A report on leprosy of the air-passages in Europe / by Sir Morell Mackenzie.

Contributors

Mackenzie, Sir Morell, 1837-1892.
Royal College of Surgeons of England

Publication/Creation

London : J. & A. Churchill, 1888.

Persistent URL

https://wellcomecollection.org/works/uyapmfpy

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

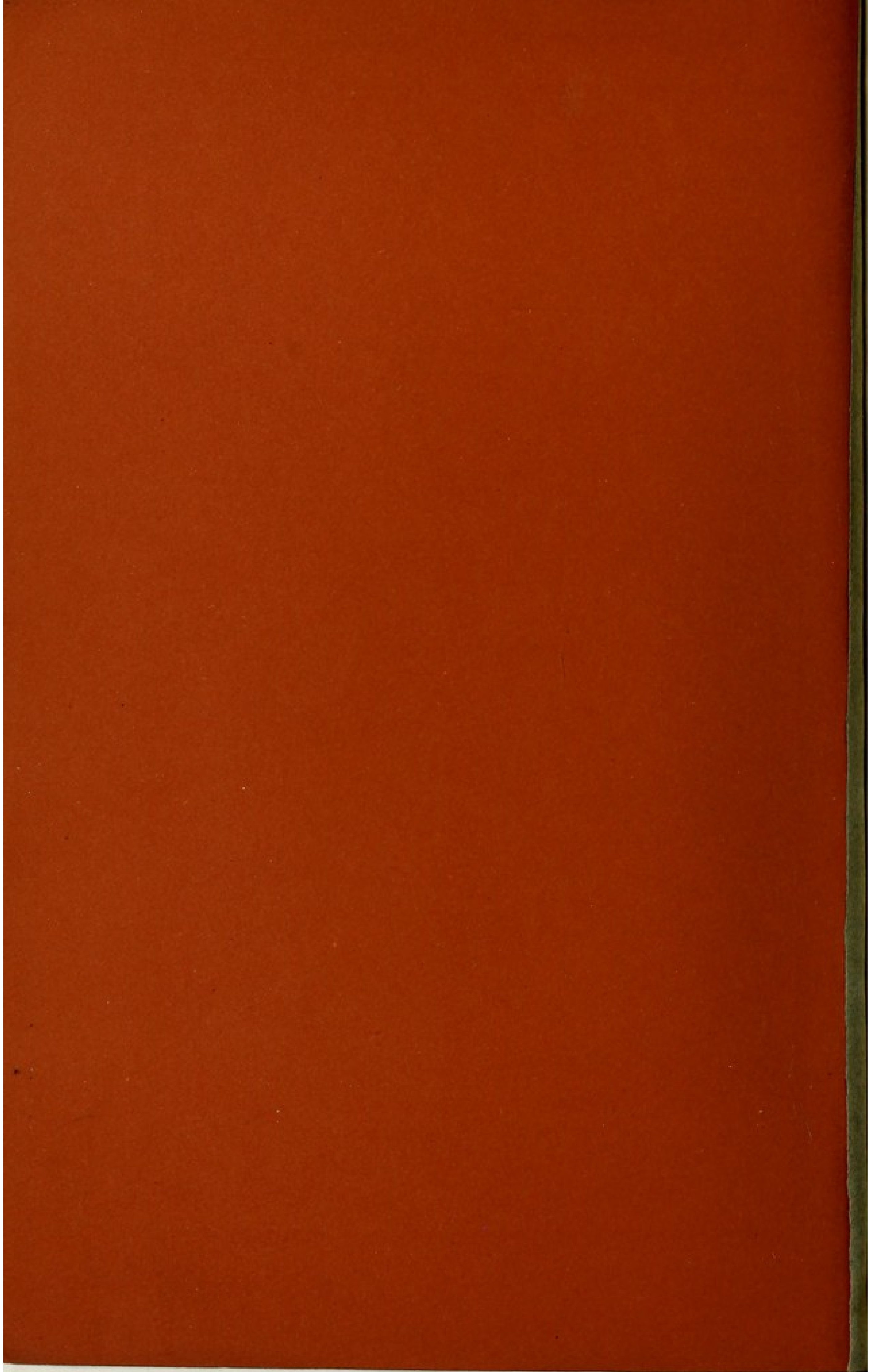
LEPROSY

OF THE

AIR-PASSAGES

BY

SIR MORELL MACKENZIE, M.D.



P. c. 9

A REPORT

ON

LEPROSY

OF THE

AIR-PASSAGES

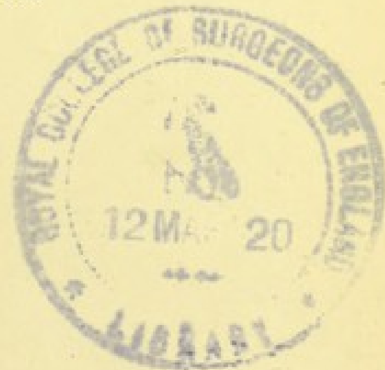
IN EUROPE

[*Reprinted from* THE JOURNAL OF LARYNGOLOGY AND RHINOLOGY, *Oct.* 1887, *and Jan.* 1888.]

