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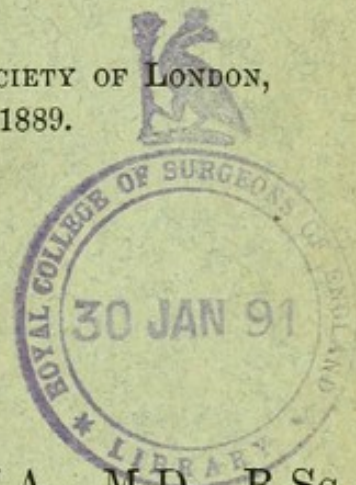
LEPROSY:

A

REVIEW OF SOME FACTS AND FIGURES.

A Paper

Read before the EPIDEMIOLOGICAL SOCIETY OF LONDON,
on Wednesday, May 8th, 1889.



BY

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F.R.C.S.I.;

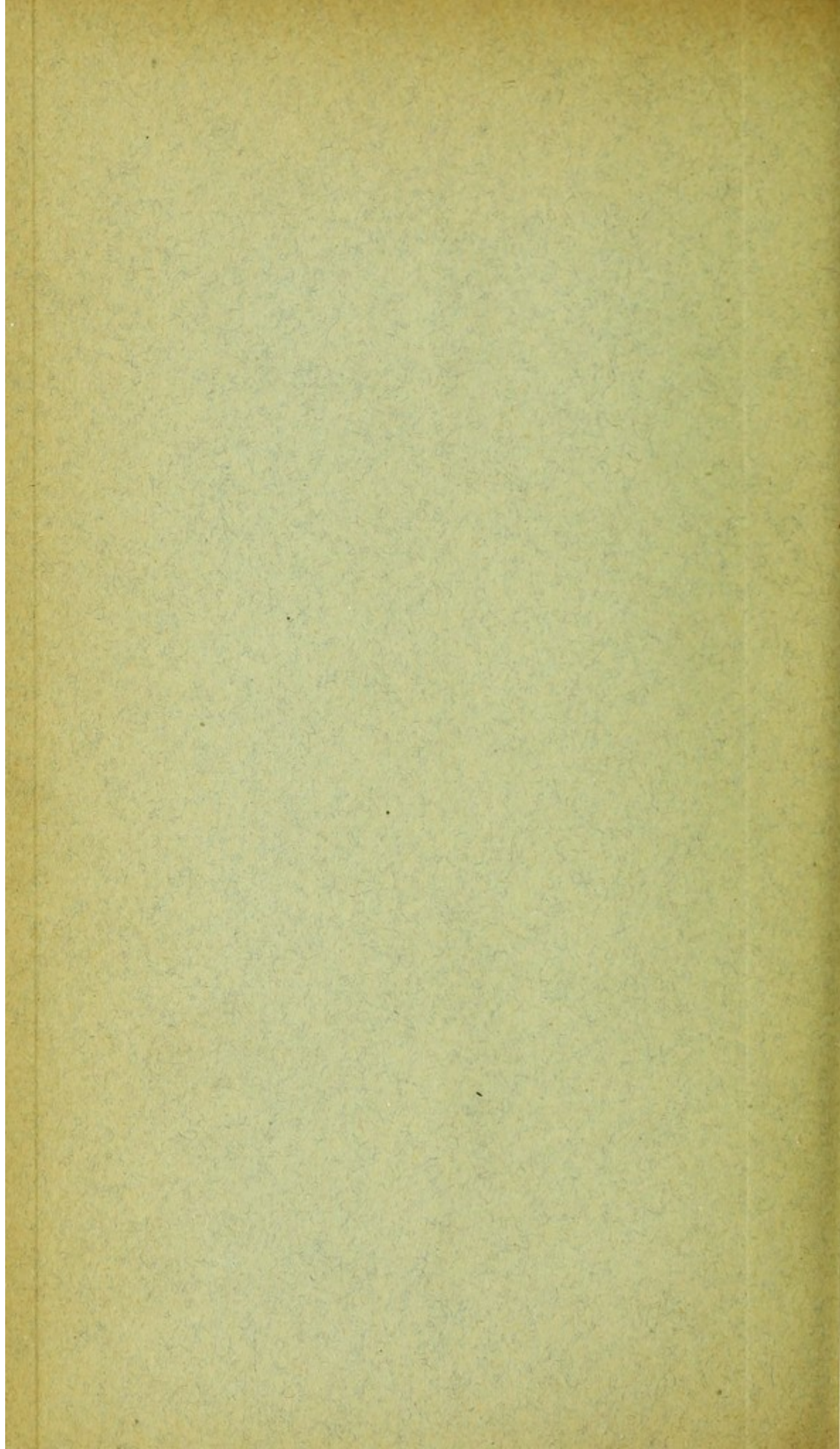
LECTURER ON PHYSIOLOGY AND HISTOLOGY, WESTMINSTER HOSPITAL MEDICAL SCHOOL ;
CLINICAL ASSISTANT, HOSPITAL FOR DISEASES OF THE SKIN, BLACKFRIARS ;
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R.C.S.I.

LONDON :

PUBLISHED FOR THE EPIDEMIOLOGICAL SOCIETY BY


SHAW AND SONS, FETTER LANE, E.C.

1889.



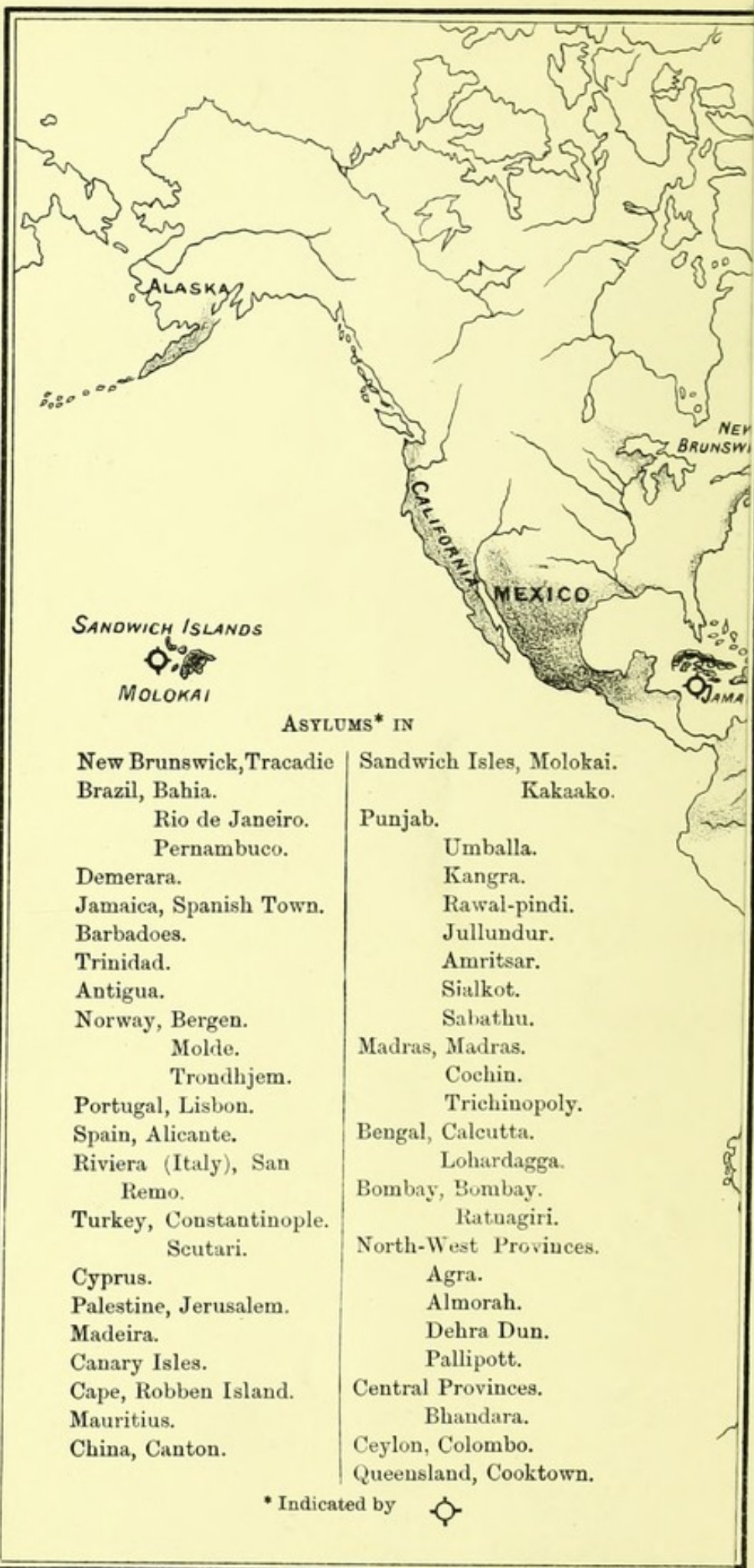


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| Jamaica, Spanish Town. | Kangra. |
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| Trinidad. | Jullundur. |
| Antigua. | Amritsar. |
| Norway, Bergen. | Sialkot. |
| Molde. | Sabathu. |
| Trondhjem. | Madras, Madras. |
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| Spain, Alicante. | Trichinopoly. |
| Riviera (Italy), San | Bengal, Calcutta. |
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| Turkey, Constantinople. | Bombay, Bombay. |
| Scutari. | Ratnagiri. |
| Cyprus. | North-West Provinces. |
| Palestine, Jerusalem. | Agra. |
| Madeira. | Almorah. |
| Canary Isles. | Dehra Dun. |
| Cape, Robben Island. | Pallipott. |
| Mauritius. | Central Provinces. |
| China, Canton. | Bhandara. |
| | Ceylon, Colombo. |
| | Queensland, Cooktown. |

