ 56·2	+ 1·2
1889	− ·005	− 1·2	+ 6	+ 2·17	− 12·3	− 1·3
1890	− ·030	− 0·7	+ 3	+ 0·43	− 14·3	− 2·2
1891	+ ·018	+ 3·7	− 14	− 1·81	+ 40·5	+ 1·0
1892	+ ·015	+ 0·3	− 5	+ 1·60	− 46·1	− 1·1

North India.—The most important feature of the month of June, and of the year is the advance of the S.-W. monsoon currents over the Arabian Sea and the Bay of Bengal into India, and their establishment in the latter area. The manner of advance of the currents differs largely from one year to another. Temperature is usually excessive in North India at the commencement of the month, but falls rapidly with the advance of the currents and rain showers. The highest maximum temperatures of the year are occasionally recorded in Sindh, the West Punjab, and N.-W. Rajputana in June or July. The change from great heat and dryness of the air to moderate heat, excessive humidity, and frequent rain showers is usually not completed over North India until the 3rd or 4th week of June. There is always much disturbance and squally weather in front of the advancing monsoon. If conditions are favourable, this squally weather may develop into a cyclonic storm after the S.-W. monsoon currents are fully established in North India. Generally cyclonic storms form in the Bay of Bengal and Bengal, and march in a W. or W.-N.-W. direction towards Sindh and the S.-W. Punjab, giving heavy rain to the areas they traverse.

Jeypore.—The fall of the barometer in this month exceeds one-tenth. The variations range from + 023 in 1884 to − 032 in 1882. The mean temperature is about the same as in May, but the maximum and minimum are higher and the mean range much less, *viz.*, 22·7 instead of 29·2 degrees. The mean rainfall is much higher, being 2·19 and 6·81 days of fall. The relative humidity has also increased from 25 to 41 and the cloud to 4·22, while the sunshine has fallen to 6·6 hours or a total of 198 in the month. The mean velocity of the wind has increased to 174·7 miles with a resultant of N. 60° W.

July.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem.	Total.	Resultant.	Miles.
Mean	28·106	83·6	9·48	17·45	67	7·63	4·2	132·9	N58°W	136·5
Highest	28·322	111·3	17·54	...	...	...	11·5	...	...	...
Lowest	27·877	71·3	3·45	...	...	...	0·1	...	...	...
Greatest range in one day	0·156	26·8	...	...	...	...	.	...	...	...
Lowest range ...	0·010	3·3	..	...	...	...	...	...	...	...
Mean range	0·088	15·8	...	...	..	...	.	...	...	...

July.

Years.	Barometer Mean 28·106 ins.	Tempr. of Air Mean 83·6°.	R. Humidity Mean 67 p. cent.	Rain Mean 9·48 ins.	Wind Mean 136·5 miles	Sunshine Mean 4·2 hours.
1882	− ·007	− 2·9	+ 19	+ 2·79	− 19·2	...
1883	+ ·019	− 1·1	+ 6	− 2·28	+ 35·9	...
1884	+ ·005	+ 1·2	− 5	− 6·03	+ 19·3	+ 1·6
1885	+ ·014	+ 0·1	− 1	− 1·90	+ 11·3	+ 1·3
1886	+ ·018	− 1·1	+ 4	+ 0·89	− 3·8	+ 0·1
1887	+ ·010	− 2·4	+ 7	+ 8·06	− 0·4	− 0·6
1888	+ ·005	+ 1·0	− 3	+ 3·44	− 10·4	− 0·9
1889	+ ·029	+ 0·7	+ 1	− 5·03	− 36·1	+ 0·4
1890	− ·019	− 1·3	+ 1	− 1·35	+ 9·4	− 0·7
1891	− ·033	+ 5·0	− 17	− 3·02	+ 28·7	− 0·4
1892	— ·032	+ 1·0	− 2	+ 4·48	− 43·2	− 0·3

NORTH INDIA.—*July.*—The S.-W. monsoon circulation is usually fully established before the end of June, and prevails with great steadiness during July. But if the currents are feeble may not reach N.-W. India and be fully established in the middle or end of July. The month is usually a period of frequent rainfall, comparative uniform temperature and high humidity. The distribution of rainfall depends upon the relative strength of the Bombay and Bengal currents.

JEYPORE.—The barometer reaches the lowest record in this month, *viz.*, 28·106 with variations from +029 in 1889 to—033 in 1891. The temperature falls considerably, *viz.*, to 83·6 or 6·9 less than in June, but the range is very small, being only 15·8. Humidity has risen to 67 and

ain to 9·48 with variations of + 8·06 in 1887 and – 6·03 in 1884. It falls on an average 17·45 days, and so is the rainiest month of the year. The cloud rises to 7·63 and the sunshine alls to 4·2 or a total of 132·9 hours only. The velocity of the wind has declined to 136·5 miles, and the resultant is N. 5800 W.

August.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem.	Total.	Resultant.	Miles.
Mean	28·183	81·1	10·17	17·00	70	7·54	4·0	125·2	N58° W	119·8
Highest	28·377	104·3	21·83	...	...	...	11·2	...	...	...
Lowest	27·973	69·0	0·95	...	.	...	0·1	...	...	...
Greatest range in one day	0·147	25·5	...	...	...	...	...	...	...	...
Lowest range ..	0·022	1·5	...	...	...	..	...	...	...	...
Mean range	0·091	16·2	...	...	...	...	...	..	...	...

August.

Year.	Barometer Mean 28·183 ins.	Tempr. of Air Mean 81·1°.	R. Humidity Mean 70 p. cent.	Rain Mean 10·17 ins.	Wind Mean 119·8 miles.	Sunshine Mean 4·0 hours.
1882	+ ·014	+ 0·1	+ 3	– 6·56	+ 2·8	...
1883	+ ·002	+ 4·7	– 13	– 9·22	+ 31·1	...
1884	+ ·005	...	– 6	– 4·90	+ 16·7	+ 0·6
1885	– ·049	– 0·8	+ 4	+ 5·52	+ 37·3	– 0·3
1886	+ ·007	+ 0·3	– 3	– 5·34	– 3·5	+ 0 6
1887	+ ·009	– 2·4	+ 10	+ 9·85	– 5·1	– 0·9
1888	– ·020	– 1·7	+ 10	+ 5·20	+ 2·3	– 1·1
1889	– ·032	– 0·3	+ 9	+ 4·52	– 17·3	– 0·1
1890	+ ·038	– 0·4	– 3	– 3·60	– 11·3	+ 1·2
1891	+ ·013	+ 2·1	– 9	– 7·11	+ 1·1	+ 0·5
1892	+ ·004	– 0·8	+ 8	+ 11·66	– 53·3	+ 0·3

North India—*August.*—The conditions are very similar to those of July. The monsoon currents usually prevail with steadiness; and August is sometimes more rainy than July in parts of Northern India.

JEYPORE.—The barometer has begun to rise, the mean being 28·183 with variations of from + ·038 in 1890 to – ·049 in 1885. The temperature falls slightly from 83·6 to 81·1°, the mean range being a little higher, *viz.*, 16·2 instead of 15·8. The maximum and minimum have, however greatly diminished. The relative humidity has increased to 70, the cloud is somewhat less than in July though still 7·54.

The sunshine in only 4·0 per diem, with a total amount of 125·2. The days of fall of rain are 17 or ·45 less than in July; but as the falls are more heavy, the mean number of inches recorded is greater, or 10·17 instead of 9·48 as in July.

The mean velocity of wind has fallen a little, *viz.*, to 119·8, the resultant being N. 58° W.

September.

	Barometer.	Temperature	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity		Per Diem.	Total.	Resultant.	Miles.
Mean	28·297	81·8	5·14	8·09	55	4·06	7·6	231·0	N 31° W	110·3
Highest	28·552	109·9	14·72	...	...	...	11·3	...	...	...
Lowest	27·955	65·0	0·03	...	...	...	0·1	...	...	...
Greatest range in one day	0·166	34·8	...	...	...	...	...	...	...	...
Lowest range ...	0·012	3·9	...	..	...	.	...	...	...	...
Mean range... ...	0·100	19·4	...	...	...	...	...	...	...	...

September.

Years.	Barometer 28·297.	Temp. of Air 81·8.	R. Humidity 55.	Rain 5·14.	Wind 119·3.	Sunshine 7·6.
1882	– ·004	+ 0·1	+ 11	– 0·27	+ 25·3	...
1883	– ·018	+ 0·8	+ 12	+ 2·59	– 0·1	...
1884	– ·040	– 2·4	+ 16	+ 9·58	+ 24·5	– 1·9
1885	– ·052	+ 0·2	– 13	– 4·77	+ 27·2	+ 2·1
1886	+ ·020	+ 0·1	– 8	– 4·06	+ 13·7	+ 1·1
1887	+ ·005	– 1·0	– 2	– 0·80	– 9·4	+ 0·3
1888	+ ·049	+ 0·4	– 9	– 4·03	+ 20·0	+ 0·6
1889	+ ·007	+ 2·6	– 13	– 5·11	– 26·1	+ 1·2
1890	– ·003	+ 1·5	– 7	– 1·65	– 13·5	+ 0·2
1891	– ·016	– 0·3	+ 9	+ 1·65	– 25·4	– 1·1
1892	– ·045	– 1·6	+ 14	+ 6·92	– 35·6	– 1·7

NORTH INDIA.—September.—The S.-W. monsoon retreats from Upper India, and is followed by fine dry weather, usually from the 3rd or 4th week in the month.

JEYPORE.—The barometer rises rapidly in this month more than a tenth of a degree, and varies between + ·049 in 1888 to — ·052 in 1885. The mean temperature, 81·8, is slightly higher than in August, and so also is the range, the minimum having fallen. The relative humidity has fallen as low as 55, and the rain to 5·14 inches, with 8·09 days of fall only. The cloud has also diminished from 7·54 to 4·06, and the sunshine has increased to 7·6 per diem, or to 231 in the month. The velocity of the wind has also fallen. The resultant is N. 31° W.

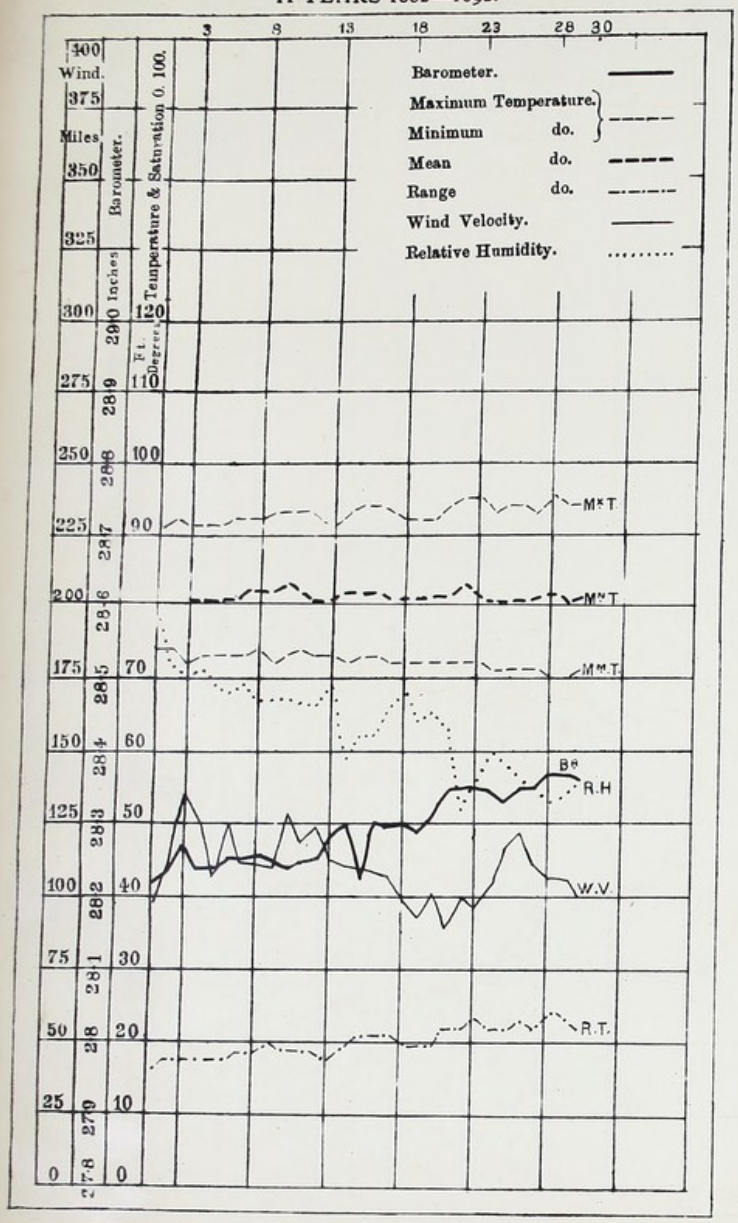
October.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity		Per Diem.	Total.	Resultant	Miles.
Mean	28·463	78·0	0·31	2·00	34	1·95	9·1	284·9	N.4°W.	79·4
Highest	28·690	101·1	1·25	...	...	...	10·6	...	...	...
Lowest	28·363	49·4	0·01	...	..	..	0·2	...	...	...
Greatest range in one day	0·174	40·7	...	...	...	...	...	...	...	...
Lowest range ...	0·037	8·3	...	...	...	...	..	...	...	...
Mean range	0·100	28·9	..	...	..	...	..	...	..	..

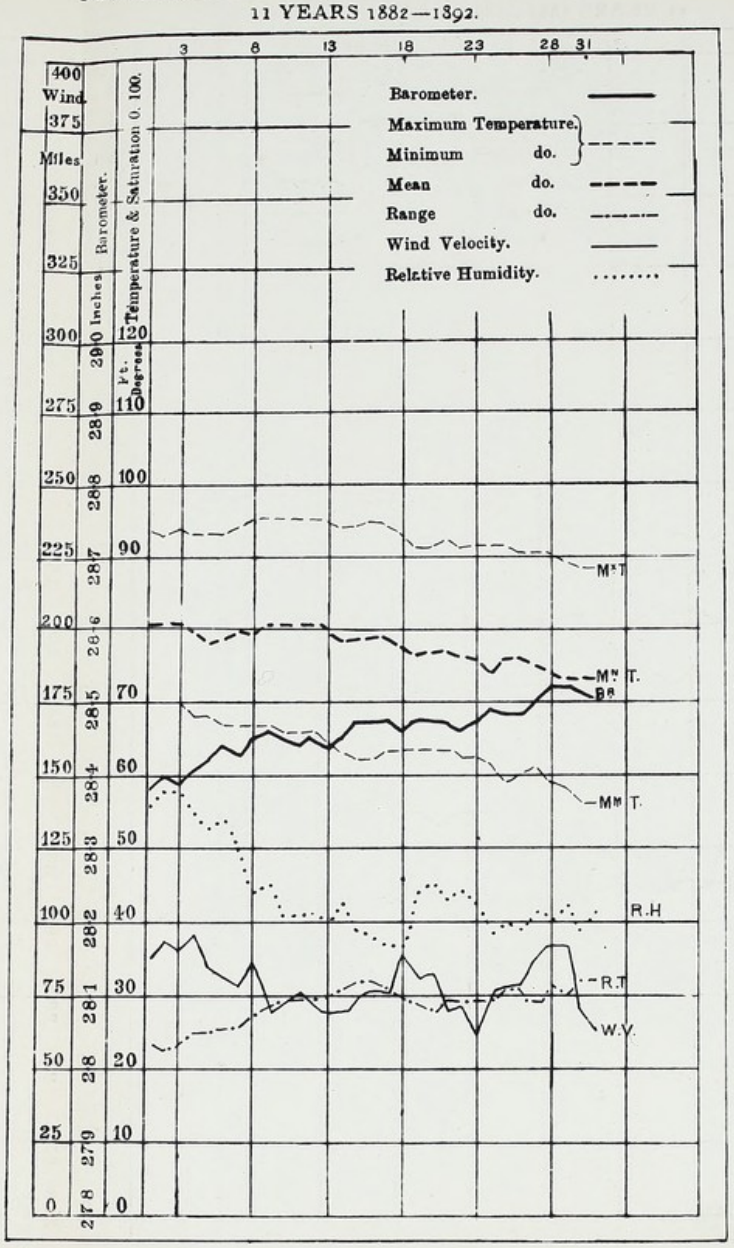
October.

Years.	Barometer 28·463.	Temp. of air 78·0.	R. Humidity 34.	Rain 0·31.	Wind 79·4.	Sunshine 9·1.
1882	— ·057	+ 1·5	+ 13	— 0·31	+ 24·6	...
1883	+ ·030	+ 0·3	+ 7	+ 0·02	+ 2·3	...
1884	+ ·036	— 2·7	...	— 0·31	+ 2·5	— 0·2
1885	— ·002	+ 2·1	— 5	— 0·30	+ 6·4	— 0·5
1886	— ·021	+ 2·0	+ 7	+ 0·70	+ 7·8	— 0·1
1887	+ ·015	— 0·4	— 5	— 0·30	+ 3·1	+ 0·7
1888	+ ·043	— 1·3	+ 2	+ 0·94	+ 5·8	— 1·0
1889	— ·036	— 0·9	— 7	— 0·26	— 1·5	+ 0·6
1890	— ·005	+ 0·3	— 4	— 0·17	— 9·7	+ 0·2
1891	— ·018	+ 0·2	+ 2	+ 0·38	— 18·6	— 0·4
1892	— ·011	— 0·8	— 1	— 0·31	— 22·9	+ 0·5

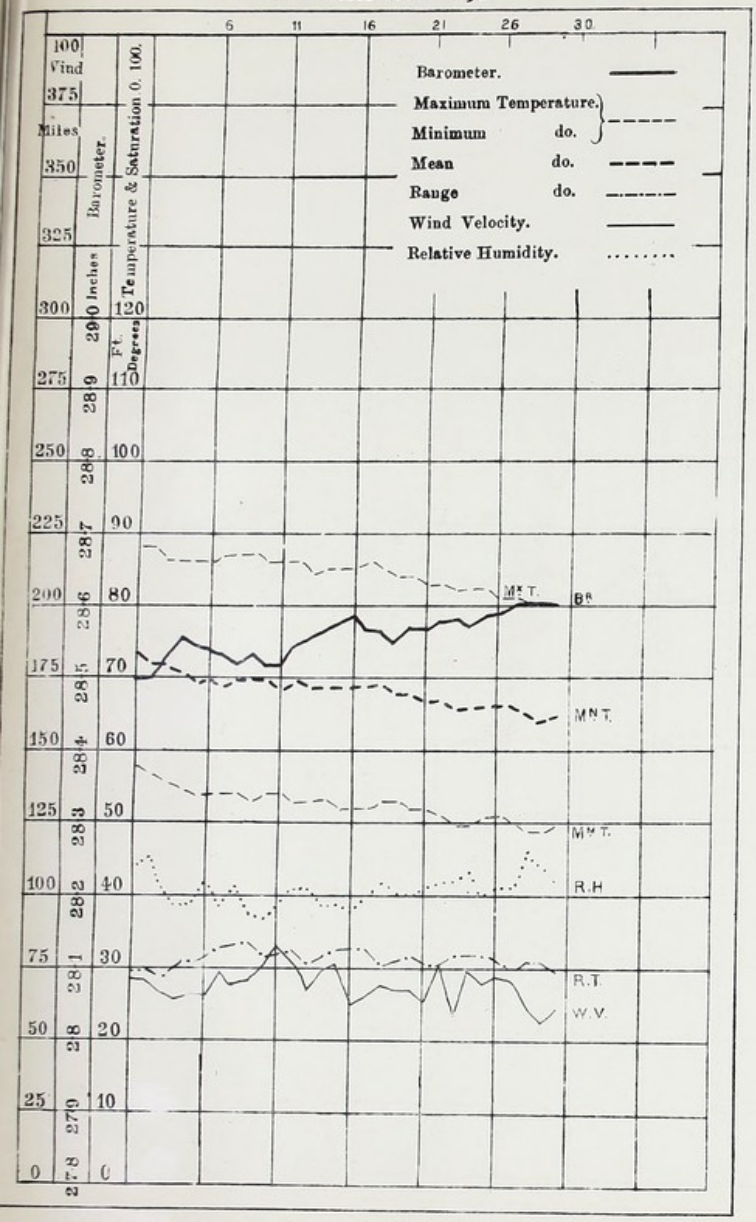
SEPTEMBER MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



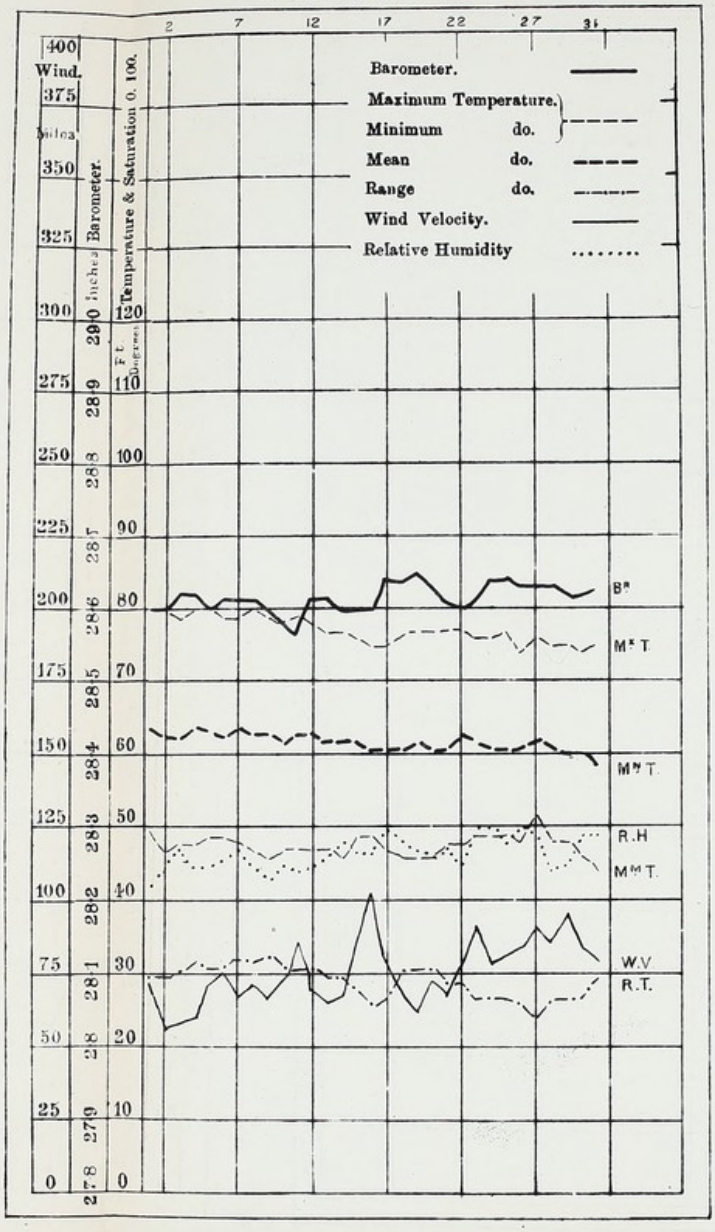
OCTOBER MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



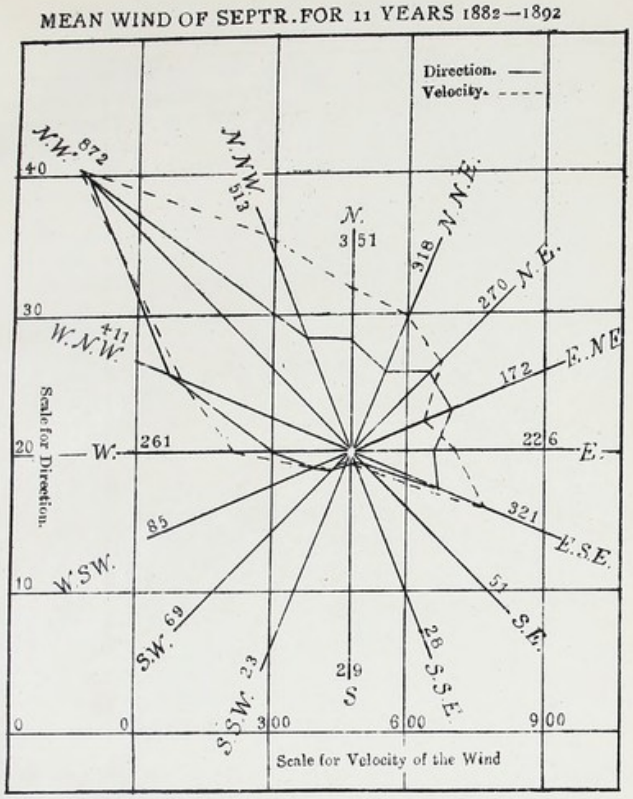
NOVEMBER. MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



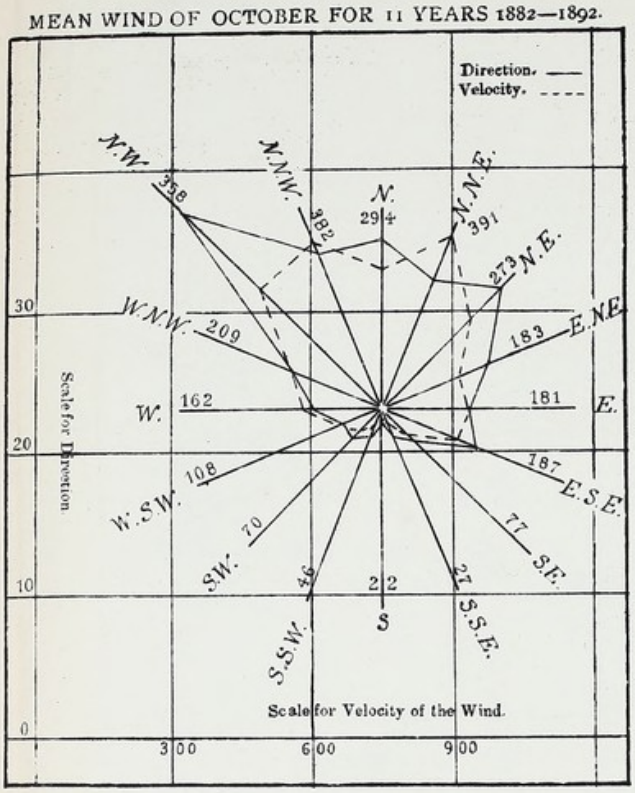
DECEMBER MEAN OF 4 DAILY OBSERVATIONS FOR 11 YEARS 1882—1892.



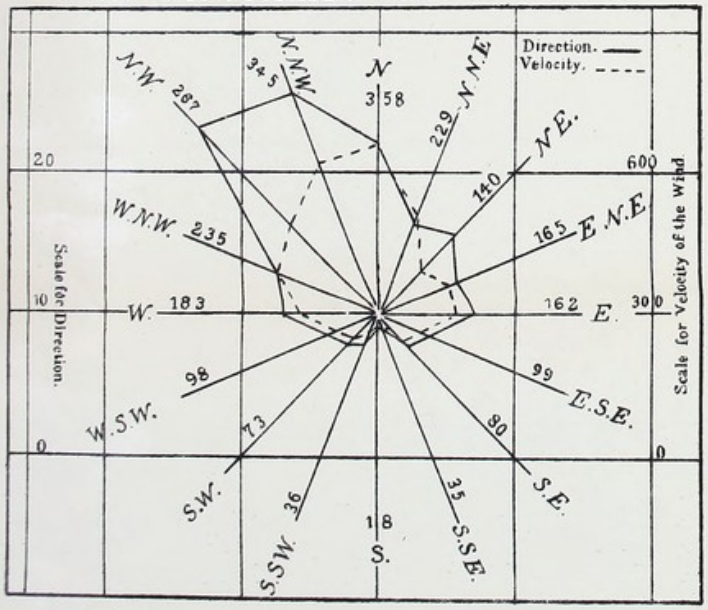
MEAN WIND OF SEPTR. FOR 11 YEARS 1882—1892



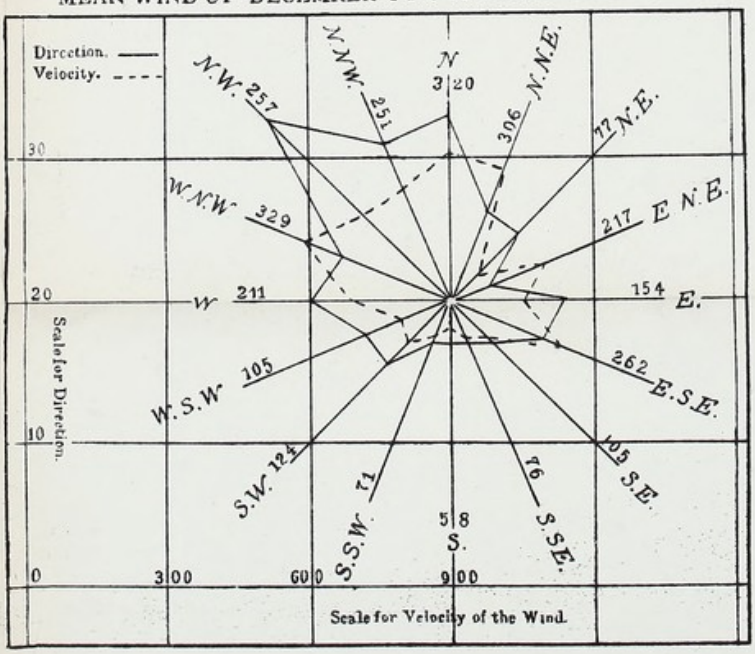
MEAN WIND OF OCTOBER FOR 11 YEARS 1882—1892.

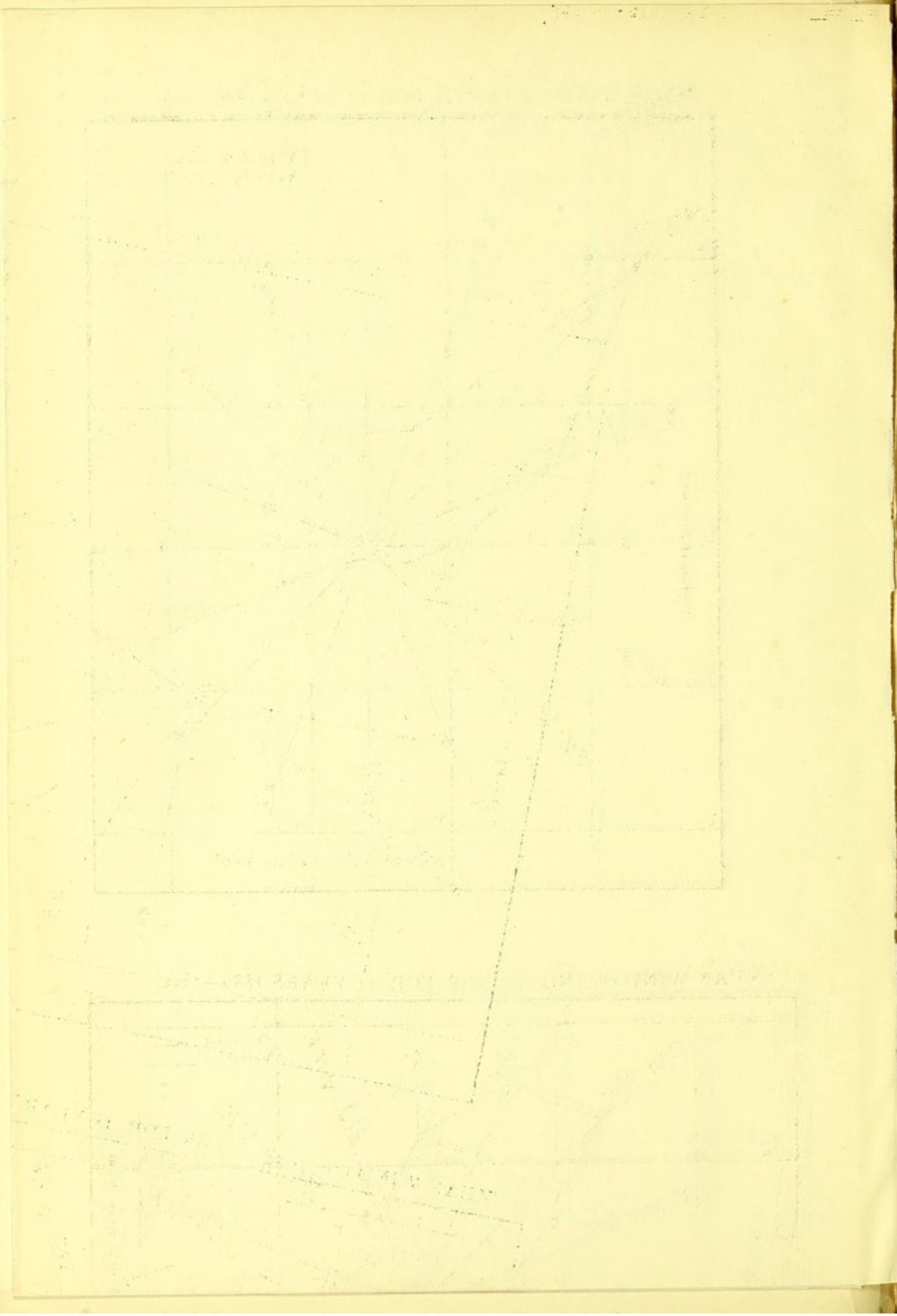


MEAN WIND OF NOVEMBER FOR 11 YEARS 1882—1892.



MEAN WIND OF DECEMRER FOR 11 YEARS 1882—1892.





NORTH INDIA.—October is pre-eminently a month of transition. In North India variable winds or calms generally prevail. The mean movement is from the West, and is opposite to that which prevails in September. Pressure rises rapidly, and before the end of the month is highest in Upper India. The range of pressure is however small. Temperature falls rather rapidly, but both conditions are more uniform than in any other month of the year. Decrease in humidity is rapid.

JEYPORE.—The barometer shows the most sudden rise in the year, or as much as ·166 over September, with fluctuations of from + ·043 in 1888 to − ·057 in 1882 only. The temperature falls to a mean of 78°, and as the minima are low, the range is great, *viz.*, 28·9°.

The monsoon having finished, there are only two rainy days on an average with a mean fall of 0·31 and relative humidity of 34. There is very little cloud—only 1·95 with bright sunshine amounting to 9·1 per diem or 284·9 in the month. The velocity of wind has diminished to 79·4 and the resultant is N. 40° W.

November.

	Barometer.	Temperature.	Rain. Inches.	Rain. Days of fall.	Rain. Humidity	Cloud.	Sunshine. Per Diem.	Sunshine. Total.	Wind. Resultant.	Wind. Miles.
Mean	28·563	68·3	0·08	0·54	32	1·17	9·5	288·9	N12°W	69·9
Highest	28·757	92·1	0·68	...	...	...	10·5	...	...	...
Lowest	28·307	42·2	0·02	...	...	...	2·0	...	...	..
Greatest range in one day	0·145	43·5	...	...	...	...	...	...	...	...
Lowest range ...	0·027	16·8	...	...	...	.	...	...	...	...
Mean range '	0·099	32·0	...	...	..	...	...	...	...	...

November.