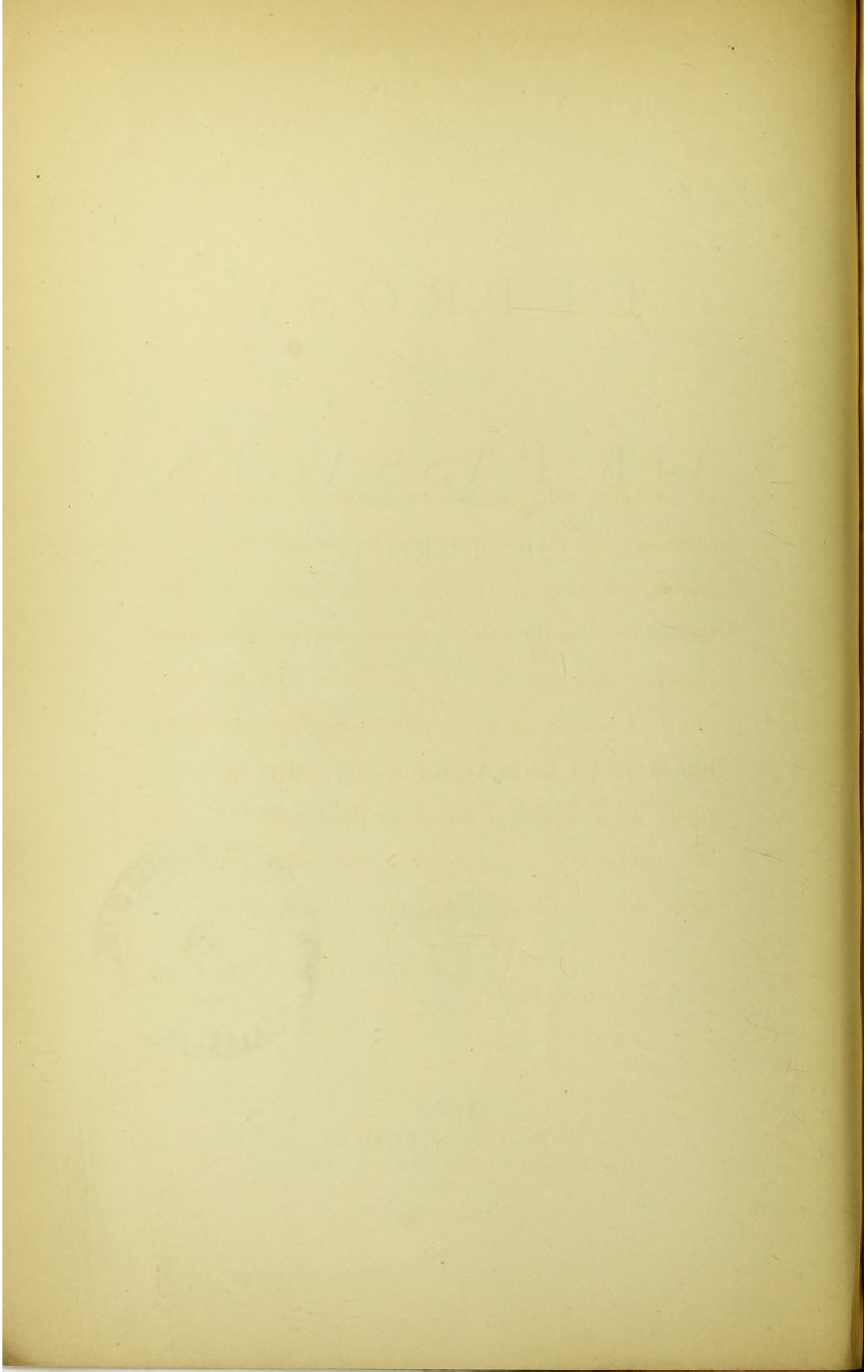
BY

SIR MORELL MACKENZIE, M.D. LOND.