* Indicated by 

MAP SHOWING
THE
DISTRIBUTION OF LEPROSY
IN THE WORLD
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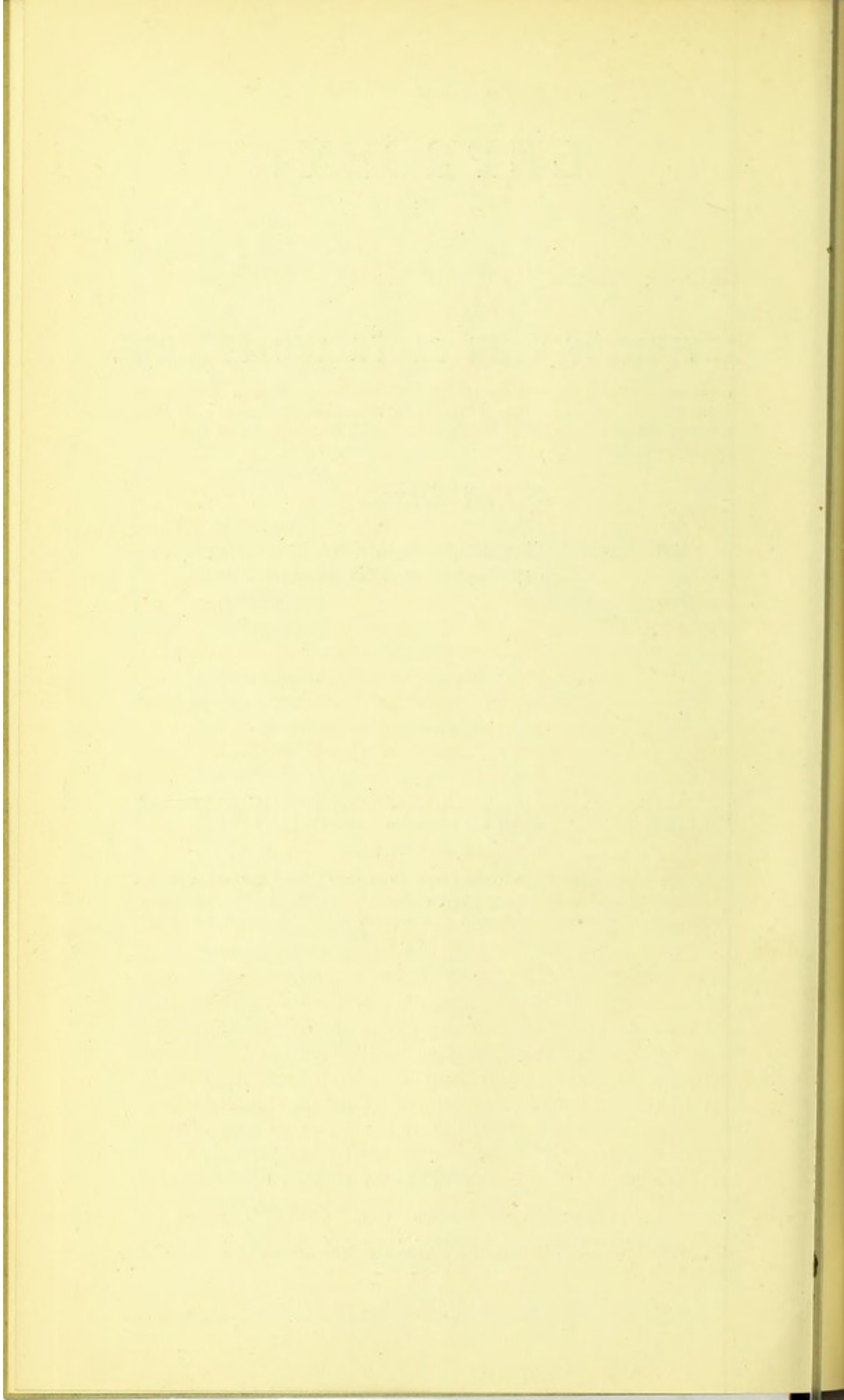
PHINEAS S. ABRAHAM, M.A., M.D., B.Sc.,
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1889.



LEPROSY: A REVIEW OF SOME FACTS AND FIGURES.*

By PHINEAS S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.,

Lecturer on Physiology and Histology, Westminster Hospital Medical School; Clinical Assistant, Hospital for Diseases of the Skin, Blackfriars; and late Curator of the Museum and Member of the Court of Examiners, R.C.S.I.

MR. PRESIDENT AND GENTLEMEN,—When the Hon. Secretaries of this Society did me the honour to invite me, some time ago, to read a paper, it occurred to me that I could not choose a more suitable subject to bring before you than that of leprosy; for not only is the question of the spread of that disease now attracting considerable attention in medical circles, but I feel that no scientific body is better qualified to discuss and throw light upon the matter than the Epidemiological Society, of which so many members are distinguished by their wide experience of Oriental and colonial endemic disease.

Within the last few years we have seen numerous articles, annotations, and letters on leprosy in non-medical magazines and in the daily press; and the medical journals of this country, of the Continent, and of America have frequently alluded to the subject in their columns. There have also been papers and discussions on leprosy at the late International Congresses, as well as at the Académie de Médecine at Paris, in 1885 and 1888, and at the Academy of Medicine of New York, and at meetings of physicians in Germany and in Russia; but, with the exception of the case brought forward by Dr. O'Carroll, a few weeks ago, at the Royal Academy of Medicine of Ireland, I believe that no British Society has recently had the subject under its consideration.

That the disease is really to be regarded as of importance in British medicine is forcibly indicated by the fact that the Royal College of Physicians of London has its "Leprosy Committee"; and as we learn from the Report of that body

* Abstract of a paper read at the Epidemiological Society of London on Wednesday, May 8th, 1889.

adopted by the College at its recent meeting (April 17th, 1889), in view of the fact that there is increasing evidence respecting the communicability of leprosy, the Committee repeated, "with greater urgency, the recommendation made in 1887,* that the Government should institute a full and careful scientific investigation, which would entail expense and require considerable time."†

A glance at the map, which indicates the distribution of leprosy throughout the world, will show the wide prevalence of the disease in the British Empire; and if it be true that the pestilence is increasing in some countries, and that it may possibly become endemic in other places which are now exempt, it is not to be wondered at that the subject is coming to the front, and that a great deal of general interest in the matter is becoming manifest.

It is to be hoped that the scientific investigation of leprosy which the Committee of the Royal College of Physicians recommends will be sanctioned by the Government; for not only will it be desirable to set at rest, if possible, a great many doubtful points with regard to the pathology, etiology, and the desirability of preventive measures, etc., but also because we know that the British public, or at any rate a large section of it, is rather liable to an occasional emotional outburst, which may take the form of a general scare, and that anything of the kind will probably be best allayed by the authoritative conclusions of a proper commission.

LEPROSY IN THE BRITISH DOMINIONS.

The question whether leprosy be really increasing in our colonies is one by no means easy to answer definitely. The medical reports of those countries or islands where the disease is endemic, and particularly where leper asylums have been established, have as a rule, but not always, some reference to the disease; but the facts and data given are usually quite insufficient for arriving at any sound conclusion on the point.

THE CAPE.—In a few places special attention has been directed to the subject; and, as at the Cape of Good Hope, we have amongst the recent Government papers numerous expressions of opinion from district medical officers and other authorities. The belief, indeed, in the increasing spread of leprosy in South Africa became so general that, a few

* Leprosy Committee Report, 1887. See Appendix V.

† *Lancet*, April 20th, 1889.

years ago, an Act was passed, entitled "The Leprosy Re-pression Act, 1884".*

In the South African Reports for 1886 a decided increase is stated to have taken place in the districts of Alexandria, Bedford, Clanwilliam, Herschel, Malmesbury, Paarl, and Stockenstrom; and for 1887 the spread of the disease is reported not only from most of these districts, but also from Wynberg, Stutterheim, and Koksted. The majority of the medical officers speak very strongly on the subject. For example, one of them (from Alexandria) writes that "leprosy is certainly spreading rapidly, and unless some active and efficient measures are soon taken, it will become a matter for the most serious consideration." Another (from Bedford): "I believe it to be considerably on the increase, and should be stringently dealt with." Another (from Malmesbury): "With reference to leprosy, I cannot but repeat my statements of the last years to the effect that the disease is slowly but surely increasing, each fresh case acting as the nucleus to a more or less extended infection." Another (from Paarl): "It is deplorable to see what strides it is making"; and in 1887, "As for leprosy, although it is making rapid strides, there is no notice taken of it" (*i.e.*, by the authorities). More than one of these medical authorities, indeed, assert or imply that the boards of management, and others, who have the power to put the Act in force, shirk the duty on the score of expense, and that the Public Health Act is to some extent a dead letter.

In reference to this, however, the medical committee of the Cape state that "they see with pleasure that a commencement has been made regarding a segregation of lepers, and strongly recommend that the law as passed be promulgated without delay, especially as the opinion that leprosy is contagious is gaining ground, and therefore consider that every means should be adopted to eradicate this very loathsome disease as soon as possible."†

The Cape leper asylum is located, with the lunatic asylum, at Robben Island, in Table Bay.

In Dr. Daubler's account of a recent visit to the Cape asylum,‡ we learn that there are now § 84 lepers at Robben Island—58 males and 26 females; of the latter 6 are white people, and 5 half-castes. Of the whole 58, 3 are born Europeans. About one-third of the number are half-castes, and a great many of the remainder are Malays. The

* See Appendix III.

† Cape Reports for 1886.

‡ *Monatshefte für prac. Dermat. (Unna)*, Feb. 1889, p. 123.

§ October 1888.

asylum is not large enough for the requirements of the Cape.

It is believed that leprosy was introduced at the Cape by Malays imported by the Dutch at the beginning of the last century.

He states that in the Transvaal there are lepers both white and black, and that the native chiefs of the Limpopo districts, and others, have petitioned the Government to establish asylums, but their request has not been granted.

According to Surgeon Brunt, R.N., of H.M.S. *Flora*—whose recent interesting Report on Leprosy at the Cape, Deputy Inspector-General Turnbull, M.D., R.N., has kindly enabled me to peruse—"leprosy is greatly on the increase in this colony, and, although it is principally confined to the black population and half-castes, or 'bastards', as they are called here, there are also frequent instances of the disease having been contracted by Europeans."

But little information, however, can be obtained from the official reports of most of the other leprous countries; and, even in the census and death returns, the data given in reference to leprosy are very scanty. Indeed, in those places where an attempt has been made to record the number of existing lepers, or the number of persons who have died from the disease, the figures are unreliable, and probably much under the mark—first, because of the general tendency to conceal the disease, and, secondly, because the vast majority of deaths are uncertified by medical men.

JAMAICA.—Thus, in Jamaica, the colony with which I happen to be personally acquainted, it has been estimated that upwards of 75 per cent. of the total deaths in the island are not certified by qualified practitioners!*

The Registrar-General's returns give the following deaths from leprosy in that island for the last ten years:—

1879-80	...	...	33	1884-85	...	...	37
1881-82	...	...	34	1885-86	...	...	26
1882-83	...	...	29	1886-87	...	...	39
1883-84	...	...	26				

If we cannot arrive at any judgment as to the increase or decrease of leprosy from these figures, we can still less from the census returns, which are—

For the year	Population.	Lepers.
1861		778
1871	506,154	749
1881	580,804	No return of lepers.

It would be as well if the attention of the colonial

* Jamaica Census, 1881.

authorities were called to the desirability of obtaining more definite records of the disease in future censuses.

Jamaica possesses a lepers' home at Spanish Town, where the afflicted may voluntarily go, and to which vagrant lepers may be sent. Here cases of frambæsia, elephantiasis arabum, psoriasis, etc., are received, as well as of leprosy. The number of cases of the latter treated in the home were—

In 1879-80	...	...	66	1883-84	...	...	105
1880-81*	...	...	90	1884-85	...	...	103
1881-82*	...	...	101	1885-86	...	...	110
1882-83	...	...	105	1886-87	...	...	104

My friend Dr. Phillippo, of Kingston, who is one of the most experienced practitioners in the colony, has given me his opinion as follows: "I do not believe that the disease has increased during the last thirty years; it has not certainly among the whites, and I do not think that it has amongst the coloured people."

On the other hand, I understand that Dr. A. R. Saunders, who has been fourteen years in large practice in the island, and Dr. T. P. Madden, consider that it is decidedly on the increase, both among the whites and coloured, as well as the blacks. It will be seen that these opinions cannot be verified by figures.

TRINIDAD.—The fullest information with regard to leprosy in the West Indies, perhaps, comes to us from Trinidad; but even here we have no adequate data. Dr. Beaven Rake, medical superintendent of the asylum, whose full and able reports and important pathological researches are well known, writes to me, under date March 29th, 1889: "1. *Increase of Leprosy in the West Indies.* I regret that statistics on this point are very meagre. I have urged on the Government the desirability of getting periodical returns of the number of lepers, but nothing has been done yet. The number of lepers in the asylum is hardly any guide, for the beds are nearly always full, and there are numbers waiting outside. I, however, give you the following figures for what they are worth:—

" On January 1st, 1869, there were	70 lepers in the asylum.
" Dec. 31st, 1873	" 86 "
" " " 1881	" 128 "
" " " 1887	" 176 "

Thus in twenty years the number of beds in the asylum

* The increase is in consequence of the leprosy law in reference to vagrants being enforced in the different parishes.

has been more than doubled. Comparing the census of 1881 with the *estimated* population at the end of 1887, we have—

	Population.	Lepers in Asylum.	
1871	109,638	89	
1881	153,128	128	} or roughly $\frac{153}{109} \times \frac{128}{89}$
1887	183,406	176	

This shows the increase of lepers in the asylum to be out of proportion to the increase of population."