Years.	Barometer. 28.563	Tempr. of Air. 68 3	R. Humidity. 32	Rain. 0.08	Wind. 69.9	Sunshine. 9·5
1882	− ·004	− 0·2	+ 15	− 0·08	+ 3·3	..
1883	− ·039	− 1·6	+ 9	− 0·08	+ 8·9	...
1884	+ ·016	− 4·3	− 4	+ 0·05	− 7·0	− 0 5
1885	+ ·026	+ 3·1	− 4	− 0·08	+ 3 9	+ 0·4
1886	− ·004	+ 0·9	− 2	− 0·06	− 5·7	+ 0·5
1887	+ ·028	− 1·3	− 6	− 0·05	− 2·5	− 0·2
1888	+ ·005	+ 0·2	+ 4	+ 0·60	− 6·7	− 0·3
1889	− ·032	− 0·1	— 5	− 0·08	+ 2·6	+ 0·5
1890	+ ·026	+ 2·0	...	− 0·08	− 6·0	− 0·2
1891	+ ·005	− 1·9	− 5	− 0·08	− 21·1	+ 0·5
1892	− ·018	...	− 2	− 0·06	+ 16·7	+ 0·3

NORTH INDIA.—In November the normal conditions are in many respects similar to those of October. Pressure increases from one to two-tenths of an inch. The weather is almost invariably fine, with clear skies and light winds. The latter range between N. and N. E., and are light and unsteady in Rajputana. Temperature falls rapidly, and the month is almost invariably rainless.

JEYPORE.—The barometer has risen exactly one-tenth, with variations of + ·026 in 1885 and − ·039 in 1883. The temperature has fallen nearly 10°, or from 78·0° to 68·3° with a mean range of 32°. The relative humidity is low, being 32, and the rain very small, being only ·08, the same as in April, with 0·54 of a day of fall. The cloud is 1·17, and the sunshine 9·5 per diem, or 288·9 hours for the month. It is the brightest month of the year. The wind velocity is the lowest of the year, or 67·9 miles per diem; and the resultant is N. 12° W.

December.

	Barometer.	Temperature.	Rain.			Cloud.	Sunshine.		Wind.	
			Inches.	Days of fall.	Humidity.		Per Diem	Total.	Resultant.	Miles.
Mean	28·617	62·3	0·09	1·00	39	2·14	8·5	269·5	N.14°W	76·5
Highest	28·841	86·7	0·69	...	...	...	10·1	..	...	...
Lowest	28·323	34·5	0·01	..	...	...	0·1	...	...	...
Greatest range in one day	0·152	43·1	...	...	...	...	..	...	..	..
Lowest range ...	0·052	3·8	...	...	...	...	...	...	...	...
Mean range	0·103	28·5	...	..	...	...	...	...	...	...

December.

Years,	Barometer 28·617.	Temp. of Air 62·3.	Relative humidity 39.	Rain 0·09.	Wind 76·5.	Sunshine 8·5.
1882	− ·039	+3·2	+15	−0·09	+4·5	...
1883	+ ·035	−2·9	+6	−0·09	+11·9	...
1884	+ ·033	−3·8	−3	−0·08	−0·9	−0·7
1885	− ·030	−0·7	+9	+0·60	+15·7	−1·3
1886	− ·013	+1·1	+3	−0·09	−2·1	−0·1
1887	− ·010	+1·5	+7	−0·06	−0·8	+0·6
1888	+ ·021	−0·5	−10	−0·09	−9·9	+0·9
1889	−0·19	+2·5	−10	−0·09	−4·4	+1·1
1890	− ·029	−0·1	+7	+0·13	−6·4	−0·5
1891	+ ·037	+1·3	−9	−0·09	−30·7	+0·8
1892	+ ·015	−0·9	−5	+0·04	+22·0	−0·3

NORTH INDIA.—In December shallow depressions occasionally appear in Upper India. They usually give little rain if they appear early in the month ; but in the latter part and in January and February these depressions and storms frequently give moderate general rain to North India. Their march is usually in an easterly direction. As a rule, in December fine weather with light winds and clear skies obtain. Pressure is highest in Central Rajputana.

JEYPORE.—The barometer reaches its mean maximum, or varies from + 037 in 1891 to − 039 in 1882. The mean temperature, 62·30, is next lowest to that of January. The mean range is somewhat higher but less than in November. The humidity, days of rainfall; and amount of rain are a trifle higher than in November, and there is more cloud and less sunshine, though the amount reaches 269·5 hours in the month. The velocity of the wind increases a little and the resultant in N. 14 W.

DISEASES.

DISEASES.—In order to discuss this question with advantage, the following tables have been prepared : —

Mortality table, Jeypore City, from 1875 to 1892, with chart showing also the mortality in the Ajmere district ; mortality table of the Jeypore jails from 1882 to 1892 ; table showing attendance of sick and number of prisoners during the same period ; table of attendance of sick in the Mayo Hospital.

Abstract of Meteorolcgical Observations of

Months.	Barometer.														Tem					
	Mean of 11 years.	Highest.	Date.	Year.	Lowest.	Date.	Year.	Greatest range in one day.	Date.	Year.	Lowest range in one day.	Date.	Year.	Mean range.	Mean of 11 years.	Highest.	Date.	Year.	Lowest.
January ...	28°584	28·880	5	86	28·105	29	83	·196	16	91	·033	28	85	·101	60·6	84·5	5	90	35·0
February .	·543	·823	16	87	·208	28	87	·198	15	90	·004	24	82	·106	63·9	97·6	28	87	34·8
March ...	·449	·508	5	89	·121	28	87	·163	3	90	·018	2	85	110	75·6	108·8	26	92	55·5
April ...	348	·548	5	91	·084	30	88	·166	23	88	·019	30	88	·112	85·6	111·2	26	92	51·1
May ...	·244	·586	3	92	27·99	22	92	·170	25	85	011	26	88	·107	90·6	115·8	25	86	61·9
June ...	·135	·392	1	85	·880	11	82	·171	17	84	006	15	92	·102	90·5	116·3	2	89	71·1
July ...	·106	·322	4	83	·877	22	82	·156	17	88	·010	9	92	·088	83·6	111·3	21	91	71·3
August ...	·183	·377	26	90	·973	6	82	·147	21	84	·022	2	85	·091	81·1	104·3	22	83	69·0
September	·297	·552	29	85	·955	12	82	·166	23	91	·012	4	92	·120	81·8	103·9	10	90	65·0
October ...	·463	·690	31	91	28·363	3	88	·174	14	88	·037	31	83	·100	78·0	101·1	2	85	49·4
November	·563	757	23	90	·307	1	92	·145	12	91	·027	15	91	·099	68·3	92·1	1	91	42·2
December	·617	·841	24	91	3·23	11	85	·152	7	90	·052	15	92	·103	62·3	86·7	3	89	34·5
Total ...	4·532	7·276	...	...	1·277	...	...	2·004	...	..	·221	...	...	1·219	921·9	1233·6	..	...	640·8
Mean ..	28·377	28·606	...	...	28·106	...	...	·167	...	...	·018	..	...	·101	76·8	102·8	...	...	53·4
Highest and Lowest...	...	28·880	Jany. 5th.	86	27·877	July 22nd.	82	·198	Feb. 15th.	90	·003	Jany. 28th.	85	...	...	116·3	June 2nd.	89	34·5

Sunspot period of 11 years, viz., *1882-1892.*

PERATURE OF AIR IN SHADE.									RAIN.				WIND		SUNSHINE RECORDS.					
Date.	Year.	Greatest range in one day.	Date.	Year.	Lowest range in one day.	Date.	Year.	Mean range.	Mean of 11 years.	Average number of rainy days since 1882.	R. Humidity. Mean of 11 years.	Cloud. Mean of 11 years.	Normal mean direction resultant	Total miles. Mean of 11 years.	Average total hours of 9 years.	Maximum.	Minimum.	Mean.	Mean possible.	Percentage.
1	88	42·2	3	89	3·9	2	92	25·8	0·84	3·09	45	3·45	N20°E	87·3	243·5	10·1	0·1	7·8	10·49	74·8
6	84	39·9	10	90	13·1	10	89	28·0	0·14	1·36	34	2·99	N80°W	103·1	254·2	11·2	1·0	8·9	11·08	81·1
2	89	42·8	7	87	10·4	3	90	29·1	0·39	1·81	27	3·09	N20°W	121·5	270·7	11·4	0·1	8·7	11·8	73·7
1	86	41·3	26	82	14·8	1	85	31·1	0·08	0·90	20	2·38	N39°W	127·7	265·1	11·8	0·4	8·8	12·66	70·0
3	92	40·4	2	8	3·6	2	92	29·2	0·47	3·00	25	2·24	N45°W	154·9	262·2	11·9	0·3	8·4	13·3	64·2
10	89	35·3	2	91	6·4	25	90	22·7	2·19	6·81	41	4·22	N60°W	174·7	198·0	12·0	0·2	6·6	13·6	47·9
26	82	26·8	21	91	3·3	29	87	15·8	9·48	17·45	67	7·63	N58°W	136·5	132·9	11·5	0·2	4·2	13·48	31·9
30	90	25·5	16	83	1·5	2	90	16·2	10·17	17·00	70	7·54	N58°W	119·8	125·2	11·2	0·1	4·0	12·9	31·3
29	89	34·8	29	89	3·9	12	82	19·4	5·14	8·09	55	4·06	N31°W	110·3	231·0	11·3	0·1	7·6	12·17	63·4
26	89	40·7	25	89	8·3	2	88	28·9	0·31	2·00	34	1·95	N4°W	79·4	284·9	10·6	0·2	9·1	11·36	80·9
30	88	43·5	2	89	16·8	11	88	32·0	0·08	0·54	32	1·17	N12·W	69·9	288·9	10·5	2·0	9·6	10·68	90·1
30	86	43·1	2	89	3·8	17	85	28·5	0·09	1·00	39	2·14	N14°W	76·5	269·5	10·1	0·1	8·6	10·3	84·1
...	...	456·3	...	...	89·8	...	...	306·7	29·38	63·05	489	42·86	...	1361·6	2825·1	133·6	4·7	92·3	148·82	793·4
...	...	38·0	...	...	7·5	...	...	25·5	...	5·25	40	3·57	...	113·4	235·5	11·1	0·4	7·7	11·98	66·1
Dec. 30th.	86	43·5	Nov. 2nd.	89	1·5	Augt. 2nd	90	...	...	..	..	...	...	...	...	...	...	...	...	..

Abstract of Ground Temperature

Month.	Surface.							4 Inches.							1 Foot.							3		
	Mean of 11 years.	Highest.	Date.	Year.	Lowest.	Date.	Year.	Mean of 11 years	Highest.	Date.	Year.	Lowest.	Date.	Year.	Mean of 14 years.	Highest.	Date.	Year.	Lowest.	Date.	Year.	Mean of 11 Years.	Highest.	Date.
January ...	62·4	96 8	21	18 0	24·0	29	1890	61 6	83·3	30	87	41·4	18	91	62·0	73·0	31	92	48·9	28	88	66·8	69 8	7
February	68·7	117 0	2	87	26·5	4	90	67·3	104·9	28	87	43·1	6	87	65·7	80·3	28	87	51·4	2	83	67·2	72·4	28
March ...	82·2	130·7	23	92	36·2	4	92	80·9	108·8	2	92	55 9	13	91	76·9	90·8	27	92	57·8	2	85	73·4	80 9	31
April ...	94·0	139·5	27	86	47·0	3	85	88·8	116·1	27	87	66·5	1	87	86·6	98 2	28	92	75·1	2	86	81·2	86·9	30
May ...	100·4	142·1	31	85	56·5	1	85	96·5	119·1	6	87	70·9	3	92	93·2	108·3	31	88	78·9	29	83	86·7	91·5	31
June ...	99·7	146·7	3	82	63·5	7	86	95 8	122·0	29	91	75·8	12	89	94·6	106·2	23	88	80·8	30	85	90·1	93·1	30
July ..	90·0	137·0	4	92	71·0	16	88	87·6	122·1	21	91	72·9	26	92	87·8	105·9	21	91	76·9	28	82	87·7	94·5	7
August ...	87·8	135·6	26	83	65·7	31	90	85·4	111·3	26	84	71·9	5	92	85·1	100·4	23	91	75·5	8	87	85·2	89·9	25
September...	90·5	132·0	14	89	59·0	29	89	87·6	116·9	2	90	70·9	26	92	86 4	99·9	3	91	75·8	4	84	85·6	90·3	21
October ...	84·8	126·5	14	88	40·5	25	89	84·3	110·9	21	91	92·8	31	88	82·8	96·8	2	90	72·2	31	90	84·1	88·9	1
November	70·9	115·5	8	86	34·0	29	92	71·6	99·6	1	85	48·9	30	92	72·1	85·2	2	91	58·3	30	88	77·2	82·5	1
December	62·2	99·0	1	1	26·9	18	90	62·4	82·2	1	90	44·9	9	92	63·4	77·5	4	91	54·3	28	90	69·5	76·0	1
Total ...	993·6	1518·4			550·8			969 8	1299·2			725·9			956·6	1128·5			805·9			954·7	1016·7	
Mean ...	82·8	126·5			45·9			80·8	108·1			60·5			79·7	93·5			67·1			79·5	84·7	
Highest and Lowest ...		146·7	3rd June	1882.	24·0	29th January	1890.		122·1	21st July	1891.	41·4	18th January	1891.		108·3	31st May	1888.	48·9	28th January	1888.		94·5	7th July.

[a] From May 1887 only.

Observations from 1882 to 1892.

Feet.				10 Feet.						20 Feet.						45 Feet 6 Inches.*						Remarks.
Year.	Lowest.	Date.	Year.	Mean of 11 years.	Highest.	Date.	Year.	Lowest.	Date.	Year.	Mean of 11 years.	Highest.	Date.	Year.	Lowest.	Date.	Year.	Mean of 16 years	Highest.	Date.	Year.	Lowest.	Date.	Year.	
87	63·0	31	88	† 74·6	78·1	1	86	71·9	31	92	80·1	82·0	1	92	76·4	30	85	81·3	81·8	29	92	81·0	1	82	
90	62·6	3	83	72·6	75·0	1	83	70·2	16	91	78·7	80·9	1	91	74·8	27	85	81·4	81·8	16	91	81·0	1	83	
92	67·4	1	85	73·3	77·0	31	92	71·0	1	91	77·8	80·0	1	90	74·2	20	85	81·4	81·8	1	91	81·0	1	88	
92	73·8	1	82	76·4	82·2	31	92	73·2	1	85	77·5	79·1	1	90	74·4	1	85	81·5	81·8	1	92	81·0	1	84	
90	81·4	1	85	80·4	86·0	31	91	76·1	1	85	78·2	80·1	30	86	75·1	1	85	81·5	81·8	1	91	80·8	14	87	
91	85·7	1	83	83·3	88·8	29	92	75·0	1	90	79·5	82·5	26	86	78·4	1	85	81·4	81·8	1	91	80·8	4	87	
92	80·9	28	88	85·4	89·9	11	92	82·5	1	85	80·6	82·5	31	84	79·4	1	82	81·5	81·7	2	91	80·8	10	87	
91	79·9	9	87	84·5	88·7	1	91	82·9	3	82	81·6	83·3	29	84	80·6	1	82	81·3	81·7	3	92	80·8	1	87	
89	80·6	4	84	84·5	87·7	11	91	82·9	3	85	82·0	83·4	7	84	81·3	1	82	81·3	81·7	25	92	80·8	5	87	
89	80·2	31	83	84·3	86·8	1	89	82·8	3	84	82·2	83·3	21	85	81·7	1	87	81·3	81·7	7	92	81·0	1	87	
85	71·6	30	84	82·1	85·0	1	90	77·9	30	92	82·2	83·3	1	85	81·5	30	84	81·3	81·7	1	92	80·9	19	87	
85	66·6	26	84	78·0	82·1	3	85	72·0	30	92	81·4	83·0	1	83	79·1	31	84	81·3	81·8	8	92	81·9	5	87	
	893·7			959·4	1007·3			918·4			961·8	983·4			937·9			976·3	981·1			970·8			
	74·47			79·9	83·9			76·5			80·1	81·9			78·1			81·3	81·7			80·9			
1892	62·6	3rd February	1883.		89·9	11th July	1892	70·2	16th February.	1891		83·4	7th September.	1884	74·2	20th March	1885.		81·8.	29th January	1892	80·8	14th May	1887	

† Mean of 10 years.

Maximum, Minimum, and Range
1882—

Months.	Surface.			4 inches.			1 foot.		
	Maximum.	Minimum.	Range.	Maximum.	Minimum.	Range.	Maximum.	Minimum.	Range.
January	90·1	32·9	57·2	81·3	47·6	33·7	69·1	53·8	15·3
February	107·9	33·1	74·8	91·3	50·0	41·3	76·6	55·6	21·0
March	121·9	45·9	76·0	101·8	62·1	39·7	86·7	67·6	19·1
April	134·1	54·1	80·0	112·0	73·1	38·9	94·0	78·0	16·0
May	138·8	61·7	77·1	116·5	78·6	37·9	101·4	84·1	17·3
June	137·4	68·9	68·5	117·0	79·4	37·6	102·8	83·9	18·9
July	126·1	74·0	52·1	108·6	77·1	31·5	99·3	80·1	19·2
August	122·0	70·7	51·3	104·6	76·2	28·4	94·7	79·0	15·7
September	124·9	64·3	60·6	107·0	75·3	31·7	94·9	78·3	16·6
October	120·9	47·6	73·3	104·1	67·7	36·4	91·4	74·0	17·4
November	106·8	37·6	69·2	94·9	57·0	37·9	81·4	64·2	17·2
December	91·0	32·7	58·3	77·8	49·9	27·9	70·5	57·1	13·4
Total	1421·9	623·5	798·4	1216·9	794·0	422·9	1062·8	855·7	207·1
Mean	118·5	52·0	66·5	101·4	66·2	35·2	88·5	71·3	17·2

of Ground Temperatures.
—1892.

3 FEET.			10 FEET.			20 FEET.			45 FEET 6 INCHES.*			REMARKS.
Maximum.	Minimum.	Range.	Maximum.	Minimum.	Range.	Maximum.	Minimum.	Range.	Maximum.	Minimum.	Range.	
68·6	65·1	3·5	76·5	73·5	3·0	80·9	79·5	1·4	81·4	81·3	0·1	
70·3	65·1	5·2	73·6	72·3	1·3	79·5	78·2	1·3	81·5	81·4	0·1	
78·0	69·1	8·9	74·6	72·5	2·1	78·2	77·5	0·7	81·5	81·4	0·1	
84·6	77·5	7·1	78·4	74·8	3·6	77·9	75·9	2·0	81·5	81·4	0·1	
89·5	84·2	5·3	82·2	78·6	3·6	79·0	77·9	1·1	81·4	81·3	0·1	
91·7	88·2	3·5	85·0	82·2	2·8	80·3	79·0	1·3	81·4	81·2	0·2	
91·3	84·8	6·5	86·0	84·7	1·3	81·4	80·2	1·2	81·4	81·2	0·2	
85·9	81·0	4·9	85·4	84·2	1·2	82·1	81·4	0·7	81·3	81·2	0·1	
88·1	83·4	4·7	85·1	84·2	0·9	82·4	82·1	0·3	81·3	81·1	0·2	
86·5	81·3	5·2	84·8	83·8	1·0	82·6	82·3	0·3	81·3	81·2	0·1	
81·8	73·6	8·2	83·7	80·4	3·3	82·6	82·2	0·4	81·3	81·2	0·1	
73·8	67·9	5·9	80·3	76·2	4·1	82·2	81·1	1·1	81·4	81·2	0·2	
990·1	921·2	68·9	975·6	947·4	28·2	969·1	957·3	11·8	976·7	975·1	1·6	
82·5	76·8	5·7	81·3	79·0	2·3	80·7	79·7	1·0	81·3	81·2	0·1	

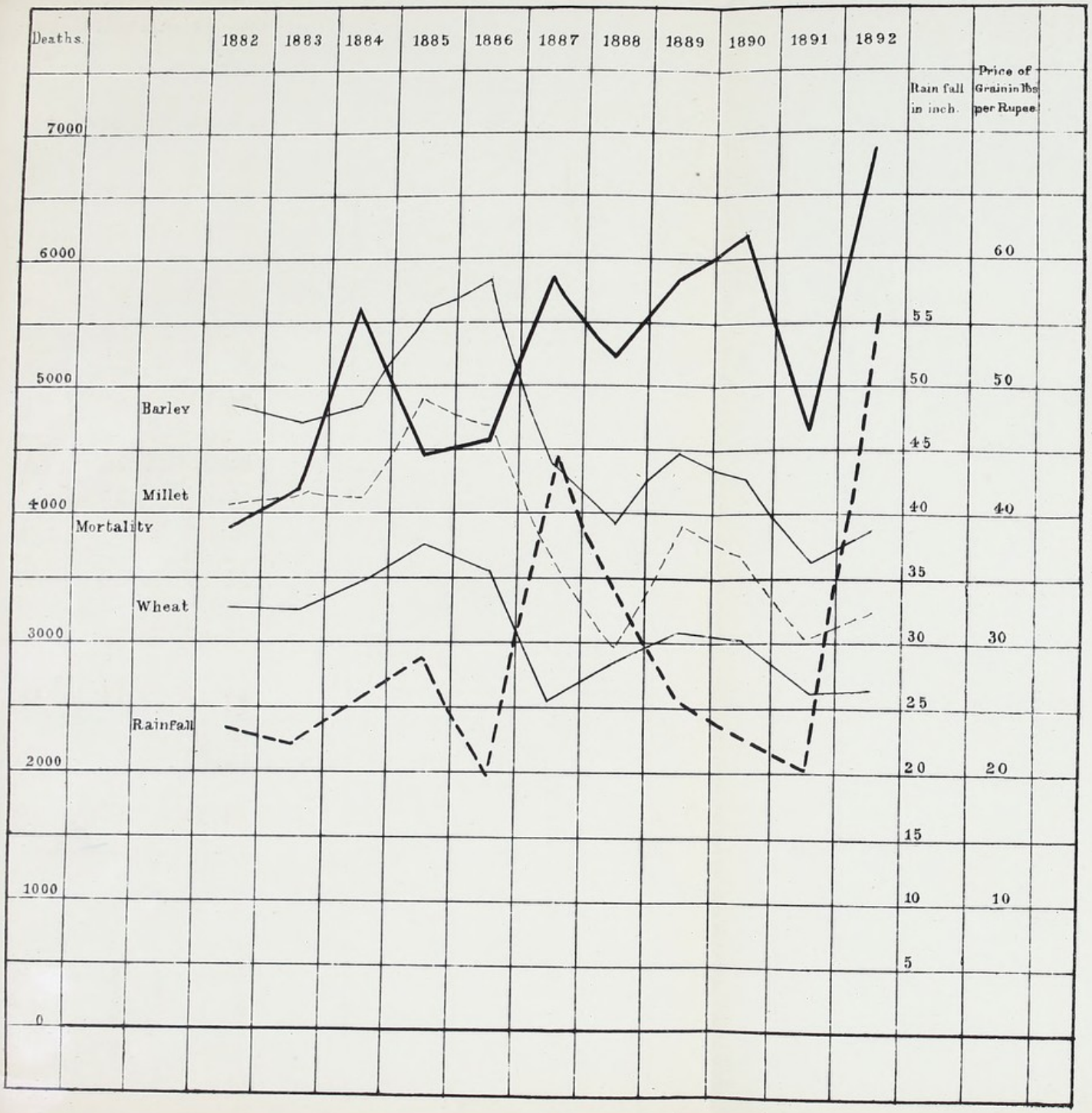
* From May 1887 only.

Mortality from All Diseases in Jeypore—Ajmere for each month from 1882—1892.

NAMES.	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	Total of 11 years.	Mean.	Percentage to total mortality 57,601.
January	677	712	684	807	812	577	745	1069	1083	718	1809	9693	881.18	8·156
	265	332	296	353	329	308	398	505	653	350	632	4421	401 91	7 675
February	545	643	706	727	829	606	607	1055	947	587	1065	8317	756 09	6 999
	208	285	353	322	305	265	300	429	544	298	370	3679	334 45	6 387
March	597	753	808	1014	999	665	709	1286	1015	563	1282	9691	881·	8 155
	217	341	421	435	382	393	319	490	607	247	387	4239	385·36	7·359
April	643	675	749	1075	1072	617	547	1123	1081	658	1072	9312	846·54	7·836
	288	399	438	463	392	439	391	489	719	350	642	5010	455 45	8 697
May	689	598	806	983	1063	626	644	980	935	978	1542	9844	894 90	8·284
	327	368	590	413	423	516	459	526	413	453	462	4950	450·00	8 593
June	650	465	553	879	673	554	630	658	907	873	2190	9032	821 09	7·600
	245	251	452	318	295	336	374	389	292	388	353	3693	335·73	6 411
July	651	592	987	733	652	753	544	771	647	607	1057	7994	726·72	6·727
	324	462	472	264	323	300	294	408	381	240	402	3870	351·81	6 718
August	946	808	1082	741	810	1078	675	909	787	1057	902	9795	890·45	8·242
	664	542	595	377	498	536	471	528	871	348	552	5982	543 82	10·385
September...	922	654	1068	743	644	1314	852	772	825	1144	2146	11084	1007 63	9·327
	446	277	441	378	414	721	534	526	532	409	751	5429	493·54	9·425
October	759	529	995	684	568	953	738	833	618	915	3400	10992	999 27	9 250
	351	281	567	368	404	809	588	555	414	434	759	5530	502·73	9·600
November...	698	562	1023	743	1417	772	638	919	616	965	3426	11779	1070·81	9 912
	357	330	535	428	432	690	533	444	454	509	925	5637	512 45	9·786
December	788	598	963	934	546	811	846	939	726	1907	2240	11298	1027 09	9·507
	279	316	466	438	359	570	552	612	373	629	567	5161	469 18	8·959
Total	8,565	7,589	10 424	10,063	10,085	9,326	8,175	11.314	10 187	10.672	22 131	1,188 31	10,802 81	99 995
	3 971	4,184	5.626	4 457	4·556	5,883	5,213	5,901	6,253	4,655	6,802	5,7601	5.236·4	99·995

Ajmere.—Upper line in each month. *Jeypore.*—Lower line.

CHART OF MORTALITY OF JEYPORE AND PRICES OF FOOD GRAINS AND RAIN FALL.



Mortality from All Diseases in Jeypore—Ajmere for each month from 1882—1802.

Statement of Strength, Deaths, &c., Jeypore Jails, 1887 to 1892.

Year.	Average strength.	Admissions into Hospital.	Admissions per mille of strength.	Average daily sick.	Deaths.	Deaths per mille of strength.
1876	957·51	1367	1472·66	47·83	68	71·01
1877	950·43	1272	1338·34	46·07	49	51·55
1878	1125·43	1880	1670·	69·03	143	127·06
1879	886·14	1482	1672·42	54·40	62	69·96
1880	751·77	980	1304·68	40·74	25	33·25
1881	661·67	1026	1559·62	43·86	30	45·33
1882	642·69	860	1338·12	42·60	25	38·89
1883	733·09	959	1308·16	50·18	34	46·37
1884	879·87	1233	1401·34	65·56	60	68·19
1885	943·90	1420	1504·37	69·82	26	27·54
1886	829·72	1114	1198·24	65·69	36	43·38
1887	966·77	779	805·77	57·92	41	42·40
1888	1140·77	815	714·42	60·21	91	79·77
1889	1323·76	1025	1569·52	56·80	27	20·39
1890	1186·27	1223	2252·84	36·81	66	55·63
1891	1231·18	1040	844·71	54·71	30	24·36
1892	1148·21	849	739·41	31·43	39	33·96
Average	962·30	1136·70	1334·47	52·56	50·11	52·07
Old Jail	694·98	463	666·20	25·08	28	40·28
New Jail	587·27	438	745·82	14·39	11	18·73
Total ...	1282·25	901	702·67	39·47	39	30·41

Return of Patients treated at the Mayo

Month.	GENERAL DISEASES.																
	GROUP A.							GROUP B.		GROUP C.	GROUP D.						
	Small-pox.	Cholera.	Dysentery.	Malarial Fever.	Primary Syphilis.	Secondary Syphilis.	Gonorrhœa.	Scurvy.	Worms.	Debility.	Rheumatic Affections.	Tubercular.	Leprosy.	All other general diseases.	Diseases of the nervous system.	Diseases of the eye.	Diseases of the ear.	Diseases of the nose.
January ..	2	...	96	712	325	88	202	...	15	208	449	51	14	1460	204	498	440	28
February ..	3	...	104	780	303	98	219	...	17	183	441	56	23	1458	213	639	406	40
March ..	6	...	122	1235	340	116	269	1	20	228	597	69	41	2125	285	895	512	57
April ..	8	33	171	1269	416	121	279	4	23	206	632	79	51	2271	285	1090	589	54
May ..	2	5	137	1186	455	134	309	3	32	278	659	90	31	2133	256	1181	645	50
June ..	11	7	147	869	455	131	298	...	19	271	746	90	45	2000	249	1107	710	45
July ..	5	19	214	924	402	125	343	..	34	250	684	64	33	2053	272	1302	765	27
August ..	1	187	360	1361	477	158	335	1	34	237	603	76	29	2188	267	1125	890	37
September ..	2	11	366	2143	460	95	269	...	27	248	592	65	28	2160	273	1043	781	60
October ...	...	3	323	2594	385	105	261	1	35	265	588	57	25	2128	242	909	664	90
November ...	1	1	288	1376	316	387	236	1	20	209	517	48	31	1812	212	671	473	51
December ...	3	...	183	1054	358	83	254	...	15	228	549	57	17	1623	231	501	481	48
Total ...	44	266	2511	15503	4782	1641	3274	11	291	2811	7057	802	3687	3411	2989	10961	7357	587
Percentage ...	...	...	1·51	9·33	2·87	·98	1·97	...	...	1·69	4·24	...	...	1409	179	65·9	4·42	...

Hospital, Jeypore, from 1882 to 1892.

LOCAL DISEASES.

Group E.

Diseases of the circulatory system.	Diseases of the lung.	Other Diseases of the respiratory system.	Diarrhœa.	Dyspepsia.	Diseases of liver.	Other Diseases of the Digestive system.	Goitre.	Diseases of spleen.	Diseases of thelymphatic system.	Diseases of the urinary system.	Diseases of the general system.	Venerial Disease other than those in Group A	Diseases of the organs of locomotion.	Diseases of the connective tissue.	Diseases of the skin.	Ulcer.	Poison.	General injuries.	Local injuries.	Total.
25	78	794	166	169	262	73	632	1	192	58	76	4	24	33	1490	603	48	23	262	10035.
14	81	817	129	262	46	533	...	171	64	71	109	5	34	30	1842	594	45	16	271	10392.
32	158	923	160	479	95	...	810	216	92	100	116	12	37	424	2296	696	70	14	372	13990.
27	147	858	313	577	66	997	2	184	62	95	122	11	35	445	2026	660	63	22	387	14648.
35	53	780	388	647	70	823	1	212	78	90	146	52	41	614	1746	744	65	15	385	14572.
36	52	487	302	641	81	838	1	213	93	103	126	28	30	822	1661	718	42	22	397	13183.
82	62	572	471	68	92	859	2	236	84	85	153	30	33	874	1886	872	40	18	387	1499
16	82	615	505	671	341	582	1	173	52	89	176	20	53	708	2179	1098	51	22	368	16318.
26	56	639	476	542	67	1038	2	212	68	82	134	18	35	642	2316	1049	43	25	400	16489.
25	30	815	33	506	75	1096	..	280	61	78	141	17	35	535	2138	938	50	37	342	16246.
29	75	923	266	337	80	659	..	300	49	77	103	15	34	429	1635	691	36	26	37	12719
32	935	994	203	352	81	818	1	297	54	64	128	13	47	361	1554	766	56	21	257	11829
319	...	926	3816	5884	1140	9630	1452	2636	15	1013	1550	225	438	6490	22819	9429	609	261	4138	166112
	..	557	19	3·54	·68	579	..	1·59	...	·60	·98	...	..	3·90	13·73	...	...	...	2·49	9,959

Return of Patients treated at (1) Purani Busti, (2) Central Jail, (3) Dousa, (4) Sikar

	GENERAL DISEASES																	
	GROUP A.							GROUP B.		GROUP C.	GROUP D.							
YEARS.	Small-pox.	Cholera.	Dysentery.	Malarial fever.	Primary syphilis.	Secondary syphilis.	Gonorrhœa.	Scurvy.	Worms.	Debility.	Rheumatic affections.	Tubercular do.	Leprosy.	All other general diseases.	Diseases of the nervous system.	Diseases of the eye.	Diseases of the ear.	Diseases of the nose.	Diseases of the circulatory system.
January ...	35	..	726	4470	833	341	930	2	100	369	2513	89	53	1941	730	2186	1383	33	17
February ...	40	...	596	4183	782	375	901	3	113	329	2487	61	52	922	760	2201	1366	28	14
March ...	69	4	678	5392	979	368	954	8	142	364	2610	112	59	2592	962	3495	1559	83	45
April ...	62	135	90	5585	977	383	1010	12	120	425	2618	101	74	3107	1105	4401	1672	103	27
May ...	43	84	981	5153	944	436	1046	6	107	470	2817	106	52	3265	941	3778	1852	36	49
June ...	13	28	900	4328	992	455	1038	9	165	477	2619	104	59	3032	860	2896	1916	75	31
July ...	5	182	1267	4838	1021	401	991	6	209	463	2723	118	62	3196	984	3642	2120	60	26
August ...	2	214	1973	7149	961	375	951	6	270	456	2467	117	51	2795	925	4453	2522	46	33
September ...	...	95	1893	2	855	410	904	15	270	476	2409	105	44	2743	956	4050	2265	75	28
October ...	1	10	1608	5647	919	369	872	6	221	534	2633	115	43	2988	934	3005	1956	97	24
November ...	14	31	1206	4661	820	340	905	1	117	510	2478	106	62	2535	895	2476	1558	68	24
December ...	35	...	944	6313	932	356	1074	2	121	457	2781	84	48	2501	986	3293	1559	51	19
Total ...	319	1046	13717	55271	11015	4609	11576	76	1955	5300	31135	1220	658	31617	11038	38836	22128	782	337
Percentage ...		...	2·23	13·90	1·79	·75	1·88	...	...	·86	5·06	...	...	5·15	1·80	6·33	3·60	...	...

(5) Hindown, (6) Khetri, (7) Kotputti & (8) Sambhar Dispensaries from 1875 to 1892.

LOCAL DISEASES.