CONSULTING PHYSICIAN TO THE THROAT HOSPITAL, AND LATE PHYSICIAN TO THE LONDON HOSPITAL



London
J. & A. CHURCHILL
11, NEW BURLINGTON STREET, W.
1888

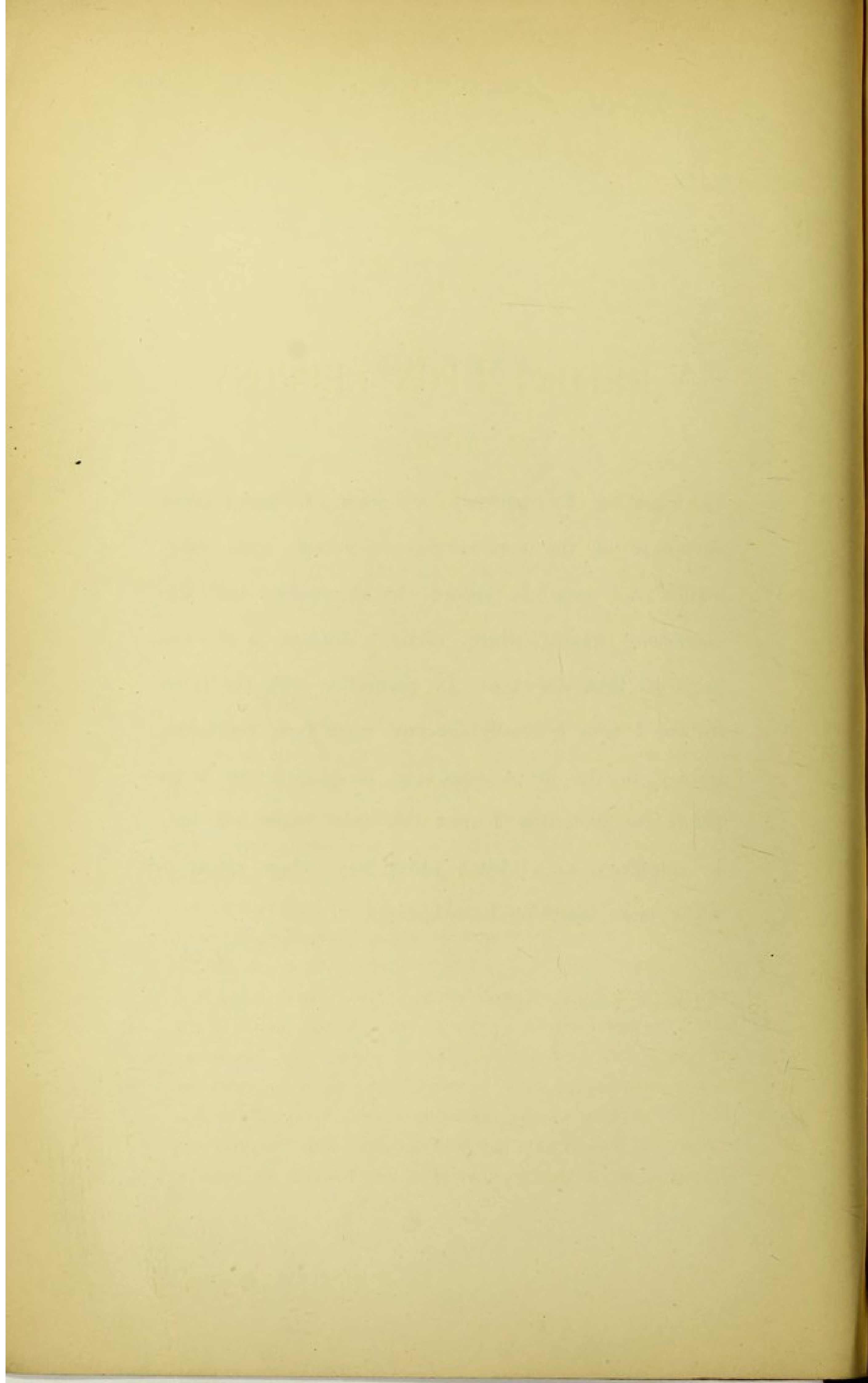


PREFACE.

In travelling for pleasure or profit I have taken advantage of the opportunities to collect some information not only as regards health resorts, but also concerning places where certain diseases are more prevalent than elsewhere. In connection with the latter feature, I have gradually collected some facts concerning leprosy in the air-passages, and in placing my notes before the profession I trust this short paper will only be considered as a sketch which may induce others to make more searching investigations.

M. M.

LONDON, *January*, 1888.



A REPORT UPON LEPROSY

IN EUROPE

(*PARTICULARLY AS IT AFFECTS THE AIR-PASSAGES*).

BY SIR MORELL MACKENZIE, M.D. LOND.

HAVING within the last few years had opportunities of studying leprosy in Spain, Madeira, Norway, and Italy (San Remo), it has occurred to me that an account of my observations may be of interest to some of my professional brethren. My attention was mainly directed to the manifestations of the disease within the throat—a field of observation which has not as yet been exhaustively worked out. Not that it is by any means virgin soil; several competent inquirers have been before me, and I can scarcely hope to add much of any value to the observations of Moura-Bourouillou, Schrötter, and Elsberg. Still, in a disease respecting which so little is even now really known, it is something to have results arrived at by previous workers decisively confirmed, and gathered once for all into the general stock of established scientific truths. My observations, whatever they may otherwise be worth, have at least this merit, that they are based on a larger and more varied clinical material than any of my predecessors has had to deal with. Scrupulously accurate as far as they go, they must not, however, be taken as

affording a complete picture of the course of leprosy within the throat. This would require a long period of time, possibly many years, to execute satisfactorily, as each case would have to be kept under continuous observation from the onset to the termination of the malady. So far as I know this still remains to be done; it could, of course, only be carried out by a physician resident in some place where leprosy is endemic. Chances of studying the disease in the living subject are fortunately rare in the countries where laryngology is most cultivated, whilst in places where leprosy has its customary *habitat*, systematic examination of patients' throats during life seems to be somewhat neglected. This is, no doubt, to be accounted for by the altogether secondary importance of the hroat affection, which makes the practitioner quite independent of the laryngoscope as far as diagnosis is concerned. It is conceivable, however, that in localities where, owing to the extreme rarity of the complaint, the medical man has not that intuitive—one might almost call it instinctive—power of recognizing leprosy which is common even among the laity in countries where the disorder is indigenous,[1] inspection of the throat might be of use. I hope, at any rate, to show, as the result of my own observations, that whilst the throat symptoms are not in all cases absolutely distinctive, they yet often present sufficiently characteristic features to enable an expert to determine their nature without much hesitation. It may, of course, be said that this is rather an academical subtlety than a matter of practical importance, as leprosy always attacks the outer parts of the body before it invades the throat. Cases, however, might possibly occur—in this country at least—in which the skin affection alone would be obscure or even misleading to an observer unfamiliar with leprosy. Under such circumstances the condition of the throat might throw light on the nature of the disease. In the Middle Ages, when every one with a husky voice was looked on with suspicion as

[1] See Vandyke Carter: *Reports on Leprosy in North Italy, the Greek Archipelago, Palestine, &c.* (Second Series), London, 1876, p. 7.

being either actually a leper, or, at any rate, *in dispositione leprae*,[1] such a means ot diagnosis would have been of inestimable service. The little mirror would have saved many a hapless wight who, like Falstaff, had lost his voice "with hallooing and singing of anthems," from being cast forth from among his fellows, and condemned to the living death which was then the leper's doom.[2]

Even at the present day it is not altogether impossible that the laryngoscope may be found useful for a like purpose. The dread of leprous contamination is once more becoming a factor in human action in some parts of the world,[3] and alarmist cries have lately been heard within our own "tight little island" itself.[4] Under these

[1] See Joh. Matt. de Gardi: "Consilia Venet." Cons. 99—*Pro illustri Alamanno ad Lepram Disposito*, in which the "*vox notabiliter rauca*" formed a most suspicious symptom. Happily, the "illustrious German's" voice, "*facta est sicut sana*," and all his fears as to his condition were dispelled.