In 1884 Dr. R. H. Knaggs (late acting medical superintendent of the leper asylum) expressed the opinion that the disease was increasing in the colony, and that there were double the number of lepers outside the asylum; but this was doubted by the Surgeon-General,* who states: "There has not been any systematic inquiry as to the number of lepers in the colony, and we are not placed in a position to know the relative numbers in and out of the asylum, at the present or any previous period."

Dr. Rake, however, seems to think that there has been a more rapid increase in later years.

In the work, *La Lèpre est Contagieuse*,† the rev. author‡ shows the enormous growth of the disease in Trinidad since the beginning of the century; and he is evidently a strong believer in its present increase, not only in Trinidad, but in many other parts of the world.

BRITISH GUIANA.—There have also been many excellent reports concerning leprosy from the medical officers of British Guiana, and amongst them the careful and valuable work§ by Dr. Hillis, formerly of Demerara, must be particularly referred to. Conclusive official statistics, however, relating to the increase or decrease of the disease are not extant. At the time he wrote Dr. Hillis believed that 1 in 500 of the population was leprosy. The figures given for 1831 are 431, 1864 are 529, and for 1879, 525; but he is of opinion that these latter are inaccurate. He considers that while there has been an increase of 160 per cent. of the cases of leprosy in the twenty years 1858-78, the increase of population has been only 45 per cent.

The Surgeon-General of the colony, Dr. Manget, stated in 1879 that "leprosy is on the increase among the Creole population, but the coolies are those who by far add to the number."

* *Vide* Council Paper, Surg.-Genl.'s Office, 3rd June 1884.

† Paris, 1879.

‡ ? Père Etienne, O.P. Sec. Hillis, *Leprosy in Brit. Guiana*.

§ *Leprosy in British Guiana*, London, 1881.

The reports for the last few years give—

Jan. 1st, 1884, cases in the asylum,	200
„ 1885	268
„ 1886	303
„ 1887	322
„ 1888	365

Cæteris paribus, these figures indicate a marked increase; and Dr. Castor, the present medical superintendent of the asylum at Mahaica, writes, in his last report (for 1887), “I hear on all hands that leprosy is spreading—not only here, but all over the world—very considerably.”

From the other West India Islands we have rather meagre particulars in reference to leprosy.

BARBADOES.—The report of the leper hospital at Barbadoes for 1868 states that “with a daily average of 80, there have been 16 admissions and 7 deaths; total deaths for the year, 15.” For 1887 we learn that “with a daily average of 83, there have been 5 admissions and 3 deaths. Two patients have left the asylum during the year.”

The census returns, however, give us some useful information on the subject:—

	Population.	Lepers, Inmates.	Not Inmates.	Total.
In 1871	162,072	86	10 =	96
„ 1881	171,452	108	12 =	120

These figures show an increase of the disease in the last ten years, for while the population has grown to the extent of only about 6 per cent., the lepers have multiplied 25 per cent.

In the Leper Asylum at Antigua there were 29 cases on the 31st December 1886. Ten fresh ones had been admitted during the year, 4 were discharged, and there were 2 deaths.

At the Leper Asylum at St. Vincent there were 19 cases at the end of the year 1887, 8 being admitted during the year. Three had died, and 5 left for their homes.

One case of leprosy is mentioned in the hospital report, 1882, of Tobago, 3 at Dominica in 1885, and 1 at Grenada in 1887.

NEW BRUNSWICK.—With regard to British North America, there is still a leper asylum at Tracadie, in New Brunswick, but I can find at the Colonial Office no official data relating to it, nor any reference whatever to the disease in the latest Government reports. The Canada census returns give five deaths from leprosy for 1871, and four deaths (three in New Brunswick and one in Nova Scotia) for 1881.

A very good account, however, up to the year 1885, is to be found in *Leprosy in Foreign Countries*, Honolulu, 1886,

where, in their replies to the inquiries of the Hawaiian Government, Drs. Graham, Tache, and A. C. Smith all declare the diminution of the disease in New Brunswick. At one time there were as many as forty lepers in the lazaretto. The tables which accompany the report for Canada give the following numbers for eleven years :—

	Lepers in Lazaretto at Tracadie.	Lepers Outside.	Total in New Brunswick.
1875	21	17	36
1876	22	16	36
1877	16	19	34
1878	15	16	30
1879	18	12	29
1880	16	12	27
1881	16	13	28
1882	22	8	29
1883	26	5	30
1884	23	5	27
1885	22	4	25

It appears that a new leper centre has recently developed in British Columbia, amongst the Chinese immigrants.

INDIA.—Leprosy in our Eastern empire has for many years occupied the anxious thought of the Government of India. The valuable special reports, which have been published from time to time by Dr. Vandyke Carter and Drs. Lewis and Cunningham are particularly interesting and important.

According to the census of 1872, there were 99,073 lepers in British India, the proportion to the whole population being 5·4 in 10,000.

The census of 1881 gives the following numbers :—

	Males.	Females.
Madras	10,329	3,846
Bombay	7,525	3,369
Bengal	40,484	13,400
N.W. Provinces and Oudh	14,473	3,369
Punjab	4,459	1,206

The total for all India amounted to 131,618 lepers, of whom 98,982 were males and 32,636 females. In the opinion of the authorities, these figures do not "afford a true measure of the extent of the disease",* and it is probable that the numbers given, for the females especially, are much understated.

It is estimated that only about one per cent. of the lepers of India are located in the twenty-three asylums, hospitals, or special wards now established for their reception. The actual numbers given from 1887 are—

* Resolution of Government of India, Simla, 26th Sept. 1888.

Province.	Number of Leper Asylums or Wards.	Patients Treated.
Madras	3	438
Bombay	7	506
Bengal	3	275
N.W. Provinces	3	262
Punjab	7	517
Total		1,998

One of the highest medical and statistical authorities in the Indian Government has recently stated that he does "not know of any good ground for believing that leprosy is increasing in India, or that it is diminishing". As in most of the other leprous countries, we can only fall back upon general impressions.

In 1875 the commissioner, General Sir H. Ramsay, wrote: "It appears to be wrong that this fearful disease should be allowed to continue to spread itself among the population, if any measures can be taken to prevent it."* Messrs. Lewis and Cunningham, however, in their report on the Kumaon district of the N.W. Provinces, came to the conclusion that "any risk of rapid increase in Kumaon is not to be apprehended".† Their impression was that leprosy was probably decreasing in that district. The census returns give—

In 1852, 1,075 lepers, or 2.98 per 1,000.
 In 1863, 1,128 lepers, or 2.85 per 1,000.
 And in 1872, 798 lepers, or 1.94 per 1,000.

These figures, however, are admittedly inaccurate.

In the Bombay Presidency it was estimated that in 1871 the proportion of lepers to healthy people was one per thousand; but the actual figures cannot be quoted, for while a total of 8,052 is given for "true leprosy" in ten districts, in three others the statistics (giving a total of 2,611) include both "true" and the so-called "white" leprosy.‡

A more thorough attempt was made in 1880 and 1881 to determine the number of lepers in the Bombay Presidency. The figures are—

Northern Division	1,900	Southern Division	790
Central	6,768	Sind	25
		Total	9,483

The lepers in the city of Bombay, however, and in Ratnágiri, where there is also an asylum, are not included in this number. It is probable that there must be altogether in the province some 11,000 or more.

* *Leprosy in India*, Report of Lewis and Cunningham.

† See reprint of *Lewis's Researches*, p. 482.

‡ Dr. Vandyke Carter's Report for 1871.

From the papers which have arrived by a recent mail, we see that an important discussion on leprosy has taken place lately in the Bombay corporation, and Dr. Blaney, the coroner for Bombay, strongly asserted that "leprosy in Bombay was vastly increasing".* His official position as coroner enabled him to adduce some startling facts. Every year he gave orders for the disposing of the dead bodies of ten, twelve, or fifteen lepers, some of whom had died on the road-side. Some of them drowned themselves, and he did not think there was a single well in which a leper had not been drowned.

The articles, moreover, which are now appearing in the Anglo-Indian press† indicate that the public mind is becoming somewhat inflamed over the matter; and that there is some cause may be inferred from the large amount of official attention which has been for some time past, and is now, directed in India to the question of segregation.

For many years Dr. Vandyke Carter has been urging the importance of collecting yearly "leper statistics", and of establishing leper hospitals and asylums in the most affected districts;‡ but until now his recommendations have been scarcely at all carried out, chiefly, it seems, on the ground of cost. Thus in the *Government Proceedings*, 1882, we read: "It is evident that provision cannot be made for all the lepers in the Presidency except at a very great cost—so great that, however much his Excellency the Governor in Council may wish to alleviate the sufferings of lepers, he cannot undertake to meet the whole of the expenditure with due regard to other claims on the public revenues."

From the lately adopted resolution of the Government of India (Simla, September 1888) we learn that "the possibility of the State taking a more direct part in the prevention or treatment of leprosy has recently been under the consideration of the Government of India; and with a view to ascertaining precisely the facts regarding persons known to be affected with leprosy, who seek relief at the various leper asylums, etc., local governments and administrations were requested to furnish information as to the number and sex of such lepers, their treatment, especially with regard to the separation of sexes, and other available particulars. . . . The Governor-General in Council is assured that no measure could effectually stamp out the disease which stopped short of the absolute segregation of the sexes, and the confinement for life of all affected by it. Such a measure would not only

* *Times of India*, April 12th, 1889. See Appendix I.

† See Appendix II.

‡ *Vide Reports*, 1871, 1874, 1876, 1884, etc.

be repugnant to public opinion at the present time, but would in India be perfectly impracticable. After carefully considering the subject, his Excellency in Council has arrived at the conclusion that, for the present at all events, it is impossible for Government to attempt to do more than encourage the grant of medical and charitable relief to lepers in voluntary hospitals and leper asylums. In affording medical relief in such institutions the necessity of strictly enforcing the segregation of the sexes should be invariably kept in view; and his Excellency in Council desires that this condition should be imposed in the case of every institution for the relief of lepers which receives aid from public funds, and that every effort should be made to induce supporters of institutions of the kind maintained by voluntary contributions to adopt a rule of similar strictness."

It appears that at the present time five of the Indian leper asylums are maintained partly, and nine entirely, by public funds. In the central provinces and in Burma most of the leprosy patients are treated in general hospitals and dispensaries. Segregation of the sexes is carried out in the leper hospitals in Madras (Madras, Cochin, and Trichinopoly), Bengal (Calcutta, not strictly at Lohardagga), in the North-West Provinces (Agra, Almora, and Dehra Dun, but not in several other institutions which receive lepers); it is not, however, enforced in Bombay or the Punjab.*

With regard to the remaining British dependencies in which leprosy is now endemic, the available official data are not abundant.