Diseases of the lung.	Other diseases of the respiratory system.	Diarrhœa.	Dyspepsia.	Diseases of liver.	Other diseases of the digestive system.	Goitre.	Diseases of spleen.	Diseases of the lymphatic system.	Diseases of the urinary system.	Diseases of the generative system.	Venereal diseases other than those in Group A.	Diseases of the organs of locomotion.	Diseases of the connective tissue.	Diseases of the skin.	Ulcer.	Poison.	General injuries.	Local injuries.	Total.	Average.
136	3180	891	1251	2 7	2340	3	447	319	107	290	85	278	2364	6803	4164	78	125	1652	41451	518·137
129	3211	765	1231	229	2626	4	364	280	112	275	91	289	2326	7368	3687	103	101	1592	39996	499·5
157	3156	1158	1803	264	3353	5	365	330	129	327	80	622	2484	8197	40 2	192	133	1815	49107	13·837
174	2761	1639	2261	262	3854	3	1092	354	138	287	118	672	277	7577	3799	154	113	1742	52641	6580·12
106	2444	1952	2741	228	3764	2	421	409	136	326	98	3941	3266	7065	4004	181	136	1886	51352	6419
61	1947	2059	2183	235	3642	2	411	474	132	331	145	311	4240	7046	3991	204	136	1816	48588	6198·5
59	1960	2272	2067	239	3122	1	347	511	147	821	161	287	4410	7678	4799	174	118	1966	53353	6669·12
60	2045	2902	2099	244	3151	2	397	391	142	262	136	302	3824	8061	5211	149	125	1750	57028	712·85
85	2117	2134	1893	300	3326	5	454	368	146	255	125	274	3273	7966	5087	164	95	1678	59860	7482·5
97	2647	1534	16·48	305	3485	1	691	370	149	249	99	282	3155	7125	4549	96	121	1762	60347	7543·32
111	2162	1303	1523	262	2775	2	638	299	122	275	90	275	2910	6684	4440	121	93	1543	504	6310·62
93	3340	1178	1456	240	2845	16	599	310	124	270	100	277	2864	7159	4676	85	99	1608	47925	5990*
1268	31974	197878	21756	3015	38283	46	6226	4415	1584	3468	328	4263	37965	88729	52409	1701	395	20870	613135	7664·162
...	5·21	3·22	3 54	·49	6·24	...	1·01	...	·25	56*	...	...	6·19	14·47	...	...	...	3·40	87·93	10 99

Return of Patients treated at (1) Sawai Madhopur, (2) Sri Madhopur Dispensaries from

Years.	GENERAL DISEASES.																	
	GROUP A.							GROUP B.		GROUP C.	GROUP D.							
	Small-pox.	Cholera.	Dysentery.	Malarial Fever.	Primary syphilis.	Secondary syphilis.	Gonorrhœa.	Scurvy.	Worms.	Debility.	Rheumatic affections.	Tubercular.	Leprosy.	All other general diseases.	Diseases of the nervous system.	Diseases of the eye.	Diseases of the ear.	Diseases of the nose.
January	3	...	407	4560	257	110	316	11	119	408	1404	32	20	1963	449	1100	696	55
February	3	...	448	3485	239	85	338	7	161	378	1274	26	36	1820	418	1159	668	52
March	5	...	478	3547	299	115	349	17	162	403	1318	32	25	2570	575	2200	901	59
April	13	57	539	3589	275	127	353	17	165	457	1220	43	31	2835	619	3045	919	103
May...	11	185	645	3200	316	145	457	9	171	392	1340	33	33	2673	593	2126	939	73
June	4	297	559	2612	431	131	428	12	168	398	1346	72	24	2577	560	1600	1008	107
July	...	47	704	2683	305	124	386	6	228	395	1411	39	31	2707	583	1822	1268	67
August	...	183	937	3516	335	117	340	10	213	348	1240	43	15	2493	534	2349	1296	90
September	..	...	820	6708	236	123	293	11	243	321	1243	40	17	2198	497	2240	1051	73
October	...	...	719	8545	261	119	295	8	218	381	1185	54	11	2308	504	1590	906	83
November	1	...	603	6592	238	105	348	19	171	457	1308	38	20	1999	445	1293	742	77
December	...	...	568	5767	274	116	335	13	164	431	1335	31	23	1855	440	1156	744	63
Total ...	40	769	7427	54804	3476	1417	4238	140	2183	4769	15624	483	286	27998	6217	21680	11138	893
Percentage ..	...	...	2·19	16·21	1·02	0·41	1 25	...	...	1·41	4·62	...	...	8·28	1·83	6·41	3.29	...

(3) Chatsu, (4) Lalsot, (5) Gungapur, (6) Malpura, (7) Chirawa, (8) Mowha 1884 to 1892.

	Local Diseases.																		
Diseases of the circulatory system.	Diseases of the lung	Other diseases of respiratory system.	Diarrhœa.	Dyspepsia.	Diseases of liver.	Other diseases of the digestive system.	Goitre.	Diseases of spleen.	Diseases of the lymphatic system.	Diseases of the urinary system.	Diseases of the generative system.	Venerial diseases other than those in group A.	Diseases of the organs of locomotion.	Diseases of the connective tissue.	Diseases of the skin.	Ulcer.	Poison.	General injuries.	Local injuries.	Total.
21	95	2213	554	916	95	689	1	310	83	59	100	36	189	1391	3663	2442	48	85	4152	50305
20	123	1906	566	887	84	705	2	265	76	49	78	33	209	1286	3779	2136	76	106	361	23344
36	121	1811	632	1320	93	932	3	327	79	56	100	41	179	1360	4210	2304	130	155	445	27389
30	68	1522	993	1471	96	1081	37	305	94	63	110	40	213	1455	3428	2172	266	134	412	28815
44	65	1410	1038	2001	92	1123	...	343	118	70	124	18	279	1774	3654	2100	224	149	445	28832
28	63	1107	1136	1599	139	972	33	296	117	77	126	48	265	2273	3653	2444	255	171	565	27701
30	76	1246	1166	1560	105	1045	2	305	113	73	119	197	315	2452	4063	2929	197	215	529	29453
38	64	1163	1158	1337	90	924	1	264	80	68	109	72	262	1937	4217	3393	167	165	452	30020
16	33	1232	1071	1275	67	962	...	265	102	55	72	47	247	1708	3648	3062	162	137	400	30670
31	60	1548	784	120	96	778	8	374	89	49	62	44	234	1697	3371	2735	115	119	415	31118
39	57	2080	624	969	90	77	1	412	89	65	74	42	198	1450	3150	2731	68	153	380	27919
25	[illegible]	2315	673	1010	215	679	47	433	67	56	98	57	247	1464	3294	2723	74	141	412	27406
358	914	195 53	10395	15465	1252	10168	130	3899	1107	740	1172	5852	2837	20257	4525	31571	1802	1730	5231	337972
...	...	5·78	3·07	4·57	0·37	3·21	...	1·15	...	0.21	0 34	...	...	5·99	13 17	...	...	...	1·54	86 32

General Remarks on the Climate and its suitability for the residence of Europeans.

Jeypore, though just north of the ecliptic and 1,431 feet above sea-level, may be said to be within the hot zone of climate in which it might be expected that the following diseases would be found :—

"Anæmia, malaria, diseases of the gastro-intestinal tract, hepatitis, dysentery, diarrhœa (Felkin, Proceedings, Congress of Hygiene, Division II, "Demography"), with cholera, sunstroke, chyluria, and fungus foot ; but the conditions under which these disorders occur are modified in this case by the low humidity and smaller rainfall, as well as by the tonic effect of at least four cold months in the year and by the height above the sea-level and consequent diminished atmospheric pressure. The generally dry and sandy soil and comparatively small amount of vegetation are also greatly modifying agents, especially in the very hot months when the nights are much cooler than they are, for example, in the valleys of the Ganges and Jumna and in the North-Western Provinces generally. With suitable cooling appliances and ordinary prudence (as regards exposure to the sun), the climate of Jeypore is not unfavourable to Europeans. Children thrive fairly in it, although they lose colour in the hot months and suffer from coughs and malarial affections after the close of the rains ; but the cold months are so invigorating and agreeable that, as a rule, they are thoroughly and quickly restored to a good state of health at the beginning of winter. After the fifth or sixth year however they do not look robust, and should be sent for some months each year to the hills. Europeans can never become fully acclimatized or colonize in any part of Jeypore, but residence under favourable conditions is quite compatible with the attainment of old age in this part of Rajputana. There is at present in Jeypore a pure European, a Greek who is 93 years of age. I have seen in one pure European family four generations alive at one time, but in this instance one of the parents in each generation had been born in Europe. With proper protection of the head and spine, sunstroke and heat fever are rare in the dry atmosphere of Jeypore. Every case of the kind which has been seen by me has been due to great imprudence, and especially to the abuse of alcohol.

SURGICAL DISORDERS.

Unlike many other districts, there appear to be no surgical affections which are peculiarly liable to occur or to demand operation. The experience of the past 20 years during which I have been in Jeypore has proved this conclusively. The field for the general surgeon is however of great interest though it is less so for the specialist.

CANCER.—During the past 12 years there have been 120 major operations for cancer, some for growths of considerable magnitude. Several years ago the opinion was expressed in some of the medical journals that this disease prevailed more amongst meat-eaters than vegetarians. My remarks on this point, as recorded in the *British Medical Journal* of July 7th, 1888, may be of interest :—

"M. Reclus has shown that cancer was all but unknown among the persons whose food was exclusively vegetable. M. Verneuil also believed that the increase of cancer was largely due to the carnivorous habits of diet of the present generation. The records of the Mayo Hospital at Jeypore, which is under my charge, show no such immunity of vegetarians from cancer. From January 1880 to the present date, 102 major operations have been performed in the hospital in cases of cancer. Of those 41 were on the persons of meat-eaters and 61 on those of strict vegetarians who had never eaten meat since their birth. In India, where caste rules are exceedingly rigid, the fact that the latter were true vegetarians is capable of absolute proof. Amongst them are six Saraogis, a class of Jains

who even reject many kinds of vegetables. Three of these Saraogis suffered from cancer of the breast. Out of 102 cases there were three deaths attributable to the operation. There is no information available as to recurrence or the contrary. The cases were divided as follows: cancer of breast, 20; tongue or lips, 8; head and face, 17; upper extremity, 11; lower extremity, 8; trunk, 18; penis, 15; labia 1; testicle, 1; glands, 3. There were 62 males and females, a large proportion of the latter in a country where the purdah system is in force. The maximum age was 70 years, the minimum 18 years, the average 43 years. Now, as to the increase of cancer dealt with by operation in hospitals, we cannot, I think, come to any other conclusion than that few cases now escape the surgeon, whereas in prechloroform days, or even for some time after anæsthetics were in general use, a great number of sufferers preferred to drag out a weary existence unrelieved rather than submit to the knife, accompanied, as it was, in truth or in imagination, by great pain. In Europe, except in out of-the-way places, all such prejudices and terrors have no doubt long since vanished. In Eastern lands though fast disappearing, they still exist. Indian surgeons know that it is absolutely necessary to be prepared to operate on the spot, as if a patient who has come many miles, after much consideration, solely for operation, is not immediately dealt with, it is, ten chances to one, whether he will be found next morning so greatly will his fears be worked upon by the knowledge that he is at last on the spot where the operation must take place, and at which so many have passed through a similar ordeal already. Indian civil surgery is like the surgery of the battlefield, and the best school for it. It brooks no delay. Enormous growths, many pounds in weight, are still seen in India which in Europe would have been removed long before they became as large as an orange. A short time since, I had a case of fatty tumour of the neck, of seven years' standing, weighing seven pounds and hanging down to the waist. The patient, a woman, actually lived within three miles of a dispensary, all this time without seeking relief.* I suppose that the increase of cases of operation may be accounted for in Europe, as in India, by the increased confidence of the public in the skill of the surgeon. The fearful cases of neglected and unrelieved surgical disease, which were shown to the charitable by the wayside or at the continental church door, are probably rarely seen in Europe at the present day. It is not one of the least of the blessings attending British administration in India that such cases are also less frequently observed in this great country than formerly."

A very common form of epithelial cancer is found in the loins, and is due to pressure and constant irritation of a tight waist cord which is used to keep up the dhoti or loin cloth. Both articles are too frequently extremely dirty, though they may undergo not rarely the ceremonial cleansings which are incumbent on religious Hindus, who ought to wash these garments with their own hands. The affection is somewhat of the nature of chimney-sweepers' cancer, or of that due in Kashmir to the irritation of the abdominal wall by the chafing vessel or *kangri*, which is universally carried under the long garments of the inhabitants of the Happy Valley.

Cancer of the eyeball is not uncommon. Here, again, neglect and irritation are the causes.

Cancer of the breast is not unduly frequent. Causes of melanotic sarcoma of rather large size are sometimes seen.

Non-malignant tumours of all kinds are common, and amongst them some of huge size are far more often observed than in Europe, because the people either fear surgical interference or postpone leaving their homes.

* I operated this year on a man with two wives, who had had a tumour weighing, on removal, eleven pounds in the middle of his back from infancy.

Sebaceous tumours or atheromatous and mucous cysts are very common, and frequently require a good deal of careful dissection in their removal. I have lately had several successful cases of enormous unilocular cysts of the neck requiring very difficult and dangerous dissection, in which the carotid artery was exposed for their removal. Fatty tumours are less frequently observed in my experience than fibroid or other growths. In some cases of very large tumours which would have involved amputation of a limb, the patient has preferred death to such interference, as there is still, amongst many Hindus, an objection, on religious or superstitious grounds, to entering the next world in a mutilated condition.

Large Abscess.—Many abscesses of large size come under treatment as sequelæ of small-pox, but since the extension of vaccination fewer now than formerly. When I first came to Jeypore, epidemics of small-pox were frequent and very serious. Not only was the mortality great, but the complications which followed in so many cases were the means of crippling and disfiguring a vast number of people. Amongst them were paralysis of limbs, loss of sight, scars from deep abscesses, deafness, and, I have reason to believe, calculus of the bladder.

Operations on the Eye-ball.—I have already stated that cases of cancer are not frequent. There are however many neglected diseases and injuries, for example, of ulceration ending in anterior staphyloma, perforation of the cornea, etc., involving the anterior segment only of the eye, which are met surgically by the abcission of the front part of the ball. An artificial pupil is very commonly required in cases of neglected iritis, or ulceration of the cornea, or opacity after small-pox. The operation for cataract was until latterly unfrequently done, as sathyas or couchers perambulated the district and performed in the villages the operation of reclination in a most unscientific way, and in the end very often with bad results; but as the first effects of that procedure is of course that the patient sees light immediately, the confidence of the individual himself and his friends is not easily shaken. In 1890 I performed 68 operations, in 1891 Dr. Durrell Pank did 188, and in the next year there were 604 cases, of which on my return from leave I did 116. I have generally done the three millemetre operation. The sathyas operation is that described by Paulus Ægineta, and is done in Jeypore with dirty probes and instruments.* There are a small number of cases of entropium, for which different operations have been performed. Granular ophthalmia is, I think, rarer than in Europe, though conjunctivitis is common enough and, of course, much neglected. Diseases of the puncta and lachrymal ducts and sac are often seen and require operation.

Operations on the Head.—Men frequently cut off the noses of their wives and mistresses if they have reason to think they are unfaithful, hence the operation for restoration of the organ is by no means uncommon. I generally take the flap from the forehead, though in many cases I have found it sufficient to obtain the necessary amount of skin from the cheeks.

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*"Having placed the patient opposite the light, but not in the sun, we bind up carefully the sound eye, and having separated the lids of the other, at the distance from the part called the iris, towards the small canthus, of about the size of the knob of the specillum, we then with the point of the perforator mark the place about to be perforated; and if it is the left eye we operate with the right hand, or if the right eye with the left; and turning round the point of the perforator, which is bent at its extremity, we push it strongly through the part which was marked out until we come to an empty place. The depth of the perforation should be as great as the distance of the pupil from the iris. Wherefore, raising the perforator to the apex of the cataract (for the copper of it is seen through the transparency of the cornea), we push down the cataract to the parts below, and if it is immediately carried downwards we rest for a little, but if it re-ascends we press it back again. After the depression of the cataract we turn round the perforator and extract it gently. After this, bathing with water and injecting into the eye a little Cappadocian salts, we apply externally some wool soaked in the white of an egg with rose oil and bind it up, and at the same time bind up the sound eye that it may not move." (Paulus Ægineta, Vol. II, Book VI, Section xxi, p. 280, by F. Adams, Sydenham Society.)

Hare-lip in young children has rarely come before me; but I have done a good many cases in boys and girls of from 10 to 20 years old, or even in adults of some age. I do not think the defect is so common here as in Europe. It is known as "Ravan Kanda," because the face of Ravan (Ravana, the Demon King of Lanka, or Ceylon) was mutilated in this way by Rama Chandra. It is not uncommon to find a number of small fibroid tumours situated at the seats of puncture for earrings in both boys and girls. Sometimes there may be four or five round the edge of the lobe of the organ. One or more may be as large as a walnut.

Nasal and naso-pharyngeal polypi are not uncommon, and are often of very large dimensions. I have very rarely had occasion to remove the tonsils or any portions of them. Adenomatous growths at the back of the nose are observed, but generally are not very extensive. They are usually removed without chloroform and with no great difficulty. Salivary concretions of huge size are common, especially amongst Jains and Baneahs, who are vegetarians. The accumulations of tartar too are so enormous in many cases that the attempt to remove it would involve the loss of nearly all the teeth. The state of the mouths of a very large number of adults, especially of men of this class, is appalling. The fœtor of the breath is very great. Caries of the teeth is less frequent, and extraction is therefore less often required than would have been anticipated. Nothing has yet been done in our dispensaries in pure dentistry, such as stopping teeth, etc. It would require a very heroic person to practice dentistry amongst Baneahs and Jains. The jaws are occasionally excised with tumours, and the lower jaw, or portions of it, I have often removed for necrosis, which has been due in nearly every case to neglect and delayed application in cases following upon caries of teeth. In several such cases the patients were almost poisoned by their own secretions before they permitted anything to be done. A year or two ago I saw a noble whose upper jaw was in this horrible condition. The bone was quite loose, yet he declined even to permit the application of forceps to remove the decayed part and died unrelieved. Such fearful examples of ignorance and folly are by no means rare. The blood vessels seldom demand operative treatment. Aneurism is very rare. I have seen only a few cases of this disease in the great vessels of the thorax, which however did not admit of surgical interference. Varicose veins are neither so large nor so troublesome as to require operation, although I have not unfrequently refused to pass men as recruits for the public service on that ground.

Varicocele I have seen but once or twice.

Operations on the Respiratory Organs.—Tracheotomy is rarely necessary. Paracentesis of the thorax is uncommon, as there are few cases of pleurisy with effusion or empyema.

Operations on the Digestive Organs.—The most common are for fistula in ano and internal hæmorrhoids. Very few of these cases come under observation until the patient has tried all the medical remedies which are known either to himself or his friends, although he may have been told that he must undergo operation. Hence the surgical assistance required is often of a formidable character, involving for fistula very free incision, and for hæmorrhoids, cautery and excision of numerous piles or even removal of the whole pile area. Amongst nobles, merchants, and the well-to-do classes generally, who take little exercise and live sedentary lives, these affections are very common and there are many men who live for a long term of years painful lives and die prematurely without relief. In many cases of internal hæmorrhoids, stretching of the sphincter of the anus, with or without cauterizing or ligaturing the piles, has proved successful in my hands. Cancer of the rectum is very rare in my

experience. I have frequently operated for imperforate anus, but in only two or three cases have failed to reach the rectum by the perinæum. In one of these Amusat's operation in the groin proved successful. The children are generally brought to the hospital far too late for successful operation.

HERNIA.—Strangulated hernia, requiring the use of the knife, is extremely rare in this neighbourhood. I have not had a case. Rupture is uncommon, except in children, but occasionally umbilical and ventral hernia are seen in women. Prolapse of the rectum, except as a sign of calculus of the bladder or neglected piles, is not often observed, though occasionally a very bad case is admitted. Lymphatic glands rarely require operation; and bronchocele in this district is very seldom seen, though tumours of the neck are treated from time to time, and particularly large cysts, as already noted.

OPERATIONS ON THE URINARY ORGANS.—Stricture is not as common in my experience as in Europe, but many cases, and especially neglected ones, do come under the Surgeon's notice. Good results have been obtained in the worst cases by forcible dilatation with Holt's instruments. Some time ago I used to see and hear rather frequently of cases of extravasation of urine, which were due to neglected structure and want of catheterism. The perinæum was often riddled with holes, and the testicles were frequently laid bare in neglected cases of stricture. Fortunately the employment of this instrument is now less dreaded, especially since the introduction of soft rubber catheters with olivette points.

CALCULUS IN THE BLADDER.—This is not a stone district, but in about 220 cases, operation has been required in the Mayo Hospital during the past 12 years. In 137 the calculus was removed by the lateral operation with 15 deaths. In 76 litholapaxy, or crushing and removal of the debris at one sitting, was preferred. There were five deaths. The stones are nearly always large, and many of the patients are in a very bad state of health. Hence the mortality is rather higher than it would be if the disease were as common, and as soon brought under treatment, as in some other provinces. In my opinion, litholapaxy is the best operation for soft stones of moderate size in the hands of an experienced surgeon; but lateral lithotomy is preferable when the calculus is either hard or very large and the operator has little practice. As examples of the value of litholapaxy, I refer to a stone weighing 134 grains and measuring $1\frac{3}{4}$ inches in diameter, which was crushed in a girl in 42 minutes. On the third day she could not be kept in her bed, having had no trouble of any kind, and I had to discharge her shortly afterwards from hospital. There is also the case of a boy aged five years, who had been in pain 12 months, whose stone was removed in 17 minutes. It weighed 124 grains, and he was discharged on the fourth day. This is the common history of successful cases.

OPERATIONS ON THE MALE GENERATIVE ORGANS.—Hypospadias and extroversion of the bladder, although occasionally seen, are as infrequent as the other defects of development already mentioned.

The penis has been amputated for cancer in 15 men. Several curious cases of attempted self-mutilation of this organ on religious grounds, or with the wish to become an eunuch in order to obtain employment, or in old men accused of sexual crimes, have also come under observation. An operation for phymosis is frequently required in Hindus, but it is better to slit the prepuce if dilatation is not sufficient, as, on account of their Mohamedan neighbours, an objection is occasionally raised by the friends of the patients to undergoing circumcision. When the gland and prepuce are diseased, it may be necessary to perform the latter operation. Much time and pain are often saved by this procedure. Diseases of the scrotam and testis are

infrequent. Occasionally only does a case of hydrocele require treatment, and then usually in a stranger from Bengal. Elephantiasis is almost unknown.

Operations on the Female Generative Organs.—Suitable cases for abdominal section have not presented themselves.

Tumours of the external genitals have not been uncommon, and amongst them some curious fibroid growths with very long pedicles.

Several cases of hœmatometra have been successfully treated, and the cervix uteri has been amputated two or three times when very much hypertrophied. Several of these cases have simulated hermaphroditism. This condition and prolapse of the uterus are particularly objected to as unnatural deformities by natives of India.

Uterine disease is no doubt very common, especially amongst the higher classes who live in zenanas, but the sufferers there do not come under our observation. Ignorant use of the pessary has sometimes brought a patient suffering from ulceration from long retention or improper position of the instrument. The number of such cases in women of the poorer classes is greatly increasing, and the attendance of females for all affections is much larger than in former years. Such increase is the best test of the popularity and usefulness of a Hospital Assistant-

Obstetric Operations.—Most of the more important operations have been performed during the period under review, but unfortunately owing to prejudice and custom, which extend from the higher to even the lower classes the delay in application is generally so great that the results of surgical interference are not satisfactory.

The patient is usually moribund when admitted into the hospital. In time it is hoped these difficulties will be overcome. Dhais or native female midwives are being trained, and at the Mayo Hospital, as already stated, two female Hospital Assistants are employed, whose services are available in all serious cases which may occur in the city of Jeypore.

Operations on the Breast.—The infrequence of cancer has already been adverted to. Non-malignant tumours of the organs are not uncommon. Cases of neglected and mismanaged abscess occasionally come under treatment.

Operations on Bones and Joints.—Necrosis de mands operation in many cases, but in fewer than might have been anticipated. The leg and jaw are most often the bones attacked. Refracture is often necessary in bad union of fragments of long bones caused by neglect or malpraxis on the part of jharrahs or barber surgeons, bone-setters or cattle doctors, and ignorant men of all kinds. For similar reasons it is necessary to straighten or extend joints and to attempt to reduce old dislocations. On the whole, dislocation is rare except, perhaps, *that* of the jaw, the reduction of which serves to swell the returns of hospital assistants in the district dispensaries.

Club foot is not common. Cicatrices after bad burns from falling on to a *chula* or native fire-place sometimes demand operation ; and keloid growths, especially on the sternum, are occasionally seen.

Amputations.—One hundred and sixty-two amputations of limbs were done in 12 years for various reasons, particularly for mycetoma or fungus disease, which is chiefly observed on the western side of the state. I am inclined to agree with the view that persons connected with cattle, who live in dry, sandy and almost desert districts, are most subject to this disease. It is often necessary to amputate very high up when the damaged part may seem to be very limited in extent. In chronic

cases the long bones are frequently very much diminished in calibre, and when amputation in performed it will be found that there is such an extensive amount of osteo-myelitis as to require removal of the limb above the next joint and even still nearer the trunk. Excision of part of the sole in very early stages is sometimes sufficient. I have several times removed the hand for this disease, and have lately found local deposits high up in the leg near the knee in one case. In 162 cases of amputations of limbs there were 15 deaths. There were eight deaths in 33 cases of amputation of the thigh, four of which were due to gangrene for which the operation was done, one in compound communicated fracture of the leg, one in an old man who had an one enormous tumour of the leg, one in exhaustion after mycetoma of four years' duration, and one for pycemia, the only case for some years.

In 51 cases of removal of the leg there were five deaths, two for compound comminuted fracture, one for shock, one for diarrhœa in a feeble, old woman exhausted by caries, and one for gangrene for which the operation was done. In 51 cases of amputation of the arm there were two deaths, one from gangrene of the arm after snake-bite for which removal was required, one in an infant who was almost moribund on account of a cut of the arm which was already almost severed by a sword.

For 16 cases of removal of parts of the fingers and hand, and in 10 of the foot, there were no deaths, nor were there any in 23 cases of removal of the penis. The mortality due to operation was small. In only two cases indeed may death be stated to have been accelerated by it.

Operations on the Skin.—Carbuncle is sometimes seen, most perhaps in self-indulgent persons who eat much meat and drink spirit to excess. Skin grafting I frequently do for large ulcers. Usually I now scrape ulcers with Volkmann's spoon, cut away freely all unhealthy tissue, and then treat as simple wounds, which, with appropriate general management and skin grafting, generally do well, much time and pain being then saved.

Poisoning.—Cases of poisoning are common, chiefly by dhatura and arsenic, the former is given by thieves who would early in the century have perhaps been thugs, the latter, by both men and women, in cases of jealousy. Opium poisoning is not particularly frequent. As many people take the drug habitually, it would be a very uncertain article to use as a poison. Opium is given to young children almost universally to prevent them from crying and to allow the mothers to obtain some rest or secure time for domestic work. As soon as a child annoys its parents in this way and appears to be suffering, a piece of crude opium, weighing about one-sixteenth of a grain, is given twice a day. I found in a recent enquiry that 78 per cent. of all young children were so treated, and that the parents only refrained from giving the drug in the remaining 22 per cent. because the children had given no trouble. All were healthy. The drug is given up when the child runs about.

Venereal Affections.—Except amongst the poorer classes, and particularly women and beggars, syphilis does not often assume tertiary forms. It is generally, in my experience in India, poverty, and consequent deprivation of food, which make a case of syphilis to be dreaded. In our wards we see women suffering from extensive ulcerations and growths on the external genital organs, and less often a man is admitted for phagedœna. I am inclined to agree with a distinguished American physician whom I met in Jeypore, who had practised many years in Japan, that the universal and early use of mercury has something to do with the absence of severe forms of the disease ; but cases are often observed of the abuse of that mineral, particularly when it is given in the form of corrosive sublimate or ras kaphur. Gonorrhœa is less seen than might have been anti-

cipated amongst a population which is admittedly very lax in morality. The disease runs a less acute course than amongst Europeans, and seems to cause less anxiety to the Indian as well as less pain and inconvenience. Amongst the bulk of the population their habits and surroundings may perhaps confer a certain amount of immunity. There is no doubt, I believe, that sweepers enjoy a considerable amount of protection against small-pox, cholera, and such like disorders, and on the whole, in spite of their occupation and environment, they are very healthy and free from disease. The beauty of sweeper women, almost a synonym for health, was noticed in many old books on India. They were less marred than other people by small-pox, and, as they lived out of doors, less subject to sickness. I do not think they have fewer children to grow up to adult age. Hence it is not a case of survival of the fittest, but of real immunity obtained by constant exposure and, ultimately, acquired resistance to unhealthy influences. Unfortunately the absence of census statistics on this point prevents me from proving my views by figures.

Skin Diseases generally.—Parasitic forms of skin disease are by far the most frequent. Scabies is observed everywhere, and sometimes in what appears to be an epidemic form. Very obstinate some of the cases are, but some forms of herpes and tinea are still more intractable, and are, I believe, in many instances communicated from dogs or other animals. The people recognize this as a common cause, and where children and many diseased pariah dogs (the common condition of these animals) live and play together, the communicability of such diseases is not surprising. I believe that very many cases of disease in India are thus transmitted.

Ulcers, etc.—Ulcers of a very obstinate character are common. In most instances a simple sore has been aggravated by the application of filthy and irritating substances of all kinds. The same may be said of wounds. For example, a boy came to the Mayo Hospital in July last with a sword-cut across the face, which had been dressed with earth soaked in his own urine. The acrid juice of the *tur* (*Calotropis gigantea*) is frequently employed for dressing sores. Some cases of ulcer are connected with enlarged spleen. Simple management and cleanliness as a rule prove most efficacious, with the addition of scraping and removal of unhealthy surfaces, as already described, as well as constitutional treatment.

Penash or Maggots in the Nose with Ozœna.—At times there is quite an epidemic of cases of this disgusting affection. It occurs chiefly amongst the lower classes, and yields to injection of chloroform water, diluted turpentine, and salt and water. I have seen the greater part of the face destroyed by this disease in several cases. Flies are also responsible for a good deal of the conjunctivitis or ophthalmia which prevails amongst children, and perhaps for many other affections.

General and Local Injuries.—As machinery is not much used, complicated cases of injury are not common. Perhaps after carriage accidents, the worst cases are those of goring by the bulls which roam about the streets. A bull is let loose at certain ceremonies (vrishotsarga), such as obsequies, marriages, etc. It is considered sacred, and is marked so as to be known. The animal (called a Brahmani bull by Europeans) is often very vicious. Hence the people are often gored by it, generally in the abdomen, groin, or perinæum. We have had not a few such cases, and, if in abdominal wounds much intestine has not escaped, have had favourable results by antiseptic treatment. These animals are rarely controlled in Native States. Cases of sword cut, at times very serious ones, are admitted, but less often than might be supposed in a country where all the Rajputs carry weapons. In the districts, where highway robbers use swords, they often do it so effectually

as to leave little chance of treatment or recovery. Compound fractures of bones, unless quickly brought to the hospitals or dispensaries, do very badly. Amputation is necessary in many such cases which come in from the districts, and, even when the injury is uncomplicated by a wound, tight bandaging often leads to gangrene or to a sloughing stump for which the limb has to be removed so also in tight ligaturing in cases of snake-bite, amputation is required for the gangrene which sometimes ensues.

The careless way in which gunpowder is stored and manufactured and in which firearms are managed gives us bad cases of burns and mutilated limbs. Rude lamps, which are now used everywhere for kerosine oil, also lead to frightful burns. In gunshot wounds the injured parts are removed, and the stumps usually heal with great rapidity. In former times such cases did badly in the monsoon months, and for the same reason operations were not performed unless absolutely necessary. Now, with the extended application of antiseptic principles, the season of the year makes little or no difference in the result. To the same cause is of course due the almost complete absence of pyœmia, erysipelas, or hospital gangrene in our wards. To this surgical discovery is due also the enormous increase in numbers of operations in India.

Hydrophobia is not as frequent as might be imagined. Several cases have been seen in which the period of incubation was unusually long, and the end was then very rapid.

MEDICAL CASES.

Under this head I follow the order of the monthly and annual returns of sickness and of patients which are in use in all the Rajputana hospitals and dispensaries.

SMALL-POX.—No epidemic disease was the cause of so much misery or was so fatal as this before the introduction of vaccination. In the year 1897 there were 1,367 and in 1880, 1,451 deaths in the City of Jeypore alone, out of a total mortality of 6,505 and 6,012, respectively. These deaths were, almost without exception, amongst children, and although fatal cases of measles are frequently included by natives under the head Small-pox, in the present instance there is reason to believe the figures are nearly correct, as the former disease was not very fatal during the above period. The most fatal months are from March to May—the least, July to October, in the latter case in inverse order. Two bad years generally come together, and then two or three good ones. For example, in 1876 and 1877 the deaths were 517 and 1,367 ; in 1878 and 1879—286 and 93 ; in 1880 and 1881 – 1,451 and 508 ; in 1882 and 1883—68 and 14 ; in 1884, 85, 86,—484, 371 and 172 ; and in 1887 and 1888, 31 and 3. This may be partly due to increased activity in vaccinating, as the people are now more willing to submit their children to the operation than they were formerly. The greatly diminished mortality since 1880 has no doubt been owing to increase of vaccination throughout the State, but it is impossible to stamp out the disease until the great majority of the infant population is made to undergo the operation. At present only about 50 per cent. of the children are protected. The difficulties in the way are general prejudice and superstition coupled with female ignorance and masculine obstinacy. Opposition is evidenced not only by concealment of children and resistance of every kind, but by actual washing or wiping the arms immediately after the vaccinator has done his work, although the child may professedly have been brought without any pressure. There is however great improvement in all respects, especially as it is now becoming widely known amongst the people that nearly all the deaths occur amongst the unprotected. As about 40 per cent. of the total mortality (Ajmere statistics) is in children, it is clear that some children may die while undergoing the vaccine operation. Hence it is not unnatural that deaths are attributed erroneously to it. The mortality in Jeypore City is the only index to that of the State, as no statistics are available for the whole

country. Very few cases are treated at the dispensaries, as it is generally considered the disease is sent by the goddess *Mata* or Sitala (a form of Devi, wife of Siva). For this reason the goddess is invoked to restore the child, who is taken to her shrine on recovery. Once a year in the spring the temples of Mata, the Mother, are visited, chiefly by women, and all persons eat cold food. The child and its mother are isolated in a room which is badly ventilated. No medical treatment is adopted, but salt is not given, as it is said to cause irritation. The child is not bathed until the attack is over. Young children without teeth who die from small-pox are buried and not cremated. Inoculation on the wrist was formerly practised everywhere, chiefly by men of the Mali or gardener caste, and at times even now, especially on the west and north borders of the State, men from Bikanir come into Jeypore villages and do the operation, causing small-pox to spread when it would probably have otherwise died out. In many places, our chief member of Council informs me the case of the child was made far worse by his being compelled for many days together to wash in all the tanks near his village in the heat of the day. He was generally brought home worn out with his exertions. He spoke from personal experience. The opposition due to the belief in some parts that children were vaccinated in order to discover the Imam Mahdi amongst Musulmans and the Kalki Avatara (Autar) or tenth incarnation of Krishna, who was supposed to have milk in his veins amongst Hindus, is dying out. On the other hand, anti-vaccinationists have allies in merchants and others who have learned their methods in Calcutta and Bombay, and, for interested reasons of another kind, seek to apply them in remote villages in Rajputana. The terrible mutilations and sequelæ which follow in many cases amongst survivors of an epidemic are referred to elsewhere. In the absence of rational treatment, it especially follows that the only real remedy for small-pox in India is vaccination.

We have considerably enlarged the Jeypore vaccination staff this year

Dysentery—is not a very common disease in Jeypore, no doubt on account of the dry climate. Two thousand five hundred and eleven cases were treated in the Mayo Hospital in 11 years, or an average of 228 per annum. Most of them were seen in the rainy season, the worst months being August, September, October, and November. The fatality here is not great, except in worn-out badly fed subjects in whom dysentery is generally only one of several ailments.

Mortality Table, Cholera, from 1882 *to* 1892, *Whole State of Jeypore.*

Names.	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	Total	Average.
January ...	...	...	...	...	...	...	...	...	...	...	...	...	...
February ...	...	...	...	...	...	...	...	...	...	...	...	...	...
March ...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	...	39	...	...	...	52	54	...	284	429	39·00
May	...	...	...	68	65	...	11	...	111	...	...	452	707	64·27
June	...	...	56	92	73	...	49	...	155	46	4	471	946	86·00
July	...	134	159	65	69	...	38	...	112	76	2	211	866	78·73
August ...	78	154	97	14	...	130	...	123	357	...	...	953	86·64
September ...	23	5	11	...	...	52	...	9	56	...	80	236	21·46
October ...	4	...	3	...	...	15	...	...	...	...	...	22	2·00
November ...	...	...	...	...	33	8	...	...	...	...	...	41	3·72
December ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	239	374	336	260	33	303	...	562	589	6	1,498	4,200	381·82

Mortality Table, Cholera, 1875 to 1892, Jeypore City.