[2] See the late Sir James Simpson's most interesting "Antiquarian Notes on Leprosy" in the *Edinburgh Medical and Surgical Journal*, 1841-42; and an article by Agnes Lambert on "Leprosy Past and Present," in the *Nineteenth Century*, September, 1884, particularly p. 482, *et seq.*

[3] See in the *Boston Medical and Surgical Journal*, May 15, 1884, the report of a legal action for libel brought by a physician, a member of the Board of Health in Honolulu, against a local journal which had accused him of "criminal mismanagement of leprosy." The "mismanagement" consisted in the discharge of patients from the "leper settlement" whilst still suffering from active forms of the disease. The jury returned a verdict of not guilty. It may be added that, from occasional paragraphs in the American medical journals, it is clear that the possible importation of leprosy, either from the Sandwich Islands or from China (*viâ* San Francisco), was even recently a subject of apprehension in the United States. See, for instance, a case reported in the Philadelphia *Medical News*, 1882, p. 727, in which a patient at Salem, Massachusetts (who had lived at Honolulu in the capacity of chief botanist to Queen Emma), was declared to be suffering from leprosy, whereupon he was isolated, and his clothes were burnt.

[4] Agnes Lambert: *Loc. cit.*, August, 1884, p. 210, *et seq.* More recently Archdeacon Wright (*The Times*, November 8th, 1887) has called the attention of the public to the danger of leprosy establishing itself in this country. He points out that forty years ago leprosy was unknown in California, New Brunswick, Cape of Good Hope, and the Sandwich Islands, but now all those places have leper

circumstances, rules as stringent as the Draconian code of mediæval Europe may again be enacted, dooming the leper to a "segregation," which practically amounts to civil death. In coming to a decision upon a matter so vitally affecting the happiness of the individual, the physician must be careful not to overlook any feature of the case that may, in however slight a degree, help him to a correct conclusion. For this reason, if for no other, it is of the utmost importance that the phenomena of leprosy as exhibited in the throat should be minutely studied, and as far as possible differentiated from the other lesions that may occur in that part. The present essay embodying, as I believe it does, everything of value that has hitherto been recorded by competent observers, will, it is hoped, be of use in giving the reader a clear and adequate notion of the effects of leprosy on the air-passages.

The alteration of the voice in leprosy has always been considered as one of its most marked features, and not one of the older writers omits to mention it. It was variously described as "hoarse," "nasal," "rough," "shrill," "yelping" (*catullina*) and, as being in due course altogether lost. Even to the laity this was one of the most striking signs of the disease; thus Creseide in Henrysone's Lament, says:—

> My clere voce and my courtly carolling
> Is ranke as roke, full hidous, har and hace.[1]

and FitzHerbert commenting on the writ, *De leproso amovendo*, says: "It seemeth that the writ is for those lepers who appear to the

settlements and leper hospitals. Dr. Besnier also read a paper last year before the Academy of Medicine, at Paris, in which he sounded the alarm in connection with the increasing prevalence of leprosy in France. Attention was also drawn to the matter by the *British Medical Journal*, in a leading article on November 12, 1887. It is probable that the "Heathen Chinee" has also carried the disease to Australia, and if the Celestials, who have been the greatest propagators of this disease throughout the civilized world, are ever allowed to establish themselves in this country, there can be little doubt that leprosy will become much more common in the United Kingdom.

[1] Sibbald's *Chronicles of Scottish Poetry*, vol. i. p. 117. Edinburgh, 1802.

sight of all men that they are lepers by their voice, and their sores, &c."[1]

Among the "signa infallibilia" of the disease, B. Gordon enumerates[2] the following "coarctatio (narium) interius cum difficultate anhelitûs ac si cum naribus loquantur," and among the symptoms of *incipient* leprosy, he says that one is "vox aliquo modo raucescit," becoming, as the *naufragium* or end of the malady approaches, "rauciloqua catullina," which he explains rightly enough according to his lights by the supposition of a "materia melancholica corrupta," which is deposited in the parts and thickens them (grossat). Gilbert[3] the Englishman, also speaks of "vocis gracilitas et mira asperitas quasi catullorum." Rhazes[4] places hoarseness among the earliest signs, and Haly Abbas[5] reckons it apparently as among the prodromata of the disease, for in some curious directions on the choice of slaves, the intending purchaser is warned against selecting any whose voice is hoarse. Hoarseness, frequent sneezing, and shortness of breath were also reckoned by Avicenna[6] among the early symptoms of leprosy. Averroes considered "raucedo vocis" as a "signum prognosticum." John Damascene,[7] on the other hand, mentions the affection of the voice as occurring in the progress of the disease, and as gradually increasing till complete aphonia ensues. Theodoricus[8] and Lanfrancus[9] substantially agree with him on this point. More modern writers are equally unanimous as

[1] *The New Natura Brevium of the Most Rev. Judge Mr. Anthony FitzHerbert*, eighth edition. In the Savoy, 1755, p. 534.

[2] *Lilium Medicinæ*. Francofurti, 1617, p. 108.

[3] *Gilberti Anglici Compend. Medicinæ*, Lugduni, 1510, lib. viii., De Leprâ.

[4] *Ad Regem Mensorem*, lib. v., c.xxxv.

[5] "*Theoic*," Lugd., 1525, lib. i., cap. 24. "Rauca enim (vox) elephantiam quandoque significat venturam."

[6] *Canon*. lib. iv., Fen. iii., p. iii., c. ii. Venetiis, 1555.

[7] *Therap. Method.*, lib. ii., c. xv. Basil, 1545.

[8] "*Chirurgia*," c. 55, in *Artis Chirurg. Scriptor. Collect.* Venetiis, 1546, p. 173, *et seq.*

[9] *Art. Complet. Chirurg.*, cap. vii. Ibid., p. 207.

regards the change in the voice, whether basing their description on cases seen in Europe, Africa, Asia, or America.

As already stated, my own observations were made in Spain (Seville), Madeira (Funchal), Norway (Molde and Bergen), and San Remo (Italy). I visited the Hospital de San Lazaro, in Seville, in the spring of 1880. The building is outside the city, in a fairly isolated situation, and is well adapted for the purpose it is meant to serve. It is not solely destined for the reception of "lepers" in the strict sense, for patients suffering from true elephantiasis (Arabum), and some other forms of disfiguring disease, are also admitted.[1] During the year preceding my visit (1879) there had been 55 patients with leprosy—40 men and 15 women—under treatment in the institution; of these, 9 men and 2 women died, giving a rate of mortality of 20 per cent. In the five years from 1875 to 1880, there had been 101 patients in the hospital, of whom 17 were there at the first time of reckoning, whilst 42 remained at the end of the period; 18 had left for various reasons, whilst 41 had died, the death-rate thus being 40 per cent.[2] It was with considerable difficulty that I succeeded in obtaining admission to this institution—whether the unwillingness of the authorities was founded on ultra-humanitarian tenderness for the feelings of the unfortunate inmates, or on mere orthodox objections to the presence of an "*hereje*" within the walls, I am unable to say.