CEYLON.—An interesting account of leprosy in this colony was given by Dr. Kynsey† in 1885. No restriction or segregation is there imposed, although there is an old-established asylum near Colombo with a daily average for the last five years of 125 inmates. Dr. Kynsey writes: "The disease, I have reason to believe, has decidedly increased since 1862, as the number of patients then in the asylum was 63, but it has since increased to 151. Its increase among the general population cannot be established with precision, owing to the absence of an exact registration enumerating lepers. Cases of strictly recent origin are relatively more frequent, judging from the admissions into the asylum and the numerous instances that have come under my personal observation among the general community."

* From papers recently circulated in India, for the perusal of which I have to thank the authorities at the India Office.

† *Leprosy in Foreign Countries: Summary of Reports*, Honolulu, 1886, p. 161.

MAURITIUS.—According to Dr. Suzor,* at the present time hundreds of lepers can be counted without difficulty, of all races, even Europeans.

The following facts are gathered from the "Administration Reports" for 1887 :—

St. Lazare Asylum (p. 532).—Number of lepers maintained in the institution at expense of Poor Law Commission, 296, against 321 in the preceding year ; being of general population, 111, Indians, 185. *Out-door lepers* receiving relief (except in one district), 109, instead of 104 in preceding year, viz :—

	Males.	Females.	Total.
Of the general population ...	28	16	44
„ Indian „ ...	52	13	65
			109

Report of Civil Hospital (p. 568).—Lepers received, 5 (all Indians) ; discharged, 4 ; remaining (December 1st, 1887), 1.

Vital Statistics (p. 982).—“ *Leprosy*.—To leprosy are yearly attributed a certain number of deaths ; it is, however, feared that some deaths from this disease are declared under other causes when occurring in country districts.”

In 1878 there were 93 deaths from leprosy.

1879	„	105	„
1880	„	66	„
1881	„	86	„
1882	„	103	„
1883	„	95	„
1884	„	61	„
1885	„	98	„
1886	„	79	„
1887	„	68	„

AUSTRALIA.—There have been rumours that leprosy had been introduced into Australia by Chinese coolies. My friend Dr. S. Knaggs, of Sydney, has informed me that little or nothing is ever seen or heard of the disease, in New South Wales at all events. Dr. Clowes, however, tells me that there have been Chinese lepers retained in quarantine at Sydney. I learn also from the office of the Agent-General for South Australia that the disease is quite unknown in that colony ; and this fact is the more interesting, seeing that there are between 4,000 and 5,000 Chinese, as well as some Malay and Cingalese, immigrants in the Northern Territory.†

At the office of the Agent-General for Queensland I could

* *Progrès Médical*, 1886 ; article translated by myself for *Internat. Ann. Surg.*, 1887, p. 324.

† *The Northern Territory*, by Hon. J. Parsons, Adelaide, 1887.

obtain no information on the subject; but I have elsewhere learned that there are several lepers, mostly Chinese, at a hospital at Cook Town. In Surgeon Brunt's report, previously referred to, it is also stated that leprosy has made its appearance—with the Chinese—at Hangi Banji, north of Australia.

It appears that in Queensland there are some 9,000 Chinese.

In Victoria, however, the matter is engaging some notice; for in the Report of the Central Board of Health of that colony for 1888, p. 22, we see the following paragraph: "As regards leprosy, which appears to be on the increase in some parts of the world, we may remark that only one Chinese leper now remains in Middle Quarantine Station, one man having died since our last general report. Four others are on the goldfields, cared for to some extent by their countrymen, and fed at the cost of the State. The increase of leprosy is of considerable interest to the Australian colonies, in view of the number of Chinese, Malays, and Hindoos who arrive from time to time."

It was estimated in 1887 that there were no less than 11,967 Chinese in Victoria.

NEW ZEALAND.—I can find no information in the last Report (1888) of the Hospitals and Charitable Institutions of the colony. The disease is not mentioned.

Dr. Haines, who is in large practice in Auckland, informs me that he has never seen or heard of a leper in New Zealand. Many years ago, there were a few cases in the hospital at Auckland, and Dr. A. Thomson, who identified the disease in New Zealand, met with several instances among the natives.

HAWAII.—Concerning the leper-stricken countries which are not British, we have probably heard more about the Sandwich Islands than of any other in recent years. The public mind, indeed, all over the world, has been deeply moved at the terrible fate of Father Damien, who has been slowly but surely going to his death in the noble discharge of his duty.* The story of the supposed introduction of the dreadful disease by a Chinese coolie, some forty years ago, has been often told, doubted, and now it seems it must be finally discarded. Dr. Gavin Milroy in 1873† showed that Dr. Hillebrand, who was the author of the theory, might have been mistaken in his belief: and it has since become accepted in Honolulu that there had been previous cases of leprosy, which had probably been confounded with other diseases.

* A few days after this paper was read came the news of this devoted martyr's death.

† *Report on Leprosy in the West Indies.*

In the last Biennial Report of the President of the Hawaiian Board of Health (1888), just to hand, we read, "Leprosy was first clearly made out to exist in this country about the year 1840, in the person of one Naea, a messenger of the chiefs, who died in 1852. The friends of the deceased thought that he had the disease for about ten years before his death. His case was reported by Rev. D. Baldwin, M.D., of Lahaina, in a communication to the Minister of the Interior, Honourable C. G. Hopkins, dated May 26, 1864."

The attention of the Hawaiian Government was first called to the subject by Dr. Hillebrand, in 1863, who spoke of "the rapid spread of that new disease called by the natives 'Mai Pake'," which he believed was the genuine Oriental leprosy. He had "followed its gradual spreading from a single person to many people in the same village"; and although its contagiousness did not seem to be strongly developed, it was "sufficiently marked to warrant the application of some radical sanitary measure". An "Act to Prevent the Spread of Leprosy" was, in consequence, passed on the 3rd January 1865, its provisions sanctioning (1) the reservation of "a site or sites of an establishment or establishments to secure the isolation and seclusion of such leprosy persons as, in the opinion of the Board of Health or its agents, may, by being at large, cause the spread of leprosy"; (2) the acquisition of land for that purpose; (3) empowering the arrest and detention of lepers; (4) the establishment of an additional hospital "where leprosy patients in the incipient stages may be treated in order to attempt a cure"; and 5, 6, and 7, sections relating to rules and regulations, expenses, etc.

As the result of this Act, a temporary hospital was established at Kalihi, on the island of Oahu, near Honolulu, and a settlement for confirmed cases, at Kalaupapa, on the island of Molokai.

Forty-three patients were forthwith received at Kalihi, and many more soon afterwards. In the Report of 1866 it is stated that up to that date 234 persons had been examined at Kalihi, of whom 76 were discharged as not being lepers, and 57 sent on to Molokai. We learn from this report that the total number of persons in the kingdom then "represented as afflicted with the disease" was 274; but there was reason to believe that a few still remained concealed by their friends.

At Molokai the number entered up to March 31st, 1868, was 179; discharged, 6; died, 47; and at the asylum at that date, 126.

In a letter dated July 8th, 1873, Dr. Trousseau stated that

he had examined, since the 1st of March, over 1,000 people, and that 410 had been sent to Molokai. The number at that settlement then was about 800, and he declared that there could not be more than fifty other cases at large in the Hawaiian kingdom. Altogether, at that time, about 2 per cent. of the native race were affected.

The Report for 1876 gives 1,570 as the number of lepers received at Molokai in ten years, from 1866 to 1876; total deaths, 872; and remaining, 698 (or 706, according to Dr. Mouritz' Report, 1886). Dr. Mouritz' statistics, compiled from the books of the asylum, show that—

In 1878 there were 692 lepers at the settlement.

On the 1st January 1880	...	...	...	...	717
" " 1881	...	...	...	...	606
" " 1882	...	...	...	...	706
" " 1883	...	...	...	...	646
" " 1884	...	...	...	...	784
" " 1885	...	...	...	...	717
" " 1886	...	...	...	...	658

The last Biennial Report, which arrived in England by the late mail, gives the following tabular statement of the leper population at Molokai up to last year:—

	Males.	Females.	Total.
Population, April 1st, 1886	426	227	653
Added	208	113	321
	<hr/>	<hr/>	<hr/>
Deaths	634	340	974
	139	86	225
	<hr/>	<hr/>	<hr/>
Population, March 31st, 1888	495	254	749

As may be supposed, "accurate statistics as to the number of lepers still at large" cannot be obtained; but it has been estimated that on March 31st, 1888, there were at least 644 lepers scattered throughout the various islands of the kingdom. The gross number of lepers, therefore, in the Hawaiian kingdom in March 1888, was approximately 1,400.

It appears that there has always been great difficulty in the Sandwich Islands in carrying out a full measure of segregation. This fact comes out in several of the reports; and in the latest of them* we see it stated that for some period during the administration as President of the Board of Health of Mr. Gibson, who apparently doubted its efficacy, "the work of segregation had been practically brought to an end". At the present time there is an endeavour to enforce rigorously the isolation of lepers.† Since 1882 a branch hospital has been

* *Biennial Rep.*, 1888, p. 8.

† See Appendix IV, "Copy of Act to Facilitate the Segregation", etc.

established at Kakaako, near Honolulu, where suspected cases of leprosy may be detained, the institution at Kalihi being abolished.

In EUROPE, where, as we all know, it was formerly common, leprosy as an endemic disease has not yet disappeared from the countries of Scandinavia. It is also to this day, more or less, to be found in certain districts in Spain and Portugal, the Riviera, Sicily, Greece, Turkey, and the neighbouring islands, including our British possession Cyprus, and to some extent in South Russia and a few other places.

NORWAY is still a large centre, and the most elaborate observations published on leprosy come from that country. The classical work, indeed, of Messrs. Danielssen and Boeck* was the first comprehensive treatise on the subject. The Norwegian statistics in reference to leprosy have always been compiled with the greatest care; but nevertheless they, even, cannot be regarded as *absolutely* accurate; for there, as elsewhere, lepers and their friends hide their affliction as long and as much as they can. In 1856 leper hospitals and asylums were first established, and from that time date the attempts at segregation which have been accompanied by such good results in the diminution of the disease. There were probably in that year nearly three thousand lepers in Norway, and as the accompanying curve† graphically shows they have been steadily diminishing ever since, until at the present time there are probably not 1,100 in the whole country.‡

Last summer I had the opportunity of visiting the leper asylums in Bergen, Molde, and Trondhjem; and I take this opportunity of thanking Dr. Danielssen, of the Lungegaarde Hospital, Dr. Nickoll, of the Spedalske Pleiestiftelse, No. 1, Dr. Kaurin, of the Reknæs Pleiestiftelse, and Dr. Sand, of the Reitgjærdets Pleiestiftelse, for their extreme courtesy in allowing me to examine the patients, and for their kindness in furnishing me with a great deal of valuable information on the subject in general.

At the Lungegaarde Hospital, in Bergen, there were about eighty patients, most of them being more or less slight cases, and some of them, in Dr. Danielssen's opinion, capable of being benefited to some extent by treatment.

The severer cases at Bergen are retained in the Pleies-

* *Traité de la Spedalsklie ou Eléphantiasis des Grecs*, Paris, 1848.

† Dr. Kaurin of Molde kindly allowed me to copy this, as well as his map of the distribution of leprosy.