	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	18 years.	Mean.	
January ...	...	3	...	2	...	1	0	...	3	4	...	...	...	...	...	...	...	...	13	0 72	1
February ...	1	...	2	3	1	3	1	6	3	4	3	...	...	...	...	...	...	...	27	1·50	4
Marc ...	3	2	6	1	...	6	1	...	3	1	4	...	...	...	...	...	...	...	27	1 50	4
April ...	7	3	4	6	22	9	4	6	9	...	7	...	...	...	6	25	...	85	193	10·72	8
May ...	16	6	8	7	23	8	3	9	3	5	...	...	...	...	7	...	...	58	153	8·50	7
June ...	20	1	152	81	11	10	6	15	33	10	...	...	...	...	17	1	4	23	247	13 72	10
July ...	8	2	8	238	5	4	6	60	152	22	...	...	...	...	24	46		12	589	32 72	11
August ...	16	6	7	235	5	14	6	162	127	...	...	...	15	...	21	336	...	...	950	52·77	12
September ...	24	3	12	53	7	2	2	20	7	...	...	...	39	...	9	49	...	...	227	12 61	9
October ...	6	4	1	19	4	2	3	6	2	4	...	...	15	...	...	...	...	...	66	3·66	6
November ...	2	2	2	3	1	9	2	2	...	...	..	10	8	...	...	...	...	...	41	2·28	5
December ...	2	1	3	4	3	6	4	1	1	2	...	...	...	...	...	...	...	...	27	1·50	4
		33	68	652	82	74	38	287	343	52	14	10	77	...	84	457	6	178	2560	...	...

CHOLERA.—From the preceding statements it will be noted that the only year in which no cases were recorded is 1888, but 1886, with 33 cases, and 1891, with only 6, may almost be regarded as non-cholera years. It is extremely difficult to be sure, under the almost complete absence of correct registration of vital statistics in the State, how many of the cases returned as cholera are correct. On careful enquiry it frequently happens that a so-called epidemic of cholera turns out to be really an instance of wholesale poisoning from bad grain after a great caste feast, in which the fatal result is due to diarrhœa, and no persons are attacked outside the number of those who were present ; or it may be that a village community is decimated by a fatal diarrhœa due to its water-supply in the hot weather becoming nothing but sewage.

The following is a brief *résume* of all cholera reports from Jeypore since 1881 :—

1881. No cases in the city; 144 fatal cases in Hindown district, imported from Talchiri in the adjacent state of Bhurtpore, traced to a Brahman and a marriage party.

1882. 287 deaths in the city, imported from Tank ; otherwise the year was very healthy.

1883. There were 373 fatal cases, of which 333 were in Jeypore City. The rest were at Bairat, Singapur, and Sri Madhopur. The first cases were imported to Bairat from a fair in the Ulwar State, and Jeypore suffered a few days later in June. The heat of the preceding May was intense and there were great atmospheric changes.

1884. 52 deaths in the city ; 284 in the rest of the State. The first case came from Uniara by rail to Bandikui, another epidemic broke out independently at a fair near Gungapur.

1885. 14 deaths in the city, 246 in the remainder of the State, imported to Dausa by rail from Hatras in the North-West Provinces, where it occurred at a fair; again at Ulwar and Khandar on the west ; it was imported from Bhurtpore, and, in the south of the State, from a fair at Ujain. The year was a healthy one. In nearly all cases the disease seems to come from the east or south.

1886. In this year however there were 33 deaths in November, which all occurred in person, attacked at the great annual fair at the Pushkar Lake near Ajmere. The disease did not spread as the cases were all isolated.

1887. 303 deaths, of which 77 occurred in Jeypore City, chiefly in the low-lying and ill-drained quarters.

Mhowa again suffered, also Hindown ; in both cases it was probably imported from Bhurtpore. Other small epidemics occurred, but some seemed to be non-choleraic, and were due to foul tank water.

The rainfall began early and the temperature was unusually high. The precipitation was 19·81 inches above the average.

This heavy fall was in favour of the spread of cholera in August in Jeypore City as the filth was washed into the wells in the lower part of the town, where the epidemic began.

1888. No cholera nor small-pox. The rainfall in Jeypore was 9·11 inches above the average, and as the fall was so much above the usual amount in 1887, that there was abundance of pure drinking water—the best preventative of cholera.

1889. 562 deaths reported, 84 of which were in the city, the first cases were at Sanganir 8 miles from Jeypore, after a caste feast in April, and at Gungapur on the Karaoli border after a great fair in Karaoli. The disease spread from Gungapur through the east of the State. The rainfall was small, and the temperature of the early months very high (the maximum of 116·30 on

June 2nd at Jeypore was the highest ever recorded) ; hence the tank water was very low in the villages, particularly on account of the premature cessation of the monsoon in the previous year which also caused great loss to the agriculturists and dearness of grain.

1890. Cholera prevailed from April 12th to September 21st. Deaths, 589, of which 457 were in the city. There were 54 fatal cases in the town in April, traceable chiefly to a caste feast ; none in May, 46 in June, 76 in July, 357 in August, and 56 in September. Mhowa and Hindown on the east suffered as usual. The temperature was again high, and the rainfall 1·81 inches below the average.

1891. Six deaths were reported from the city, but very doubtfully ; 69 people died in the Malpura district from violent purging, vomiting, profuse sweating and cramps after using decomposed grain. Several cases of this kind have been reported from that district, where there is a bad habit of keeping grain in pits for a very long period.

1892. 1,498 deaths, of which 178 occurred in the city, were recorded. The first case was on April 3rd, and came from persons who had been on pilgrimage to the Ganges. There is little doubt that all the early cases were traceable to that source. In August there were no cases. In September a good deal of reputed cholera occurred in Shekhawati after a great fair. The early months were very hot. The rainfall was 3·21 inches, more than double the average, but with the heavy falls the cholera ceased and did not recur except in Shekhawati, as above noted.

Summary.

From the above it appears that serious epidemics always originate from beyond the State, and with rare exceptions, from the east ; that cholera may be simulated by virulent diarrhœa due to foul tank water which has become noxious from want of rain, and for that reason greatly concentrated, and, in short, only sewage of the worst kind ; and that outbreaks simulating cholera may also occur after caste feasts. The obvious remedies are careful isolation of all suspected cases arriving by rail or road, improvement everywhere of the water supplies, regulation of caste feasts and particularly of fairs, at all of which sanitary precautions should be taken and proper latrines provided.

Malarial Fevers.—Although cholera is universally dreaded, perhaps more than any other disease, it causes but a tithe of the sickness and mortality which are due to malarial fevers. It is true that death is not so sudden ; but sometimes a man is struck down and is unconscious almost from the first, and dies after a very brief illness. Malarial disorders prevail all the year round. An illness which in England would find expression as a simple cold, in India takes the form of an attack of intermittent fever, usually of the quotidian type. There are however two periods in Jeypore of maximum prevalence—one to a less degree from the beginning of March to the beginning of May ; the second, of far greater intensity, from the middle of August to about the middle of November ; the one marking the great variations of temperature of the spring, accompanied perhaps by carelessness in the use of clothing ; the other the close of the monsoon season, and the drying up of the country everywhere, with in addition a large variation of temperature between night and day. At times almost every member of a family is indisposed, and even becomes completely unable to work. In some seasons, as in the autumn of 1892, especially in Marwar and North-West Jeypore, the crops perished because there was no one to gather them. The great preventive is no doubt drainage. Some interesting cases have been reported in Jeypore of extraordinary epidemics when tanks have been excavated or new soil turned over. In my opinion many villages might be more healthy if the places on which water stands in the rains were marked off, and a good deep drain or two cut, so that in future the houses

might be left high and dry. Quinine is the sheet anchor as regards treatment, both preventive and curative, and the best mode of making it available is to sell it in small packets at the post offices, police outposts, schools, etc., as is being now done all over Lower Bengal.* Some may think that if sold in tabloid form it might probably become more generally useful, but it is by no means certain that Hindus would not raise objections to anything but the powder. There are many other ways in which the prevalence of the disease may be lessened, such as by building the houses of the people on higher plinths, inducing them to wear warmer clothing at night, providing better drinking water—a very important point—cutting down jungle near villages, etc.; but most of these are difficult of adoption by the poor, who are moreover proverbially careless in such matters. The Italian method of domestic prevention, *viz.*, the regular use of a decoction of lemons (rind and fruit) would be worth trying in malarious districts. The sweet lime grows well in Jeypore. Fifteen thousand five hundred and three cases of malarial fever were treated from 1882 to 1892 in the Mayo Hospital; and 31,641 persons died in the city during the same period. A large number came under treatment in three other dispensaries (57,384 in all the Jeypore medical institutions), and of course hakims and baids saw a good many cases; but very many of the sufferers are so apathetic that they do not seek for relief of any kind, regarding the fever as an inevitable trouble of certain seasons. Many complications follow malarial fevers, the chief being enlargement of the spleen (2,656 cases in the 11 year period in the hospital alone) and anæmia with dyspeptic troubles and diarrhœa, which our statistics do not enable us so easily to connect with them. We frequently see cases, more especially from the districts, of enormously enlarged and hard spleens, with or without ascites, general dropsy, and albuminuria. In some cases, and particularly at Sambhur on the great salt lake, the patient becomes very pallid and feeble, and his tongue is very white with dark black patches. If the spleen is at all soft, it may yield to internal treatment (quinine, iron, ergot, etc.); and in some cases biniodide of mercury may have, when applied locally, a good effect on even hard spleens; but generally such cases prove most obstinate, and are too often incurable. Splenectomy I have never felt justified in trying. Anæmia, without enlarged spleen, yields to antiperiodics, arsenic, iron, and good food, which is however not easily given, even in hospitals, because of the prevailing prejudice against milk in fevers and the indigenous theory that such disorders are demons to be driven out by starvation.† In a population which is so largely vegetarian, milk in most cases is the only article that for a time at least it is possible for the sick to take. The question of *diet* is one of extreme difficulty in Indian hospitals. Eggs, for example, are refused by very many who take other animal food, by some because they hold that they contain the principle of life; by others because they are generally laid by the domestic fowl, which lives on garbage. Curiously enough, many persons do not object to eating the eggs of the duck.

High caste Hindus will not eat turnips, because Musalmans eat them, but take radishes instead. Many Musalmans refuse the latter but eat onions, which nearly all Hindu castes, except Brahmans, also take. Brahmans and Baneahs use assafætida, cumin, and garlic instead of onions. Jains of the strictest kind will not even drink water from the spring because it contains life, but use that which has been drawn by other people from the wells, as the sin of destroying life then falls on the latter instead of on themselves. The idea of passing on sins and disorders to others is common to all Hindus. For example, men put garlands round the necks of children who suffer

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* Since the above was written, this has been begun in Rajputana.

† I have a series of drawings showing the particular demons which are responsible for most of the common diseases of elephants.

from small-pox, and throw them in the highway in the hope that strangers may pick them up or tread upon them, or perhaps animals may do so; and thus Chaube Brahmans do not take potatoes or cabbages, because they were introduced by foreigners into India. Many women will not eat until they have looked upon the face of an image or have gone to a temple, or have seen a revered person (as, for example, their guru or spiritual guide)—early in the morning. These are a few only of the difficulties which attend the dieting of the sick. In the administration of drugs again trouble arises. Jains and strict Hindus are told that English medicines contain spirit, the use of which is forbidden; hence dry medicines are given, if so requested, in all our dispensaries. Very few care to be in-patients in hospitals, as if they die in them they would feel disgraced, because a man should expire in his home, on the earth if possible, and amongst his friends, who are prevented from performing many necessary ceremonies if he is abroad at the fatal moment. Moreover, it is supposed that the spirits of those who die haunt the wards and injure the living. Much of the trouble may be got over by having small cottage hospitals instead of large wards. An Indian hospital moreover, if space can be obtained, should not have an upper floor, because it is impossible with it to have satisfactory latrine arrangements. The poorer classes do not understand them, and therefore defile the floors and staircases. Nyctalopia is common amongst the villagers. It is usually successfully treated by keeping the patient from the sun as much as possible and by adding oil to his diet and by giving iron internally.

Venereal Diseases.—These have already been noted under surgical affections. I will merely add that hereditary syphilis is common enough, and although it often yields to mercurial treatment, the children are usually so badly fed and cared for that a fatal result is in most cases to be anticipated.

Scurvy.—A scorbutic state of the gums is very common, and particularly amongst vegetarians, as, for example, Bunniahs and Jains, whose mouths are frequently filled with tartar, breath extremely offensive, teeth carious, and gums much ulcerated. Lime juice (which is generally taken in the form of *sikanjbin* or preserved juice) and iron with green vegetables, unless the case is very bad, afford relief. Some bad cases of noma have been seen in half-starved children.

Worms.—Round and tape worms are perhaps less frequent than in Europe. Thread worms in children are frequently seen. Reference may be made here to the widespread habit of mud-eating amongst children, and to the occasional applications for relief from Guinea-worm, which is however somewhat rare in Jeypore, except amongst foreigners from Ajmere, Meywar, and some other districts. The disease is very common amongst the Bhils. When I was surgeon to the Meywar Bhils Corps, I published a paper in which I dealt with several thousand cases. With regard to treatment of thread worms, it is as well to mention that there is an objection amongst the more prejudiced and strict Hindus to the use of the enema syringe for the local relief of this or any other affection. Less exception is however now taken than some years ago to this mode of treatment.

I have not seen cases of anchylostomiasis.

Debility.—Reference has already been made to the frequency of anæmia after malarial affections, but it is the common sequel of numerous diseases in India, so little stamina or power of resistance have most natives to acute diseases. Women especially fail; but it has often been observed that many men, when attacked by a serious affection, have shown no

pluck or power of resistance of any kind. Many, who might recover, simply seem to make up their minds to die and do so, often refusing to take food. Nostalgia is not unfrequent, as every one knows who has much to do with Indians. Old people waste away and die when deprived of their children, but of course in many cases they are simply starved as they have no one to care for them, and have been too improvident to have put by money for their old age. In no country can parents more eagerly desire to have a son on whom they can depend in old age. The bread-winner too in a family breaks down because he has too many persons depending upon him, and starves himself to meet their wants. The conjoined Hindu family system, the absence of poor laws, and the iron bonds of family custom, as well as caste obligations, give rise to great hardships, and too frequently the best and most hard-working member of a family succumbs to the burden of supporting useless and often lazy connections. In the Native Army this is a well known difficulty, which is met by regularly moving regiments about, usually to a distance from their homes, by compensating them for dearness of food in kind, and by ascertaining that the men really spend a fair portion of their earnings, in nourishing themselves. In years of scarcity there are always large numbers of hangers-on to the industrial classes, who go to the wall and are the first to fall victims to starvation. Anæmia of a pernicious kind is seen most frequently after malarious fever.

Rheumatic Affections.—Acute rheumatism and its complications and sequelæ, are rare, but chronic and muscular rheumatism are common enough, especially after 40 years of age, both amongst men and women, and are due in most cases to exposure to wet and cold and to wearing damp garments. Every Hindu has the religious duty of washing his own loin cloth; consequently it is rarely dried after it has been dipped in the stream or water of the well, and so the wearer gets an attack of lumbago or sciatica. The ancient and common treatment for all rheumatic and neuralgic affections used to be the *gul* or actual cautery, but this rude method of dealing with these diseases is becoming distrusted. Opium is the sheet anchor as a domestic remedy and preventative for rheumatism all over the country.

Tubercular Disorders.—Phthisis is not unfrequent, and is occasionally very rapid in its progress, but amongst the well-fed it is rare.

Leprosy.—Leprosy is by no means common in Jeypore, though white leprosy or leucoderma is looked upon with disfavour by the people, who regard it is almost akin to the true disease.

All other General Diseases.—Typhoid fever is not often diagnosed here, because cases do not come into hospital, and *post-mortem* examinations, except for medico-legal purposes, are not held. In the transactions of the International Congress of Hygiene I stated that I believed that it was little known amongst adults, because most children had suffered from it. This was the experience of Brigade-Surgeon R. Gray, an officer of great experience in the Punjab, from whom I first heard it.

I see many cases amongst children, which I am convinced must be typhoid fever, but it is impossible to follow them up from the out-patient room or confirm the diagnosis by an autopsy. Epidemics of typhus fever were reported as having occurred in the jail about 25 years ago. There have been none since.

Diseases of the Nervous System.—Neuralgic affections of all kinds, especially sciatica and hemicrania, come under observation, in considerable numbers. Obscure diseases of the brain

and spinal cord are rare. I have seen one or two cases of Landry's paralysis and occasionally a patient suffering from locomotor ataxy. Apoplexy terminates the existence of many well-to-do men. Epilepsy is seen, and sometimes is the cause of severe burns from falls into the *chulas* or Indian cooking-places. Cases of hydrocephalus and spina bifida are not unfrequently brought to the hospitals. I have found frequent tapping with the inunction of mercury on the shaven scalp in the former, and tapping and injection with Morton's fluid in the latter, disorder most useful.

Hemiplegia in cases of apoplexy is frequent ; also paralysis of that form amongst children.

Diseases of the Circulatory System.—I have already noted the rare occurrence of diseases of the blood vessels from the surgical point of view. Affections of the heart are far less common than in Europe. Bad cases of mitral regurgitation are sometimes treated in boys, but rarely with much benefit, as they are brought into hospital in a very late stage.

Apoplexy is a not uncommon cause of death in old men, especially in old officials who never take any exercise, but live well.

DISEASES OF THE LUNGS AND RESPIRATORY ORGANS.

The months of December, January, February, and March yield the largest numbers of such cases. Pneumonia sometimes assumes an almost epidemic form, though I have no reason to believe that it is contagious, as is said to be the case in some parts of the Punjab. Large numbers of cases are brought into the hospital in the winter, and unless the sufferers are very much enfeebled, and the disease affects the greater portions of both lungs, recovery may usually be hoped for, but only if the patients are frequently fed, both by night and day, chiefly on milk, and cinchona bark and ammonia are given. In some cases alcohol is required, and usually quinine, as the temperature chart may indicate a strong malarial taint. The *post-mortem* examinations of friendless persons whose bodies are sent for examination by the police in a great majority of cases show pneumonia as the cause of death, or pneumonia with extensive pleuritic adhesions. Cases of simple pleurisy do not often come under observation. Pleurisy with effusion and empyema are rare. Acute and subacute bronchitis are chiefly seen in children. Chronic bronchitis is common enough in adults ; and sufferers from asthma also attend as out-patients in some numbers. Opium is much used by such persons. In the spring of 1890 there was a good deal of influenza, but not much has been noticed since then.

DISORDERS OF THE DIGESTIVE SYSTEM.

There is nothing especially noteworthy about the diarrhœa, except that some cases of sprue are seen, and are not very amenable to treatment. The monsoon months give the largest number of admissions in most affections of the digestive system. Dyspepsia is the common disorder of both rich and poor, in the former because they are over-fed and take little exercise, in the latter on account of the coarseness of the grain which they usually eat, particularly in the north and west of the State, where millets form the staple diet. In the prisons it is most important to see that the grain is well ground, otherwise irritative diarrhœa and dyspepsia arise, especially amongst those prisoners who do not work out of doors or get much exercise.

On the other hand, the use of fine wheat flour instead of the millets and barley may cause disease, as the people who fill our jails are unaccustomed to it and moreover do not like it.

DISEASES OF THE LIVER are less frequent than in the moister districts. I have seen a few cases of abscess of the liver, chiefly amongst Meenas—a flesh-eating tribe who use alcchol. In several cases the symptoms were by no means clear, there being little increase of temperature, no history of dysentery or tapeworm, and only pain towards the end. I may here refer to the rarity of Hydatid disease. The dog, who is the medium for the transmission of this disease, though fed, as an act of charity, is never allowed to eat from a vessel used for food. If he by accident does so, the vessel is purified by fire if made of metal, or broken if it is formed of earthenware. The *chula* or cooking-place is defiled if a dog crosses it, and the food is thrown away. Even the very lowest castes reject food from a vessel defiled by a dog's mouth.

DISEASE OF THE LYMPHATIC SYSTEM.

Enlarged strumous glands are not very common. Severe cases of lymphadenocele in the neck have applied for treatment.

DISEASES OF THE ORGANS OF LOCOMOTION.

Periostitis, except of syphilitic origin, is rare. Necrosis and caries have been dealt with under the head of Surgery. So also have diseases of the skin and connective tissue and ulcers.

SICKNESS AND MORTALITY.

In discussing the sickness and mortality of the different months of the year, the following tables have been used:—

(1) Return showing the attendance for different diseases in all the medical institutions in the city of Jeypore, *viz.*, the Mayo Hospital, the Palace, Purana Busti, and Moti Katra Dispensary and the jails, for the period 1882—1892, or for 11 years.

(2) Mortality table for Jeypore for the same period.

(3) Table of admissions, deaths, and strength of prisoners in the Jeypore jails for the period 1882-1892. (The only perfect return, as all the different factors are known)

(4) Attendance at nine dispensaries for 1875—1892; at one for 1882—1892, and at eight for 1884—1892.

(5) Mortality table, Ajmere district, 1882—1892. (Shown on the same sheet as No. II.)

(6) A number of meteorological tables, including those showing the ground temperatures.

Throughout Jeypore the tables prove conclusively that February is the most healthy month in the year, there being less sickness and a much lower mortality than at any other period. The variation is very small, as in 1890 only was the month unhealthy.

In Ajmere on the whole period, July afforded a lower death-rate.

There is the greatest sickness in August, September, and October. The mortality was highest in Jeypore city in August, November, October, and September in that order.

In the jails the death rate is highest in November, September, October, and December; and in Ajmere in November, December, September, and October.

High death-rate is due to malarial fevers and their sequelæ. It is in Jeypore city and in the jails in the worst months as compared with February as about 5 is to 3, and there is almost as much difference in Ajmere.

The temperature of the ground is no doubt a very important factor of influence upon the health of the people.

The temperatures at and near the surface are of most importance, as they very much influence the amount of evaporation and the growth of organisms in the soil. "The danger of sleeping on the ground as a prime factor is the cause of malaria in natives has been clearly proved" (Duncan). Most of the people sleep on string beds (*charpais*), but a very great number lie directly on the surface. Hence the probability of increased sickness and mortality amongst beggars and the very poorest classes.

Mean readings of ground thermometers for the period 1882-1892.

The fluctuations range from a mean of 66·50 for the year at the surface, to little more than a tenth of a degree at a depth of 15-16th.

The following table shows the principal results of 11 years' readings.

	Mean Maxima.	Mean Minima.	Mean range.
Surface	118·5	52·0	66·5
4 inches	101·4	66·2	35·2
1 foot	88·5	71·3	17·2
3 feet	82·5	76·8	5·7
10 feet	81·3	79·0	2·3
20 feet	80·7	79·7	1·0
45·2 feet	81·3	81·2	0·1

The differences of range are for the—

Surface	28·7	between April(1) and August.(2)	
4 inches	13·4	„	February(1) and December.(2)
1 foot	7·6	„	„ (1) „ „ (2)
3 feet	5·4	„	March (1) and January(2) and June.(2)
10 feet	3·2	„	December(1) and September.(2)
20 feet	1·7	„	April,(1) September,(2) and October.(2)

(1) Maximum—practically ~~none~~. (2) Minimum—~~45·5 feet~~ 45·2 feet. Practically none.

The maxima at the surface are attained in May and June; the minima in December and January in which there is least range except in August, which is due to a high minimum.

At 4 inches and 1 foot the maximum in June and the minima in January, December, and February.

At 3 feet the maximum in June, the minimum in January, February, and December.

At 10 feet the maximum in July, the minima in February and March.

At 20 feet the maxima in October and November, the minimum in April.

At 45·6 feet practically the same, but slightly hotter from February to April and lower in September.

The above figures prove the usefulness of a *taikhana* or underground cellar in North India in the extremely hot months.

Wind has considerable influence on health, and the East and North-East wind in Jeypore are considered, as elsewhere, particularly pernicious.

HEALTH OF EACH MONTH.

JANUARY.—This month stands eighth in point of death-rate in Jeypore as well as in Ajmere, and eleventh in prevalence of disease throughout the State.

More cases per mille of respiratory affections and ulcer are seen in this month than in any other.

Rheumatism, diseases of the skin and ulcers are frequent in proportion with general attendance.

The month is the coldest in the year, the mean range of temperature is lowest, the relative humidity is highest of the winter months.

These conditions lead to overcrowding in small rooms which would help to account for increase of skin disorders and, coupled (in the absence of great range of mean temperature) with sudden fluctuations of heat and cold which are due to cyclonic disturbances, may account also for chills which induce diseases of the organs in the chest.

FEBRUARY.—February is the month of lowest mortality in Jeypore, and of least sickness everywhere in the territory. Respiratory affections are somewhat less frequent than in January; but cases of skin disease, in proportion to the number of patients seen, show the highest rate of attendance. Diarrhœa and dysentery are rare.

The atmospheric conditions are similar to those of January, though the weather is warmer and the variations of the different elements less. Hence we should expect similar disorders, though with less frequency.

MARCH.—March comes ninth in the Jeypore and seventh in the Ajmere death-rate and tenth in the amount of sickness in the districts, though it is seventh in the city. It is a more healthy month than the first two in the year. Pneumonia prevails more than in any other month, and skin affections give almost the largest percentage of admissions.

The month is characterized by greater fluctuations of all kinds, and the wind velocity is higher than in the preceding months. It is hot enough to lead to carelessness in wearing clothing, especially at night, which leads naturally to chills.

APRIL.—April is sixth in order of mortality in Jeypore, but only seventh in Ajmere. It is fifth in point of sickness. Eye-diseases are more frequent than throughout the rest of the year. Pneumonia is common, as also are enlargement of the spleen, and skin disorders as well as dyspepsia.

April is the driest month in the year. It is more windy than March, and the range of temperature (the mean of which has risen 10°) is also greater.

MAY.—May is seventh in Jeypore, and sixth in Ajmere in the frequency of mortality, and sixth as regards sickness.

The month is characterized by a high rate of admissions for dyspepsia, rheumatism, diseases of the eye, and of the connective tissues.

The latter diseases and perhaps the first named are induced by the very dry air, the great heat and high winds which cause clouds of dust to blow often all day long.

The glare of the sun, which is not obscured by clouds, accounts too for the prevalence of eye-disorders.

JUNE.—The death-rate in June is very small, the lowest, ~~being~~ being but one in Jeypore, and the sickness is small also, as it is eighth in Jeypore and ninth in the State. The Ajmere death-rate is the ninth.

The prevailing diseases are in the following order : Diseases of the connective tissue, dyspepsia, diseases of the ear, and rheumatism. It is the least malarious of all the months.

The range of temperature is smaller than in the last month ; and the mean temperature is about the same, though the maxima and minima are higher ; but the relative humidity and the wind velocity are much greater.

JULY.—July is a month of low death-rate in Jeypore, being tenth on the list, but the sickness is great as the attendance at all the hospitals is fourth highest.

The Ajmere mortality is lowest in the year.

The rates of admissions for diseases of the connective tissue and of the ear, as well as for ulcer, diarrhœa, and dyspepsia are high ; and for malarial fevers, very low. Diseases of the ear are extremely common.

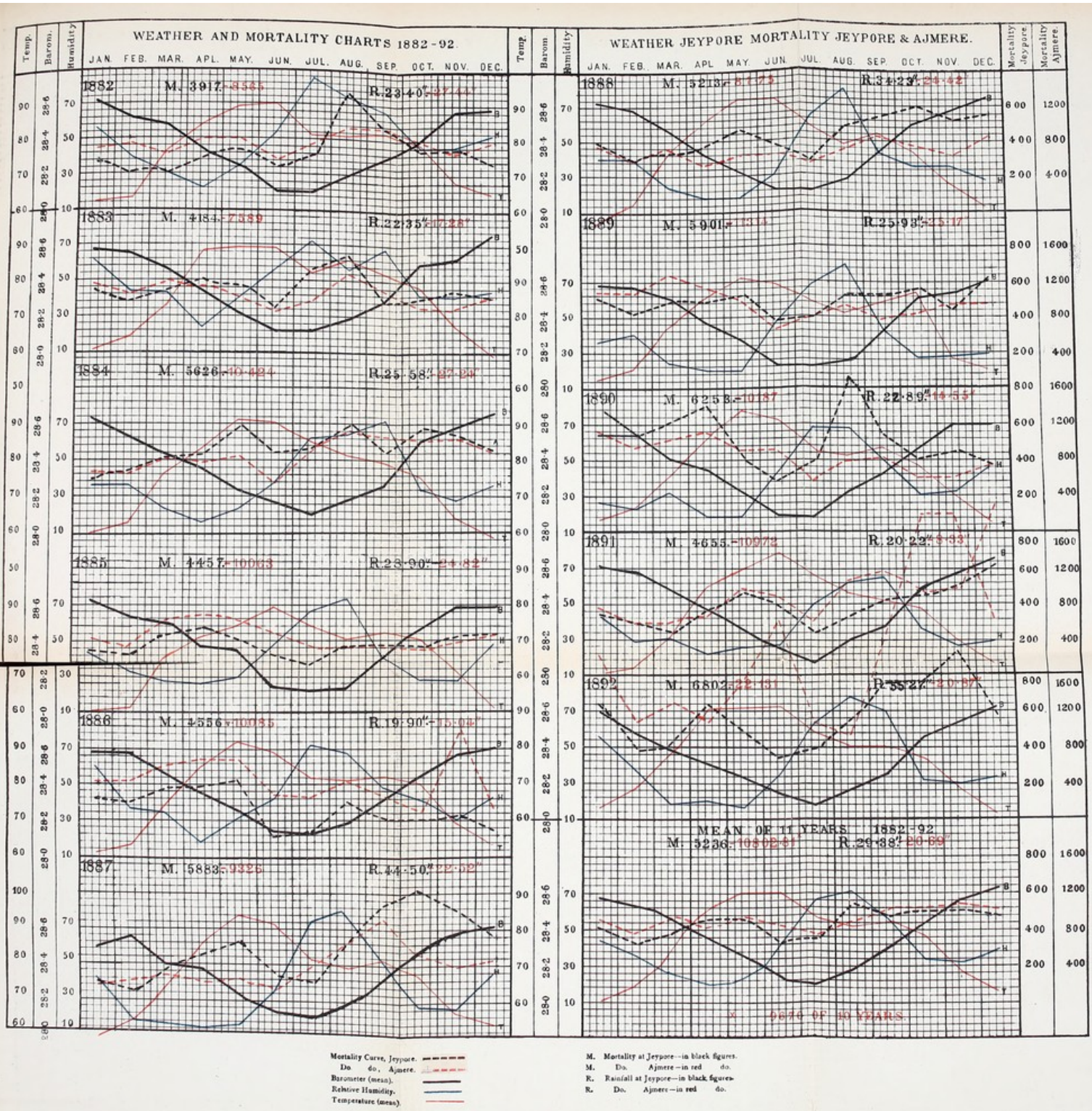
The great rainfall, comparatively uniform temperature with small range, and high humidity, are characteristics of the month.

AUGUST.—August has the highest mortality in Jeypore, and sickness is great throughout the State, the total being third highest, in the jails the highest of all. It is not so unhealthy in Ajmere, where in point of death-rate it is only fifth.

There are more admissions for dysentery, diarrhœa, and ulcer than in any other month, and diseases of the ear are second in frequency. On the other hand, the numbers treated for rheumatism, respiratory and splenic affections are low. The meteorological conditions are similar to those of July, hence the diseases are very similar. Vitality is low, and when not treated antiseptically, wounds heal badly. High humidity is the great meteorological factor in the month.

SEPTEMBER.—The mortality of this month is high, it being the fourth most fatal in Jeypore, and the third in Ajmere. The sickness is great, as it is the second unhealthiest of the months everywhere in the State, and in Jeypore City the worst.

The admissions for malarial fevers and dysentery are second highest in the year. Diarrhœa and diseases of the ear are common, but rheumatism less so than in any other month. The range of temperature has increased, and the humidity has fallen. The sunshine has increased, and everywhere


WEATHER AND MORTALITY CHARTS 1882-92.
JAN. FEB. MAR. APL. MAY. JUN. JUL. AUG. SEP. OCT. NOV. DEC.
Temp.
Barom.
Humidity
1882 M. 3917. R. 23·40"
1883 M. 4184. R. 22·35"
1884 M. 5626. R. 25·58"
1885 M. 4457. R. 28·90"
1886 M. 4556. R. 19·90"
1887 M. 5883. R. 44·50"
WEATHER JEYPORE MORTALITY JEYPORE & AJMERE.
JAN. FEB. MAR. APL. MAY. JUN. JUL. AUG. SEP. OCT. NOV. DEC.
Mortality Jeypore.
Mortality Ajmere.
1888 M. 5213. R. 34·23"
1889 M. 5901. R. 25·93"
1890 M. 6258. R. 22·89"
1891 M. 4655. R. 20·22"
1892 M. 6802. R. 35·27"
MEAN OF 11 YEARS. 1882-92.
M. 5236. R. 29·38"
Mortality Curve, Jeypore.
Do do, Ajmere.
Barometer (mean).
Relative Humidity.
Temperature (mean).
M. Mortality at Jeypore—in black figures.
M. Do. Ajmere—in red do.
R. Rainfall at Jeypore—in black figures.
R. Do. Ajmere—in red do.

the ground begins to dry, the rainfall having almost ceased towards the middle of the month, hence the increase of malarial affections.

OCTOBER.—The death-rate is high in Jeypore as it is third in the list. In Ajmere it is fourth.

The admissions for sickness are now at the greatest throughout the State and next to the highest in the City.

Malarial fever is much more prevalent than in any other month. Dysentery and splenic disorders are common.

Temperature falls rapidly and the barometer rises suddenly, while the range of temperature is very great; rainfall is very small; but there is bright sunshine which leads to further rapid drying up of the land, so that the health conditions are much the same as in September. Moreover, in both those months the peasants are much exposed in the fields.

NOVEMBER.—November is the second most fatal of the months in the city, and first in the jails and at Ajmere; but the sickness in the territory has fallen to the eighth place and in the city to the ninth.

Diseases of the respiratory tract (except pneumonia and dysentery) malarial fevers and spleen disorders are very common, the latter more frequent than in any other month. Diseases of the ear and eye as well as dyspepsia are much fewer in November.

This is the brightest of the months, but other conditions are similar to October. The wind velocity is small; but the temperature has fallen ten degrees, and the range is great.

DECEMBER.—December comes fifth in Jeypore and second in Ajmere as regards mortality. It is seventh for attendance at the district dispensaries and tenth at Jeypore.

Diseases of the Respiratory system are very common, and next to them rheumatism, affections of the spleen, and ulcer.

Disorders of the eye and ear are less frequent.

Barometric pressure is highest and the temperature is lowest except in January, while the range is nearly as high as in November; but the earth is now quite dry, hence malarious affections are less frequent, although still fourth in number in the year.

NOTES ON THE HEALTH OF EACH YEAR OF THE ELEVEN-YEAR PERIOD—1882-1892—IN CONNECTION WITH CLIMATE, &c.

In addition to the tables referred to under the head of monthly sickness, a chart has been prepared showing the curves of the mean temperature, barometer, and humidity, with the mortality in Jeypore and also in the Ajmere district. The latter has been included because the vital statistics refer to the whole district which is contiguous to Jeypore. They relate to a larger population and are supposed to be more accurate than those of Native States, but as they coincide to a very large degree with those of Jeypore, and discrepancies seem to be capable of easy explanation, they serve to confirm the deductions which have been made from the Jeypore figures.

The general results of the enquiries seem to establish the following facts:—

(1) That, with a moderate monsoon rainfall, which begins at the usual time and continues without any lengthened interruptions, and with a moderate temperature in the hot season, the public health is good.

(2) That the curve of mortality and sickness shows two periods of minima, *viz.*, in January and February, and in June and July; and two of maxima, *viz.*, in April or May from malarial (and in August in Jeypore) with a general rise in the curve in the remaining months up to December, which is also due to malaria.