Thanks, however, to the courtesy of the chief physician, Dr. Pedro Fuertes, I was enabled to view the hospital, and examine such of the cases as I thought might be interesting. At the time of my visit

[1] *Memoria que dirijo a la Exma. Diputacion Provincial de Sevilla el Decano del Cuerpo Facultativo de Beneficencia.* Sevilla, 1880, p. 32. It is there stated that persons of both sexes are admitted "que padecen las enfermedades leprosas, la elephantiasis en sus dos formas, de los Griegos y de los Arabes, y otros estados caquécticos acompañados de ulceraciones estensas é inveteradas que dan un aspecto repugnante a los desgraciados que las sufren." In 1879 I find there were two cases of cancer, two of elephantiasis, two of lepra vulgaris, and one of syphilis (sifilis inveterada).

[2] Hauser: *Estudios medico-sociales de Sevilla.* Madrid, 1884, p. 319.

there were 29 male and 10 female patients. Of the former 9, and of the latter 2, had well-marked throat-symptoms. The following table shows the duration of the throat-affection as compared with that of the general disease :—

MALES.

	Age.	Duration of Disease.	Duration of Throat Affection.	Remarks.
1.	34	5 years.	2 years.	Ulcers over whole of pharynx. Uvula destroyed ; sides of throat acutely inflamed.
2.	35	8 years.	5 years.	Epiglottis so much enlarged that laryngoscopic examination was almost impossible.
3.	47	8 years.	6 years.	Ulceration of uvula. Enlargement and ulceration of epiglottis. Ulceration of left arytænoid.
4.	28	13 years.	2 years.	General thickening of orifice of larynx. Uvula enormously thickened and elongated.
5.	33	9 years.	7 months.	Large ulcer in pharynx. Epiglottis enormously enlarged.
6.	31	?	2 years.	Ulcers over whole of pharynx and pillars of fauces. Uvula destroyed. Tubercles on tongue. Dysphagia.
7.	22	10 years.	10 years.	Uvula destroyed. Ulcers extending upwards from it symmetrically. Epiglottis enlarged.
8.	47	14 years.	10 years.	Uvula destroyed. Pharynx ulcerated on both sides. Epiglottis destroyed.
9.	16	10 years.	6 months.	Uvula and epiglottis thickened.

FEMALES.

	Age.	Duration of Disease.	Duration of Throat Affection.	Remarks.
1	50?	12 years.	?	Epiglottis greatly thickened.
2.	26	9 years.	2 years.	

All these were cases of tubercular leprosy; the duration of the throat-symptoms is reckoned from the time when hoarseness was first observed. It is to be noted that whilst, as a rule, the voice became affected some years (2 to 11) after the invasion of the disease, in one case the throat was affected from the beginning. From a glance at these tables it will be seen that one constant feature of leprosy within the throat is enlargement of the epiglottis; this in some cases reaches an enormous degree, so as completely to hide the larynx from view. In one case of long-standing disease (ten years) the epiglottis was entirely destroyed, but this is quite exceptional; in one or two there were ulcers on it, usually at the edge and towards the side. Thickening of the arytænoid cartilages was almost universal. The uvula in four cases was entirely eaten away, in one partially destroyed, whilst in three it was thickened and enlarged—in one case in a very marked degree. The pharynx was extensively ulcerated in five cases; in one instance tubercles were observed on the tongue. In all the cases the whole upper orifice (arytænoids, interarytenoid fold, and ventricular bands, with the epiglottis) of the larynx was thickened so as greatly to narrow the aperture; this was particularly the case in a man aged twenty-eight, whose uvula has been already mentioned as immensely hypertrophied.

I visited Madeira in the spring of the following year (1881), and examined several patients in the Lazaretto at Funchal, Dr. Grabham, the resident English physician, having kindly accompanied me. The building is situated on a cliff at the western extremity of the town; the inmates are comfortably housed, and their diet, without being on a luxurious scale, is relatively ample and sufficiently varied. They have flesh meat twice, and imported American cod-fish three times a week, with abundance of fresh vegetables, yams, cabbage, and sweet potatoes. I was informed that there were not so many patients in the hospital as formerly, because lepers were no longer compelled to enter. I give the results of my inspection in tabular form as before.

MALES.

	Age.	Duration of Illness.	Duration of Throat Ailment.	Remarks.
1.	19	9 years.	1 year.	Ulceration of vocal cords. General thickening of epiglottis and arytænoids, especially left.
2.	28	14 years.	Recent hoarseness.	Do. as above. One brother a leper. Father and mother and rest of family healthy.
3.	17	10 years.	?	Do., voice little affected.
4.	24	6 years.	?	Epiglottis thickened. Heredity remarkable. Two brothers affected and one half-sister; four brothers had died of the disease. Almost a vegetarian.

FEMALES.

	Age.	Duration of Malady.	Duration of Throat Ailment.	Remarks.
1.	22	9 years.	3 years.	Uvula destroyed. Epiglottis and arytænoid thickened.
2.	30	9 years.	?	Vegetable diet; no fish.
3.	35	25 years.	Many years	Dyspnœa and cough. Father and one brother lepers; mother and others healthy. Great thickening of inter-aryt. fold. Slight thickening of epiglottis.
4.	12	3 years.	?	General leprosy very slight. Voice nasal. Half-sister of male patient No. 4.

