

Leprosy : an imperial danger / by H.P. Wright.

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LEPROSY
AN IMPERIAL DANGER

ARCHDEACON WRIGHT



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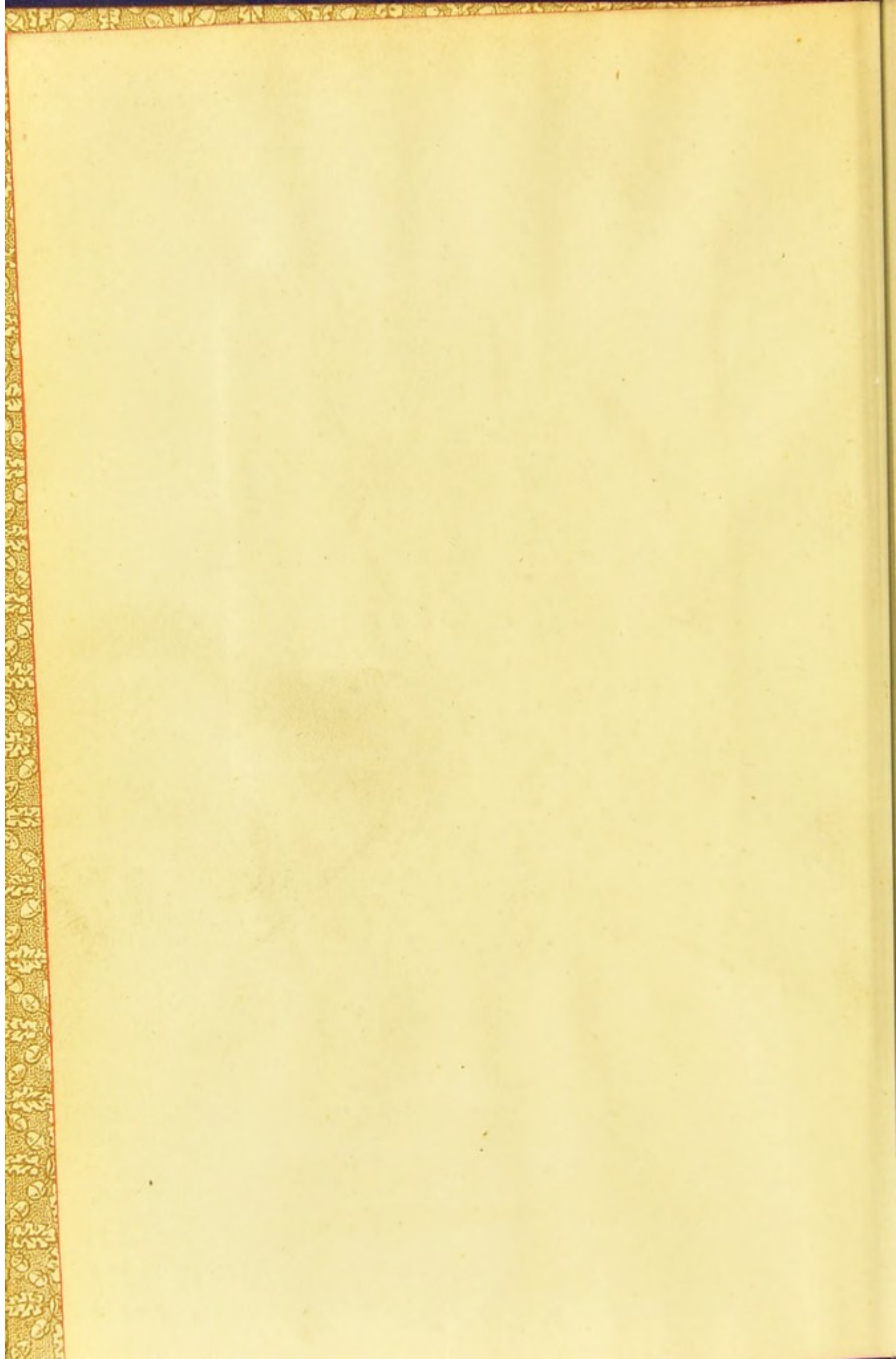
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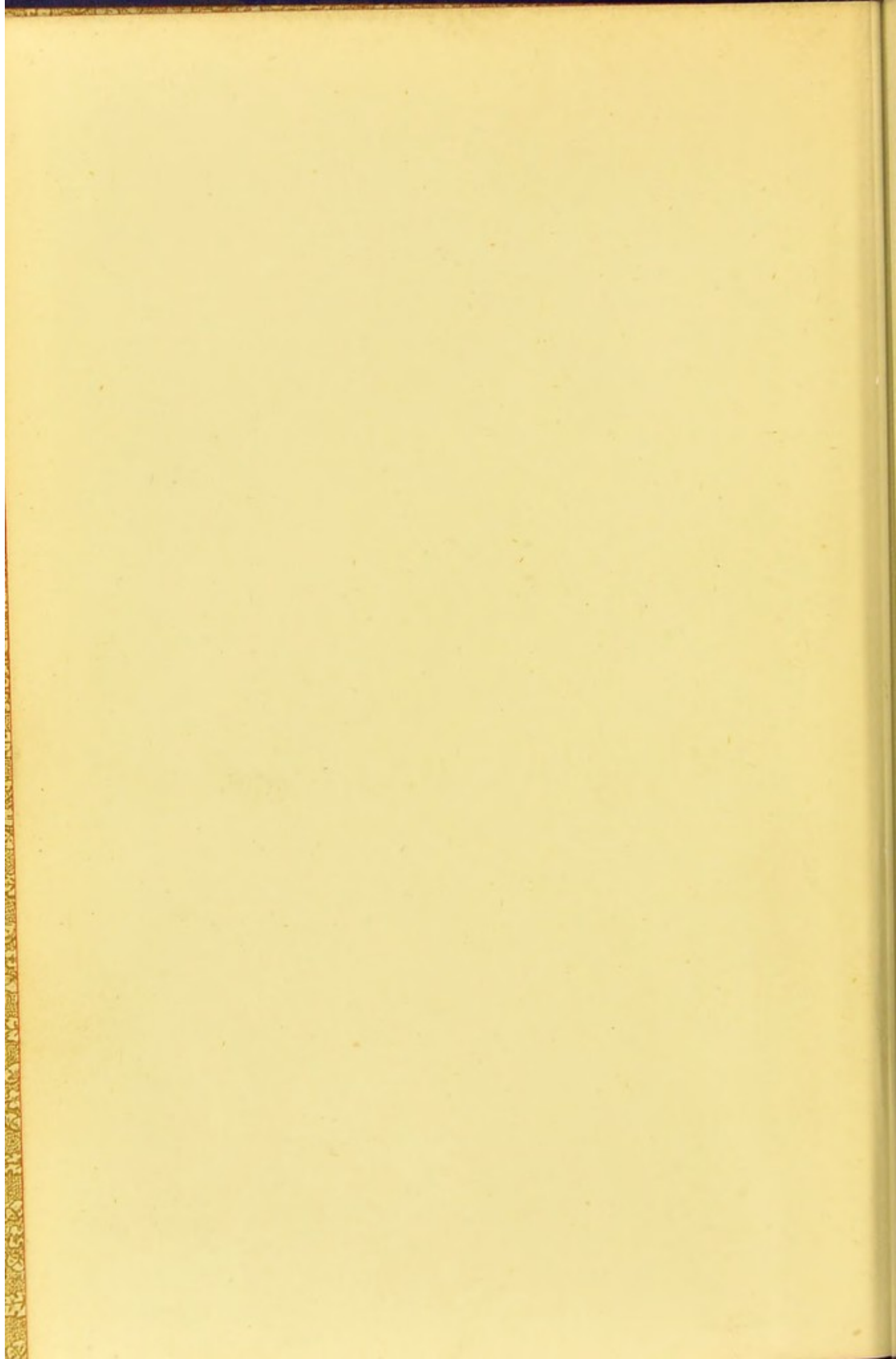
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LEPROSY