(3) That the curves are most liable to be modified by small-pox epidemics from March to June; by cholera from the end of April to the beginning of September; and by malarial fevers from August.

(4) That the mortality and sickness of any one year are greatly increased by drought in the preceding year, partly on account of dearness of grain, but also because of the scarcity of water in the wells and tanks which becomes foul and really unfit for drinking purposes.

(5) That there is no evidence to show that cholera originates *de novo*, but on the contrary that it is nearly always imported and almost invariably from the East.

(6) The Ajmere mortality table shows a great waste of infantile life, *viz.*, 44·18 per cent. on the average. This is due to diseases which are not yet differentiated on account of want of sufficient continuous medical attendance on children and of *post-mortem* examinations. In my opinion, and in that of writers of experience, it is due chiefly to infantile diarrhœa, to small-pox, and to fevers which are probably, for the most part, enteric, at all events to preventible causes.

(7) As regards the seasons of the year, the fourth quarter is the most unhealthy in both Jeypore and Ajmere, and the first is the most healthy; but in Jeypore the difference is much greater, the three first months, as well as December, being decidedly more healthy than in Ajmere. In the second quarter the totals are about the same, but April is more unhealthy and June much more healthy in Jeypore than in Ajmere.

In the third quarter, owing to August being usually a sickly month, the Jeypore mortality is much in excess, and is generally due, it seems, to a prolonged break in the monsoon of rain after a heavy fall.

HEALTH NOTES—General Weather 1882—1892.

1882.

The death-rate was very low in Jeypore, being 31·56 per mille, or 12·81 less than the average of the seven preceding years, though cholera carried off 287 persons between July 1st and October 8th, small-pox killed only 68; and after August the year was singularly free from fevers of malarial type.

The mortality in the jail was lower than in the previous years, being at the rate of 41·66 per mille. The only great variations from the mean curve of mortality in excess were in July on account of cholera, and in August of fever, the latter being due in all probability to a long break in the rains and rapid drying up of the soil.

The mortality of Ajmere was also low.

1883.

The year was healthy, the death-rate being 33·26 per thousand, or 1·70 more than in 1882; but there were 343 deaths from cholera between June 24th and September 8th

against 287 in 1882, which raised the curve for July and August. There were only 14 deaths from small-pox. The jail death-rate was 49·67 per mille. In Ajmere the mortality was lower than it had been in the 11-year period.

1884.

The mortality in Jeypore was very high, having risen to 44·72, or 11·46 per mille higher than in 1883, and 2·71 above the average of 10 years. Fifty-two deaths from cholera between May 23rd and 29th and 484 from small-pox were reported.

Malarial fever caused a high death-rate. The mortality in the jail rose to 68·19 per thousand.

Fatal cases of fever, small-pox, and cholera were all abnormally frequent, causing a sudden rise in the curves.

There were two periods of maxima of fever fatality *viz.*, in August and October, both coincident, with drying up after rainfall.

The Ajmere mortality was much higher than in 1883, but entirely in the last half of the year.

In his report for 1884 the Superintendent-General of Dispensaries makes the following remarks :—

"We find that fevers and bowel complaints caused a much larger mortality, both in the Ajmere division and Native States, than in 1883. This exemplifies what appears to have been the invariable rule in Rajputana, *viz.*, that much sickness follows much rain."

1885.

In 1885 the death-rate fell to 36·22.

There were only 14 fatal cases from cholera, but the mortality (371) from small-pox was still high. There was much less malarial fever than usual, although the monsoon ceased somewhat prematurely and the rainfall was above the average. It was moreover much hotter than usual in October and November. The jail mortality was at the rate of 27·56 per thousand, or 40·63 less than in 1884, or 4·36 less than in 1880, the healthiest of the previous 10 years.

On the whole, in Ajmere also the year was a healthy one.

The mortality curves of both districts (Jeypore and Ajmere) were in close accord. There were no great fluctuations in the curve of mortality, except a general defect in the last five months.

The fall of rain was very equable from the end of June to the beginning of September.

1886.

In 1886 the mortality was exactly the same as in 1885, or 36·22 per mille. There were 10 deaths from cholera between November 13th and 19th and 172 from small-pox.

The cholera cases originated at Pushkar at the time of the great annual fair. Every patient had been there, but the disease did not spread in the city of Jeypore.

The monsoon ceased early, and the rainfall was 3·81 below the average, while the mean temperature from October to the end of the year was higher than usual. The jail mortality was at the rate of 38·72 per thousand.

In Ajmere also the death-rate was almost exactly the same as in 1885, but would have been very much lower had it not been for an unprecedented outbreak of cholera at the Pushkar fair (which is near Ajmere) in November, where 765 deaths occurred. The attendance was very large, and the lake at Pushkar was very low owing to scanty rainfall.

1887.

In 1887 the mortality rose to 46·77, the highest since 1880. There were 303 deaths from cholera, of which 130 took place in August, and 31 from small-pox.

The rainfall was unprecedentedly heavy, being 19·81 inches above the average or 8·62 above that of 1879, the highest amount ever before recorded. The fall was not only unduly high but continuous; the hot season had begun early and the temperature was very high, and the air extremely dry.

There was a great increase in the number of persons suffering from malarial fevers, except in the north of the State, where the soil is sandy; and the amount of fevers was less than usual. Grain was very dear, being higher than in any year since 1879.

Similar conditions of high death-rate, dear food, and heavy rainfall were observed in that year also.

The jail mortality was 42·4 per mille. In Ajmere the death-rate was lower than usual, having fallen from 21 in 1885 to 20 per mille. The rainfall was only about half that of Jeypore.

1888.

In 1888 the mortality in the year was still high, though there were no cholera cases and only three of small-pox, the latter being the smallest number on record for 40 years, the average death-rate from that disease having been for the previous 13 years 422·08.

The rainfall was 9·11 inches above the average; but the monsoon ceased somewhat prematurely in many districts, and caused much loss to the agriculturists.

The millets, on which most of the people subsist, were very dear. Bajra was sold to 14·71 seers per rupee, a lower rate than since 1878; and barley to 19·72 seers, the lowest price since 1879. There was scanty rain in the west and north of the States, the millet-producing districts.

Malarial fevers were very prevalent.

The jail mortality was 53·47 per mille.

In Ajmere the mortality fell from 20 in 1887 to 17. The rainfall was 24·42 inches as compared with 34·23 inches in Jeypore.

1889.

In 1889 the mortality was excessive, being the highest for nine years, or 675·36 above the average for 14 years. There were 84 cases of cholera and 686 of bowel complaints (or 157 above the previous year). Rainfall was small. There was less rain in July than usual, but August was unusually wet and the monsoon ceased suddenly; so that the average fall was only 0·12 inches in September.

Grain was cheaper than it had been since 1886.

The jail mortality was very low, being at the rate of 22·37 per mille, due to increase of accommodation by the erection of a new jail.

The Ajmere death-rate was the highest since 1882. The rainfall was about the same as that of Jeypore. One thousand six hundred and eighty-six deaths from small-pox and 1,634 more cases of fever account chiefly for the increased mortality, and small-pox is responsible for the rise in the curve in the first quarter of the year. There were more deaths in Ajmere from that disease than throughout the rest of Rajputana.

1890.

In 1890 the mortality was the highest since 1879. There were 457 deaths from cholera, of which 357 were in August, and 153 from small-pox with 3,659 from malarial fevers, which were particularly fatal in March and April.

Grain cost less than in 1889, though the rates were still rather high. The rainfall was small, and there was none at all between August 15th and September 23rd, while the temperature was above the average.

The jail mortality was at the rate of 55·68 per mille.

In Ajmere the mortality was 22·11 against 24·55 in the previous year, and during the last quarter fell to 17. The rainfall was very scanty.

1891.

In 1891 the mortality fell very much, being the lowest since 1886.

There were only six fatal cases of cholera and 31 of small-pox.

The rainfall was less than the average as well as being considerably delayed. Grain became very dear, being for barley the highest since 1879, and for millet (with one exception in 1888) the highest since 1878.

The jail death-rate was 24·36 per mille only, being the lowest ever recorded.

The deaths from fevers rose from October and abruptly in December, being almost as much in January 1892 as in the latter month. Similar statistics were noticed in 1889-1891 ; but there appears to have been nothing unusual in the meteorological conditions.

The mortality of Ajmere increased slightly, but especially at a greatly increased rate in the last quarter, when the ill effects of a very small rainfall (only 8·33 inches, or nearly 13 less the average) and the failure of crops began to tell. These adverse circumstances however became far more serious as regards the death-rate in the next year. Moreover, in December small-pox was very fatal.

1892.

In 1892 the mortality rose to 6,802, the highest on record since 1874. One hundred and seventy-eight deaths from cholera and 227 from small-pox were recorded.

The death-rate from malarial fevers was very high in April, September, October, and November.

The rainfall was 3·21 inches more than twice the average and 10·77 above the highest fall ever recorded ; and the mean temperature was also the highest above the average of 24 years. To the heavy rainfall with drought, and consequent dearness of provisions during the previous

years and early part of 1892, may be attributed the great amount of sickness in the autumn months and the heavy mortality.

The jail death-rate was 33·97 per mille, or 22·02 less than the average of the previous 16 years.

In Ajmere, where the rainfall was only 20·87, or about the average of the past 11 years, *viz.*, 20·69, the mortality rose to 22·131, or more than double that of 1891, being at the rate of 40·80 per mille. This terrible increase was due to excess under all causes of death.

The Superintendent-General wrote that "the year was marked by famine and widespread disease; and cholera and small-pox were epidemic and very fatal, mainly during the hot weather months; and after the rains fevers of an unusually virulent nature were rife, and caused more than two-thirds of the total deaths recorded."

There were 631, 1,310, and 333 deaths in May, June, and July respectively from cholera alone, and 1,400 from small-pox in the first four months of the year. Cholera caused the great height of the mortality curve in June. The deaths from fevers were 1,729, 2,962, 3,081, and 1,898 respectively in the last four months of the year.

"The season of 1890-91 was bad, but in 1891 the rainfall was the most scanty known for years; crops and fodder failed, animals died in large numbers, and a scarcity fell upon the people which, gradually becoming more severe, reached its most acute stage in the middle of the year, and continued until October, when the harvest, which fortunately was very plentiful, had ripened. In spite of relief works and other charitable measures, it is no wonder the sickness and deaths were very high."

This account of a famine is introduced to show the difficulties that arise from the failure of the monsoons.

General Remarks.—In order to approximate the mortality curves, that of Ajmere is on half the scale of that of Jeypore, or at 800 per inch instead of 400. There are no data to show in Jeypore the relation of mortality to hourly alterations of the barometric, thermometric, or vapour tension curves.

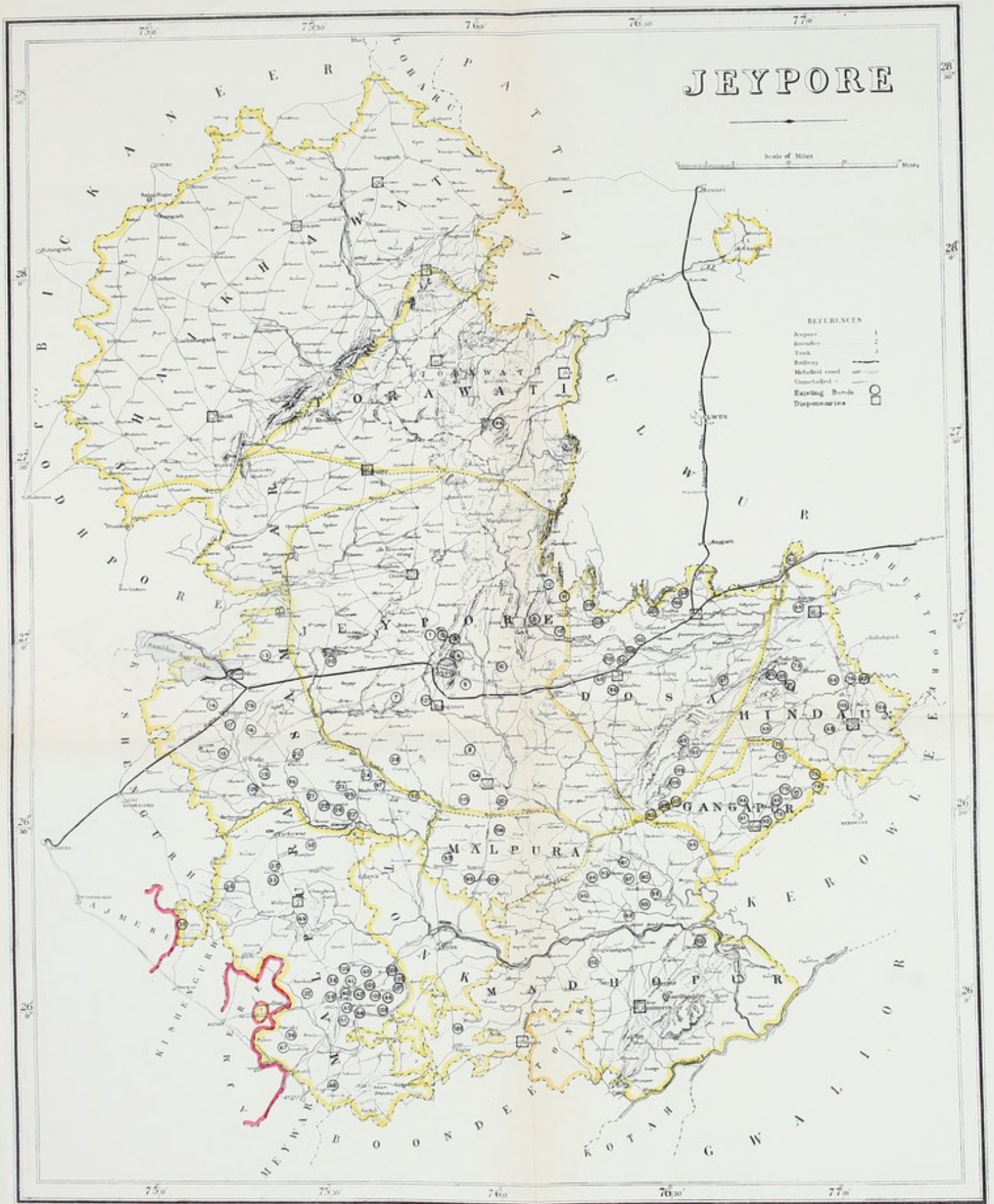
It is stated that the mortality generally is highest at the hours of lowest barometric pressure. On the whole, it rises with a rising barometer, and falls with a falling one.

It is very difficult to study the connection between climate and disease where the vital statistics are somewhat unreliable as in the cases under consideration. Still the numbers are large and seem to warrant the deductions that have been made.

GENERAL DESCRIPTION OF THE STATE.

(Taken mainly from my Handbook on the Jeypore Courts at the Indo-Colonial Exhibition held in London in 1886 *and chiefly condensed from the Rajputana Gazetteer.)*

Jeypore, one of the largest and most important Rajput States, covers an area of 14,527 square miles, and lies between North Latitude 25°43′ and 28°30′, and East Longitude 74°50′ and 77°18. On the North it is bounded by Bikanir and the Punjab, on the East by Ulwar, Bhartpore and


JEYPORE
Scale of Miles
REFERENCES
Jeypore 1
Boundary 2
Tank 3
Railway
Metalled road
Unmetalled
Existing Bunds
Dispensaries
75°
75°30'
76°
76°30'
77°
28°30'
28°
27°30'
27°
26°30'
26°
25°30'
25°
PARGANAS
TORAWATI
JEYPORE
MALPURA
GANGAPUR
HINDAUN
KAMADHOUR
KEROWLEE
GWALIOR
KOTAH
BOONDEE
MEWAR
JUMEER
AJMERE
KISHENGURH
SHEKHAWUTTEE
BIKANEER
SHARUNGPUR
DHOLPORE
LUHUR

Karauli, on the South by Gwalior, Bundi, Tonk, Oodeypore and Ajmere, and on the West by Kishengarh, Marwar and Bikanir.

The general character of the country is level and open ; but there are numerous ranges of hilly and isolated peaks and ridges which diversify the scenery, and as many of them are crowned with forts, and towns and villages are grouped round their bases, or stretch up the ravines on their side, the beauty and picturesqueness of the country are much increased.

The centre of the State is an elevated table-land, at Jeypore 1,400 feet above the sea-level. It rises towards the west and south, and rapidly falls towards the east. On the Karauli border, and between the Chambal and Banas rivers, the country is very wild, and the scenery often beautiful. The Banas and Banganga rivers flow through the State. There are several smaller streams in Shekhawati, the northern province, some of which lose themselves in the sands ; and there is one well-known lake at Sambhar on the Jodhpore border, whence is produced an excellent kind of salt, which is distributed through Northern India by the Imperial Inland Revenue Department.

The lake is leased to the Government of India by the two States which jointly own it ; and its product is chiefly carried away by the Rajputana Railway, which in a great measure owes its origin to this salt deposit. The greater part of Jeypore belongs to what has been termed, from the principal feature in it, the Aravali geological region. The rocks, which underlie the sand, and those which crop out above it, belong to the crystalline and transition series, in which to the present day no fossils have been discovered, and consequently their age has not been determined.

The Vindhyan rocks, from which the red sandstone of the Agra and Delhi forts was taken, touch them in the Hindown district, and are posterior to them in age.

The Vindhyan system is supposed to be older than the old red sandstone of Great Britain, than the Laurentian rocks.

The soil is made up of the débris of these rocks, and towards the east of alluvium or earth deposited from water and of sand blown up, it is thought, from the western seas.

In many places the earth is covered with a saline efflorescence known as "reh," injurious to cultivation. On the *reh* soil the phenomenon of the mirage is often seen.

There are numerous salt sources in the State besides the Sambhar Lake.

Kankar, a concretionary carbonate of lime of which Indian roads are so often made, is another product found in abundance in Jeypore.

The lime in the kankar is of great value in agriculture, especially in the cultivation of cotton.

Many valuable building stones are quarried in the Jeypore territory.

A little sandstone comes from Hindown, near the Bhartpore and Karauli border.

Valuable marbles are obtained from the quarries of Bussi and Raialo in the north-east. Enormous slabs of mica-schist, up to 30 feet length, from the hill of Bankri, close to the town of Dousa, are used throughout Jeypore for roofing purposes. The steatite from which the well-known

Agra toys are made is also obtained, according to Mr. Hacket, from the Hindown district of Jeypore. Although the State is not rich in mineral wealth, copper, cobalt and iron, especially the first two, have been obtained in paying quantities near Khetri. The scarcity of fuel and the difficulties of drainage of the mines are the chief difficulties in working the ores.

Garnets of the best kind, the finest in the world it is believed, are found in the Rajmahal hills, near the River Banas ; and beryl is also obtained. The soil is generally sandy, and where there is but a scanty rainfall, as in Shekhawati, the crops are poor, and the population in consequence sparse ; but on the sides of the watercourses and rivers, and in the beds of artificial tanks in more favoured regions, this apparently useless sand yields magnificent harvests.

In some places an abundant supply of grass is produced, upon which are reared the flock of sheep that supply the Agra and Delhi districts with mutton.

To this may be added the fact that the cattle and horses are very poor, which is due, however, to the subject of breeding having had little or no attention paid to it. Owing to the existence of a local law, no male animals are castrated ; consequently there is practically no selection of sires.

DISPENSARY TOWNS.

SEEKUR.

The town of Seekur is the residence of the Chief of Seekur, Rao Rajah Madho Singh Bahadur, a feudatory noble of Jeypore. The estate forms a portion of Shekhawati, the home of the Shekhawat branch of the Kachawaha Rajputs. It has a population of 179,337 living in 4 towns and 423 villages.

The population of the town is 19,897, and it contains 3,323 houses (Hindus 11,887, Musalmans 7,172 : Males 10,624, and Females 9,273 ; increase since 1881,—2,158). It has walls and some large bazars. There are two short made roads to garden houses of the Rao Rajah.

The Rao Raja has built a fine hospital (opened 1894) on a plan provided by Colonel Jacob ; there has been a good dispensary since November 21st, 1875. The roads, both in the towns and districts, are very sandy, and are practicable only for carriages which are drawn by bullocks and camels or by four horses. There is a famous temple, founded by Rajahs of the Chohan tribe, 900 years ago, at Harash, a lofty mountain about seven miles from Seekur.

The nearest Railway Station to Seekur is Nawa about 44 miles distant through Danta Ramgarh.

The view towards Nawalgarh is very curious. The eye ranges over a sea of sand heaps (tiba). The palace, the top of which is illuminated at night by an electric light, can be seen from a long distance across the plain.

The direct route from Jeypore is over a sandy road (64 miles), viâ Chomu, Ringas and Ranoli

Seekur may also be reached from Nawa on the line of rail by Kuchawan, Didwana, and Nechwa ; the distance from Nawa by this route is about 28 miles. The Seekur wells are not more than 80 feet deep. Kankar is the material most used in building.

JHUNJHUNU.

JHUNJHUNU.—Jhunjhunu is reached from Seekur in two marches over a sandy country. Nawalgarh, at the end of the first stage of 20 miles, is a large town of 10,160 inhabitants. There should be a dispensary here, but as this is the joint property of four nobles, it would prove difficult to maintain one.

The law of equal division of property amongst the heirs of Shekhawat Rajputs is responsible for this. Sixteen or even more persons may own a single well. The consequence is that many of the men seek service in British regiments in order to supplement their small family incomes. The second march of 24 miles is still over sand, but the country has a great deal of khejra (Prosopis Spicigera) jungle scattered over it. Jhunjhunu is the chief town of the Nizamut or Province of Shekhawati. Most of the land is owned by five great nobles, the descendants of one common ancestor, who dispossessed the Kaimkhani Mohamedan Nawabs of this part of the country. Notwithstanding this, the Durbar liberally supports the dispensary, which has been open since 18th June 1876. The present building is situated outside Fostergunj, the eastern end of the town, a suburb built when Jhunjhunu was the head-quarters of the Shekhawati Brigade, a force maintained by the Durbar from 1835 to 1843 under Major Foster to preserve the peace in Shekhawati. The Shekhawati Brigade was not kept up after this object was attained, but is now represented by the 13th Regiment of Bengal Infantry, which has its regimental centre at Delhi and recruits in its old neighbourhood.

There are 12,267 people in the town, and 1851 houses (Hindus 7,554, Musalmans 4,529 : Males 6,387, Females 5,880 ; increase since 1881—2,729). The camping ground is on the south close to the Nazim's residence. The wells are about 80 feet deep. The new dispensary was opened here on June 18th, 1876 ; having been transferred from Nim-ka-Thana. A good substantial building was afterwards erected by a banker of Bassao, Seth Ram Lall, a man of well-known charitable disposition. It was opened on December 6th, 1886.

CHIRAWA.

CHIRAWA.—The distance between Jhunjhunu and Chirawa is 18 miles; the road is very sandy in some parts, especially beyond the Kantli river.

The town belongs to the Khetri Rajah, a tributary noble of Jeypore, who maintains the dispensary in it. The institution was founded in 1866, closed in 1869, but re-opened in 1871. There are some rich bankers from Calcutta here, who have built serais for travellers, and other public institutions ; they are very obstructive as regards vaccination. There are also many Dudupanthis, who are religious ascetics. The building stands at a little distance from the town, and beyond it is the camping ground.

The population of the place is 6,701, and there are 749 houses : Hindus 5,892 ; and Musalmans 787 : Males 3,382, and Females 3,319, increase since 1,881,—1,212.)

KHETRI.

KHETRI,—A town of 8,418 inhabitants (Hindus, 6,313, and Musalmans 2,095 : Males 4,420 and Females 3,998 ; increase since 1881,—3,135) and 886 houses, is picturesquely situated in the midst of hills, and is difficult of access, there being only one cart road, and two or three bridle paths into the valley in which it stands.

The place is the residence of the Rajah of Khetri, a feudatory noble of Jeypore, who maintains a small hospital for both in and out-patients. There has been a dispensary since May 1865. The late chief was noted for his love of medicine, and, besides keeping up three dispensaries on his Estate, he acquired a magnificent library of about 5,000 volumes of standard medical and scientific works, most of which the present Rajah has very liberally made accessible to the public by placing them in a suitable building near the town.

The Chief has a garden-house, in which European visitors can be accommodated. There are mines of copper close to the town. Khetri is about 25 miles from Chirawa. The first part of the road is sandy, the last part runs over rocks, and for some distance along a river-bed.

Khetri is about 80 miles due north of Jeypore. A full description of the copper, cobalt, and alum mines, which was written by Colonel Brooke, will be found in the Bengal Asiatic Society's Journal for 1864.

The total population of the Khetri estate in 1891 was 131,377 persons, who lived in 3 towns and 257 villages.

KOTPUTLI.

KOTPUTLI.—The town of Kotputli may be reached from Khetri by two routes : one by Bassi-ka-Tiba, the less difficult but longer, the other over a bridle track to Baghor, near which are cobalt mines ; thence across a plain, and by Patan, a large town, picturesquely situated in the Turawati range of hills, and Narera over another plain with occasional hills. Total distance, 36 miles by the latter route.

Patan is the residence of the representative of the old Tuar Kings of Delhi. The town is large and should have dispensary, but the chief is not wealthy.

Kotputli, so named from its being composed of the town of Kot and the village of Putli, is the property of the Khetri Rajah who holds it, and the pergunnah of the same name, directly from the British Government.

Its population is 7,589, and there are 1,771 houses (Hindus 5,979, and Musalmans 1,602 : Males 3,796, Females 3,793 ; 495 fewer than in 1,881). The dispensary, which was founded in 1,868, closed in 1869, and reopened in 1,871, is maintained by Rajah Ajeet Singh, Bahadur, and is situated outside the town about a mile from the Thuggee Department Bungalow. It is small and inconvenient ; but a new one is under construction. Jeypore can be reached by two routes: one about 36 miles, *viz.*, Babaria, Harsora, and Thatarpur to Khairtal on the Delhi section of the Rajputana-Malwa Railway, which is 111 miles from Jeypore ; the other 60 miles, *viz.*, Pragpura, Manoharpur, and Achrol by road.

DAUSA.

DAUSA.—The town of Dausa is 39 miles by rail from Jeypore. There is a dâk bungalow close to the station, and the dispensary (founded May 1870) stands about a mile off on the west of the town near the road to Lalsot.

There are 1,781 houses with 8,416 inhabitants. (Hindus 7,009; and Musalmans 1,332; Males 4,518; and Females 3,891, increase since 1881,—1,032).

The place is the residence of the Nazim of a province of the same name. It was anciently, for a short time, the capital of Jeypore; and there is still a fort with extensive walls on the mountain which overhangs the town. Many stone images are manufactured here, which are sold to dealers from different parts of India for use in the temples.

LALSOT.

LALSOT.—Twenty-four miles due south of Dausa is Lalsot, a large town of 2,053 houses, with a population of 8,163 persons, of whom only 510 are Mahomedans and 7,452 Hindus (Males 4,021, and Females 4,142; 580 fewer than in 1881).

A fair weather road joins the two places. Lalsot is situated in a cleft in a long range of hills.

A small river runs in rear of the town. The camping ground is at the end of the main street, close to an obelisk erected here many years ago to the memory of a British officer who died there. The dispensary, founded 18th October 1881, is a new building on the standard plan: this is within the town. The inhabitants use a small stream at the back of the town as a latrine, and the utmost efforts to prevent them from doing so have proved useless. So true is it that most of the people prefer ease to health and cleanliness.

Many Brahmans have houses in the town, but most of their time is spent in begging money in distant parts.

Fair weather roads now run from Lalsot to Gungapur on the East (26 miles) and to Sawai Madhopur at the extreme South of the State (44 miles).

GUNGAPUR.

GUNGAPUR.—Gungapur is the capital of the Nizamut or province of Gungapur. Its population is 5,880, and there are 1,648 houses. (Hindus—5,229, and Musalmans 563: Males3,108; and Females—2,772.,) Curiously enough, there are 119 fewer men and 119 more women than in 1881 with no change in the total. The dispensary, founded on 6th February 1885, is a building on the standard plan.

The place may be reached from Hindown, 28 miles over a fair road, or from Lalsot 26 miles over hard soil, or from Karauli, which is about 20 miles to the East.

The former capital of this district was Udhai, several miles distant. It is still a place of some esteem and of pilgrimage, but the present town, which has mud walls, is in a richer tract of country, hence it is preferred. It is fairly well wooded. The water is near the surface, but the wells are in most cases without parapets and are dangerously unprotected.

It is proposed to remedy this great evil at an early date, as accidents are very frequent.

SAWAI MADHOPUR.

Sawai Madhopur is about 42 miles south of Gungapur. The first stage is Dunga Malarna (20 miles), a town standing in the hollow of a great hill close to the Moril river.

The opium poppy is grown here. The Banas is crossed at about six miles, and thence the road is hard to the camping ground outside the wall of Sawai Madhopur.

The town, the capital of a province of the same name, stands in a large valley which opens by a very narrow pass into the plain. It is laid out somewhat on the plan of Jeypore, and has one fine street, and a palace in good repair.

The dispensary, refounded on 1st April 1873, is a new one on the standard plan.

The population is 13,972. There are 4,434 houses.

(Hindus—10,396, and Musalmans—2,906. Males—7,143 and Females—6,829. Here again the number of females has diminished, and the total population is 103 less than in 1881.)

The famous fort of Ranthambhor, seven or eight miles distant, is reached by passing through the town.

There are, however, several other difficult bridle paths which lead to it. The road is very bad, but can be ridden over. Alauddin besieged the place in 1299 A. D. The siege is described in the Hamir Rasa, a translation of which may be found in the Journal of the Bengal Asiatic Society.

UNIARA.

Uniara is the seat of the Uniara Rajah, a tributary noble, who maintains a dispensary (founded on 1st October 1882). The building is at present very poor, but it is proposed to construct one on the standard plan. The town is walled, and contains 5,721 inhabitants, and 1,118 houses. (Hindus—4,542 and Musalmans—678. Males—2,920 and Females—2,108. 1,048 more than in 1881.)

It is 21 miles from Sawai Madhopur, over a good road, most of which lies in the Tonk territory. There is a large tank outside the town, and for about a month in the spring many of the people go outside the walls to assist at a large fair, which is held on the open plain.

MALPURA.

The direct route from Uniara to Malpura runs south of Tonk, and is about 50 miles in length. Another passes by Nagar, 13 miles; and Toda, 24 miles; to Malpura, 19 miles. Close to the modern town of Nagar is a large piece of ground, more than a mile square, which is covered with fragments of brick, the remains of an ancient city that is supposed to have been destroyed in the 4th or 5th century of the Christian era. A full account of it will be found in Vol. VI. of the Reports of the Archæological Survey of India.

At Toda there are some beautiful palaces, temples, and wells, built by a Sesodia Chief of the great Udaipur family, whose capital it was up to the 17th century.

From Uniara to Tonk are two short marches, partly through the Tonk detached Pargannah of Aligarh, and by Kakor, a town and hill fort of the Uniara Rajah.

Malpura, the capital of the province of the same name, is a large town of 8,345 inhabitants and 1,788 houses. (Hindus 6180, and Musalmans 1,698: Males 4,336, and Females 4,009. There are fewer men and more women than in 1881; total increase, 133.)

It is celebrated for its manufacture of felt. There is a fine tank. A new dispensary (founded on 18th September 1881) has been built on the standard plan.

Malpura is 26 miles south of Dudu on the Jeypore-Ajmere road, *viâ* Pachewar over a flat country with good riding ground. Near Dudu a large irrigation tank with a very long artificial

embankment is passed. It is at Chaparwara, about 2 miles off the town. A large tract of country will be brought under cultivation after 1894.

CHATSU.

Chatsu, a very ancient town on the high road from Jeypore to Tonk, 25 miles from the former place, 35 from the latter, is reached in two marches, from Malpura *viâ* Diggi and Chota Chandma, or by Madhorajpura. Total distance, 39 or 40 miles. The population is 7,870, the number of houses 1,474.

(Hindus—5,875 and Musalmans—1,578. Males—4,589 and Females—3,281. Increase since 1881—1,651.)

There is a rest-house on the high road, and a new dispensary on the high road to Tonk, east of the town. (Here has been a good dispensary since May 1870.)

A little to the north of the town near the high road a very largely attended fair is held annually in honour of Situla-mata, the goddess of small-pox, hence Chatsu is often a cholera focus.

SANGANIR.

Sanganir, on the Jeypore and Tonk road, seven miles from the former, and three miles from the Sanganir Railway station, is an old town of 4,935 inhabitants, with 1,359 houses.

There are some very ancient Jain temples within the walls. The dispensary (founded on January 18th, 1874) is kept up in the old palace, and there is a good driving road to it.

Below the walls runs the Amanishah river. It is the seat of a famous dyeing industry.

The Chintzes are printed in colours by hand blocks; but unfortunately the work is decaying owing to machine competition.

The palace, it is said; was once occupied by the Emperor Akbar. Sanga, the founder of the town, was a relation of the chief of Jeypore and rival claimant for the throne. He died a violent death, and is now propitiated as a Bhumia or protector of the soil in a temple in the town; such deifications are not uncommon.

SAMBHAR.

The Durbar maintains a dispensary (founded on 17th June 1875) at Sambhar, 39 miles from Jeypore by rail, on the edge of the salt lake of the same name. Sambhar is the capital of a province, and is jointly owned by the Jeypore and Jodhpore Durbars.

A new dispensary is about to be erected on land, the joint property of the two states by special arrangement between the respective Governments. All expenses will be met by Jeypore.

Population—12,362 and Houses. (Hindus—8,277. Musalmans—3,911. Males—6,802 and Females—5,560. Increase since 1881.)

Sambhar is a very ancient town. There was a Buddhist centre on the shores of a fresh water lake, the Naleya Sar, a little to the west of the salt lake. Excavation on the site revealed remains of many houses which seemed to have been destroyed by fire. Some coins, vessels, &c., were found, which were described by me in the Journal of the Royal Asiatic Society (Vol. XVII, Part I, 1884). In modern Sambhar is the Deoyani tank with traditions of its having been in existence in the time of Yayati, King of Uttarakund or Northern India, in the very earliest ages. Manika Rai, the Chohán

lived here in A. D. 625. The last Hindu King of Delhi and Ajmere, Prithwi Raj, Chohán, was, proud to be styled Sambri Rao or Lord of Sambhar.

HINDOWN.

Hindown is a town with 3,320 houses and 12,996 inhabitants.

(Hindus—10,122 and Musalmans—2,727. Males—6,780 and Females—6,216. Increase since 1881—103, almost all of females.)

It is about 34 miles south of the Mandawar of Hindown Road station, on the Rajputana-Malwa Railway. A good-made road joins the two places, and proceeds to Karauli. The City is the capital of a province.

The dispensary (founded on 20th April 1881) is now in a new building on the road. There is a small rest-house adjoining it.

MHOWA.

At Mhowa, 14 miles from Mandawar, on the Hindown road at the point where it crosses the Agra and Ajmere road, there has been a dispensary since November 1873 (with a short interval).

Dispensaries such as this, on the high road between important places, are of great value, and the one here is particularly so because cholera has often been imported by this route.

A new building is in course of erection near the dâk bungalow.

Between Jeypore and Seekur are two dispensaries, *viz.*, Chomu and Sri Madhopur; a third is at Nim-ka-Thana between Chomu and Khetri, and a fourth at Bandikui close to the station of that name, at which the Agra and Delhi sections of the Rajputana-Malwa Railway meet each other.

CHOMU.

Chomu is the principal place on the estate of Rao Bahadur Govind Singh, Bahadur, the Premier Noble or Thakur of Jeypore. It is a town 18 miles north of Jeypore and has a good mud wall and ditch, and stands on a plain. There is a fort with a masonry wall and ditch.

The Thakur has kept up a dispensary in a building in front of the principal gate of the fort since 7th January 1887; but has now built a fine stone hospital with accommodation for 8 patients.