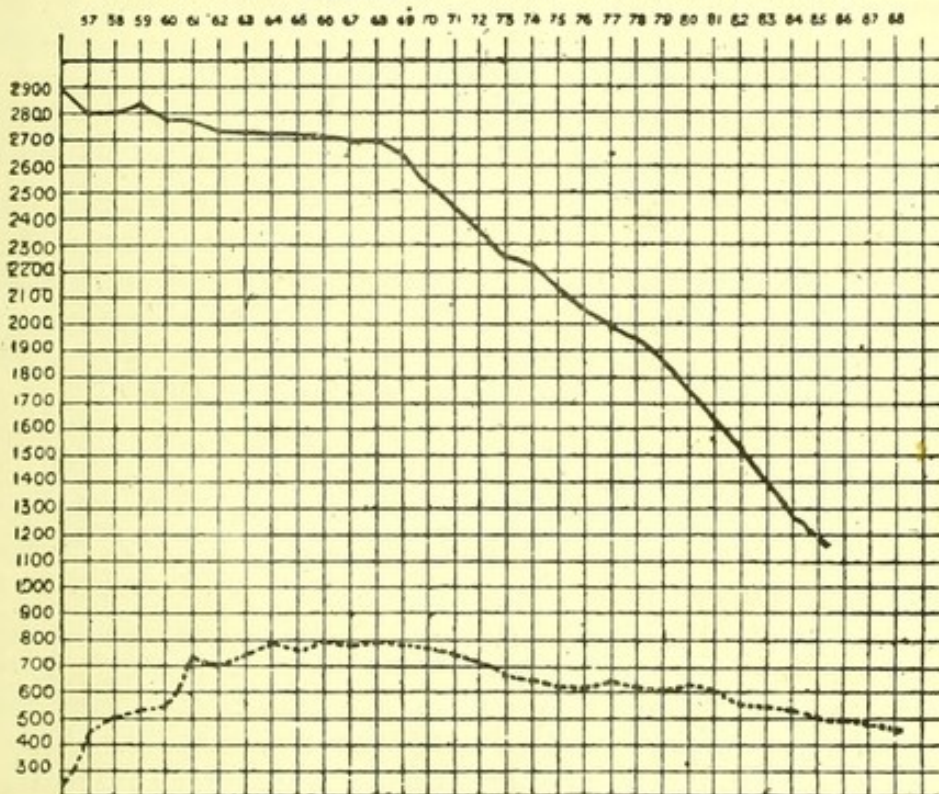
‡ The *Norges Officielle Statistic*, in Report for 1881-85, which was published in 1888, gives 1,195 for the end of the year 1885.

tiftelse, No. 1 which at the period of my visit had some 150 on the books.

At the Reknæs Asylum, at Molde, there were 73 cases, and at Trondhjem, under Dr. Sand's care, 190, make a total of rather less than 500 lepers in the Norwegian asylums.

Leprosy is generally believed not to manifest itself in very old patients.* I was therefore much interested in observing the very advanced age of some of the sufferers I saw in Norway. At Trondhjem there was an old couple—husband and wife—each seventy-four years of age; the woman had

**CURVES SHOWING NUMBERS OF LEPERS IN NORWAY
AND IN THE ASYLUMS THERE FROM 1856 TO 1887**



been diseased for four or five years, and the man for three years. No other members of their family were, or had been, affected. Another case was that of a woman aged eighty-one, who became afflicted with the neoplastic dermal form of the disease four years previously. In the same asylum was a man aged eighty-seven, who had only been leprous for two years; and at Bergen I also saw a woman of eighty-four, who had not been affected for more than three years.

* Danielssen and Böeck put the limit at seventy years.

There were very few children in the Norwegian asylums. At Molde was the boy who had contracted the disease after sleeping for a year in the same bed with a leper, and whose case has been recorded by Dr. Kaurin.* Two cases at Trondhjem had been leprous at or shortly after birth ; but in Norway, as elsewhere, the disease is very rare in young children. I observed a few instances in which the symptoms had ceased for some years, all progress of the disease arrested, and the patient practically cured—of course with more or less loss of tissue and deformity. A woman at Molde, whose leg had been amputated, had remained quite well for seven years. Dr. Kaurin was inclined to think that in some cases, where the neoplasm was localised, early amputation might stop the disease. It is remarkable how readily the tissues heal in lepers after operation—a fact that Dr. Beaven Rake has called attention to in some of his reports.†

At Trondhjem I saw a woman who had shown no signs of active disease for fourteen or fifteen years ; her permanently “clawed” fingers were the only evidence of its having been present.

Dr. Sand is of opinion that in some cases, if the constitution be very strong, the disease wears itself out in thirty or forty years—its progress, in fact, virtually stopping. When it begins in early life its duration is generally shorter.

The late Official Report states that thirty-eight cases have been cured in the five years 1881-1885.

In Norway the unfortunate lepers are not left to rot, as in many other countries. Although there is at present no specific, and therapeutic measures have there been found to have little or no effect in curing the disease, it has been abundantly proved that many symptoms may be mitigated, and life prolonged and rendered easier, especially by surgical aid. I was shown numerous cases of amputations and tracheotomies. One patient at Bergen had worn a tube for three years, another for seven years, another at Trondhjem for ten years, and a great many others in all the asylums for shorter periods. In one case at Trondhjem the larynx subsequently became functionally useful, and the tube was discarded and the opening closed. According to Dr. Sand, when the nodular growths of the skin are removed they do not return ; but they may in the case of the conjunctivæ. Dr. Kaurin informed me that keratotomy sometimes saved a cornea, a growth on the sclerotic not extending across the incision. Others have not been so successful with this operation. Dr. Danielssen and

* *Ann. de Derm. et Syph.*, Feb. 1887.

† 1885 and 1887, and *Lancet*, Sept. 1886.

most of the Norwegian surgeons have found tracheloraphy useful for the distressing paralytic ectropion which is so common.

Dr. Sand exhibited to me cases and casts of others, from which Dr. Heiberg, of Kristiania, had described his so-called "lepra mutilans"*—the variety of the disease characterised by spontaneous amputations of the feet, hands, or digits, without muscular atrophy or extensive superficial anæsthesia. In these cases he believes that only, or chiefly, the trophic nerves of joints are affected, and not the sensory nerves, as in the ordinary so-called anæsthetic variety. So many cases of leprosy, however, show spontaneous amputation, together with interstitial trophic changes, in the bone and other tissues of the affected limb, as well as extensive anæsthetic areas, that the distinction appears to me to be a little far-fetched.

The isolation of lepers in the Norway asylums is not absolute. The doors and gates of the institutions are not locked, and more than once I met some of the inmates in the neighbouring roads. The doctors informed me that they allowed those to go out who showed no ulcerations, and that no cases of consequent infection have ever been traced. The lepers, however, are usually kept in on market days, and at Trondhjem at least, and I believe elsewhere, they are not permitted to enter houses and churches, or to come in close contact with other people.

LEPROSY IN GREAT BRITAIN AND IRELAND.

Cases in London.—Within the last two years I have had the opportunity of seeing four cases of leprosy in London. One was a patient of Dr. Ryan of Colchester, a lady, who came up for consultation with Mr. Warren Tay. She was born in England, but had lived with her husband for some years recently in Bombay. She was thickly covered with the nodules of dermal leprosy. Since her arrival home from India she had given birth to a healthy baby. Dr. Ryan informs me that she has been getting worse, but that the baby is still healthy.

Another case, a youth, F. H., aged eighteen years, well educated, came to the Hospital for Diseases of the Skin, Blackfriars, on May 8th, 1888, having just arrived from Barbadoes. His expression of countenance was leonine, and there were nodular thickenings on all extremities, with anæsthesia and some ulceration. A diffuse, irregular, dark pigmentation was

* This term, however, has long been in use for cases exhibiting mutilation of the extremities.

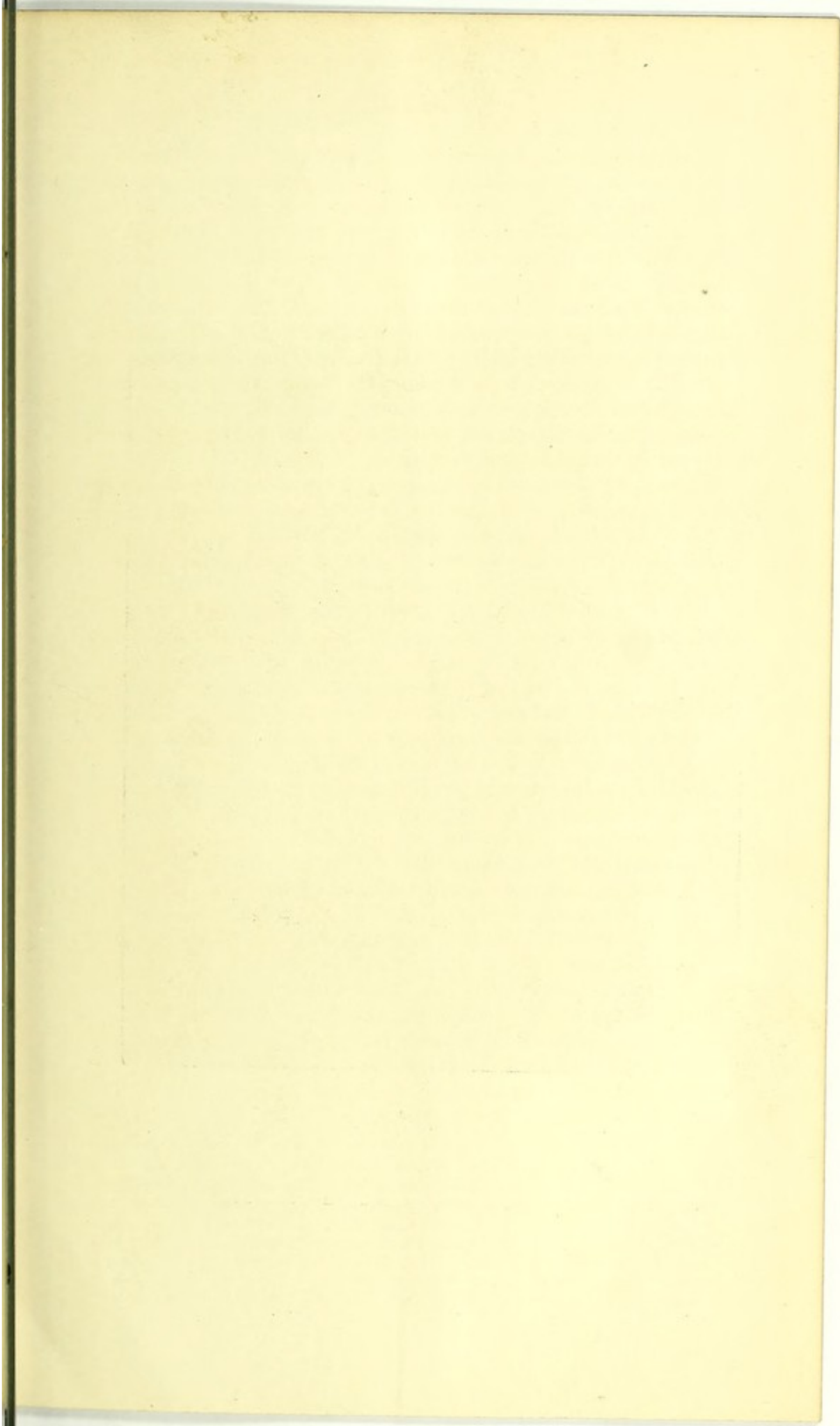
apparent over many parts of the body and limbs. He was born in London, his father being an Englishman, who died of some lung affection, his mother a native of the West Indies, but not coloured, who is living and healthy. When three months old he had been taken to Trinidad, where he remained until fourteen years of age, when he came to Europe for a year. The disease began in Trinidad when he was twelve or thirteen; it got worse while he was in Europe. He then returned to the West Indies, to Barbadoes, and the disease has steadily progressed ever since. He has always lived well, has no recollection of ever coming in contact with anyone with a similar complaint, and can give no information with regard to where he was vaccinated in infancy.