The general features in these cases (all examples of tubercular leprosy) are, it will be noticed, almost identical with those observed in the " lazarinos " of Seville.

My observations in Norway were made in the early part of the autumn of 1884. I first visited the hospital at Molde, where the physician in charge, Dr. Kaurin, courteously guided me over the whole building, and allowed me to examine such patients as I wished. The hospital is beautifully situated, standing in its own grounds somewhat above the level of the town, looking over the Molde

Fjord. The number of patients at the time of my visit was 56—33 men and 23 women—but there is room for many more. They are kept at the expense of the State as long as they live, but no hindrance is offered to their leaving the hospital if so minded; only one or two, however, avail themselves of the privilege in the course of the year. Dr. Kaurin informed me that there are several cases among well-to-do persons in the neighbourhood of Molde; the sufferers live with their friends, who try to hide their condition as well as possible. The following table gives a summary of my observations at Molde:—

MALES.

	Age.	Remarks.
1.	66	Slight swelling of arytænoids. A little swelling of vocal cords. Nothing characteristic.
2.	54	Tubercles. Swelling of epiglottis—especially on dorsum. Tubercles on palate. Uvula gone, leaving thickened stump. Ulcers on pillars, especially left side. Swelling of ary-epiglottic folds and ventricular bands.
3.	26	Tubercles on epiglottis and uvula. Father and mother leprous. Five brothers and sisters healthy.
4.	24	Mucous membrane of mouth anæmic and thickened. Uvula partly wasted. Tubercles at base. Thickening of epiglottis and arytænoid cartilages.
5.	29	Uvula shortened, almost as if cut across. Septum nasi thickened posteriorly. Immense thickening of epiglottis. Uncle leprous.
6.	57	Bad case. Horrible smell. Eyes gone. Anæmia and atrophy of whole pharynx. Tubercles on tongue. Deep pocket between anterior and posterior pillars, with ulceration at bottom (left side). (Mucous membrane of posterior pillar much developed.)

I saw only one woman at Molde: she had a large ulcer on the palate, the uvula was eaten away, and there was much thickening round the upper laryngeal orifice.

At Bergen, which may be called the head-quarters of "spedaljkhed" in Norway, there are three hospitals for lepers—S. Jörge, Lungesgaard, and the Central—all standing close to each other, a little way out of the town, but in a public thoroughfare with houses on each

side. At the time of my visit there were 68 patients in the S. Jörge, 76 in the Lungesgaard, and 157 in the Central, making a grand total of 301, of whom 158 were women. In spite of this abundance of material, I had less opportunity of making satisfactory examinations here than at Molde, as all three hospitals were overrun with enthusiastic inquirers of various nationalities who had come up from the International Medical Congress which had just taken place at Copenhagen. Though Dr. Nicoll, of the Central Hospital, was kind enough to place some patients with laryngeal symptoms at my disposal, as each case had to be looked at in company with six or seven other eager students, the examination was necessarily hurried and incomplete. I have no special notes of the individual cases examined, but in all the appearances were much the same, viz., pallor, and thickened glazed look of the mucous membrane of the mouth and throat; destruction, more or less complete, of the uvula; tubercles on the tongue, palate, and (in one or two cases) on the posterior wall of the pharynx; thickening, with or without ulceration, of the epiglottis and arytænoid cartilages. Owing to this, it was exceptional to be able to see the interior of the larynx. In our hurried scamper through the wards I noticed two or three patients wearing tracheotomy tubes, and in very many cases a characteristic deformity of the nose caused by the falling in of the bridge. In the Lungesgaard Hospital I had the advantage of seeing a splendid preparation of the *bacillus lepræ* put up, and most kindly demonstrated by Dr. Armauer Hansen, the discoverer of the parasite. I must also record my indebtedness to this indefatigable worker for much information as to the etiology, pathology, and statistics of the disease. From the venerable Danielssen, also, I received some valuable hints as to certain features of the disease, to the elucidation of which he has devoted a long life-time, and for kindly showing me some specimens of the leprotic larynx, which, from their look of hoary antiquity, were probably the originals of Plate *V.*, *b* and *c* in his splendid Atlas.

I had no time, unfortunately, to visit Throndhjem, near which there is a village named Reitgjerdel, where there is a leper hospital with 150 patients.

On the occasion of a recent visit to San Remo, accompanied by Dr. Freeman of that place, who two years previously had made some inquiries for me respecting the existence of leprosy on the Rivièra, I visited the Leper Hospital. This institution used to contain ten or a dozen patients, but latterly there have seldom been more than two or three. Cavaliere Ajardi, chief physician to the hospital, who kindly showed me the cases, attributed the diminution in numbers to the loss by Italy of Nice and its surroundings. This district formerly supplied the greatest number of leprous patients; but since it has become French the cases are sent to Paris. When I visited the hospital there were only two leprous patients, a man and a woman. The male patient was aged twenty-eight years; he had suffered from skin disease for four years, and had general thickening of the skin of face, and numerous warty growths were present in this situation. He had hoarseness of two years' standing; the epiglottis and arytænoid cartilages were found to be thickened, and there was an ulcer on the left side of the first and over the left arytænoid cartilage. The mucous membrane of the pharynx and larynx had a very anæmic appearance.

The woman was aged thirty-five years; she had been suffering from general symptoms of leprosy for eight years; her voice, which was reduced to a hoarse whisper, had first become affected two and a half years ago. Her breathing was decidedly stertorous. Examination of the throat showed great thickening of the palate and uvula, whilst the epiglottis was so swollen that it was impossible to obtain a view of the interior of the larynx.