The Institution has been of great value. The population is 8570. (Hindus—6936; Musalmans—1348. Males—4351, and Females—4219. Increase—4642 since 1881.)

SRI MADHOPUR.

North—North-West, 24 miles of Chomu, is Sri Madhopur, the principal place in a tehsil in the Nizamut of Sambhar. Twelve miles beyond Chomu, a branch of the Mehnda river, which runs into the Salt Lake of Sambhar, is crossed at a place known as Khejroli, where the district of Shekhawati is said to begin. Beyond this point the country is generally very sandy, and is characterized by the presence of the Khejra tree, which is sacred amongst Rajputs.

It serves as the crest of the State of Jeypore or Dhundar (the ancient and proper name of the country), and is valuable as a timber tree, besides which its leaves are used as fodder all through the country. At the Dusehra festival the Rajputs worship it.

Sri Madhopur is an open town with streets laid out on the same rectangular plan as at Jeypore.

It has a population of 6,130. (Hindus 5,595, Musalmans 506; Males 3,094, and females 3,036; increase of 717 since 1881.)

A dispensary was opened on 5th May 1882; and a new building on the standard plan was erected in 1888.

The whole country about the sources of the Mehnda river, and for some distance on towards Seekur, is covered with "reh," a saline effervescence which, no doubt, has something to do with the presence of so much salt at the lower levels, such for example as Sambhar.

The road to Seekur, 36 miles distant, passes through Ranoli, a small place on the bank of a river which runs into another salt source, the Kachor-Rewassa Sar, a lake or marsh, at which salt and *khar* or saline earth used to be manufactured.

Under the present regulations, it does not pay to work minor salt sources of this kind.

The road passes through woods of Khejra and Pilu (the tooth-stick tree) or Salvadora Persica trees and over heavy sand.

The sand continues very heavy nearly all the way to Seekur; but although the way is toilsome, the air is very bracing in the winter, and for this reason the inhabitants are amongst the finest in India.

NIM-KA-THANA.

Nim-ka-thana is about 22 miles North—North-East of Sri Madhopur, and 36 miles North of Chomu. The large village of Nim-ka-Thana and the cantonment known as the Chaoni, the seat of the Nazim or head of the Nizamut, or province of Tourawati, which is chiefly inhabited by Tuar Rajputs, once a very powerful clan that ruled at Delhi. The district is hilly. The population is 5,733. (Hindus 4,904, Musalmans 806; males 3,323, females 2,410; or 3,022 more than in 1881.)

There is a large force here, which accounts for the excess of males.

The dispensary was first opened on 12th September 1873, and was transferred to Jhunjhunu in 1876. It was reopened here in a new building on the standard plan in 1889.

BANDIKUI.

Bandikui is a small place, the capital of a small district mainly isolated from the larger Nizamats on account of its connection with the important Railway Junction close by.

Its population is 1,310.

There are 967 more than in 1881.

The dispensary, founded in 6th January 1885, is on the standard plan, and is close to a good walled bazar.

DISTRIBUTION OF POPULATION AND NATURE OF THEIR HOMES.

The total population of the Jeypore State in 1891 was 2,825, 655, of whom 4,67,245, or 16·53 per cent. lived in the towns, and 23,58,410, or 83·46 per cent. in the villages and hamlets. On an average therefore there are five villagers to one towns-man.

The following statement from the census report shows the kind of houses in which the people live :

STATEMENT No. I A.

	Occupied.			Unoccupied.			Grand Total.
	Pakka.	Kachcha.	Total.	Pakka.	Kachcha.	Total.	
Houses ...	50,667	32,443	73,75,104	2,148	1,09,21	71,21,635	4,96,739
Shops ...	5,069	2.711	7,780	26,906	11,863	38,769	46,549
Temples ...	3,411	374	3,785	4,277	654	4 931	8,716
Mosques ...	104	25	129	330	31	361	490
Dharamsalas.	269	284	553	1,159	1,262	2,421	2,974
Total ...	59,520	3,27,831	3,87,351	54,090	1,14,027	1,68,117	5,55 468

The unoccupied houses include shops used during business hours only, enclosures for cattle, temples, mosques, dharamsalas, and garden houses.

The occupied houses are those in which people sleep or live, and take their meals.

The average number of people dwelling in a house is 7·29.

The average population of each village and town is 488, of each village 410. The total number of towns and villages was 5,784.

There were 37 towns with a population of over 5,000 each.

At first sight it may be thought that the advantage from a health point of view is altogether on the side of the dweller in a *pakka* or stone house, but there is much truth in the proverb in the Hitopadesha, which runs thus :—

"Spring water, the shade of the *Bata* (Ficus) tree, and a house built of bricks (sun-dried), these are warm in the cold season and cool in the hot."

Nevertheless, it is undoubtedly a boon to have some part of a house constructed of masonry, because it is safer in case of fire, which in the hot season frequently destroys a whole village of thatched huts. It is dry in the rains ; it is better protected from snakes, which often live in the walls of mud huts. It generally has a higher plinth, which makes it healthier in the rainy season. It also has a flat roof, on which the occupants can sleep in the hot months, and it is safer from thieves.

Unfortunately, it is too often not well ventilated; the rooms are too small, and the latrine arrangements are most objectionable. On the whole, dwelling in a village is far more healthy than living in a town, which in India is most difficult to properly sanitate, and the smaller the village the more healthy it is likely to be.

In fact, the great object should be to induce cultivators to live in cottages on their own land, or in very small hamlets. Under such conditions drainage and many sanitary questions settle themselves.

The total area of the State of Jeypore is 15,579 square miles, which gives a density of 181·8 persons per square mile, against 162·7 for the last census, and of 184 for India in 1881 and of 80 for Rajputana generally.

The following table No. I of the Census Report shows the division of the population by nizamuts or districts, according to residence, sex, &c. The second statement is one of sex. The small proportion of females at certain ages is stated to be due to objection on the part of many respectable men to giving the exact number of the female members of their families. If that be true, the Census statistics are much reduced in value. Some may attribute it to infanticide, which is said to exist still, especially in Shekhawati.

The Census also showed the following numbers of afflicted as below :—

Both Sexes.		Proportion to total number of each Sex.	
		Males.	Females.
Blind	6,394	·002	·002
Insane	384	...	...
Lepers	148	..	...
Eunuchs	68	...	...

Proportion of females to 100 males afflicted :—

Blind—93·75; Insane—47·12; Lepers—23·3. The largest numbers of blind persons are amongst tailors and goldsmiths, on account of the fine work they have to do, and beggars of different classes who are much exposed to heat, glare and dirt, and are half-starved.

The occupations of the people are shown in abstract No. XX reprinted from the Census Report for 1891. More than half the population is engaged in agriculture and cattle-breeding and most of the remainder in supplying them with material substances, lending them money, &c. Only a small proportion being for the trading and learned profession or for Government.

No. 1.

AREA AND POPULATION.

Name of Nizamat.	Area in square miles.	Number of Houses.		Population. Total.			Number of			Number of houses per square mile.	Number of towns, &c Village per 100 miles.	Remarks.
		Towns and Villages.	Occupied.	Both Sexes.	Males.	Females.	Persons per square mile.	Persons per occupied house.	Persons per Village.			
	1	2	3	4	5	6	7	8	9	10	11	
Jeypore City	3	1	23964	158787	84024	74763	5292 9	6·62	158787	79·88	.....	
Jeypore District	2392	1559	81415	567466	301156	266310	237·2	6·97	363	34·03	65·1	
Dausa (Bandikui included) ...	1088	788	46525	326297	172487	153810	299·9	7 01	414	42·76	72·4	
Hindown	674	411	24237	186905	100359	86546	277·3	7·71	454	35·96	60·9	
Gungapur	277	154	12860	81216	42602	38614	293·2	6·31	527	46 42	55·5	
Sawai Madhopur (1) ...	1774	633	45453	267877	141101	126776	151·	5·89	412	25·62	35·6	
Malpura (2)	1460	390	28389	197547	104440	93107	135·3	6 95	506	19·44	26·7	
Sambhar	1597	308	26646	191935	102827	89108	120·2	7·20	623	16 61	19·2	
Shekawati (3)	3696	959	54994	488017	263287	224730	132·	8·87	508	14 87	25·9	
Tourawati (4)	1504	529	40630	342554	184868	157686	227·8	8·43	647·5	27·01	35·1	
Kote Kasim	6275	52	2238	17054	8939	8115	271·8	7·61	327	35 66	82·8	
Total	14527·75	5784	387351	2825665	1506090	1319565	194·5	72·9	488·5	26·66	39·8	

(1) Including Uniara and Banetha of Thikana Uniara,
(2) Including Nagar and Awan of Thikana Do.
(3) Including Thikana Sikar and (excepting its one Tehsil Ringas) and Singhana and Chirawa of Khetri.
(4) Including Ringas of Sikar and Khetri Babai, Kot and Ajitgarh Tehsils of Khetri-Thikana.

Statement showing the Strength of the two Sexes at each period of life.

Particulars.	Both sexes.	Males.	Females.	Proportion of females to 1,000 males.
Infants	84,861	42,420	42,441	1000·49
1 Year	46,657	23,708	22,949	963·76
2 Years	64,776	32,450	32,326	996·17
3 „	77,597	37,803	39,794	1005·25
4 „	87,260	44,753	42,507	949·81
5 „ ...9	353,150	189,881	163,269	859·84
10 „ ...14	274,721	163,372	111,349	681·56
15 „ ...19	235,849	135,475	100,374	740·90
20 „ ...24	235,439	119,808	115,631	965·13
25 „ ...29	251,108	135,893	115,215	847·83
30 „ ...34	270,187	138,975	131,212	944·14
35 „ ...39	161,252	88,037	73,215	831·63
40 „ ...44	225,607	115,318	110,289	956·39
45 „ ... 49	97,408	55,051	42,357	769·41
50 „ ...54	151,032	78,865	72,167	915·06
55 „ ... 59	48,513	27,500	21,013	764·10
60 and over	160,238	76,781	83,457	1086·94
Total	2,825,655	1,506,090	1,319,565	876·94

ABSTRACT No XX.

	Both sexes.	Males.	Females.	Proportion of both sexes to total population.
A. Government	148,813	88,245	60,568	5·26
B. Pasture and Agriculture	1,430,649	773,064	657,585	50·63
C. Personal Services	257,836	137,402	120,434	9·12
D. The preparation and supply of material substances	473,766	241,069	232,697	16·76
E. Commerce and the transport of persons, goods, and messages, &c.	84,174	46,129	38,045	2·97
F. Professions—learned, artistic, and minor ...	151,727	84,386	67,341	5·36
G. Indefinite occupations and means of subsistence, &c.	278,690	135,795	142,895	9·86
TOTAL	2,825,655	1,506,090	1,319,565	99·96

MISCELLANEOUS INFORMATION.

MATERIALS USED IN BUILDING, ETC., AT JEYPORE. Good building stones are found in abundance near the Capital, serving, to some extent, to make up for the scarcity of wood in the district.

A greyish metamorphic quartzose sandstone, obtained from a quarry beneath the Amargarh Fort, is most commonly used at Jeypore itself: with it the streets are paved, and large edifices, as for example the Mayo Hospital, are constructed.

A coarse grey sandstone from Danau, 24 miles from Jeypore, is used for door frames, brackets, pillars, and trellis work. Huge slabs of a foliated mica schist, from Bankri, 36 miles to the east close to the rail at Dosa, are valued for roofing; some of them are 30 feet in length. There are two varieties—one red, and another, a coarser, most common, grey in colour.

A very fine red sandstone from a quarry near Kerauli, 82 miles from Jeypore, is now largely employed in ornamentation, for lattice work, brackets, string courses, &c.

Another kind, equally fine, but of a pinkish or cream-coloured hue, from Bassi, 92 miles distant, is used in portions of the State where it can be had at a cheap rate for similar purposes.

Of the marbles of Rajputana, the most famed is that of Makrana in Marwar; it is extensively used for monuments and sculpture.

Good specimens of buildings, entirely constructed of it, are Sawai Jey Singh's Chatri at Gehtore, the Mukat Mahl of the great palace at Jeypore, and the Taj Mahl and Moti Masjid

at Agra. The pure colour of these buildings proves that the atmosphere has little or no effect upon this stone, whereas the Jeypore marbles wear yellow as they age. The most important variety in this district is one obtained from Raiwala, about 16 miles north of Jatwara station, on the State Railway, near the Alwar border. It is coarse but hard, in colour white or greyish white. Many of the balustrades, mile-stones, &c., near the capital are made from it. The cenotaph of Maharaja Pratab Singh, at Gehtore, is wholly constructed of it.

The black marble, from Baislana in Kotputli, is much valued by statuaries, and for inlaying work, so also is the very pretty red variety from Baldeogarh, 38 miles distant. Carts laden with idols of both these marbles, as well as the white kinds, often go from Jeypore, to the markets of the Punjab and North-West Provinces. Throughout Rajputana, the nummulitic limestones of Jaisalmer are famed for their beauty, and are much sought after by the makers of mosaic pavements. There are four kinds, the curiously marked grey and brown being most admired.

Small roofing slabs and paving stones are obtained from the Agra side of the eastern Jeypore valley hills—the rock is a stratified quartzose—limestone.

About 10 miles north of Kanota station is a little solitary hill, from which the whole of the fat (non-hydraulic) lime used in Jeypore is made.

Kankar is found almost everywhere, mostly in flat beds, instead of in nodules.

Table of Weights of Jeypore Stones.

Name of Quarry and Stone.	Weight per cubic foot in pounds.
Amargarh	134·544
Kerauli	140·75
Raiwala	160·5
Danau	164·575
Limestones (unburnt)	88·375
Kankar	80·0
Bankri	152·625
Baislana	156·0
Makrana	160·0
English Red Sandstone	133·0
Kilkenny Marble	170·0

Labour Rates, Jeypore.

Daily Rate.	As.	P.
Stone-carver	6	0
Mason	4 to 4	0 to 6
Excavator	2 to 2	0 to 6
Coolies	1 to 1	6 to 9
Carpenter	4	6
Water-carrier	2	3

CASES OF POISONING.

From 1882 to 1892—(11 years)--152 cases of poisoning were treated; 13 proved fatal as follow:—

	Total.	Deaths.
Opium	25	4
Sulphate of Copper	4	1
Stramony	91	5
Arsenic	8	1
Indian Hemp	9	...
Mixed Poisons	1	...
Alcohol	11	2
Henbane	1	...
Oleander	2	...
	152	13

In 96 cases the supposed cause was recorded as follows:—

Accident	26 cases.
Poisoning (motive not stated)	6
Do. theft	56
Quarrels	19
Suicide	9
	96

Appendix IV.

Mortality Table, Jeypore City, 1875-1881.

Years.	Deaths from										Population of the City within the walls.	Number of deaths per mille.	Remarks.
	Cholera.	Small-pox.	Fever.	Bowel Complaints.	Accidents.	Snake-bite.	Suicide.	Wounds.	All other causes.	Total			
1875 ...	105	123	1,479	...	...	...	...	...	2,890	4,597		36·54	Census of 1881
1876 ...	33	517	1,433	...	...	...	...	...	3,021	5,004		39·78	
1877 ...	68	1,367	1,093	...	...	...	...	...	2,877	5,405		42·97	
1878 ..	652	286	1,689	...	...	...	...	...	4,091	6718	125,785	53·40	
1879 ...	82	93	3.716	...	...	...	...	...	2,353	6,244		49·64	
1880 ...	74	1,451	2,619	...	...	...	...	...	1,868	6,012		47·79	
1881 ...	38	508	3,059	...	...	...	...	...	1,584	5,189		41·25	
Total ...	1,052	4,345	15,088	...	...	...	...	...	18,684	39,169		311·37	
Average of 7 years ...	150·28	620·71	2155·42	...	...	...	...	...	2669·14	5595·57		44·48	

Mortality Table, Jeypore City, 1882-1892.

Years.	Deaths from										Population of the City within the walls.	Number of deaths per mille.	Remarks.
	Cholera.	Small-pox.	Fever.	Bowel Com-plaints.	Acci-dents.	Snake-bite.	Suicide.	Wounds.	All other causes.	Total.			
1882 ...	287	68	1836	No returns available before 1884.					1,780	3,971	125,785	31·56	Census of 1881.
1883 ...	343	14	1801	...	..	...	...	...	2,026	4,184		33·26	
1884 ...	52	484	2487	518	...	...	...	...	2,085	5,626		44·72	
1885 ...	14	371	2381	403	6	1	...	1	1,380	4,557		36·22	
1886 ..	10	172	2924	365	4	4	...	3	1,074	4,556		36·22	
1887 ...	77	31	3570	561	1	1	...	...	1,642	5,883		46·77	
1888 ...	.....	3	3314	529	...	...	...	...	1,367	5,213		41·44	
1889 ...	84	164	3238	686	1	...	...	...	1,728	5,901		46·91	
1890 ...	457	153	3659	474	2	...	...	...	1,507	6,253		49·71	
1891 ...	6	31	2955	352	2	1	3	1	1,304	4,655	132,534	35·12	Census of 1871.
1892 ...	178	226	3476	505	2	3	...	3	2,410	6,802		51·32	
Total ...	1,508	1717	31,641	4,393	18	10	3	8	1,8303	5,7601		453·25	
Average of 11 years...	137·09	156·09	2876·45	399·36	1·63	0·90	0·27	0·72	1663·90	5236·45		41·20	

Mortality Table, Jeypore City, 1893.

Year.	Deaths from										Population of the City within the walls,	Number of deaths per mille.	Remarks.
	Cholera.	Small-pox.	Fever.	Bowel Com-plaints.	Acci-dents.	Snake-bite.	Suicide.	Wounds.	All other causes.	Total.			
1893 ...	.....	3	2,741	340	3	...	..	...	2,730	5,817	132,534	34·89	Census of 1891.
Total ...	.....	3	2,741	340	3	...	...	...	2,730	5,817		43·89	
Average of 1 year ...	.....	3	2,741	340	3	...	...	...	2,730	5,817		43·89	

The three Returns together from 1875-93.

1875-1881 ...	1,052	4,345	15088	...	...	...	...	...	18684	39169	122,453	311·37	
1882-1892 ...	1,508	1,717	31641	4393	18	10	3	8	18303	57601		453·25	
1893 ...	.....	3	2741	340	3	...	...	...	2730	5817		43·89	
Total ...	2,560	6,065	49470	4733	21	10	3	8	39717	102587		808·51	
Average of 19 years ...	134·73	319·21	2603·68	249·10	1·10	0·52	0·15	0·42	2090·36	5399·31		42·55	

Annual and Eleven Years' Means of the Barometric Pressure at Calcutta and Jeypore.

Station.	1882.	1883	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	Total	Mean.
Calcutta ...	29·714	·773	·793	·800	·790	·781	·785	·785	·777	·793	·767	327·558	29·778
Jeypore ...	28·368	·372	·386	·397	·380	·370	·389	·383	·366	·392	·356	312·159	28·378

Table showing the velocity of the wind in miles for each main direction for the month of January for 11 years.

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily).
1882 ...	447·0	500·5	77·5	122·5	320·5	412·0	117·0	54·0	91·5	140·0	100·0	27·0	135·0	347·0	457·0	115·0	3463·5	111·7
1883 ...	301·0	183·8	6·5	280·0	198·5	704·5	358·0	373·5	168·0	117·9	100·5	143·5	208·5	98·0	226·2	308·8	3777·2	121·8
1884 ...	402·0	133·0	114·5	210·6	260·0	417·0	63·5	43·0	74·5	44·5	161·5	121·5	253·5	271·5	374·6	316·1	3261·3	105·2
1885 ...	782·0	308·5	265·5	269·0	365·0	441·5	198·5	84·0	165·0	108·0	35·5	77·5	87·0	161·5	301·0	112·0	3761·5	121·3
1886 ...	666·0	263·5	177·0	200·5	195·5	1245·0	221·5	101·0	112·0	180·5	34·5	34·0	67·0	143·5	66·5	282·5	3990·5	128·7
1887 ...	450·7	167·4	102·7	98·2	700·7	853·4	188·0	40·0	29·0	5·5	121·0	109·5	235·0	68·5	268·8	337·8	3776·2	121·8
1888 ...	429·5	195·0	115·0	269·5	431·0	443·5	42·0	194·5	32·5	43·0	78·0	122·0	109·0	57·0	125·5	360·5	3047·5	98·3
1889 ...	376·4	251·0	411·4	460·5	767·7	307·0	132·5	70·7	69·2	94·7	20·5	42·7	195·5	116·6	239·1	265·6	3821·1	123·2
1890 ...	115·0	38·5	268·0	76·5	89·5	14·0	95·0	99·0	57·0	125·5	158·5	180·5	229·0	750·5	590·5	490·0	3378·0	109·0
1891 ...	128·5	93·5	7·0	764·0	111·0	30·0	84·0	61·0	25·0	166·0	182·5	272·0	279·0	480·0	448·5	314·0	3346·0	107·9
1892 ...	99·5	227·5	254·5	1121·5	297·5	330·5	52·0	29·5	16·5	...	136·0	30·0	230·5	127·5	226·0	208·0	3387·0	109·2
Total ...	4098·6	2362·2	1799·6	3872·8	3736·9	5198·4	1552·0	1150·2	840·2	1025·6	1128·5	1160·2	2029·0	2021·6	3323·7	3110·3	39009·8	1258·1
Mean ...	372·6	214·7	163·6	352·1	339·7	472·6	141·1	104·6	76·4	93·2	102·6	105·5	184·4	238·3	302·1	282·8	3546·3	114·4

Table shewing the velocity of the wind in miles for each main direction for the month of February for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total.	Mean (daily.)
1882 ...	534·0	849 5	195·5	290·5	139·5	710·0	36·0	40·0	51·5	108·5	121·5	119 0	103 5	317·0	613·5	69·0	4298·5	153·5
1883 ...	605·0	525·0	235·0	137 0	102·0	362·0	216·0	32·0	81·5	143 0	61·5	31·5	76 0	48·0	220 5	447·5	3323·5	118·7
1884 ...	622·0	344·0	164·0	167·5	367 0	195 0	21·5	15 0	25 0	35·0	75 0	124·0	235 5	605 0	609·0	340 0	3944·5	136·0
1885 ...	812 0	617 5	212 0	80 0	122 0	104·5	136·5	30 0	74·0	147·5	86·5	47·0	146·5	246 5	231·0	422·5	3516 5	125 6
1886 ...	861·0	702 5	205 5	112·5	68·5	164 0	55·5	87 5	5·0	46·5	75·0	59 0	101·5	395 5	203·5	422·0	3666·0	130·9
1887 ...	1239·5	383·0	130 5	101·0	77 0	15·5	15 5	23 0	4·0	37·0	32·0	119·5	92 5	213·0	381·0	189·5	3053 5	109 0
1888 ...	384·7	951·0	175 5	136·5	175 5	321·0	212·0	152·5	64·0	78·0	39 0	60 0	214·0	67·0	231·5	282·5	3544·7	122·2
1889 ...	290 0	760·5	221·5	202·5	342·5	628 0	140·5	60·0	16 0	32 0	56·0	177 5	185·0	366 5	276·5	199·0	3954 0	141·2
1890 ...	286·5	198 0	204·5	30·5	91·5	29·5	38·5	148 0	54·0	121·5	128·5	148 0	323·0	478·5	641·5	341·5	3263·5	116 5
1891 ...	125·5	271·0	22·5	167 0	100·0	152·5	20 5	73 5	100·0	65 5	297·0	300·0	516 0	399 5	472 5	484·0	3567·0	127·4
1892 ...	118·5	21·5	436 5	313·0	13·0	93·0	42 0	121 0	129·0	155 0	197 7	189 2	627·5	599·2	385·5	457·8	3899·4	134·4
Total ...	5878 7	5623·5	2203 0	1738·0	1598·5	2875 0	934·5	783·0	604·0	969 5	1169·7	1374·7	2621 0	3735·7	4266 0	3655·3	40031·1	1415·4
Mean ...	534·4	511 2	200·3	158 0	145·3	261·4	85·0	71·2	55 0	88·1	106·3	125·0	238 2	339 6	387·8	332·3	3639·1	128·6

Table showing the velocity of the wind in miles for each main direction for the month of March for 11 *years.*

Year.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily).
1882 ...	712·0	382·8	257·8	360·0	484·5	511·5	98·4	17·5	75 8	25·0	79·0	60·0	182·5	332·0	851 0	1121·5	5551·3	179·0
1883 ...	729·5	216·5	231·0	388·5	607·5	665·0	110·0	17·0	135·5	123 0	160·0	71·0	216·0	313·0	848·0	626·5	5458·0	176·0
1884 ...	901 0	534·0	189 0	309·0	211·0	55·0	77·0	41·5	99 0	98·5	101·0	96·5	205·5	688·0	611·5	882·0	5099·5	164·5
1885 ...	760·0	405·5	119 5	208·0	503·5	312 0	72·5	49·5	65·0	165·5	196·0	91·5	184 5	417·0	627·5	289·0	4466·5	144·1
1886 ...	398·0	465·0	207·5	351·5	192·5	964·0	164·5	50·0	173·5	92·5	159·5	100·5	151·0	391·4	942 4	428·0	5231·8	168·8
1887 ...	890·5	366·0	46·0	297·5	40·5	70·0	...	45·0	55·0	32·5	188 5	128 0	150·5	615 0	852 0	525·0	4302·0	138·8
1888 ...	423·0	789·0	157·0	74·0	11·0	197·5	143·5	29·0	62·0	101·5	171·5	156·0	153 5	549·0	846 0	927·0	4790·5	154·5
1889 ...	786·0	419·9	252·5	159 9	203·4	126·5	50·0	135·5	67 5	94·5	19 0	120·9	266·5	291·5	573·9	166·0	3733·5	120·5
1890 ...	210·5	367·0	393·0	578·5	97·5	49·0	129·5	103·5	170·5	203·0	217·0	411·5	736·5	307·5	170·0	162·5	4307 0	138 9
1891 ...	162·0	436·5	318·0	563·0	235·0	83·0	85·0	96·0	58·0	139 5	212·5	369·5	409·5	445 0	454·0	223·0	4289·5	138 3
1892 ...	146·0	8·5	63·5	13·5	57 0	53·5	54·0	39·0	43·5	50·0	33 0	336·5	1379·5	1196·5	626·0	260·0	4360 0	140·7
Total ...	6118·5	4390·7	2234 8	3303·4	2643·4	3087·0	984·4	623·5	1005·3	1125·5	1537·0	1941·9	4035 5	5545·9	7402·3	5610·5	51589 6	1664 1
Mean ...	556·2	399·2	203·2	300·3	240 3	280.6	89·5	56·7	91 4	102 3	139 7	176 5	366·9	504·2	672·9	510·0	4689·9	151·3

Table showing the velocity of the wind in miles for each main direction for the month of April for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily).
1882 ...	699·1	449·5	74·5	125·0	190·0	97·5	35·0	17·5	21·0	82·0	50·0	104·0	536·6	666·7	831·9	708·1	4688·4	156·3
1883 ...	724·0	175·0	73·0	571·0	243·0	132·5	16·0	11·0	17·0	43·0	56·0	17·0	114·0	774·0	1272·5	588·5	4827·5	160·9
1884 ...	521·0	352·0	110·0	99·0	94·0	48·0	7·0	...	31·0	9·5	25·0	56·0	451·5	1421·0	1277·0	580·5	5082·0	169·4
1885 ...	597·5	338·0	84·5	32·0	290·5	346·5	7·0	...	63·0	77·5	77·5	148·5	486·5	889·5	907·0	242·5	4587·5	152·9
1886 ...	535·5	527·5	96·0	164·5	180·0	45·5	20·0	44·0	36·0	89·0	8·0	88·0	220·0	439·5	902·0	919·5	4315·0	143·8
1887 ...	649·0	377·0	63·0	77·0	188·0	85·0	24·0	31·0	50·0	141·0	86·0	161·0	318·5	290·5	877·0	604·1	4022·1	134·8
1888 ...	506·0	403·0	54·0	28·0	15·0	...	17·0	...	7·0	29·0	23·0	20·0	271·0	761·0	1749·0	1504·5	5387·5	179·6
1889 ...	795·5	338·0	62·5	118·0	54·0	53·0	56·0	8·0	45·0	52·0	112·0	300·5	117·0	1170·0	815·0	492·0	4589·5	153·0
1890 ...	210·0	239·0	60·0	25·0	...	12·5	...	209·0	141·0	165·0	445·5	989·5	520·5	442·5	287·5	138·5	3885·0	129·5
1891 ...	228·0	201·5	101·0	17·0	9·0	40·0	15·0	104·5	93·0	252·5	352·0	464·0	826·5	377·5	345·5	542·5	3969·5	132·3
1892 ...	29·0	62·5	10·5	...	7·5	3·5	5·5	29·5	59·0	111·5	382·0	1070·0	1763·0	613·5	449·0	113·5	4709·5	157·0
Total ...	5494·6	3463·0	789·0	1256·5	1271·0	864·0	202·5	454·5	563·0	1052·0	1617·0	3418·5	5624·6	7845·7	9713·4	6434·2	50063·5	1668·7
Mean ...	499·5	314·8	71·7	114·2	115·6	78·6	18·4	41·3	51·2	95·6	147·0	310·8	511·3	713	883·0	585·0	4551·2	151·

Table showing the velocity of the wind in miles for each main direction for the month of May for 11 *years.*

Years.	Direction..																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily.)
1882 ...	408·1	308·0	175·0	133·0	350·0	636·0	109·0	13·0	21·0	71·0	128·0	131·1	162·1	847·8	2180 0	880·5	6553·6	211·4
1883 ...	405·0	71·0	82·0	155·0	104·5	264·5	103·0	17·5	49·5	52·0	98·0	159·5	556·5	2226·0	2775 5	330·0	7449·5	240 3
1884 ...	357·5	18·0	68·0	50·0	48·5	60·0	2·0	23·0	34·0	22·0	115·0	153·5	570·9	2153·6	1656·1	365·0	5697·1	183 8
1885 ...	599 0	298·0	168·0	418·0	678·0	352·5	131·0	85·0	119·5	157·5	145·5	234·0	273·0	560·0	834 0	292·0	5345·0	172·4
1886 ...	441·5	285·5	161·0	195·5	458·0	721·0	75·5	90·0	80·5	107·5	144·5	134·5	155·0	736 5	486 0	836·5	5111·5	164·9
1887 ...	345·0	252·0	...	...	66·5	70·0	8·5	...	33·0	57·0	12·0	55·0	376·5	1710·1	1682·0	1224·5	5892·1	190·1
1888 ..	339·0	295·0	71·0	35·0	51·0	25·0	10·0	...	7·0	4·0	42·0	166·0	761·0	996·0	2123 0	845·5	5770 5	186·1
1889 ...	521·0	307·0	100·0	152·5	176·0	15·0	...	11·0	7·5	51·0	76·0	105·0	386·0	1417·5	1012·5	440·5	4778·5	154·1
1890 ...	25·0	114·0	48·0	275·0	29·0	19·0	25·0	43·5	74·0	261·0	232·0	1763·0	2177·0	670·0	355·5	128·0	6239·5	201·2
1891 ...	190·5	251·5	287·5	76·5	2·0	5·0	36·5	59·0	111·5	133·0	383·0	439·0	1727·5	554·5	435·5	194·5	4887·0	157·6
1892 ...	9·0	60·0	25·0	127·0	66·0	5·0	53·0	27·0	135·0	248·0	485·0	1396·0	3213·0	538·0	212·0	50·0	6649·0	214·5
Total ...	3640·6	2260·0	1185·5	1617·5	2029·5	2173·0	553·5	369·0	62·5	1164·0	1861·0	4736 6	10361·5	12410·0	13752·1	5587·0	64373·3	2076·4
Mean ...	331·0	205·4	107·8	147·0	184·5	197·5	50·3	33·5	61·1	105·8	169·2	430·6	942·0	1128·2	1250·2	508·0	5852·1	188·8

Table showing the velocity of the wind in miles for each main direction for the month of June for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles	Mean (daily.)
1882 ...	238·0	35·0	32·0	62·0	193·0	825·0	203·0	93·0	57·0	100·0	181·0	273·0	434·0	1143·0	2039·0	484·0	6392·0	213·0
1883 ...	445·0	8·0	77·0	190·0	108·5	121·5	10·0	52·0	74·0	185·5	189·0	104·0	289·0	781·0	2354·5	830·0	5819·0	191·0
1884 ...	122·2	101·0	89·0	160·5	124·5	115·0	63·0	11·0	50·0	33·0	83·0	63·5	756·1	3056·1	1239·1	167·5	6237·5	207·8
1885 ...	444·0	158·5	129·0	239·0	333·5	89·0	82·0	73·0	109·0	85·0	99·5	71·5	431·0	1199·0	2365·5	437·0	6345·5	211·5
1886 ...	287·0	37·5	126·0	213·5	237·0	329·0	179·0	72·0	63·0	87·5	94·5	265·5	242·8	929·0	1960·5	368·0	5491·8	183·0
1887 ...	617·5	220·5	238·0	111·0	204·5	164·0	20·0	21·0	157·0	67·0	74·0	146·5	299·5	853·6	1132·6	887·0	5213·7	173·8
1888 ...	131·0	183·0	66·0	76·6	204·0	127·5	80·0	70·0	33·0	28·5	30·0	148·0	261·0	852·0	3020·5	1505·0	6789·1	226·3
1889 ...	46·5	152·0	539·5	542·0	40·0	42·0	...	54·0	45·0	159·5	630·5	1209·5	1496·5	453·3	412·0	42·0	5864·3	195·5
1890 ...	170·0	304·0	389·5	165·0	37·5	20·5	35·5	94·0	43·5	211·5	574·0	1411·0	1777·5	429·0	208·0	165·5	6036.0	201·2
1891 ...	69·0	94·0	150·0	153·0	13·0	11·0	16·0	10·0	...	152·0	410·0	1951·0	3394·0	882·5	123·0	106·5	7535·0	251·1
1892 ...	82·5	170·0	166·5	242·5	84·0	77·5	41·0	150·5	101·5	130·0	521·0	893·5	2053·0	484·0	237·5	86·0	5521·0	184·0
Total ...	2652·7	1463·5	2002·5	2155·1	1579·5	1922·0	729·5	700·5	733·0	1239·5	2886·5	6537·0	11434·4	11035·5	15092·2	5078·5	67241·9	2241·2
Mean ...	241.2	133·0	182·0	196·0	143·6	174·7	66·3	63·7	66·6	112·7	262·4	5943·3	1039·5	1003.2	1372·0	461.7	6112·9	203·7

Table showing the velocity of the wind in miles for each main direction for the month of July for 11 *years.*