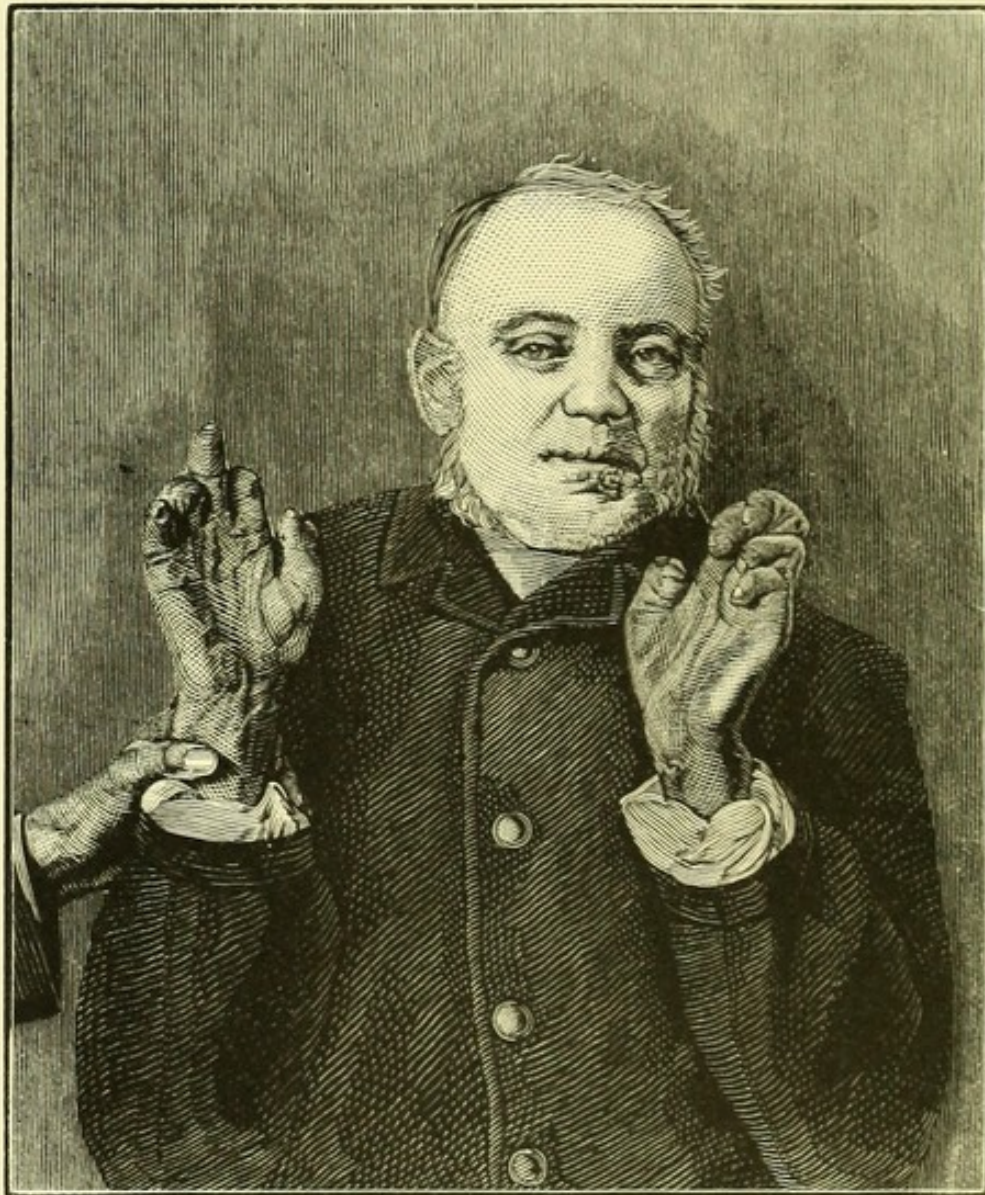
Cases Exhibited.—The remaining two cases are those which, by the kindness of Mr. Larder, medical superintendent of the Whitechapel Infirmary, I am able to exhibit to the Society to-night. They may be regarded as fairly typical examples of the two chief varieties of the disease.

E. Y., aged sixty-four, a meat salesman, born in London, parents never out of England. He was formerly a sailor, and as a young man has been on voyages in the Mediterranean and in the Baltic, but this was upwards of forty years ago. Since then he has not once been out of England, and is not aware of ever having seen anyone with a disease like his. Until six years ago he always enjoyed the best possible health. He exhibits anæsthetic patches on the legs and arms, complete anæsthesia of the legs below the knees, and of the fore-arms and hands, with muscular and osseous atrophy and superficial and deep ulcerations. The conjunctiva in one eye is becoming the seat of inflammatory deposit and ulceration—no doubt as a sequela of a well-marked paralysis of the right orbicularis muscle; and there is an irregular, dark pigmentation on the neck.

I cannot admit that we have here a case of *de novo* development of the disease, but the interval of time between the man's presence in leprous countries and the manifestation of the symptoms certainly is extraordinarily long. No such "period of incubation" has ever been recorded. The bacillus must have been asleep for nearly forty years, the germ dormant, like the "mummy" wheat.* M. Besnier's

* The diagnosis of this case was accepted at meetings of this Society, May 8th and June 12th, upon both of which occasions the patient was inspected by a considerable number of the members and others, some of whom had been, more or less recently, connected with leper hospitals in the East. The man was formerly, in 1887, under treatment at St. Bartholomew's Hospital, London, where there seems to have been no question as to his being anything but an example of

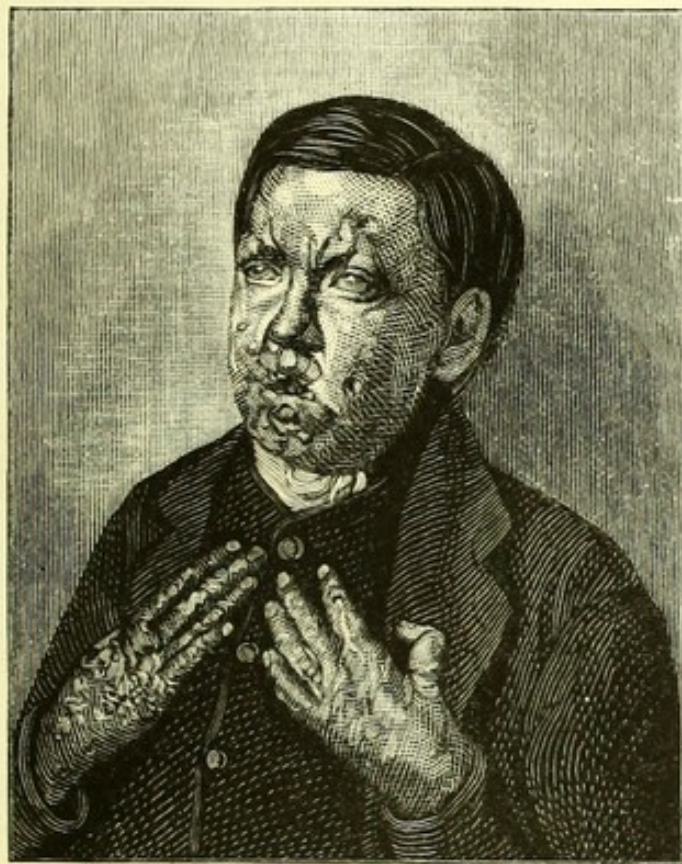




ATROPHIC (SO-CALLED "ANÆSTHETIC") LEPROSY.

Case of E. Y., exhibited at the Epidemiological Society, May 8th, 1883.

UNDER THE CARE OF MR. LARDER, AT THE WHITECHAPEL INFIRMARY.



NODULAR DERMAL (SO-CALLED "TUBERCULAR") LEPROSY.

Case of H. S., exhibited at the Epidemiological Society, May 8th, 1859.

UNDER MR. LARDER'S CARE AT THE WHITECHAPEL INFIRMARY.

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theory,* which supposes the incubatory stage of the disease to commence only when the latent spore shall have found the soil and other conditions suitable for its culture and proper development, appears to me to be applicable in such cases.

The last case is that of H. S., aged seventeen years, born in Barbadoes, of English parentage. When eight years old he was brought to England, and the disease did not commence until he was between eleven and twelve. His father, a clerk, died in Barbadoes of "fever and ague"; his mother and two brothers are living and quite healthy, and no other members of the family are affected. He does not remember being in contact with or seeing anything of the kind. He believes he was vaccinated after he came to England, "but it did not take".

The poor boy is quite blind, and he shows the discoloration and diffuse thickening of the skin over the face which are generally so well marked in this kind of leprosy. His hands and feet are also affected. Ulceration of the mucous membrane of the mouth and larynx has been progressing, and the cicatrisation of the lips is causing a remarkable and increasing stenosis of the oral aperture. He is now quite unable to put out his tongue.

A few days ago I gently scraped with the handle of a scalpel some of the saliva from the surface of the sore tongue, as well as from the ulcerated lips. Plenty of the typical bacilli are present. (Slides shown on the table.)

Nomenclature of Varieties.—This is a fair example of the so-called "tubercular", "tuberculous", or "tuberculated" leprosy, and to my mind it well illustrates the inaccuracy of these terms. That it has nothing to do with "tubercle" in a pathological sense nobody pretends, and that there are no "tubercles" in a physical sense is sufficiently obvious.

Dr. Zambaco, of Constantinople,† proposes that this form should be called "exudative" or "neoplastic" leprosy, and that the other chief variety, now commonly known as "anæsthetic" leprosy, should be termed "Danielssen's disease", from the distinguished veteran Norwegian physician who first and so well described it. The faulty nomenclature in vogue was

"Anæsthetic Leprosy". It is right, however, to state that some doubt has been lately expressed as to his being really a case of leprosy, and not one of "Raynaud's Disease". He was, therefore, exhibited by Mr. Larder at the Dermatological Society of London, on July 10th; and was again generally admitted by those present to be a leper.—P. S. A., July 31st, 1889.

* *Sur la Lèpre*, Paris, 1887, p. 20.

† *Mém. sur la Lèpre*, Paris, 1887, p. 1.

recognised in 1867 by the committee of the Royal College of Physicians, who suggested* that the varieties be named "tuberculated" and "non-tuberculated".

Most pathologists will, I believe, now admit that in the former, characteristic granulomatous dermal nodules and thickenings, teeming with bacilli, are the most obvious phenomena in the well-developed disease; while in the latter, similar bacillary-neoplastic invasions, localised or diffused, are always found in connection with nerve-trunks, which undergo greater or less degeneration, leading to the peripheral lesions characterising the variety.

That the distinction of leprosy into separate forms is really artificial the so-called "mixed" cases testify, as well as those in which the manifestations at first simulate the one, and afterwards the other, accepted variety of leprosy. As has been often pointed out, the "dermal" cases always, at some time or other, present anæsthesia, although, throughout the course of the disease, perhaps not so prominently as when the nerve-trunks are early affected. At the same time, I must admit that there are usually in these latter cases changes in the skin, but chiefly of atrophic rather than of neoplastic nature.

LEPROSY IN PARIS AND IN LONDON.