AN

IMPERIAL DANGER.



LEPROSY
AN
IMPERIAL DANGER.



BY
H. P. WRIGHT, M.A.,

RECTOR OF GREATHAM, HANTS; CHAPLAIN TO THE FORCES, FIRST CLASS;

CHAPLAIN TO H.R.H. THE DUKE OF CAMBRIDGE, K.G., ETC., ETC.

AUTHOR OF "THE STORY OF THE 'DOMUS DEI' OF PORTSMOUTH";

"STATUTES OF THE HOLY VIRGIN MARY OF SIENA";

"STORY OF THE 'DOMUS DEI' OF CHICHESTER";

"LEPROSY AND ITS STORY—SEGREGATION ITS REMEDY," ETC., ETC.

LONDON:
J. & A. CHURCHILL,
11, NEW BURLINGTON STREET.

1889.



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To

SIR HENRY WENTWORTH DYKE ACLAND,

K.C.B., M.D., F.R.S.,

ETC., ETC., ETC.,

REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD,

WHOSE LABORIOUS LIFE

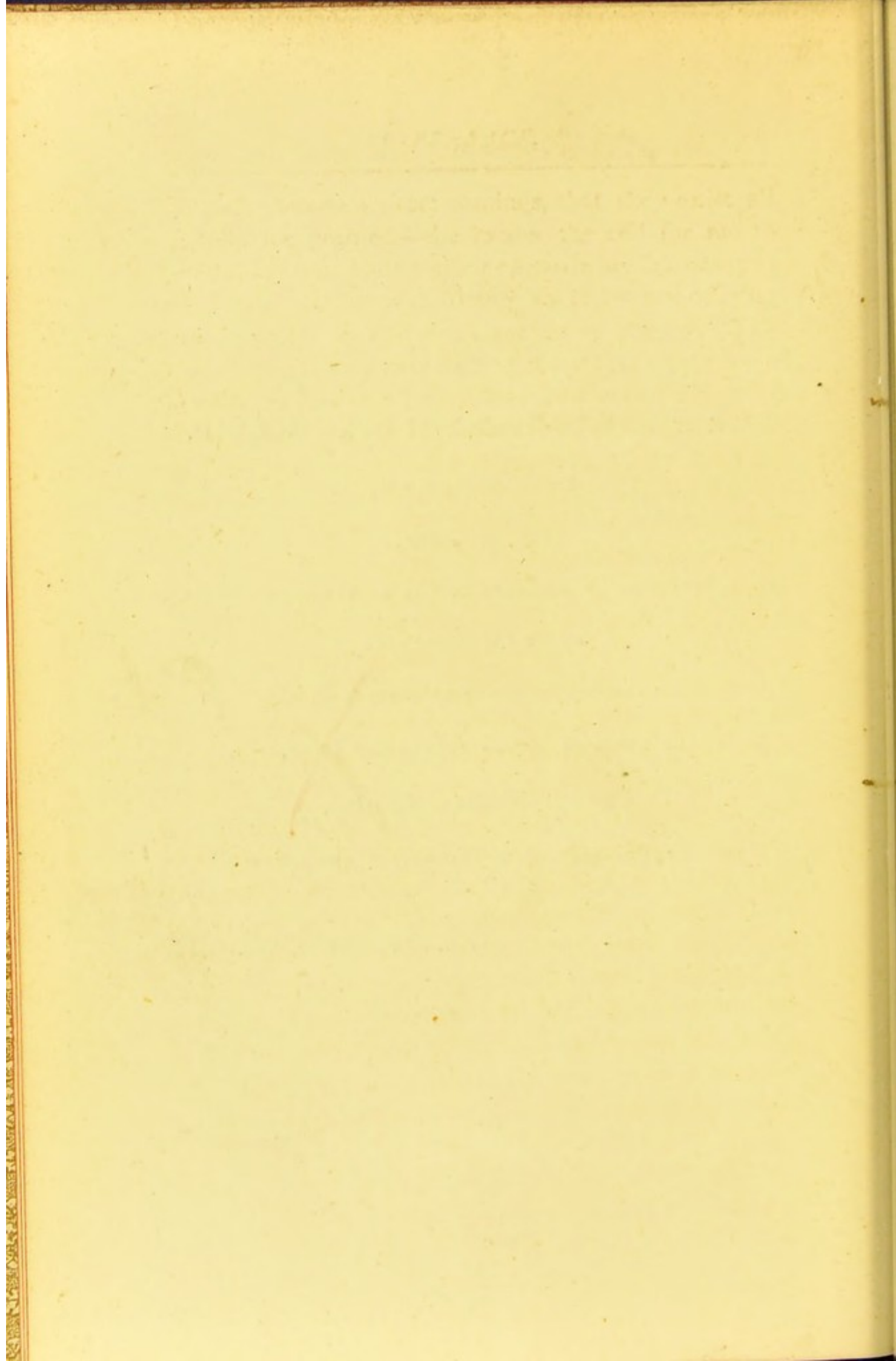
HAS BEEN PRE-EMINENTLY DISTINGUISHED

BY HIS DEVOTION TO THE PREVENTION OF DISEASE,

This little Volume is Dedicated,

WITH EVERY FEELING OF ADMIRATION AND RESPECT.

HENRY PRESS WRIGHT.



PREFACE.



ARISTOTLE was very severe on old men. Nothing brave or decided about them ; no large-heartedness and but little love ; stingy, life-clinging, selfish and unscrupulous ; not hopeful, and easily put out. The hard philosopher, seeing that the feeble totterer was of little use, wished him, we may be sure, quiet in the grave.

Leaving the Stagyrte to his harsh judgment, we would say more gently of the aged, that they have not seldom two marked characteristics—they are garrulous and they are kind. Garrulous, because, it may be, the tongue is the only member of the body they can use freely ; and kind, because their own many short-comings lead them to look considerately on the failings of others. Upon this subject of leprosy I, certainly, in my seventy-fifth year, am inclined to be very garrulous, although still in rude health and active ; and for this reason, I believe that leprosy is by far the most trying malady that has ever afflicted man, and that, in these days of general travel and easy intercommunion of nations, there is a possibility, nay a great probability (unless due care be taken) of its again assailing Europe and the British

* Rhet. ii. 13.