Years	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily).
1882 ...	356·4	147·0	285·8	288·2	836·0	525·5	247·0	129·0	230·5	29·5	138·0	109·0	146·0	110·0	482·3	500·8	4561·0	147·1
1883 ...	66·5	153·0	98·0	45·0	430·0	262·0	113·0	84·0	56·0	191·5	72·0	238·0	712·0	1395·0	1735·5	122·0	5773·5	186·2
1884 ...	58·0	41·0	38·0	201·0	643·2	850·4	142·0	79·5	69·5	32·5	127·0	204·5	133·0	1458·0	1089·0	215·0	5381·6	173·6
1885 ...	279·5	310·5	128·5	186·5	277·0	39·0	8·5	16·0	51·0	13·0	64·0	190·0	535·5	1026·0	1779·0	617·5	5521·5	178·1
1886 ...	77·0	...	...	197·0	60·0	625·6	146·0	20·0	35·0	47·0	64·5	95·0	81·0	385·2	914·4	94·0	2831·7	91·3
1887 ...	189·8	41·0	51·6	342·8	568·6	297·6	138·1	51·5	87·3	10·0	35·0	129·0	332·0	956·0	1157·8	131·5	4519·6	145·8
1888 ...	29·0	101·4	73·8	108·3	193·6	370·6	5·0	84·8	...	3·0	114·2	110·2	249·1	592·9	1453·7	304·1	3793·7	122·4
1889 ...	43·0	56·2	113·5	438·1	55·5	67·0	69·0	52·0	73·5	246·6	421·3	867·2	839·5	251·4	112·0	114·1	3819·9	123·2
1890 ...	76·5	59·0	481·0	306·0	43·0	...	59·0	126·0	260·7	208·0	599·9	2318·0	1062·2	57·0	118·9	28·0	5803·2	187·2
1891 ...	122·0	261·0	575·0	286·5	131·5	195·0	70·0	46·0	259·5	297·5	707·5	2181·0	1068·0	355·5	127·5	99·5	6783·0	218·8
1892 ...	105·0	81·5	163·5	337·5	186·5	36·[illegible]	65·0	67·0	92·5	313·5	592·5	369·0	1008·0	488·0	138·5	55·0	4099·0	132·2
Total ...	1402·7	1251·6	2008·7	736·9	3424·9	3268·7	1062·6	755·8	1215·5	1392·1	2935·9	610·9	6166·3	7075·0	9098·6	2281·5	52887·7	1705·9
Mean ...	127·5	113·8	182·6	248·8	311·3	297·1	96·6	68·7	110·5	126·6	266·9	619·2	560·6	643·2	827·1	207·4	4807·9	455·1

Table showing the Velocity of the Wind in miles for each main direction for the month of August for 11 *years.*

Years.	Direction																Velocity	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total Miles	Mean (daily).
1882 ...	105·0	49·5	46·0	38·5	46·0	201·0	62·0	65·5	13·0	30·5	110·5	161·0	552·7	632·5	1951·5	594·0	4659·2	150·3
1883 ..	398·2	165·0	1·5	49·2	126·4	165·4	192·1	9·0	66·0	62·3	230·2	271·5	453·0	925·2	1911·5	543·5	5570·0	179·6
1884 ...	261·0	209·0	51·0	47·0	415·7	668·2	64·0	64·0	50·0	...	83·0	104·0	343·0	887·0	1513·0	155·0	4914·9	155·8
1885 ...	89·5	169·1	68·0	94·1	479·1	495·0	104·0	33·0	34·0	41·0	82·0	96·0	699·1	909·3	1706·3	691·2	5790·7	186·8
1886 ...	585·5	46·0	30·0	70·0	158·5	277·0	90·5	37·0	9·5	36·5	4·0	174·0	176·0	920.5	1021·0	196·0	3832·0	123·6
1887 ...	645·5	185·5	63·5	84·5	129·0	68·0	47·0	37·0	32·0	52·0	21·0	72·0	360·0	608·0	899·9	369·5	3674·4	118·5
1888 ...	172·0	68·8	103·2	34·4	206·4	378·4	103·2	...	103·2	34·4	206·4	103·2	103·2	550·6	1308·2	309·6	3785·2	122·2
1889 ...	186·2	151·7	172·2	217·0	221·0	30·0	28·0	33·0	62·8	103·2	112·2	274·8	541·5	544·2	552·6	200·7	3431·1	110·7
1890 ...	26·4	29·0	210·0	97·4	106·4	43·7	3·0	12·0	21·4	56·7	522·4	1325·8	1177·5	371·5	43·0	24·4	4070·6	131·3
1891 ...	79·0	211·0	315·0	78·0	19·0	36·0	31·0	70·0	62·0	150·0	338·0	974·0	1524·0	649·0	211·0	78·0	4825·0	155·6
1892 ...	164·5	84·0	73·0	60·5	36·5	...	15·0	65·0	169·5	71·0	72·5	202·5	673·0	585·5	537·5	103·5	2913·5	94·0
Total ...	2712 8	1368·6	1133·4	870·6	1944·0	2362·7	739·8	425·5	623·4	637·6	1782·2	3758·8	6603·0	7583·3	1165·5	3265·4	47466·6	1531·1
Mean ...	246·8	124·4	103·0	79·1	176·9	214·8	59·0	38·7	56·6	57·9	162·0	341·7	600·2	689·4	1059·6	295·0	4315·1	139·2

Table showing the velocity of the wind in miles for each main direction for the month of September for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	S S W	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily.)
1882 ...	320·0	386·0	263·5	187·5	336·5	936·0	...	..	...	..	39·5	145·0	155·0	354·5	1022·5	592·0	4738·0	157·9
1883 ...	435	910·4	326·3	41·5	110·1	235·0	146·0	32·5	95·5	55·0	68·5	57·1	52·0	153·3	713·5	583·9	4016·5	133·9
1884 ...	286·0	220·0	210·0	357·0	1224·0	1236·0	143·0	185·0	169·0	28·0	44·0	33·0	79·0	66·0	198·0	139·0	4617·0	153·9
1885 ...	538·0	140·0	228·0	72·0	22·0	65·0	23·0	9·5	...	..	55·0	9·0	131·5	405·0	1667·0	1080·0	4445·0	148·1
1886 ...	431·5	118·0	42·0	17·0	48·0	134·0	32·0	12·0	...	23·0	...	29·0	190·0	576·0	2045·0	922·0	4619·5	154·0
1887 ...	435·5	223·5	30·5	149·0	150·0	233·0	66·5	23·0	11·0	10·0	41·1	68·5	77·0	234·0	866·9	707·5	3927·0	130·9
1888 ...	429.0	585·0	116·0	199·0	211·0	141·0	5·0	...	...	...	...	...	5·0	138·0	1022·0	1047·0	3898·0	129·9
1889 ...	215.0	201·0	155·0	34·0	...	7 0	1·5	9·0	18·0	59·0	209·0	202·5	669·0	865·5	359·0	146·0	3150·5	105·0
1890 ...	349·5	196 0	472·0	86·5	14·5	10·0	27·0	...	2·5	30·0	208·0	265·5	857·0	586·0	467·0	183·5	3755·0	125·1
1891 ...	306·0	339·5	606·5	515·0	120·0	46·5	...	...	...	20·0	60·5	91·0	395·0	644·5	347·0	79·0	3570·5	1 190
1892 ...	112·0	177·0	525·0	234·0	252·0	491·0	119·0	43·0	20·0	34·0	37·0	34·0	265·5	495·5	283·0	163·5	3285·5	109·5
Total ...	3858·4	3496·4	2974 8	1892.5	2488 1	3534·5	563·0	314·0	316·0	259·0	762·6	934·6	2876·0	45183	9590·9	5643·4	44022·5	1467·2
Mean ...	350·8	317·8	270·4	172·1	226·2	321·3	51·2	28·5	28·5	23·5	69·3	85·0	261·5	410·8	8·9	513·0	4002·0	133·4

Table showing the velocity of the wind in miles for each main d rection for the month of October for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily).
1882 ...	543·2	651·9	217·6	243·7	72·7	2·0	...	..	...	5·0	...	...	46·0	45·0	458·0	1279 5	3564·6	114·9
1883 ...	236·8	691·9	462·8	303·0	110·0	46·0	82·0	87·0	76·0	85·0	152·0	88·0	114·0	117·0	283·8	172·0	3107·3	100·2
1884 ...	602·5	340·0	305·5	190·0	312·0	252·0	45·0	2·0	7·0	67·5	57·5	34·5	231·5	188·0	320·0	265·0	3220·0	103·9
1885 ...	353·0	404·0	85·0	34·0	53·0	130·0	41·0	45·5	18·0	91·0	117·5	62·0	134·0	190·5	588·0	613·5	2960 0	95·5
1886 ...	282·9	216·5	176·8	364·8	879·8	971·3	242·8	39·0	37·0	65·0	68·5	36·0	38·0	20·0	8·0	...	3446·4	111·2
1887 ...	303 0	393·0	110·0	163·0	95·5	262·0	94·0	28·0	18·0	14·0	83·0	89 0	103·0	136·0	331·0	432·0	2654·5	85.6
1888 ...	180·8	310·4	100·0	48·0	183·0	224·0	193·5	5·0	10·0	65·0	18·5	50·5	33·4	66·4	326·4	298 8	2113·7	68·1
1889 ...	340·0	202·0	433·5	136·0	116·0	47·0	1·0	24·0	6·0	60·0	114·0	139·0	245·0	448·0	597·0	240 0	3148·5	101·5
1890 ...	68·5	231·0	196·0	148·0	54·0	59·0	112·0	48·0	14·0	31·0	54·0	171·0	277·0	368·0	394·0	598·3	2823·8	91·1
1891 ...	243·0	515·0	607·5	175·0	90·0	50·0	20·0	16·5	12·5	15·0	104 0	390·5	240·5	247·5	272·5	86 0	3085·5	99·5
1892 ...	81·0	346 0	306·5	211·0	30·5	12·0	15·0	8·0	45·0	13·0	3·0	128·0	321·5	471·0	359·5	219·0	2570·0	82·9
Total ...	3234·7	4301 7	3001·2	2016·5	1996·5	2055·3	846·3	303·0	243·5	511·5	772·0	1188·5	1783·9	2297·4	3938·2	4204·1	32694·3	1054·4
Mean ...	294·1	391·1	272·8	183·3	181·5	186·8	77·0	27·5	22·1	46·5	70·2	108.0	162·2	208·9	358·0	382·2	2972·2	95 8

Table showing the velocity of the wind in miles for each main direction for the month of November for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total Miles.	Mean (daily).
1882 ...	314·3	250·7	315·7	233·2	410·5	302·8	27·7	64·8	42·0	84·0	82·8	20·0	109·0	146·8	189·3	158·8	2752·4	91·7
1883 ...	557·0	314·0	258·0	86·0	40·0	17·0	115·0	60·0	0·0	23·0	67·0	201·0	111·0	484·0	208·0	684·0	3225·0	107·5
1884 ...	667·5	414·0	148·0	127·0	207·5	65·0	92·0	27·5	6·5	43·5	25·0	146·0	55·0	188·5	217·5	472·5	2903·0	96·8
1885 ...	307·4	413·7	109·0	344·0	165·0	31·0	75·0	10·0	3·0	24·0	43·0	118·0	229·0	128·7	196·0	327·0	2523·8	84·1
1886 ...	532·0	265·0	72·0	79·0	183·0	221·0	124·0	60·0	15·0	21·0	117·0	62·0	101·0	141·0	88·0	276·0	2357·0	78·6
1887 ...	784·3	176·7	94·0	85·0	65·0	39·5	80·0	43·0	48·0	58·0	43·0	65·0	102·0	90·0	64·2	97·0	1934·7	64·5
1888 ...	90·2	203·0	158·0	67·6	316·0	158·0	67·6	...	22·5	...	45·1	67·7	135·3	180·4	67·7	316·0	1895·1	63·1
1889 ...	160·0	53·0	57·0	22·0	19·0	...	...	3·0	...	50·0	63·0	146·5	614·0	306·5	683·4	543·	7 0·5	90·7
1890 ...	135·0	21·0	248·5	652·0	305·0	210·0	294·5	96·5	3·0	15·0	26·0	20·0	137·5	207·5	177·5	134·0	2683·0	89·4
1891 ...	253·0	208·0	"	...	15·0	...	...	10·0	...	27·0	186·0	123·9	224·0	300·0	591·4	310·	2249·2	74·9
1892 ...	135·0	201·0	76·0	117·2	63·0	50·2	11·0	10·0	61·0	51·3	106·3	111·5	196·0	415·0	452·5	480·5	2535·5	84·5
Total ...	3935·7	2520·1	1536·2	1813·0	1789·0	1094·5	886·8	384·8	201·0	39·	804·2	1081·6	2013·8	2586·4	2935·5	3799·8	27779·2	925·8
Mean ..	357·8	229·1	139·7	164·8	162·6	99·5	80·6	35·0	18·3	36·	73·1	98·3	183·1	235·1	266·9	345·4	2525·4	84·2

Table showing the velocity of the wind in miles for each main direction for the month of December for 11 *years.*

Years.	Direction.																Velocity.	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total miles.	Mean (daily).
1882 ...	481·0	356·0	201·4	102·4	153·8	276·8	63·5	23·0	9·5	7·5	45·0	108·2	128·7	277·9	317·3	532·0	3084·0	99·5
1883 ...	703·0	494·0	16·0	123·0	51·0	82·0	249·0	46·0	136·0	18·0	107·0	51·0	173·0	392·0	111·0	449·0	3201·0	103·2
1884 ...	294·0	667·0	98·5	297·0	294·5	678·5	53·5	44·0	80·5	64·0	79·0	43·0	22·5	108·0	75·4	93·4	2992·8	96·5
1885 ...	243·0	523·8	99·3	157·0	211·0	962·0	195·1	22·0	48·0	79·1	112·0	35·0	114·4	173·2	91·0	202·4	3268·3	105·4
1886 ...	889·0	217·0	80·0	89·5	125·0	308·5	80·0	126·0	88·0	60·0	112·5	26·0	88·0	90·0	172·0	335·0	2886·5	93·1
1887 ...	626·0	223·0	187·0	125·0	98·0	435·0	130·0	46·0	30·0	30·0	132·0	54·0	223·0	148·0	109·0	101·0	2697·0	87·0
1888 ...	160·2	250·4	67·0	...	9·0	3·0	1·0	15·0	...	96·0	91·0	288·7	478·4	633·4	379·5	42·7	2515·3	81·1
1889 ...	77·4	...	...	...	63·0	8·0	9·0	211·0	61·0	126·0	249·5	130·5	327·0	371·5	517·5	521·9	2673·3	86·2
1890 ...	22·5	291·0	58·0	679·5	153·0	12·5	101·5	3·25	18·0	161·0	78·5	269·0	236·6	490·5	506·1	156·2	3266·4	105·3
1891 ...	...	90·0	...	...	130·0	10·0	167·5	222·0	154·5	138·5	351·0	145·5	263·5	432·0	254·0	152·5	2511·0	81·0
1892 ...	21·5	253·0	37·5	810·5	406·5	104·5	104·0	45·5	11·5	...	5·0	9·5	265·0	507·0	298·5	181·5	3061·0	98·7
Total ...	3517·6	3365·2	844·7	2383·9	1694·8	2880·8	1154·1	833·0	637·0	780·1	1362·5	1160·4	2320·1	3623·5	2831·3	2767·6	32156·6	1037·0
Mean ...	319·8	305·9	76·8	216·8	154·1	261·9	104·9	75·7	57·9	70·9	123·8	105·5	210·9	329·4	257·4	251·6	2923·3	94·3

IRRIGATION WORKS.—Special attention should be drawn to the great benefit which the State and agricultural classes have reaped from the extension of irrigation works under Colonel Jacob, C.I.E, the Superintending Engineer. See Map of the State, with works numbered.

From 1868 up to the end of 1893, works aggregating in cost Rs. 39,67,081 had been carried out, the total number being 132.

The sum realized up to August 1893 was Rs. 28,35,328, or considerably more than two-thirds of the outlay, while up to 1889 no less than 76,537 bigahs of waste-land had been brought under cultivation. The total number of bigahs now irrigated is 105,382. The vast benefits thus derived need not be dwelt upon.

Abundant labour has been provided during the construction of these important works, and the country has been insured in many parts against famine, to the prevention of which the opening of the railway and of roads has also greatly contributed. A large number of projects have also been prepared by Colonel Jacob for public works, on which, in case of famine, immediate employment could be given to an almost unlimited number of persons.

FAMINES.

FAMINES.—An Abstract Famine Code, with alterations suggested by the Government of India in Resolution No. 35-33, dated Simla, 24th August 1893, of the Revenue and Agricultural Department, has now been published, in which arrangements are made for relief works, medical inspection and aid, poor houses, relief of pardah women and children, wages, rations, &c., &c.

The medical arrangements are as follow :—
Paras. 13 to 17.

13. Some one medical officer in the State, who may be called the Principal Medical Officer, and will generally be the Residency or Agency Surgeon, should be made responsible for the following duties.

14. He should, as soon as possible, personally inspect any locality where any symptoms of abnormal suffering are observable, and report to the Resident or Political Agent thereon, and advise the latter and the Central Officer as to strengthening the medical force at places where pressure is likely to be felt. He will specially direct his attention to the water-supply, the lowness of wells and tanks, and other sanitary conditions of the tract affected.

15. In time of actual famine he will consider himself in charge of relief measures in their sanitary aspect. He will watch the general management, the size, position, and control of relief works in connection with the public health, sanitary regulations, and medical supervision of camps and relief works, hospitals and poor houses. He will also take measures, in consultation with the Central Officer, for testing the adequacy of the ration for the gratuitously relieved and the waged for labourers.

16. The whole medical staff employed in famine relief will be in subordination to the Principal Medical Officer.

17. The Principal Medical Officer will issue instructions in regard to hospital diets and use of extra food or drink for the various classes of patients, and will obtain from the medical subordinates and tabulate, month by month, for the information of the Central Officer, a return of the sick, of in-patients and out-patients treated in poor-houses, relief works, and hospitals attached hereto, showing the number admitted, treated, and the mortality, and the chief causes thereto.

If it is likely that any increase to the medical staff will be required from the Government of India, intimation should be sent as early as possible.

PARAS. "49 TO 56."—49. A medical officer or a subordinate competent for independent charge will be attached to every professional agency work. It will be his duty to frequently inspect the various gangs of labourers and to attend to simple cases of injury during his daily inspections. He will promptly report the cases of any labourers who, in his judgment, are physically unfitted for the work on which they are employed, to the Special Durbar Officer, who will take measures to have such persons transferred to lighter work or put on gratuitous relief. He will daily inspect the camp conservancy arrangements, latrines and sources of water-supply, and keep the Special Durbar Officer informed of the defects he may observe.

50. There will be one or more hospitals attached to every professional agency work. These will be under the Medical Officer of the work, assisted by such subordinates as the Principal Medical Officer may consider requisite. Cases of serious illness or injury among the labourers will be admitted to hospital. Special wards will be set apart for reception of contagious diseases. Care should be taken to offend as little as possible the caste prejudices of the people.

51. The medical officer will superintend the issue of food to the patients, and will be responsible that each person gets the diet prescribed for him. In communication with the Durbar Officer, he will arrange for a proper supply of cots, mats, blankets, and clothing for the hospital.

52. He will keep a nominal register of the sick received as in-patients, and submit it once a week to the Engineer in charge of the work, and duplicate copies to the Principal Medical Officer, a return showing the numbers remaining from the previous week, admitted, died, and remaining in hospitals, with the diseases and causes of death.

53. He will keep a record of daily expenditure on food and extra articles of diet or stimulants, and submit the same as required to the officer in charge of the work.

54. He will immediately report the outbreak of cholera or smallpox on the works to the officer in charge, the Special Civil Officer and the District Medical Officer. The Durbar Officer will immediately inform the Principal Medical Officer.

55. He will keep a record of orders he may receive from superior authority, and all official correspondence connected with his duties. In cases of doubt and difficulty, he will refer to the District Medical Officer.

56. A Hospital Visitors' book will be kept by the Medical Officer This book will be called for by the District Medical Officer in the course of his inspection, and the subjects of complaint or comment will be fully investigated by him.

HISTORY OF FAMINES.

HISTORY OF FAMINES—I have endeavoured to procure information regarding famines in Rajputana in former times, but unfortunately no records are available or at all events are accessible, from which a correct account can be drawn up. Mr. C. Blair, Executive Engineer, P. W. D., who published a work on Indian famines in 1874, gives a list of famines and scarcities of which the following may have affected Eastern Rajputana.

Year.	
A. D. 942.	Upper India.
„ 1344.	In and around Delhi.
„ 1556.	Delhi districts.
„ 1596.	Central India, reported to have extended over the whole of Asia.
„ 1661.	N.-W. Provinces and Punjab.
„ 1786.	Ditto.
„ 1803.	N.-W. Provinces and Bombay.
„ 1813.	N.-W. Provinces and Rajputana.
„ 1819.	N.-W. Provinces.
„ 1825-27.	Ditto
„ 1832.	Ditto and Madras.
„ 1837.	N.-W. Provinces.
„ 1860.	Ditto, Punjab, and Bombay.
„ 1868-70.	Do., Do., and Rajputana.

He knew Rajputana well, and as regards the province records that he suspects that "it has been subjected to many more such calamities than are here recorded against it." The great famine of 1813 was "the most calamitous in Rajputana of which there is any record; grain indeed failed and was not to be purchased, but there was plenty of grass and the herds were saved." So wrote Colonel Brooke, Agent to the Governor-General for Rajputana, but his account of the famine of 1868-1869 shows a more terrible state of things. Western Rajputana suffered most, but in the Eastern districts the distress was great: not only the crops failed but the grass also in 1868, and in 1869 the rainfall was irregular and scanty in Marwar. Nearly all the remaining cattle died, and cholera appeared amongst the inhabitants; and lastly even of the little corn that was sown seventy-five per cent. was destroyed by locusts.

Eastern Rajputana suffered comparatively little.

The people in ancient times fled to Malwa, where famines are unknown, or to Guzerat, where there was generally a superabundance of food, or at all events of grass, on which their animals, which they drove before them, were preserved, but in 1868 the failure of the rainy season had been more extended and had reduced the food supplies in Malwa, whereas heavy floods had injured the grass in Guzerat, so that it was difficult to obtain relief. Happily, railways now run through Rajputana and Malwa, and thus make it more easy to mitigate the sufferings, which must, however, always exist to some extent in years of famine and scarcity, and of course the increase of irrigation works is another most important means for effecting the same ends.

The rainfall in the monsoon season of 1868 was only $5\frac{1}{2}$ inches in Jeypore. Owing to a more ample supply of wells than in some of the neighbouring States, the harvest was better than in them, but only amounted to one-quarter of average years on the irrigated lands, and on non irrigated lands, as in Shekhawati, was very small indeed. The dearth of grass, however, was very serious.

Through the courtesy of Raò Bahadur Kantee Chander Mookerjee, C.I.E., the chief Member of Council at Jeypore, I am able to give a price list of the principal food grains for both the spring and autumn crops from the year 1761 A. D. to 1893. I have added notes wherever it has seemed desirable.

Average price of food grains sold at Jeypore in seers per Rupee.

B. Blair's Indian Famines. D. Delhi Gazetteer. K. Karnal Gazetteer. H. Hissar ditto. G. Gazetteer of Agra and neighbouring district, N.-W. P. For East Jeypore records at a temple near Hindown.

Years.	Rabee (Spring).			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1761 A. D.	18	23	18¼	18¼	24¾	19¼	
1762 „	22¾	31	22¾	21¾	36½	27	
1763 „	20	27	22¾	16¾	21¼	18¾	
1764 „	14¼	19¼	14¾	13¼	30¼	18	
1765 „	...	...	Not	available.	...	...	
1766 „	...	...	Do.	Do.	...	...	
1767 „		...	Do.	Do.	...	...	
1768 „	30	40	38	30¾	50	47¼	
1769 „	36	54¾	45¼	28	50	54¾	From the end of 1768 to December 1770 10,000,000 human beings died of famine in Bengal. B. Scarcity less in Upper Provinces. D.
1770 „	24¼	30¾	43¼	17¾	28	31¾	
1771 „	18¾	25	27¼	17¾	24¾	29¼	
1772 „	22¼	13¾	28	23¼	30¾	26	
1773 „	21¾	27½	22	22¾	33¼	32	
1774 „	22¼	30¾	28	15¼	25¾	26	
1775 „	...	...	Not	available	...	...	
1776 „	...	...	Do.	Do.	...	...	
1777 „	25¼	36¼	28¾	17¾	21	21	
1778 „	21¼	27¼	24	17½	23	18¾	
1779 „	19¼	24	22	24	18¾	18	
1780 „	21	29¼	17¾	19½	30¾	29	
1781 „	24	38	31	23¼	46¾	41¼	

Average price of food grains sold at Jeypore in seers per Rupee.—(contd.)

Years.	Rabee (Spring).			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers	Seers.	Seers.	Seers.	
1782 A. D.	23	30¾	7¼	24¾	36	31	Drought in Northern India, B. Season dry. Harvest poor in Hissar. The whole country depopulated in the great famine of 1783 (Chalisa). Thousands of fugitives also came from Bikanir.
1783 „	23	28¾	28¾	15	17	15¼	
1784 „	11¾	14	12	11¼	17	16¾	
1785 „	26	37¼	34¾	26¾	47	42	The great famine in Agra known as the Chalisi G. Famine raged in the Punjab and the N.-W. Provinces. Girdlestone believes it extended into Rajputana. The increased price show that it did B. said to be most severe known—in the N. W. P. (G.) Copious rains fell in September-October 1783 in Hissar, and harvest of the spring of 1784 was abundant, but the good effects of improved prices do not seem to have reached Jeypore until 1785 H.
1786 „	37	58	50¾	26	46¾	46¾	
1787 „	25¾	36¾	38	22¾	36	40¾	
1788 „	29¼	28¼	36	27	28¾	40	
1789 „	34¾	45½	42	29	40	38	
1790 „	22¼	28¼	25	17	20	18	The terrible Chalisi Sambat 1840—Grain 4 seers for Re. 1 in Kurnat K.
1791 „	15¾	18¾	16¾	15½	20¾	19¾	
1792 „	17¼	22¼	19¾	12	17	15¼	In 1790 the Delhi district was visited by scarcity. B.
1793 „	15¼	20	47¾	21¾	34¾	37	
1794 „	22¾	32	32	24	35½	34	
1795 „	27½	36¾	41¼	26¾	41¼	49¼	
1796 „	30	45½	48¾	28	48¾	46¼	
1797 „	33½	51¼	60	33	57½	64	
1798 „	40	60¾	63½	31	56	63½	
1799 „	40	60	56	35	55¼	54¾	
1800 „	36	49½	40	18	22	22¾	
1801 „	35¼	38	24¾	31¾	40	34	
1802 „	32¾	39½	29	30	41¼	37½	

Average price of food grains sold at Jeypore in seers per Rupee.—(contd.)

Years.	Rabee (Spring).			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1803 A. D.	22¾	32¾	30¾	14¾	18	15	A severe famine in the N.-W.P but limited in area It lasted until the autumn of 1804 and clearly reached Jeypore B. Total failure of crops. Little mortality in Kurnal K.
1804 „	13¼	18½	15¼	12¼	24¾	28¾	
1805 „	16¼	25¼	23¾	16½	25	25¾	
1806 „	24	34	30	19¾	29¾	30¼	
1807 „	22½	29	26¾	20¾	26¾	21¼	
1808 „	18	23¾	18	11	12¼	12	
1809 „	16¼	21½	17¼	14¾	22¾	24¾	
1810 „	23¼	33¼	29¼	26¾	39¼	35¾	
1811 „	...	Records	destroyed by white ants			...	Round Agra crops indifferent in this year B.
1812 „	...	...	Do.	Do.	...	...	Rains failed in Mathura, no autumn harvest, spring crops 1813 failed G.
1813 „	7½	8¾	8	13¾	18	25	Famine prevailed in and around Agra in 1813 and clearly about Jeypore. Rains late in 1813 B Half the landed property in Agra Zilla changed hands G. Grain 10 seers per rupee in Karnal K.
1814 „	16¾	22	21	22	29¼	29¼	
1815 „	20¾	27¼	25¼	19	30¾	30¾	
1816 „	19½	26	25¾	18¾	25¼	25¼	
1817 „	16¾	21¾	19¾	14¼	17	16	
1818 „	15	21½	14¾	12	18¼	20¼	
1819 „	17¼	25¼	21¼	15	22¾	21¼	Famine attacked the N. W. P. and Bundelkand.
1820 „	14	18¼	18¼	11¼	16¾	20¼	
1821 „	16	20	20¼	19	26¾	26¾	
1822 „	20	26¼	26¾	19¼	34	31¼	
1823 „	24	36	30	24½	49¼	50¾	

Average price of food grains sold at Jeypore in seers per Rupee.—(contd.)

Years.	Rabee (Spring)			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1824 A. D.	26¼	43¼	45¼	18¼	28¼	24	Karnal in 1825. None sown. Distress still more severe to the South K.
1825 „	18¼	25	23¼	19¼	26	26¾	Famine or scarcity recurred in the N.-W. P. and adjacent countries in 1825-26-27 - B D. Great draught in Delhi.
1826 „	21	29	26¼	21	37¼	39¼	
1827 „	23¼	38	33¼	19¾	45¼	48	
1828 „	26¾	50	47½	18¾	38¼	45½	
1829 „	23	35	41¼	21	28¾	29¼	
1830 „	25¼	36¾	26¾	22	33¼	30	
1831 „	25¼	36¾	30¾	25¾	45¼	51½	
1832 (*a*) „	29	60	57¼	26	42	38¾	(*a*) Famine or scarcity recurred in 1832—in the N.-W. P. and adjacent countries. Was this 1833? B. Most terrible famine known in Kurnal K. (*b*) Rains failed in Karnal 1834. Great distress K. Jeypore (East). Famine and locusts.
1833 „	21¼	26¾	28¾	14¼	16¾	14	
1834 (*b*) „	16¾	25¾	15	14¼	25¾	31¼	
1835 „	20	28¾	30¼	19¼	30¼	33¾	Spring rains abundant in Karnal K.
1836 „	25	36¾	37	23	34¼	35¾	(*c*) 800,000 deaths in the N.-W. P Harvest indifferent from 1832 prevailed to the autumn harvest of 1838. Rains failed in Muthra, S.
1837 (*c*) „	20	23¼	23¼	16¾	20¾	19¼	(*d*) The 1838 famine known as the Chauranwe 1894 Sumbut G Draught in Kurnal 1837 K. Jeypore, East. Famine and scarcity of rain.
1838 (*a*) „	14¼	21	18	14	22¼	27¾	
1839 „	16¼	24¾	25¾	14¼	23¼	25	
1840 „	13	17¾	17¾	14¾	22¾	25	
1841 „	18¾	26¼	26¾	20¼	28¼	29¼	Great mortality from fever in Delhi District. Crops died for want of labour K.
1842 „	20	26¾	27	20¼	30	32¾	Rains failed in 1842 in Karnal K.
1843 „	20	28	28¼	17¼	27¾	28	
1844 „	20	26	24	20	27¾	24¾	

Average price of food grains sold at Jeypore in seers per Rupee—(con'd.)

Years.	Rabee (Spring).			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1845 A. D.	22	31¼	23¼	18	28	29¼	
1846 „	22¼	30	36¼	19¾	28	26¼	
1847 „	20¼	28	22¾	15¾	22¼	21¾	East Jeypore, Famine.
1848 „	18¼	22¼	19¾	17	19¼	19¼	
1849 „	17¾	25	22	17¾	31	32	
1850 „	24	34¼	31¾	23¾	35¼	36¼	
1851 „	25½	35	32	18½	28	29	Draught which extended into 1852 in Karnal K.
1852 „	22½	34	30½	17	31	33½	
1853 „	24	33½	32	22	28½	24½	
1854 „	24	32	27½	25	37	37	
1855 „	23½	32	31	22½	32½	28	
1856 „	23	30½	24	19½	29	30	
1857 „	25	36	30	24½	32¼	27	
1858 (*a*) „	25	34½	24	23	34	30	(*a*) Rainfall scanty in Kurnal K.
1859 (*b*) „	23½	33½	32	19	34	33½	(*b*) Only showers in Kurnal K.
1860 (*c*) „	19	33	30	12½	17	14½	(*c*) Famine in 1860-61 in the N.-W. P. and Punjab. Deaths 2,000,000 (thought to be overrated B. D.
1861 (*d*) „	15¾	29½	19	12	25¾	25¾	(*d*) Bad famine also in Kurnal K. and Hissar H.
1862 „	18	26	22½	17½	24	22	
1863 „	18	22¼	15	17½	24	17½	
1864 „	17½	23½	17	13½	22½	19½	
1865 „	12½	20	17½	10	15½	15¾	In Allahabad supposed to be on the verge of a famine. S. D.

Average price of food grains sold at Jeypore in seers per Rupee.—(contd.)

Years.	Rabee (Spring).			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1866 A. D.	15	22	17½	14½	20	20½	(*a*) The great Rajputana famine of 1868 and 1869 felt most severely in Marwar and Ajmere. B. D.
1867 „	16½	24	21½	14	23½	24	(*b*) Both crops failed in Karnal in 1868. Scanty harvest in 1869. No rain until August, more severe famine than in any other Punjab District K., severe in Hissar H.
1868 (*a*) „	15	20	18½	9¼	11	9½	The starving population from Bikanir, Jeypore, &c., poured first into Hissar H.
1869 (*b*) „	6	8	6	7½	14	16	
1870 „	11	17	17	14½	20½	20½	
1871 „	19	28	22	14	25½	22¼	
1872 „	17	26	21	14½	24	24½	
1873 „	13½	20½	19½	12¼	17	16	
1874 „	17	26	21	14½	24	24½	
1875 „	18	25¼	18½	16½	25½	24½	
1876 „	16½	23½	21¼	17	29	26½	
1877 „	19½	26	25	19¼	29	29	Autumn rains failed in Hissar H and scarcity prevailed in 1877-78 H.
1878 „	12¾	15½	14	10¾	12¾	12	Famine in Muthra and scarcity in other Districts S. Delhi also.
1879 „	13¼	19	16½	9½	13	13¼	Mortality very high in Muthra.
1880 „	13	19¾	17¼	13	24½	23	Poorhouse open in Muthra to June 1879 S. in East Jeypore; much loss by locusts.
1881 „	15¼	22¼	21	15	24	22	Rains failed in Muthra G. Rains also slight.
1882 „	16½	24	21½	16½	23	22¾	
1883 „	17¼	23½	20	15¼	24½	22½	
1884 „	15⅔	22	20	16	23	21	Summer and Winter rains of 1883-84 failed in Karnal. Grass famine intense K.
1885 „	18¼	24	20½	19	29	28	
1886 „	21½	32½	28½	16½	28½	23½	

Average price of food grains sold at Jeypore in seers per Rupee.—(concld.)

Years.	Rabee (Spring).			Karif (Autumn).			Remarks.
	Wheat.	Barley.	Bajra.	Wheat.	Barley.	Bajra.	
	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	
1887 A. D.	19	33	25	12	25½	22½	
1888 „	12	21	17½	11½	15	14¼	
1889 „	15½	21½	15½	16¼	22¾	19½	
1890 „	16	23½	21¾	14½	21	18¾	
1891 „	14½	19	16½	13½	20	17½	
1892 „	11¾	15	12¼	13½	20	19	
1893 „	14	18½	17	12	20½	19½	

Other Meteorological and Allied Phenomena.

Hailstorms occasionally do considerable mischief to the crops, but I have no record of any serious injury to men or cattle in the Jeypore State having been due to this cause. Lighting has, however, been fatal in some cases both in the districts and in the City of Jeypore.

I am informed by the Superintendent of Telegraphs in the Rajputana Division that there is no record of telegraphic communication having been interfered with by atmospheric electricity in the neighbourhood of Jeypore. Frosts are severe in the State, so that young trees require covering up, and formerly a good deal of pit ice was made by evaporation in shallow pans in the winter months. In fact, the cold for some time is very considerable, and is the more trying because of the great fluctuations of temperature between the night and day. The influence of cold and of other climatic conditions on vegetable growth would afford a study of much interest, and had I anticipated so long a residence in Jeypore, I should probably have undertaken it.

The different times at which trees and shrubs put forth their leaves and flowers in different years would give indications of the effect upon them of heat, humidity, and such like conditions, but not altogether reliable ones, as some imperfect observations I have made would seem to prove ; for example, I proposed to have a certain number of forest trees, such as the Pipal, Tamarind, Nim, Jaman, etc., marked, and the dates of the appearance of new leaves registered each year, but I soon discovered that, under apparently exactly similar conditions, trees

of the same kind in one year varied almost as much as three weeks or a month in showing signs of renewed life. The problem, however, is complicated, and requires time and much patience to yield definite results.