As M. Le Roy de Méricourt† remarks, if M. Besnier's statement‡ be correct, that there are probably a hundred lepers in Paris who have contracted the disease in leper countries,§ we ought to have a great many more in these islands, considering our vast colonial and Indian empire and our peregrinating proclivities.

The number of persons afflicted with leprosy who come to England is nevertheless, as has been shown in a recent article,|| a very small one. Of the poorer classes, it is likely that more have presented themselves at the London Hospital than in any other institution, and even there it seems that the physicians and surgeons have only had under their care five cases, three men and two women, within the last ten years.¶ Two of the men were born in India, of British

* *Report*, 1867, p. lxiv.

† *La Lèpre*, Paris, 1887, p. 10.

‡ E. Besnier, *Sur la Lèpre*, Paris, 1877.

§ M. Wickham, Interne of the Hôpital Saint-Louis, informed me, a few weeks ago, that there are generally six or eight cases of leprosy in that hospital. At the present time there are six, five being male natives of Haiti, Martinique, Brazil, or Guiana, and the last a French soldier who contracted the disease in Guiana.

|| *British Medical Journal*, March 30, 1889.

¶ I have to thank Mr. Jonathan Hutchinson, jun., and Mr. H. Felkin for this information.

parents; one of the women, a German from Hamburg, had been twenty-seven years a hospital nurse in Calcutta; the other, of English descent, had spent most of her life in the North-west Provinces.

In illustration of the comparative rarity of cases in this country, I may say that I have reason to believe that in the whole course of their long and extensive dermatological practices, not fifty leprosy patients have been seen in England, in private and in hospital, either by Dr. Robert Living or by Mr. Jonathan Hutchinson; and there is no doubt that the majority of cases which have come to light, during many years past, in London, have been under the care of these gentlemen.

One would imagine that sailors might occasionally bring the disease to this country. Mr. W. Johnson Smith has, however, kindly informed me that there has been only one case of leprosy at the Seamen's Hospital at Greenwich for many years since his connection with the institution.

Leprosy in the Army and Navy.—If leprosy were readily acquired, we might also expect to find cases among our British soldiers and sailors who have served in the Army and Navy in India, Egypt, and the colonies. Fortunately, however, I am able to state—through the courtesy of Sir Thomas Crawford, K.C.B., Director-General A.M.D., and of Dr. Dick, C.B., Director-General of the Naval Medical Department—that there is very little evidence of leprosy in the two services. The only case of leprosy in the records of the A.M.D., kindly pointed out to me by Brigade-Surgeon Nash, M.D., is that of W. J. R., a trumpeter R.A., who, at the age of twenty-three, on account of the disease, had to leave the service in February 1887. He was born in Madras, father an Irishman, mother a native, and enlisted in Dublin at the age of thirteen. He afterwards went with his regiment to India in 1879. Three years later he began to suffer from febrile attacks, accompanied by an erythematous rash leaving a dusky discoloration. The nature of the disease was not suspected or diagnosed until 1886, when he was admitted to hospital. The disease was of the dermal type.

Surgeon-General Sir Thomas Longmore, Professor of Surgery at Netley, has been good enough to inform me that "only one case of leprosy in a soldier has passed through Netley", and this was reported in the *Transactions* of the Clinical Society of London, vol. xiii, 1880. He is of impression—but is not sure—that if cases were observed in the English troops in India, they would probably be retained, and not sent home with other invalid soldiers. In his experience at Trinidad no

European soldier ever caught the disease. He has recently heard of a painful instance of an Army medical officer contracting it in India.

Director-General Dick says, "I have had the records here examined, but not a single case of leprosy among the officers or men of the Navy can be traced in the office."

M. Le Roy de Méricourt, late Principal Medical Officer of the French Marine, records* a similar experience for the French naval service, and he further states that Dr. Van Leent makes the same affirmation with regard to the Dutch soldiers, sailors, and civil servants who have been in Surinam and the East Indies.

It must be remembered that European soldiers and sailors on Indian and colonial service are not likely to be in prolonged and close contact with unhealthy natives. They are, moreover, well looked after and well fed, and cleanliness and hygienic measures are more or less rigorously enforced. These remarks are particularly applicable to the Navy, which, as we have seen, has a clean bill of health with regard to the disease.

Another point, too: although leprosy may not be suspected while a man is in the service, it may make its appearance after he has left.

The leper now in Dublin, under the care of Dr. O'Carroll,† is an old soldier, who undoubtedly contracted the disease while in the Army.

I have tried to find the number of deaths recorded from leprosy in Great Britain and Ireland during the last ten years. I am informed by the Statistical Superintendent at Somerset House that since 1881 any deaths which may be attributed to leprosy would be included under the heading "Other and Undefined Diseases of the Integumentary System". The disease, however, is not even alluded to in the Registrar-General's Annual Reports.

CONCLUSION.—In this paper I have attempted to give a *résumé*, and I fear a very imperfect one, of the latest information to hand in reference to the existence of leprosy, particularly in the British Empire. There appears to be little doubt that the disease is really spreading in South Africa, that it is slightly increasing in the West Indies, and that it certainly is not decreasing in India. It is also beyond all question that Europeans, who sojourn in the affected countries, are occasionally liable to contract the disease.

* *La Lèpre*, p. 10.

† *Trans. R. Acad. Med. Ireland*, 1889.

Our colonies are naturally alarmed at its terrible growth in Hawaii; and, as we have seen, laws for the compulsory isolation of lepers are being talked of, or are already passed, in several places.

1. Is leprosy caused by the bacillus?

This is found in all leprosy deposit, but, according to most observers, we cannot, readily at any rate, cultivate it or inoculate it into other animals.*

2. Is the disease communicable from person to person? Twenty years ago the highest medical authority in England practically answered "No". At the present time, the wave of medical opinion is on the uprise in favour of its communicability.

3. Is segregation justifiable? This has been partially adopted in Norway; and, as it did in olden times, it has well succeeded in checking the course of the scourge; also in Canada; but it has so far failed in the Sandwich Islands.

All these are large and important questions, and, had time allowed, I should have endeavoured to adduce arguments in more or less affirmative support of each of them.†

APPENDIX.

I.

LEPROSY IN BOMBAY.

(*Times of India*, April 12, 1889.)

"At a meeting of the Bombay Municipal Corporation, on the 4th inst., an important debate took place on a notice of motion by Mr. T. B. Kirkham, calling attention to the defective regulations with reference to persons affected with leprosy in Bombay, and requesting the Municipal Commissioner to report what additional powers, if any, were required by the Health Department to enable it to deal effectively with the evil.

"Mr. Kirkham, addressing the Corporation in support of the motion, said that, if he simply mentioned the circumstances

* Dr. Wynne of Robben Island is reported recently to have succeeded, and so have a few other observers: further confirmation, however, is needed. Even Dr. Arning's inoculation of the Hawaiian convict is not universally accepted as conclusive.

† Under the microscopes on the table are specimens which I have prepared of the *Bacillus lepræ* from the mouth of the boy H. S., and from nodules or ulcers from Mr. Tay's cases; also a large number of sections of dermal nodules, anæsthetic skin, nerves, and of some internal viscera from other leprosy cases.

which had drawn his attention to this subject, the Corporation would readily accede to his proposition, asking the Commissioner to inform the Corporation whether the existing Municipal Act gave to the Health Department of the Municipality adequate powers for the regulation in Bombay of persons affected with leprosy. A few weeks ago, in the discharge of his official duties, he had occasion to visit the Elphinstone High School and the St. Xavier's College, both large educational institutions, and he found, to his astonishment, that for some weeks, or some months rather, a colony of lepers had taken up their abode on the flag-stones surrounding the large Nacoda Tank, which lay between the two institutions, and that the authorities of these two institutions, notwithstanding their appeals to the police and to the Health Department, found themselves practically unable to dislodge the people from these places. The Rev. Fr. Meyer, the principal of St. Xavier's College, took him round and pointed out to him these people on the borders of this tank, performing their ablutions in the middle of the day, and he saw them, with his own eyes, dressing their terrible sores, and scratching their terrible ulcers with stones lying about them, and then flinging away those stones covered with ulcerous matter to be picked up by anyone. He asked the Corporation to forgive him for mentioning the repulsive details, because he felt it his duty to tell them to a body which was entrusted by law with the care of the public health. Fr. Meyer told him that he had seen them with his own eyes rubbing their leprous sores on the iron surrounding the Elphinstone High School, and had seen boys let loose from the school a few minutes afterwards sitting on these very railings, occasionally, it might be, with bare feet. Being asked what the police had done in the matter, Fr. Meyer replied that, with every desire to assist, the police had been unable practically to do anything, and that a day or two after these unfortunate men were dislodged from their abode they again came back to the place. In reply to a representation of the principal of the Elphinstone School, Dr. Weir, the Health Officer, said that he sympathised with him, but regretted there was nothing in the Municipal Act that empowered him to interfere in the matter. That was a most extraordinary letter to emanate from the Health Department of a great city to a public official in charge of thousands of boys, informing him that the department was utterly powerless to interfere in the matter. He (Mr. Kirkham) must not be understood to say that this was an improper letter, but he did say that it was an extraordinary letter. He, therefor-

thought it his duty to ask whether it was safe and proper that these people should be allowed to go about and do what they pleased within a few yards of some two thousand young men. He was sure the Corporation would not deem it a satisfactory settlement of the question, even if these poor people, when driven away from the Esplanade, were simply to take refuge in some less-known parts of the town. That would not be dealing with the root of the evil. With these facts before the Corporation, he hoped that they would not let the matter drop without arriving at some sort of satisfactory settlement.

“Dr. Arnott said that he was exceedingly obliged to Mr. Kirkham for coming forward with a resolution which was of so great importance, and which, he hoped, the Corporation would at once accede to. The subject of leprosy had attracted the attention of the profession for a very long time. If there was any authority on the disease, who deserved respectful attention, that was Dr. Carter, and he had over and over again urged the pressing necessity of providing a suitable asylum for lepers, and taking measures to prevent their being a danger to the community. This was a very difficult and a very large subject, and the motion of Mr. Kirkham would enable men to see what could be done by the Municipality, and would have the further effect of calling public attention to the subject. The speaker agreed with Mr. Kirkham on the necessity of taking adequate measures for the segregation of lepers on grounds of public health. But the lepers deserved sympathy, for suffering from an incurable and loathsome disease, they were obliged to leave their homes, and they could not work. Some refuge must be provided for them. At present the only places where they could live were a small dhurumsala at Byculla, a small ward at the Sir Jamsetjee Hospital, and the asylum at Trombay. With these exceptions, there was, in Bombay, no place, no refuge, no asylum where these poor creatures might go and be cared for. Bombay was known for its munificence, and he earnestly hoped that some person as generous as wealthy would provide a suitable asylum for these unfortunate people.

“Dr. Blaney said there was no doubt that leprosy existed to a large extent, not only in Bombay, but in the whole of India, and that as a question of imperial importance it was the duty of the Government of India to deal with it. Mr. Master's amendment, declaring that it was the duty of the city to bear its share in the work of providing for its lepers, was good so far, but he maintained that the evil could be effectually met only by treating it as an

imperial question. He had attended several meetings held for the relief of lepers, and through Dr. Hewlett's exertions some thirty or forty thousand rupees had been subscribed, but the subscriptions had been returned, and nothing came of all these attempts to do something for the unfortunate people. If the community were to do all that humanity demanded, if they were to take the subject in hand properly—and it would only be properly dealt with by being taken up as an imperial question—they could extinguish the evil. His official position as coroner enabled him to say something about leprosy which was known to nobody else. Every year he gave orders for disposing of the dead bodies of 10, 12, or 15 lepers. He did not hold a regular inquest on them, but always made his inquiries; and he found that some of them had died on the road-side, sometimes in front of the Elphinstone College, sometimes at one or other of the wells on the Esplanade. Some of them drowned themselves in these wells, tired of life, neglected by the Government and the Corporation, neglected by Mr. Kirkham, neglected by Mr. Mehta.