Isles. As to one's short-comings, that they exist all will take for granted—the louder the call for me to show a kind and loving spirit towards my fellow man ; and surely, one way of doing so is by my offering warning words in this great matter of leprosy. The offerer may be very unworthy, yet for that very reason the offering, however feeble, may be the more heartily made. Anyhow I will ask, in my efforts to be useful, the benefit of the good old proverb, “ May he that means well, fare well.”

It may be said, “ What in these latter days has a Priest to do with leprosy—a subject better fitted for the Physician ? ” The question is highly reasonable. I answer, that the Priest simply sets forth what Physicians declare, and urges the Powers-that-be to take heed ere it be too late.

Every case of leprosy in England should be duly reported, and registered, and inquired into ; and a watchful eye kept as to the doings of the disease. If it return not to its old haunts, well ; but if there be any sign of such return, then active precautions should be speedily taken that the plague may be stayed.

If what I have written shall prove useful and tend to such an end, all the credit I claim is, that of having read closely, corresponded widely, and studied carefully. In my translations I hope that I have done justice to the learned physicians whose works I have quoted ; and I allude more particularly to the valuable treatises of Besnier, Leloir, and Drognat-Landré. Drs. Besnier and Leloir are still living. Thank God—carrying on their noble duties earnestly

and ably. I am grateful to them both for their generous communications. Nor must I forget to thank my esteemed and respected friend Miss Agnes Lambert, whose articles in the 'Nineteenth Century' called public attention with much effect to leprosy—a subject till then so sadly neglected. I have also received valuable aid from Drs. Arning, Munro, Hillis, Blanc, A. C. Brown, &c., &c., of whom the only one I know personally is Dr. Munro. Still I feel that I can call them all my friends. The kind consideration shown to an aged country parson by Dr. Arning—the world-known and indefatigable leprist—words cannot express. I would also acknowledge thankfully the considerate support I received from the Bishop of Honolulu, Sir F. Clare Ford, G.C.M.G., our Ambassador at the Court of Spain, and from the Consuls and Vice-Consuls who so readily and so efficiently supplied me with information.