The general course of leprosy in the throat and air-passages must now be described. I have already given elsewhere[1] an outline of

[1] *Manual of Diseases of the Throat and Nose*, vol. i. London, 1880, p. 308, *et seq.*

the principal changes observed in these parts, and the present account will be little more than an amplification of the details there given. I am not aware that the throat is ever affected in the macular variety of the disease, nor does this complication occur, as a rule, in the purely anæsthetic form. Hansen has, however, described a case in which there were redness and swelling of the whole throat and upper air-passages coinciding with an acute eruptive affection of the skin; the attack was of a merely temporary nature, but some roughness of voice remained.[1] In tubercular leprosy, on the other hand, it is probable that the throat is attacked, sooner or later, in nearly all cases. As already said, the throat affection is invariably secondary to the skin complaint. It usually occurs at a comparatively advanced stage of the disease, though occasionally it may come on, as in a case observed by myself in Seville, almost at the beginning. The voice becomes hoarse or nasal, then shrill, gradually losing resonance, till it is altogether lost, and the patient can only speak in a faint whisper. Breathing through the nose becomes difficult, and as the laryngeal orifice becomes more and more obstructed a certain degree of dyspnœa is felt, but the narrowing process is so gradual that the symptom rarely becomes urgent. It is in comparatively few instances that tracheotomy is required, though the breath-passage may be found after death reduced so much as hardly to admit a straw.[2] I was informed by Dr. Kaurin, of Molde, however, that in his experience rapid œdema of the glottis is not very uncommon, the patient dying of suffocation if help be not immediately at hand. The progress of the disease within the throat is rather less chronic than that of the cutaneous affection, ulceration occurring more readily, and the tuberculous infiltration taking place somewhat less slowly. In the throat, however, as in the skin, the complaint progresses by fits and starts, as it were, the exacerbations

[1] *Nordiskt Medicinskt Arkiv.*, vol. ii., No. 16, 1870.

[2] One of the specimens shown to me by Dr. Danielssen literally answered the above description. See also his work already referred to, p. 400.

occurring at irregular intervals, but being usually ushered in by some degree of systemic disturbance, and synchronizing with some "fresh developments" on the outer surface. The objective signs first noticeable in the throat are merely those of severe general congestion; after a variable period of time this is followed by the appearance, at different points, of small red papules ranging in size from a pin's head to a split pea. These at first are red in colour and soft, but gradually change to a yellowish-white hue, and become larger and harder. The parts first attacked are the follicles at the root of the tongue and in the pharynx, where the distended pouches are as prominent as swollen Peyerian patches in the small intestine. Tubercles may be seen on the dorsum of the tongue, often coalescing to form large masses on its surface, which is glazed and discoloured and marked by deep transverse fissures, which give rise to much pain. Larger and flatter tubercles can be observed on the roof of the mouth and velum palati; the uvula is hardly ever spared, being in some cases thickened and elongated, in others eaten away by ulceration. One of the differences I noticed between the disease as seen in Seville and the Norwegian type, was that whilst in the former gigantic hypertrophy of the uvula was the rule, in the latter it was exceptional to see anything but a mere stump in its place. The posterior wall of the pharynx is usually considerably ulcerated; sometimes, however, it is occupied by one or two large flat tubercles. In recent cases it is congested and succulent, but in those of older standing it has the pale, yellow, thickened, glazed look, that characterizes the whole of the mucous membrane of the mouth and throat, an appearance which might almost suggest that all the parts had been infiltrated with tallow. The ulcers have a more or less circular outline, but without any elevation of the edge; the base is uneven and generally dry, the granulations being small, weak, and of a dirty grey colour; healing, however, as a rule, takes place after a certain length of time, and adhesions to neighbouring parts, *e.g.*, the soft palate, may be developed as after syphilitic ulceration. The pillars

of the fauces, more particularly the posterior one, are frequently thickened and become very prominent, so as to make the space between them seem much deeper than natural. I did not observe any change in the tonsils.

In the larynx the part most conspicuously affected is almost always the epiglottis, which is irregularly thickened and broadened ; in most cases the enlargement is of a solid nature, and is due to infiltration of tuberculous material, but sometimes there is, besides, considerable œdema ; in the former case it has the dirty white look already mentioned, in the latter it is dusky red and tense in appearance. Sometimes tubercles are seen on it, especially on one or other of the lateral edges, and frequently there is a considerable amount of superficial ulceration, but seldom any actual loss of substance. I have, however, seen one case in which the whole epiglottis had been eaten away, a narrow irregular fringe of ragged tissue being all that was left to mark its whereabouts. Similar changes affect the other parts of the larynx, notably those forming the boundaries of its upper orifice, the arytænoid cartilages, with the fold between them, and the ary-epiglottic folds ; tubercles may sometimes be observed on the cords themselves, and there is always some ulceration of their surface as well as thickening of their substance ; this leads to deficient approximation, whilst the infiltration of the surrounding parts (often extending into and filling up the ventricles themselves) interferes with their mobility. As a consequence of these various processes of infiltration with tuberculous matter, ulceration and healing, all the tissues become in course of time so matted together as to form a sort of homogeneous whole, in which the separate structures are almost lost, and the larynx is transformed into a more or less rigid tube of gradually narrowing calibre. Small tubercles are occasionally found in the trachea or bronchi, and much more rarely in the lungs ; but as Danielssen and Boeck point out,[1] the pulmonary tissue is not a favourite site of the

[1] Danielssen and Boeck : *op. cit.*, p. 222.

disease. They are even disposed to believe that leprosy counteracts any other diathesis (*e.g.*, phthisical) that may exist.

The gullet is, so far as I am aware, never attacked. The cervical and bronchial glands are often enlarged and indurated; but this occurs only when the disease is of long standing.

The nose suffers severely, both externally and inside. Tubercles form on the septum and the outer wall of the fossa, which very quickly ulcerate; obstruction of the passage is an early symptom, rendering the voice "nasal," and impairing or destroying the sense of smell. Epistaxis is frequent, being sometimes the first sign that the interior of the nose has been attacked. As the disease gains ground, perforation of the septum takes place, and in some instances more or less complete destruction of the bony skeleton, leading to great deformity.