For observations of this kind the Naturalists' Diary by C. Roberts (Swan, Sonnenschein & Co., of Paternoster Square, London), a day-book of meteorology, phenology, and rural biology, would be useful for the record of facts, and the instructions of the Phenological Committee of the Royal Meteorological Society may also be followed with advantage.

Observation of insect pests; of migration, nesting, etc., of birds; the breeding of animals, etc., will also be useful. Unfortunately, civil surgeons have so many engagements, and are so rarely long enough in one station, that it is very difficult for them to undertake work of this kind, which, however, might well occupy the attention of Indian gentlemen, who could make valuable observations, especially when resident in their country estates.

Earthquakes are rare, but I have noted at least four in the last twenty years.

JEYPORE POLITICAL AGENCY.

The Jeypore Agency was founded March 1st, 1821.

NAMES OF POLITICAL AGENTS.

Capt. J. Stewart	1st March 1821 to 23rd April 1824.
Major T. V. Raper	24th April 1824 to 11th November 1825.
Capt. J. Low	12th November 1825 to 31st March 1828.
Mr. G. Clerk (officiating)	1st April 1828 to 30th November 1829.
Capt. Low	1st December 1829 to 17th November 1830.

Held by Superintendent of Ajmere, to which the Agency was transferred, under the Hon'ble B. Cavendish, to November 1831, when Col. A. Lockett succeeded, becoming Agent to the Governor-General for Rajputana in 1832.

Re-established, in September 1838, under—

Major B. Ross	to 4th September 1839.
Major C. Thoresby...	„ 4th November 1843.
Mr. H. H. Greathead	„ 19th January 1844.
Major Ludlow	„ — January 1848.
Capt. W. H. Rickards	„ 22nd October 1854.
Major C. L. Showers (officiating)	„ 2nd May 1855.
Major C. E. Burton (officiating)	„ 11th March 1856.
Capt. E. Hardcastle (officiating)	„ 22nd September 1856.
Capt. W. Eden	„ 9th April 1859.
Capt. Beynon (officiating)	„ 22nd May 1859.
Major B. Taylor	„ 23rd March 1860.
Major J. C. Brooke	„ 18th March 1864.

The following officers officiated at different times between 1864 and 1880:—
Captain E. R. C. Bradford, Colonel J. Wright, Major Baylay, and Major V. Law.

Major W. H. Beynon ... ... 19th March 1864 to 1880.

LIST OF RESIDENTS.

Col. Beynon	was relieved by	*Col. Bannerman*	on	— June 1881.
Col. Bannerman	,,	Capt. Talbot	,,	28th February 1882.
Capt. Talbot	,,	Major Prideaux	,,	18th March 1882.
Major Prideaux	,,	*Dr. Stratton*	,,	26th December 1882.
Dr. Stratton	,,	*Mr. Henvey*	,,	9th December 1885.
Mr. Henvey	,,	Col. Peacock	,,	23rd April 1888.
Col. Peacock	,,	*Lt.-Colonel Prideaux*	,,	23rd November 1888.
Col. Prideaux	,,	*Col. Peacock*	,,	3rd December 1890.
Col. Peacock	,,	Lt.-Col. Abbott	,,	7th May 1891.
Lt.-Col. Abbott	,,	Col. Peacock	,,	5th January 1892.
Col. Peacock	,,	Major Thornton	,,	1st August 1892.
Major Thornton	,,	*Col. Peacock*	,,	20th November 1892.
Col. Peacock	,,	*Col. Prideaux, C. S. I.*	,,	31st March 1894.

Officers whose names are in italics held the appointment substantively, and others officiated in the appointment.

List of Government Medical Officers attached to the Jeypore Political Agency.

Names of Officers	From	To	Remarks.
Dr. A. S. Andrew Simpson	15th June 1828	1829	Pay Rs. 680.
	No doctor from 1830	to 1838.	
Dr. Gullan	12th December 1838 ...	10th December 1843.	
Sub Asst. Surg Harris ...	10th December 1843 ...	29th September 1846 ...	Remained till death Pay Rs. 300.
Asst. Surg. S. B. Wright	1st March 1847	.....	Pay Rs. 370.
Dr. R. Knight	5th September 1852 ...	30th October 1853.	
Dr. Wright	30th October 1853 ...	24th December 1855.	
Dr. Kingsford Burr ...	24th December 1855 ...	26th July 1857	Uncovenanted. East Indian. Pay Rs. 375.
Asst. Surg. De Renzie ...	27th July 1857	1st February 1858.	
Dr. Burr	1st February 1858 ...	1st January 1862.	
Dr. T. Murray	1st January 1862 ...	31st December 1862.	
Dr. Burr	1st January 1862 ...	31st May 1872.	
Dr. T. Murray	..... Not	known	Appointed to officiate for Dr. Burr on 12 months' furlough in 1862.
Dr. C. Valentine	15th April 1871	14th July 1871	*Vice* Dr. Burr on three months' privilege leave.
Surg.-Maj. W. A de Fabeck	1st June 1872	Not known	*Vice* Dr. Burr on two years' furlough.
Asst. Surg. (now Brig. Surg. Lt.-Col.) T. H. Hendley, C. I. E.	18th April 1874	Present date.	
Surg.-Maj. C. W. Owen, C. I. E.	23rd April 1883	26th August 1884 ...	*Vice* Dr. Hendley on 18 months' furlough.
Surg.-Maj. D. N. Martin ...	14th September 1884 ...	25th October 1884.	
Surg. P. D. Paul	27th January 1891 ...	28th July 1892	Do. do.

Note.—The Durbar Medical Institutions were under Dr. C. Valentine and Dr. J. Husband from 1872 to 1880.

BRIEF HISTORY OF JEYPORE.

Reprinted from the Author's Handbook to the Jeypore Courts of the Indo-Colonial Exhibition of 1886.

The early history of this part of India is very obscure, and the little that is known comes through sources from which much that is absurd and exaggerated must be eliminated.

The Meenas of Jeypore may be ranked amongst the aboriginal races, which were driven into the mountains or deserts by wave after wave of hardy warriors who entered India by its Northern gates.

The first of the conquering hosts were, it is thought, Turanians, and are probably represented by the Dravidians of South India, the Jhàts of Bhartpur, and the Hindus of Shudra, or low castes. After these came the Aryan ancestors of the Hindus of high caste.

It is impossible to say whether the Rajput is merely a division of the first Aryan invading tribe or a distinct offshoot from the grand old parent Central Asian stock, from which the advanced races of both Europe and India have sprung.

The first historical event we have knowledge of is the great war between the Kauravas and Pandavas, the descendants of a king of Indraprastha or Delhi.

For twelve years the five famous Pandava brothers wandered, according to tradition, about Rajputana, and during the thirteenth century they remained concealed in Bairat, to the north of Jeypore.

This family appears to have been one of many Rajput clans that established themselves in Northern India. At Nagar in the south of Jeypore, near Sambhar, and at Bairat, have been found traces of the residence of Buddhists, and of these the most famous is one of Asoka's inscriptions, dated about 260 B.C.

Chatsu, a town 25 miles south of modern Jeypore, belonged, it has been fairly well decided to a contemporary or immediate ancestor of Vikramaditya, whose era is most commonly used in Rajputana to the present day. We are thus taken back to B.C. 56-57, the first year of the Sumvat era as it is called.

Until the raid of Mahmud of Ghuzni in the year 1024, when he traversed Western Rajputna to reach the famous temple of Somnath, little further is known of the history of the land.

The country appears after this to have been ruled by a number of petty chiefs, one of whom was succeeded at Kho or Dausa by the first Rajah of Jeypore, about 1128 A.D. The history of the present ruling family must now, therefore, engage our attention.

His Highness the Maharajah of Jeypore is said to be the one hundred and thirty-ninth descendant in direct line of Kusa, the second son of Ram Chandra, the deified king of Oudh, the hero of the Ramayana (one of the two great epic poems of India) by Sita, an incarnation of Luchmi, goddess of fortune, who was born from a furrow in the earth. Ram Chandra himself was reputed to be an avatar, or incarnation of her husband Vishnu, the second member of the Trimurti or Hindu Trinity. The king was also sprung from the Sun; hence his descendants are known as the Surya-vansi or Suraj-bansi, the children of the Sun. The early history of the family is obscure, but it was settled, it is believed, at a remote period at Rohtas on the Soane river, and

then at Narwar and Gwalior, where, under the family designation of Pal, it ruled the neighbourhood of those famous places until the reign of Tej Karan, who in the year A.D. 1128 left Gwalior for Dausa to marry Maroni, the daughter of Rajah Ran Mal, leaving his capital in the hands of a nephew, who usurped the authority.

Tej Karan was therefore obliged to content himself with succeeding his father-in-law, whose town of Deosa or Dausa is close to the Rajputana Railway, about 35 miles east of Jeypore.

Tej Karan is generally known as Dulha Rai, the bridegroom king, who lost his throne for love of Maroni.

The local version of the story of his life is that his mother was driven from Narwar or Gwalior with her child, and that she took refuge with the Meena Chief of Khogaon in the hills, a few miles from Jeypore.

The infant's future fame was made known to her, in a not uncommon way, according to the myths, by a friendly cobra, who reared his head over the child as he slept.

The boy, when he became a man, repaid his Meena benefactor by slaying him, with his principal followers, at a feast, which was held near a deep well still pointed out at Kho, and there founded his kingdom in blood. He then, according to this version, married Maroni and rendered himself famous by his love for her. The whole of modern Jeypore, as previously hinted, was ruled at that time by petty Rajput princes, some of the Chohan, others of the Bargujar clan, or by chiefs of the Meena tribe, a sturdy race which still forms the bulk of the population of the State. The early history of the Kachhawa family, as it is called, was a constant struggle to increase their dominions, and thus Ramgarh was acquired; Amber, a Meena town to which the capital was removed, was taken; and many broad bigahs, or Indian acres, were added to the lands to which Dulha Rai had succeeded.

The fifth chief, Pajun, married the sister of Prithi Raj, the last Hindu King of Delhi and Ajmere, and fell with him on the fatal field of Narana, A. D. 1193, in the struggle which gave India to Shahabu-din Ghori. Shaikhji, great grandson of Udekaran, the twelfth chief, was the ancestor of the Shekhawats, whose descendants occupy nearly the whole of the northern portion of the State, and now furnish some of the best recruits for our Indian army; while in days gone by they were too often dakaits, or highway robbers, whose raids kept Central India in terror, which was only relieved by our successful efforts in rooting out the evil at its source. The Uniara Rajah, a Jeypore noble, and the Maharajah of Ulwar, are also descended from a younger son of Udekaran.

The seventeenth prince, Prithi Raj, left twelve sons, who attained their majority and became the ancestors of the twelve great families of Jeypore. After his death the Jeypore annals are fairly well known, as the vague and exaggerated Hindu accounts are confirmed by the works of the Mohamedan historians. Bahar Mal lived in the time of Humayun, Emperor of Delhi. His son, Bhugwan Das, was a firm friend of Akbar, and from this friendship, which was continued by their sons and successors, and from the great talents of several of its princes, is owing the superior position to which Jeypore has attained amongst the Rajput States.

Man Singh, who succeeded Bhaghwan Das, about A.D. 1589, held the *mansab* or command of 7,000, under the emperor, who thus raised a Hindu above all the Mohamedan officers of the Crown. He conquered Orissa for his sovereign lord.

He also made Assam tributary, and was at different periods Viceroy of Bengal, Behar, the Deccan and Kabul.

He was the most prominent man of his time at the Imperial Court. In the Ain-i-Akbari it is recorded that 60 of his 1,500 wives burned themselves on his funeral pile. The twenty-third prince, Jey Singh, known as the Mirza Rajah, held a command of 6,000 horse under the Moghuls, but becoming too powerful for a subject, was assassinated by his own son at the instigation of the emperor. It is satisfactory to record that the parricide, and his descendants, were excluded for ever by the Rajputs from enjoying the throne which he coveted.

The twenty-seventh chief was the renowned Sawai Jey Singh, the famous astronomer, who founded the city of Jeypore, reformed the Indian Calendar, with the aid of observations made by him in the observatories, which he constructed at Jeypore, Delhi, Mathura, Benares, and Ujain, and was, besides being a liberal patron of art and science, a great politician and general.

The title "Sawai" which was given to him by the emperor of Delhi, and which his descendants have continued to hold, means one-and-a quarter, and was intended to indicate the very high estimation he was held in by his contemporaries.

He made one great mistake, which led to ruin nearly overtaking both Jeypore and Oodeypore.

A treaty was agreed upon between these States and Jodhpore for common defence against the Mohamedan power, but unfortunately a condition was made (to obtain the privilege of re-marrying into the Oodeypore family which had been forfeited) that the sons of queens of Oodeypore descent should succeed to the thrones of Jeypore and Jodhpore even in the event of there being elder boys by other wives.

Isri Singh, the eldest son of Jey Singh, succeeded his father, but Madho Singh, a much younger brother, the child of an Oodeypore princess, disputed the succession, and to ensure his victory the Maharana of Oodeypore, his uncle, called in Holkar, the Mahratta chief, who overcame Isri Singh, who thereupon committed suicide.

Madho Singh succeeded and was a valiant prince, but the mischief was done, and from that time until the British supremacy in Rajputana was established in A. D. 1818, by treaties formed with all the native states in the Province, the whole country was overrun by the armies of Sindhia, Holkar, Meer Khan, the first Nawab of Tonk, and others.

Under the three next chiefs, Prithi Singh II, Partap Singh, and Jagat Singh II, the country suffered greatly from these incursions, and also from the loss of Macheri, a rich province, which, in the time of Partap Singh, secured its independence under one of the Jeypore nobles of the same name as the Rajah, who made it the nucleus of the important State of Ulwar.

A boy, Jey Singh III, was born a few months after the death of Jagat Singh, and the country was ruled in his name for 17½ years until his death in A. D. 1835, when Ram Singh succeeded and reigned until A. D. 1880. He not only maintained the reputation of his ancestors, but did immense good to his people, and secured an European reputation for his encouragement of art and learning besides obtaining a conspicuous position for his loyalty and devotion to the paramount British power. Maharajah Ram Singh left no sons, but on his death-bed, in September 1880, he nominated, in accordance with Hindu law and custom, a young noble of his clan, a descendant of Jagat Singh I, to succeed him. This nomination was confirmed by the Government of India, and the new head of the Kachhawas assumed the name and style of Sawai Madho Singh, and became the thirty-fifth Maharajah of Jeypore. Under him the State has continued to flourish.

The work of government is carried out by a council at the head of which since 1882, the date the Maharajah attained his full powers, has been Rao Bahadur Kuntee Chunder Mookerjee, C.I.E.

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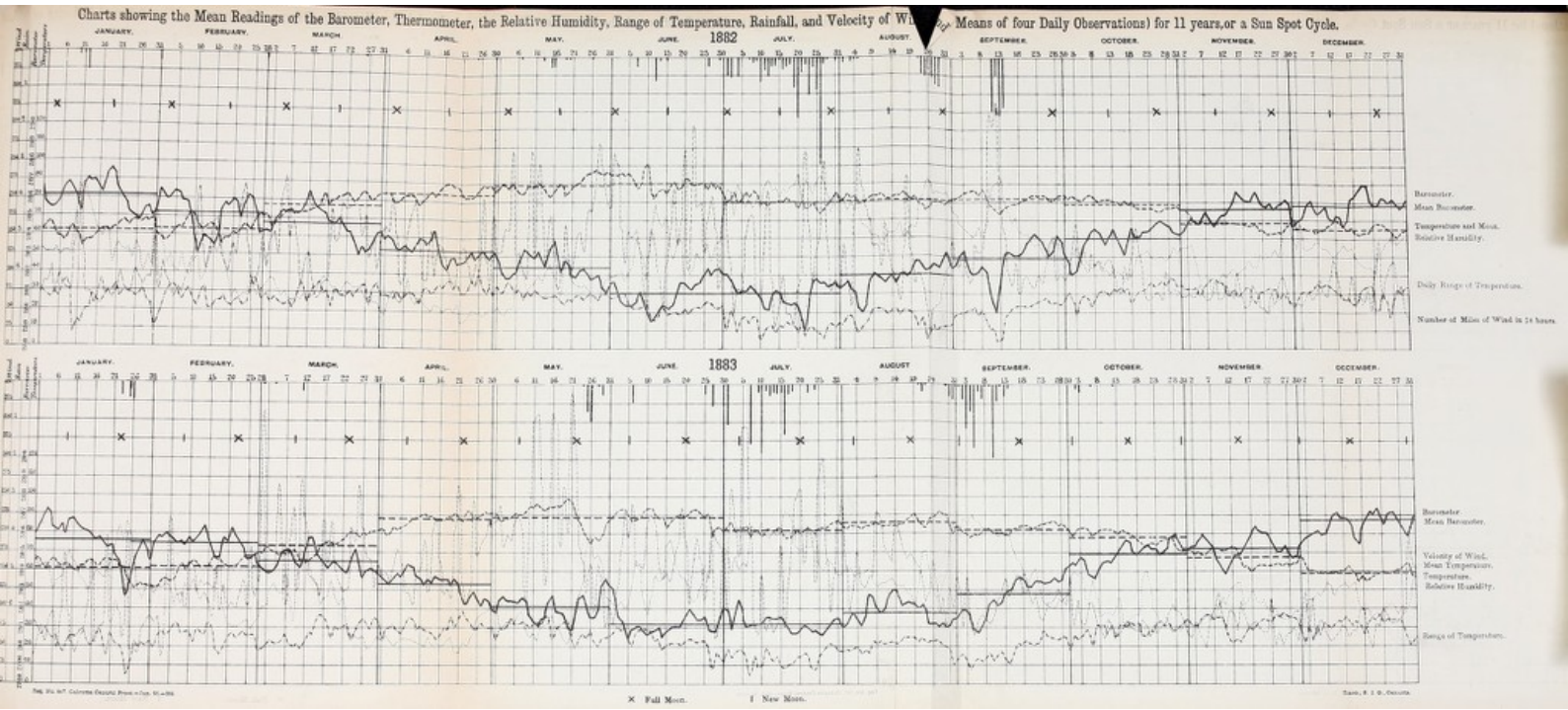
Charts showing the Mean Readings of the Barometer, Thermometer, the Relative Humidity, Range of Temperature, Rainfall, and Velocity of Wi… Means of four Daily Observations) for 11 years, or a Sun Spot Cycle.



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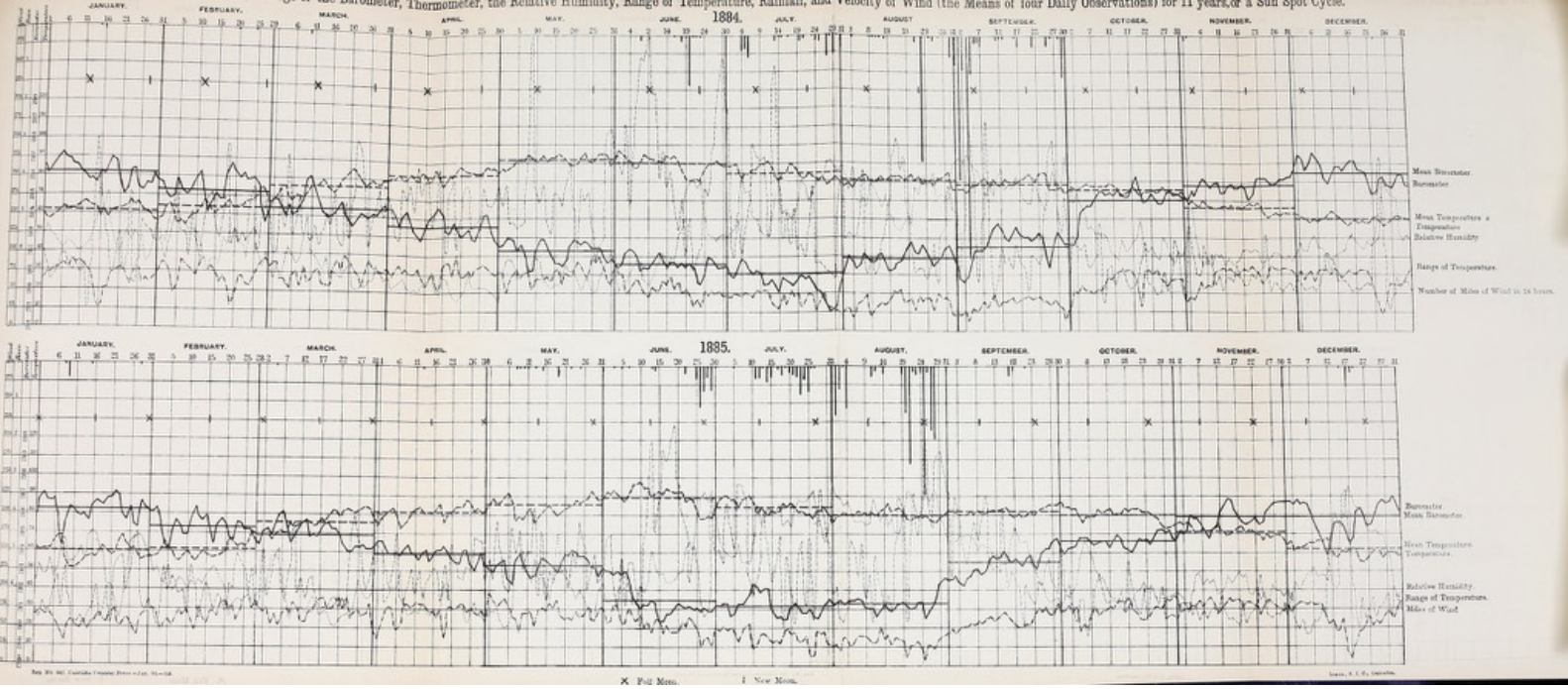

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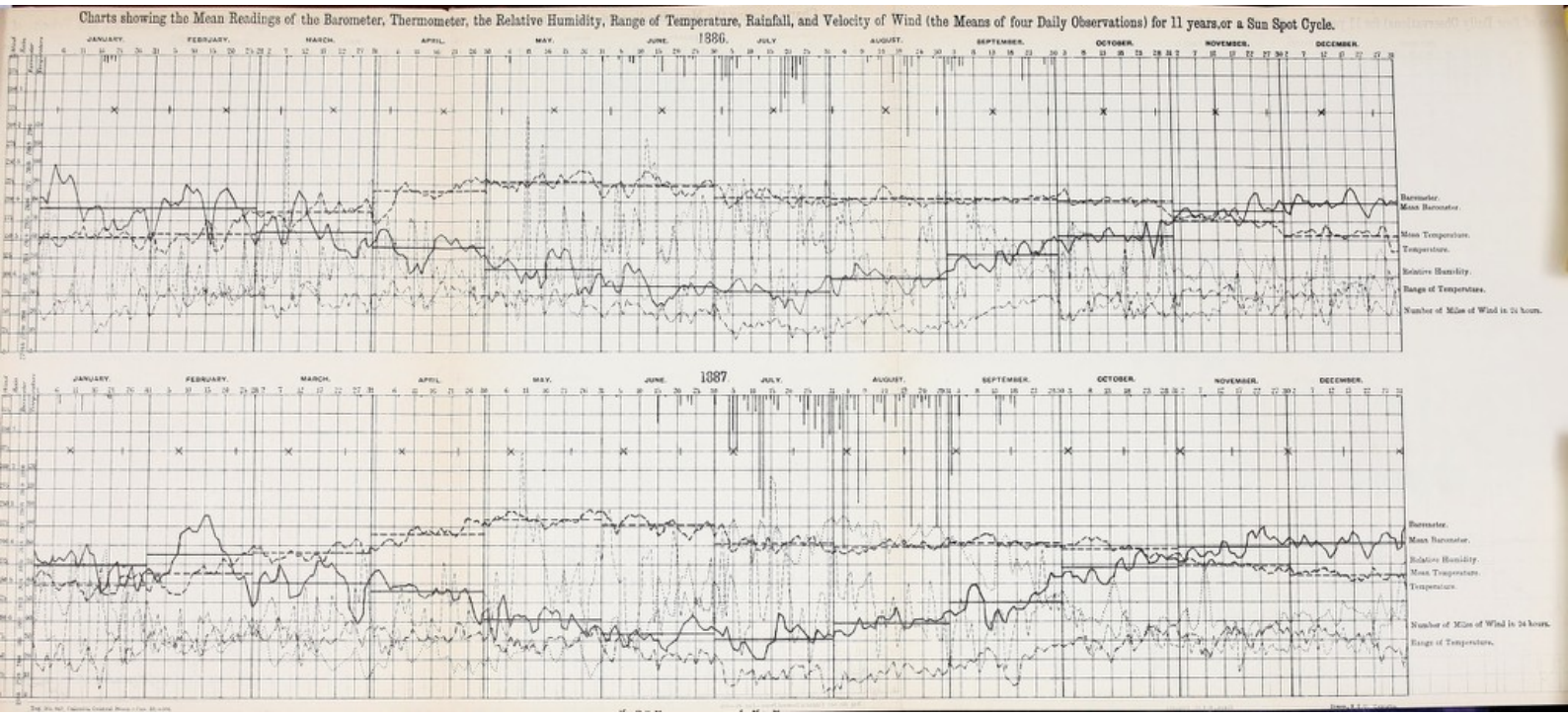

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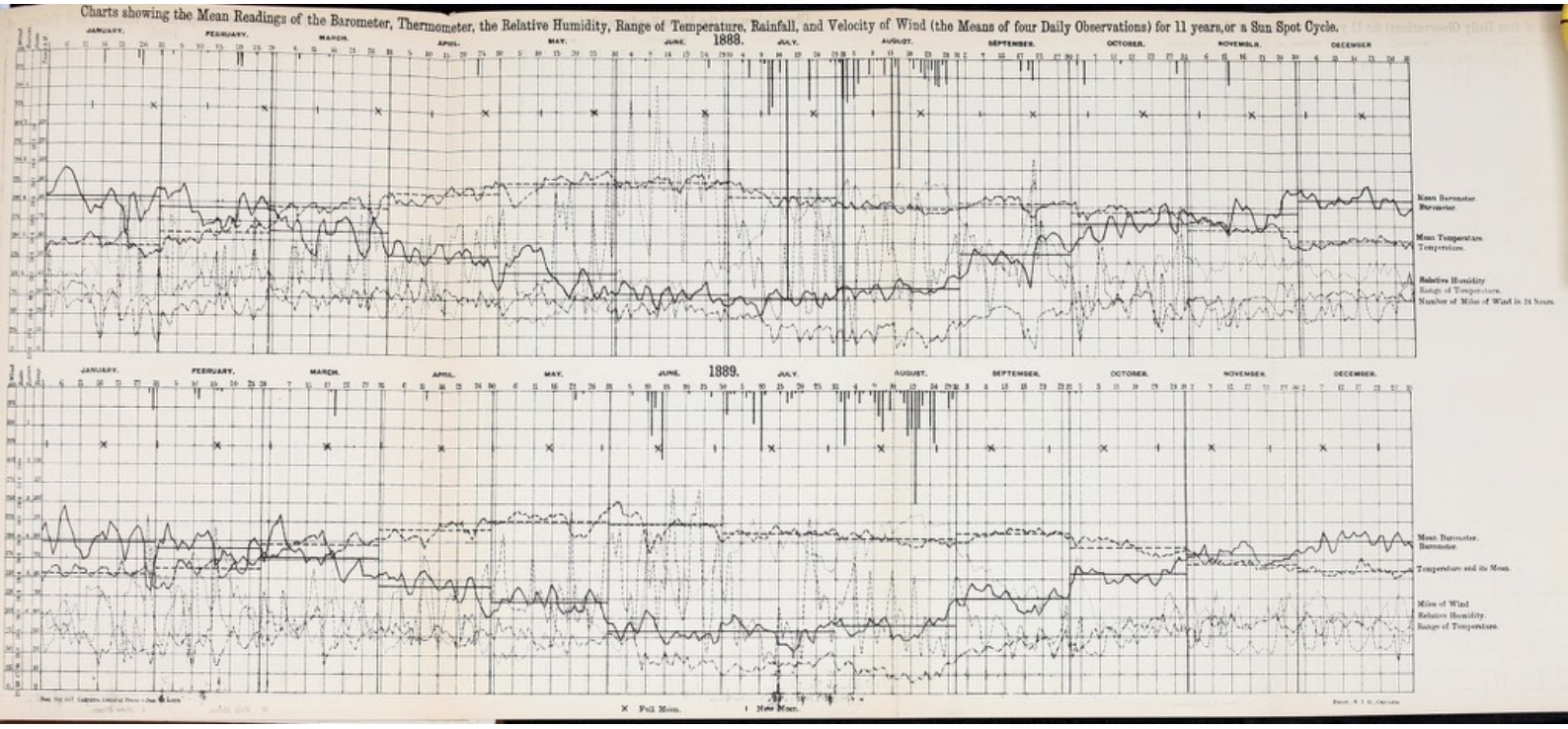

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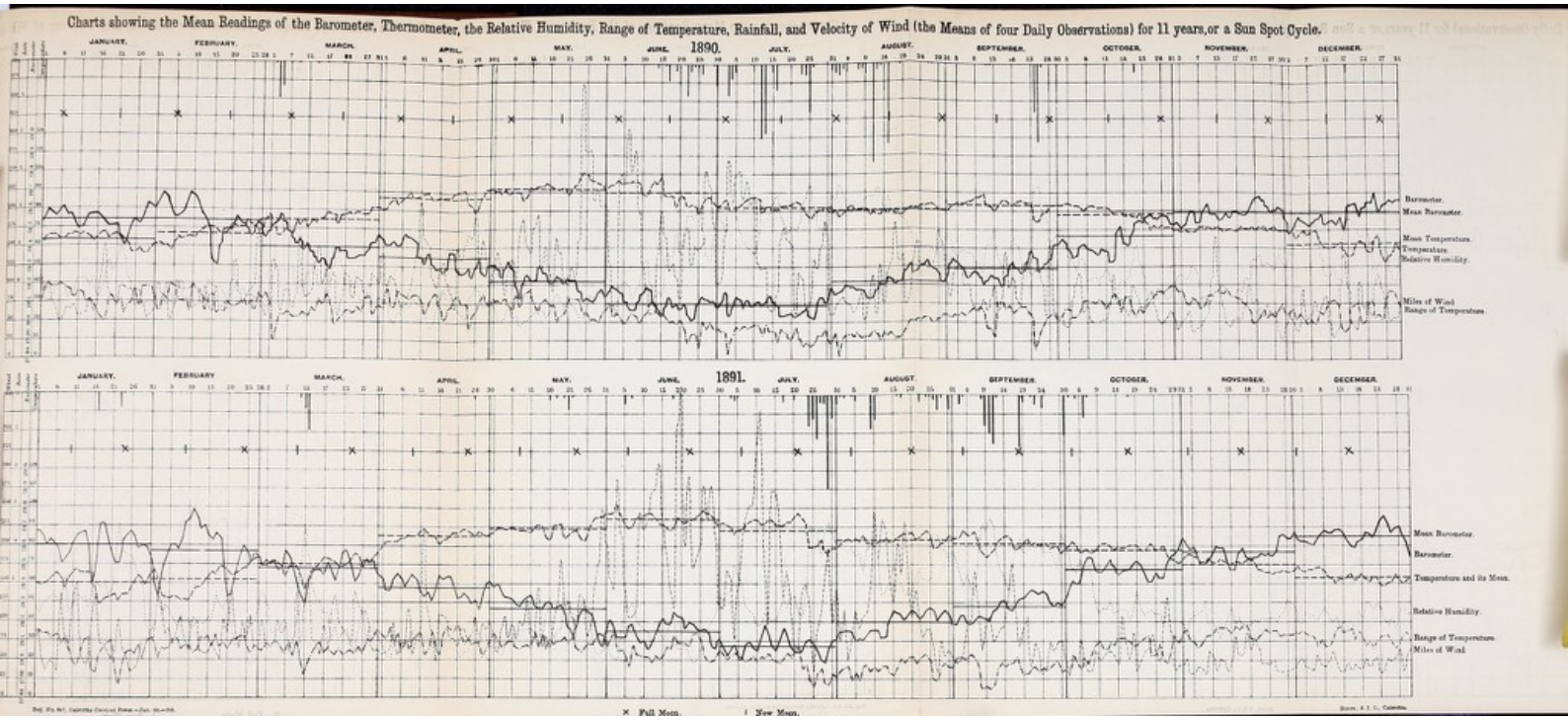

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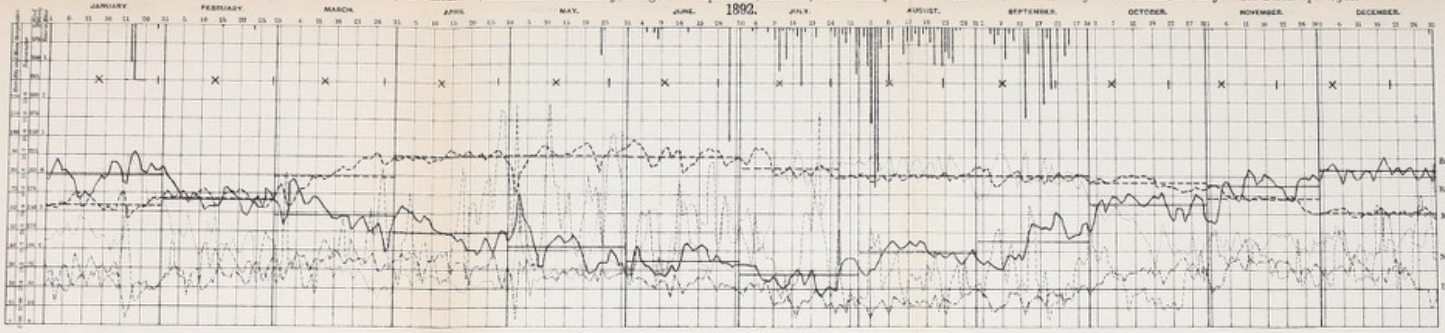
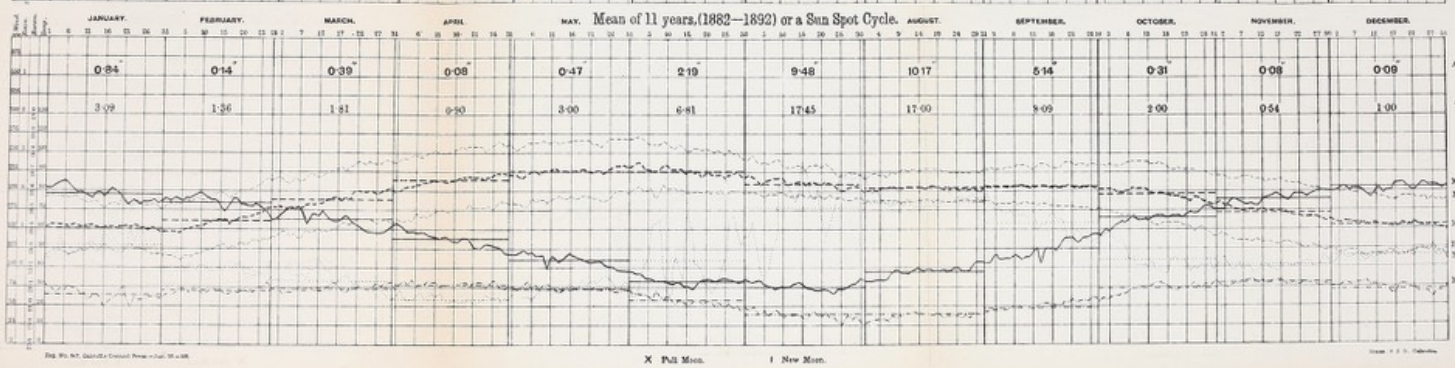


Mean of 11 years, (1882—1892) or a Sun Spot Cycle.



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