"*Liberavi animam meam.*" I can only add, May God preserve my country from leprosy, and move the civilised nations of this earth to combine for its banishment from man! "If you wish to shoot high you must aim at the moon." Should only partial success follow, great good must attend great and determined efforts in so noble a cause. To England especially I appeal "*Καιρον γνωθι.*"

H. P. WRIGHT,
Rector of Greatham.

Easter, 1889.



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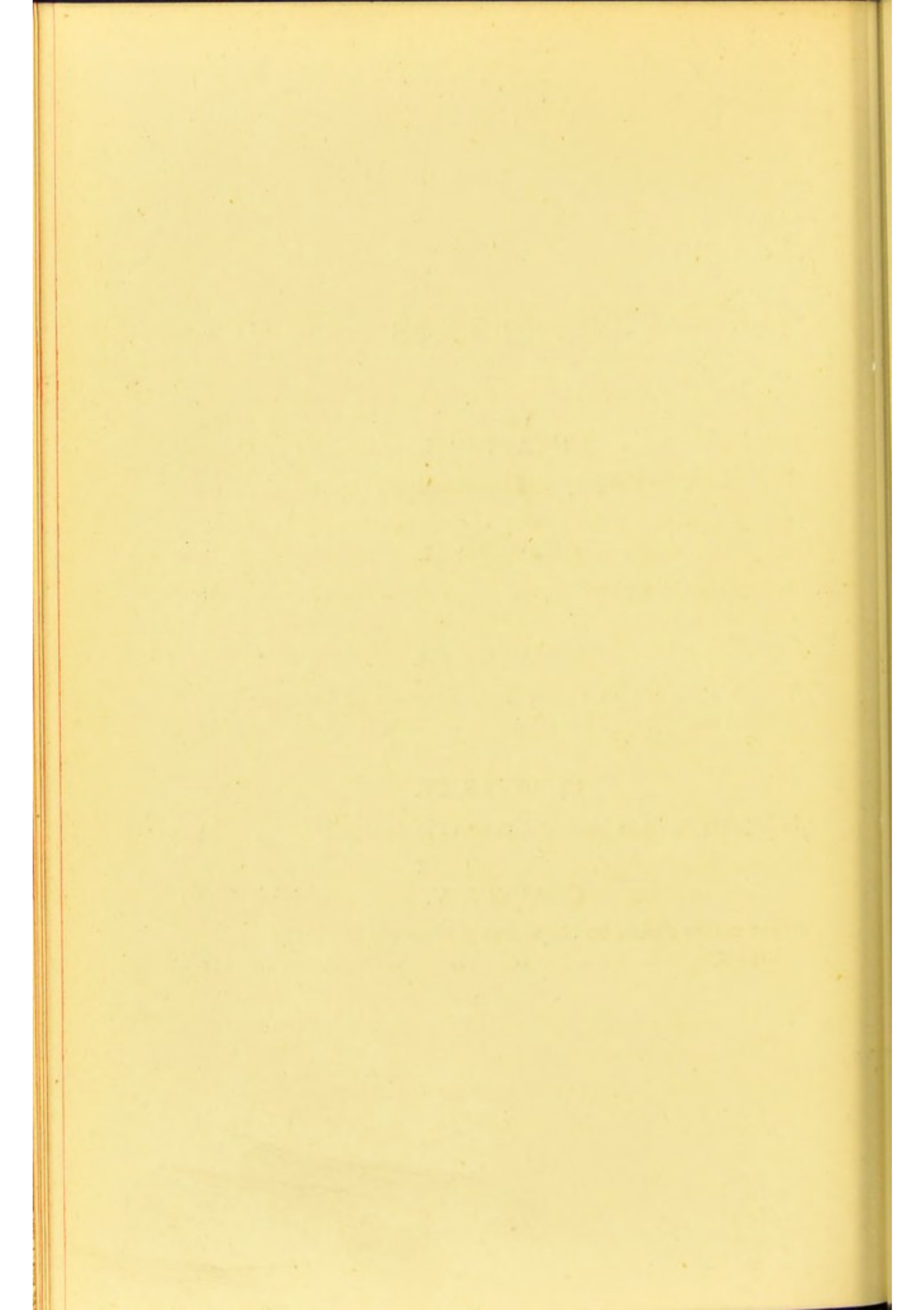
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LEPROSY AN IMPERIAL DANGER.