“Mr. Kirkham: And neglected by the coroner.

“Dr. Blaney, continuing, said he did not think there was a single well on the Esplanade in which a leper was not drowned. All over Bombay, in dark corners, in gullies, where rats and bandicoots had taken their abode, these lepers were hiding themselves, thrown out by their families, to pine away, neglected and forlorn. He held, some time ago, an inquest at Dongri on the body of a leper. He and his wife were labourers residing on Mr. Jalbhoy's property. The man got afflicted with leprosy, and his wife told him to leave the house. He thereupon went up to the top of the hill, and there he hid himself behind some rocks. The wife daily brought his food to him, but he was tired of his forlorn and pitiful condition, and threw himself over the cliff and killed himself. In Bombay, people had talked a great deal about leprosy, and had promised to do this and that, but nothing had yet been done. The community had a great obligation resting upon them, which they could not neglect. The evil could be eradicated by proper means—it could be done by money, by skill, and by honest work—and it was their bounden duty to stamp it out. Leprosy in Bombay was vastly increasing. Lepers were to be seen in all parts of the city, and not at the Elphinstone School and the St. Xavier's College alone. He would support with all his heart any proposition which would take this matter thoroughly in hand, and therefore he agreed with the suggestion of Mr. Mehta,

with reference to Mr. Kirkham's proposition. Let them go to the root of the evil; let them urge upon Government that they were willing to do their share of their duty to the city and to humanity in general, and then alone the evil would be effectually grappled with."

II.

The *Pioneer Mail*, Allahabad, N.W., April 10th, referring to the discussion in the Bombay Corporation (*Times of India*, Bombay, April 12th, 1889), says: "It is impossible to exaggerate the loathing and horror which these revelations are calculated to inspire in the unsuspecting public. We seem to be reading rather of the insanitary foulness of a mediæval city where medical science was still in its infancy, and men's conception of the duties and responsibilities of civic government still rudimentary, than of a state of things in a great city of the nineteenth century British empire. Yet the Commissioner of Bombay had to confess that they were absolutely helpless in the matter, and though appeals have repeatedly been made both to the Health Department and to the police, they, too, have declared their inability to move in the matter. It will be seen that if the Government of India adheres to the position taken up by them in their resolution of October last, the provisions of the new Leper Bill are likely to be wholly inadequate to meet the necessities of the case. The resolution states, that 'for the present, at all events, it is impossible to do more than encourage the grant of medical and charitable relief in voluntary hospitals and leper asylums'; but if this be all that is done, it is clear that the lepers will still be able to dress their hideous sores beside the water-tanks of our great cities; that they will still be found begging alms and spreading possible contagion in the market-places, or gasping out the last sighs of a miserable existence on the road-side. The very first step towards a removal of the evil must be the empowering of the Health Department and the police to compulsorily segregate leprous patients from the general population, even though the methods at first employed should be less strict than the most recent discoveries of medical science demand. But as the Bombay coroner remarked, the evil can only be fully dealt with as an Imperial question, on some such lines as Norway has adopted with such signal success."

Lepers in the Streets.—A Calcutta paper states that the leper nuisance, which seems to fluctuate with the seasons,

becoming more aggressive in the hot weather, is just now very bad in some quarters of the town. (They may be seen haunting the markets and tramway stations, Dalhousie Square, etc.) Sitting huddled in a heap close up to the railings, in the shade, may be seen any day three or four of these lepers in an advanced state of disease. After a sickening description of the appearance of these men, it is stated that there seems to be no remedy for this state of things, or surely it would be promptly applied. The police are helpless, as the lepers, if arrested, would only be warned and released by the magistrates.

III.

Cape of Good Hope.—Act to Check the Spread of Leprosy
 (“*The Leprosy Repression Act, 1884*”). Assented to
July 11th, 1884.

“Whereas the disease of leprosy is prevalent in this colony, and has lately been spreading, and continues to spread, and it is desirable to check the extension of such disease, and, if possible, to exterminate it, be it enacted—

“1. Whenever it shall be certified to the Governor, by the district surgeon of any district, or by any other duly qualified medical practitioner, and by a field-cornet or justice of the peace, that any person is suffering from the disease known as leprosy, and that the fact of such person being at large is likely to spread such disease, the Governor may, by warrant under the hand of the Colonial Secretary or Under Colonial Secretary, order that such person shall be removed to such asylum or hospital as he shall appoint, to be there detained during the Governor’s pleasure, and kept apart from contact with all other inmates of such asylum or hospital who are not afflicted with the same disease. Provided always, that every such person, while so detained, shall have the liberty and privilege of seeing his friends and legal advisers at all reasonable times, under such regulations in force for the time being as the Governor may provide in that behalf.

“2. Every asylum or hospital in which males shall be detained under the provisions of this Act shall be separated entirely from any asylum or hospital in which females shall be detained.”

(Then follow provisions for maintenance of patients, etc.)

IV.

Copy of Act "to Facilitate the Segregation of Lepers" in the Hawaiian Kingdom.

"Section 1. Whoever shall knowingly detain or harbour upon premises subject to his control, or shall in any manner conceal or secrete, or assist in concealing or secreting, any person afflicted with, or who is suspected of having, leprosy, with the intent that such person be not discovered by or delivered to the Board of Health or its agents, or who shall support or assist in supporting any such person living in concealment, shall be deemed guilty of a misdemeanour, and shall, on conviction thereof before any police or district justice, be liable to a fine of not less than 10 or more than 200 dollars.

"Section 2. It shall be the duty of every police officer or deputy sheriff, knowing of any person within the district where he resides afflicted with, or who is suspected of having, leprosy, to report the same forthwith to the agent of the Board of Health in such district, if any, otherwise to the nearest agent to the Board of Health.

"Section 3. Any police officer or deputy sheriff who shall wilfully fail to comply with the provisions of Section 2 of this Act shall be guilty of a misdemeanour, and upon conviction thereof before any police or district justice shall be fined in a sum not less than 10 nor more than 200 dollars, and shall be dismissed from office.

"Section 4. This Act shall take effect from and after the date of its approval."

This new Act has now the force of law, and H.B.M. Consul-General at Honolulu states, in a despatch to the Foreign Office, dated March 19th, 1889, "that under its provisions 821 lepers have been removed to the leper settlement for segregation from the 17th of July 1887, to the 12th of March 1889."

V.

"Leprosy Committee Report", communicated to the Royal College of Physicians, July 15, 1887.

"The Committee appointed by the College to consider the communication from the Colonial Office on the subject of Leprosy, having given the questions contained in that communication their most careful consideration, now submit their Report to the College.

"The Committee are quite aware that there is much differ-

ence of opinion respecting the communicability of leprosy, and that many Colonial practitioners and inhabitants do not concur in the views expressed by the College in their Report in 1867.

“The Committee are of opinion that if there be any elements of contagion in leprosy, they are not more to be dreaded than are those in the case of syphilis, which is not commonly considered to justify compulsory segregation on the part of those affected.

“The Committee believe that leprosy is not contagious in the conventional sense of the term ; but, if at all, is only so in low degree, and under exceptional circumstances.

“The Committee are of opinion that a further investigation into some of the more recondite points respecting the pathology of the disease would confirm or remove any doubt that may remain as to the question of communicability, and they therefore recommend that the Government should institute such an investigation as this College might direct, and report on to the Government when completed.

“Whilst the Committee do not believe compulsory segregation to be justifiable, the encouragement of leper asylums or houses properly regulated they consider most desirable ; such asylums not to be regarded as prisons, and so arranged as not to prove foci for intensifying the disease, but as refuges where kindness, care, and enjoyment of the simple, though necessary, conditions of a healthy life would be insured.

“In this direction the Committee strongly recommend State interference and assistance.

“*July 15, 1887.* (Signed) C. HANDFIELD JONES,
Chairman.”

DISCUSSION.

The adjourned meeting, for the purpose of discussing Dr. P. S. Abraham's paper upon Leprosy, was held on Wednesday, June 12th, 1889. The President of the Society, Dr. Thorne Thorne, occupied the chair.

The discussion was opened by the reading of a paper by Surgeon-Major Pringle, on “Leprosy in India”, in which he maintained that the disease was vastly increasing in that country. He regarded the disease as highly contagious, demanding compulsory segregation and urgent measures to prevent its dissemination and introduction into England.

Dr. Thompson, who has recently been in charge of the

Madras asylum for lepers, remarked that there was some real risk of the disease becoming prevalent in England, owing to the free intercommunication which existed through the mercantile marine with the natives of India. In his opinion leprosy was undoubtedly contagious, and he agreed with the last speaker as to the necessity for compulsory segregation.

Surgeon-General Sir William Moore observed that there was no increase of leprosy in India. He believed that the disease was contagious, but only through an abraded surface; that leprosy was also inherited; and he was strongly of the opinion that it was only another phase of syphilis. He affirmed that segregation of the lepers in India was an impracticable measure, and that the only means of arresting the prevalence of the disease in India was by the enforcement of sanitary principles.

Mr. Brudenell Carter referred to two cases of leprous English officers, who came under his care suffering from the loss of vision resulting from the disease.

The Rev. Mr. Guilford gave an interesting account of the leper asylum, of which he is now in charge, in the Punjab, and of the difficulty he had experienced in effecting improvements in the state of affairs. He strongly advocated legislation on the subject.

Mr. McClean referred to the frightful condition of the lepers of Madagascar, and the efforts which he and others are making with the view of ameliorating their lot.

Surgeon Blunt, R.N., who had just arrived from the Cape, also made some remarks upon the subject, regarding the increase of leprosy in South Africa.

Mr. Larder described his treatment of the cases shown, which had benefited to some extent with the use of chaulmoogra oil.

The President, before calling upon Dr. Abraham to reply, observed that it was not necessary to take an alarmist view of the situation of affairs in regard to the increase of leprosy. At the same time, however, he held that there was an urgent need for an inquiry as to the natural history of the disease and the measures which should be adopted in order to prevent its dissemination.

Dr. Abraham, in reply, said that he could not go as far as Dr. Pringle in his fear of the spread of the disease in this country. While believing that segregation is advisable, he pointed out that in some cases, as in Iceland, leprosy was practically disappearing without isolation; that in the Sandwich Islands, where segregation has been more or less vigorously enforced for many years, the disease has, nevertheless,

increased; and that in Norway, where it has diminished, the segregation was not absolute, as shown by the curves exhibited. Against the theory of heredity, Dr. Abraham alluded to the facts in a recent paper brought forward by Dr. Blanc, of New Orleans, and the remarkable evidence collected by Dr. Hansen among the descendants of Norwegian lepers in North America. With reference to separation of sexes, he stated that the fear of increase by breeding was not so great, because it is well known that lepers are very sterile in the production of offspring. He spoke of the inoculation attempts which had been made upon animals, and made further remarks upon the subject, which he considered demanded extensive investigation.

The two cases exhibited last time were shown again and described, and a large number of microscopic sections and bacilli were shown by Dr. Abraham.

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