As a general rule, comparatively little pain is experienced, even when the throat is extensively diseased. In most cases there is even a certain degree of anæsthesia, though never so complete as in the skin.[1] Open ulcers, however, are, as might be expected, sensitive enough, and there is sometimes a good deal of pain in swallowing from this cause. It is wonderful, however, how slight this often is, even in cases where the whole mouth, tongue, palate, and fauces, as well as the pharynx, are extensively involved. The sense of taste is a little blunted, but annulled only in the worst cases.

The minute morbid anatomy of leprosy, as it affects the throat, has recently been elucidated by two thoroughly competent observers, Masini of Genoa, and Thin of London.[2] Both agree that the thickening is mainly in the sub-mucous tissue, and that it is constituted partly by infiltration with leprous elements, partly by œdema, and partly by increase in the connective tissue. The epithelial layer

[1] I am not aware that the sensibility of the mucous membrane of the throat has been tested in cases of pure anæsthetic type.

[2] Masini: *Bollettino delle Malattie dell' Orecchio, della Gola e del Naso.* November 1, 1884. Thin: *Brit. Med. Journal*, July 19, 1884.

is, as a rule, perfectly normal, except where it is wanting over an ulcerated surface. The cartilage also is, as a rule, unaffected, even when the morbid action reaches close to it. The essential feature is the presence of masses of cells of varying size, and more or less rounded in shape, each containing from one or two to a great many lepra-bacilli. These cells are, in all essential points, identical with the white corpuscles of the blood. They are often seen clustered round blood-vessels, and it is most probable, as suggested by Thin, that they are in fact leucocytes, which have somehow become infected, *i.e.*, made the recipients of the parasite (*bacillus lepræ*), and are carried by the current of the circulation to various parts, escaping through the walls of the containing vessels, and in turn infecting other cells. In Masini's two cases, the nerves were all enlarged, except the superior laryngeal, and contained bacilli among their fibrillæ. The epidermis, epithelium, and cartilage are spared, owing to the fact of their being non-vascular, but it is difficult to understand how parasites, existing in such abundance and multiplying so rapidly, are not carried with the blood into all parts of the body. Their preference for certain parts and almost absolute avoidance of others seems to show that a certain soil and climate—in other words, certain qualities, chemical or physical, in the tissues—are necessary for their growth. The neoplasms press on the structures, muciparous glands, blood-vessels, nerves, and muscular fibres, among which they lie, causing atrophy. The destruction of the glandulæ explains the dryness already referred to as characteristic. The obliteration of the vessels accounts for the anæmia and pallor of the parts, whilst the compression of the nerves explains the want of feeling.

It would be foreign to the object of this article to discuss in detail the *causes of leprosy*; but it perhaps will not be out of place to note that contagion must be looked upon as the principal cause of the disease. The theory put forward by Mr. Jonathan Hutchinson that the consumption of salt fish, often in a more or less putrid state, is the cause of leprosy, is no longer tenable; numerous cases having

been reported from the interior of India, where salt fish is never seen, and where anything at all putrid is abhorred. Dr. Armauer Hansen, of Bergen, considers that the disease in Norway is spread entirely through infection or heredity, but principally through the former. It appears that in that country, where many of the customs are somewhat primitive, and where the ideas of hospitality are pronounced, the disease is spread in the following way: At certain festive seasons of the year, the farmers' families pay visits to each other, and, driving a considerable distance, pass the night at the house where they dance and sup. When they retire to rest, three or four men often sleep in the same bed, and Dr. Hansen informs me that it is considered "*exceedingly rude* to refuse to sleep in bed with a person who is slightly leprous!" When the disease is advanced politeness does not exact this delicate attention, but to decline to sleep with a *mild* leper in Norway would be equivalent to spitting in a person's face in this country.

On the other hand, Dr. Danielssen, who is probably the highest living authority on the disease from the purely *clinical* standpoint, attaches little or no importance to contagion as an etiological factor in leprosy. He informed me that in his long career he had personally known about three hundred married couples in whom either the husband or the wife was leprous, and had watched many of them throughout their wedded lives. Though many of the children of such unions became affected by the disease, in no single instance had he known the healthy consort infected by the diseased one. The evidence as to the contagiousness of leprosy, however, is now so overwhelming that the Royal College of Physicians will have to reconsider the conclusion at which it arrived on this point in 1867. The probability is, that the disease is always contagious, but that owing to the extraordinary length of the incubation-period, in many cases this feature has often been masked. There is presumptive evidence, however, that for the contagion to exercise its baleful influence, there must be, as a rule, very prolonged or very free exposure on the

part of the victim. The soil must, no doubt, also, be prepared for the reception and maturation of the morbific element; and this is the part which scanty and tainted food, dampness of climate, and prolonged exposure to cold and wet, play in the genesis of leprosy. These, singly or in combination, are in reality secondary causes; the primary cause, as there is every reason to believe, being the bacillus, discovered by Dr. Armauer Hansen. Beyond the bare fact, however, that this micro-organism is constantly found in tissues which are the seat of tubercular leprosy, we are really quite in the dark as to the origin of the disease.[1]

With regard to treatment there is, I fear, nothing to be said but to confess that medicine is impotent in the matter of cure, and can at most give some occasional relief to the more distressing symptoms. A few cases of spontaneous cure, or rather of arrest in the evolution of the morbid process, have been known to occur, but as a rule the disease creeps slowly on, sometimes with alternate exacerbations and remissions, to the inevitable end.

[1] There is a curious passage in Muratori (*Antiquitates Italicæ Medii Ævi*, Mediolani, 1738, Dissert. 16, p. 906), which contains what Sir Richard Burton would call a "prolepsis" of the parasitic theory of leprosy. Speaking of the disease he says, "Populi semel invectam luem (utpote quæ contactu non secus ac vulgaris scabies et pestilentia trahitur) vigere sinunt *fortasse vermiculis venenosis eam gignentibus, et per hominum incuriam ex infectis in sanos repentibus.*"

Pardon & Sons, Printers, Wine Office Court, Fleet Street, London, E.C.