CHAPTER I.

Leprosy and its Geographical Distribution.

THERE are certain burning questions of the highest importance with respect to leprosy. Never before has the disease been so closely and anxiously studied as during the last thirty years ; and never before has it excited greater interest (and that interest is daily increasing), not only among medical men, but among the thoughtful, wherever high intelligence and true humanitarianism prevail.

In order that these questions may be fairly and fully considered, I purpose to place briefly before the public certain information which may help their study, with the hope that the sufferings of the leper may be relieved, and the progress of a terrible malady, now spreading rapidly, be, if possible, stayed.

The subject will be discussed in the following order :—

1. Leprosy and its Geographical Distribution.
2. Is Leprosy contagious ?
3. The chief arguments against the contagiousness of Leprosy. What are they worth ?

4. Is Leprosy again to become epidemic in Europe?
5. What means should be adopted to prevent the spread of Leprosy?

LEPROSY AND ITS GEOGRAPHICAL DISTRIBUTION.

Dr. Leloir.*—The origin of leprosy is lost in the night of past ages. We hear of it in the story of the Jewish nation and in the Books of Moses. From that early period peoples and governments considered leprosy to be contagious, and in 1500 B.C. the great legislator Moses enjoined the complete isolation of lepers. It is difficult to say whether leprosy was encradled in Egypt, as Lucretius thinks; or whether Egypt received the disease from the negroes of the Soudan and Darfour. In India, "Kushta" (leprosy) is mentioned by Atreya in the Rig Veda Sanhita, 1400 or 1500 B.C. It is possible that leprosy had a primitive focus in India, and another in Egypt. That they were the two cradles of the disease is stoutly held by many writers.

However that may be, this is certain: it existed in Egypt B.C. 1500, and probably in India. The Persians, 600 B.C., isolated and expelled all who were leprous. Greece seems to have been the first country in Europe infected, and the first to speak with precision of the disease is Aristotle: *Περί ζῶων Γενεσεως*, some 345 B.C. We may fairly suppose, considering the long incubation of leprosy, that the invasions of

* HENRI LELOIR, Clinical Professor of Diseases of the Skin, &c., Lille, and Physician in charge of the St. Sauveur Hospital. Author of 'Traité pratique et théorique de la Lèpre,' &c., &c.

Europe by Darius and Xerxes (B.C. 480) had their influence on the rapid propagation of the scourge. The Romans were next assailed. Celsus, Lucretius, and Pliny imply that leprosy was introduced into Italy by the army of Pompey. So that, about a century before the Christian era, the disease was firmly fixed in Italy, and from that time made its way slowly but surely over all Europe, carried in no small degree, we may believe, by the Roman armies. Galen (A.D. 180) shows that it had already quitted its early centres, Greece and Italy, to attack Lombardy, Spain, France, Germany, &c. The historical researches of Virchow inform us that (A.D. 636) leper-houses existed in Italy, at Metz, Verdun, Maestricht, in Switzerland, &c. In 757 the French King Pepin, and Charlemagne in 789, declare that leprosy nullifies marriage. It is very probable that the Saracens and Lombards, during their invasions of France, helped not a little in spreading the disease. About 950, Wales became leprous.

But it was in the time of the Crusaders, towards the end of the 11th and during the 12th and 13th centuries, leprosy spread with a fearful rapidity, and became the terror of nations. Hirsch with reason maintains that, between the 12th and 15th centuries, "leprosy was one of the most extended chronic constitutional maladies." At the death of Louis VIII. there were in France 2000 leper-houses, and 19,000 in all Christendom. Then was founded the religious order of St. Lazarus to attend on lepers, of which the Grand Master* himself was always a leper.

* This ceased when Palestine was lost to the Saracens.—H. P. W.

Blessed influence of religion at a time when barbarism prevailed!

Thanks to measures of strict isolation adopted during the middle ages, leprosy began to decrease in Europe towards the 15th century, in countries where segregation was scrupulously and vigorously observed, i. e. in France, Germany, England, the Low Countries, &c. On the other hand, it continued to propagate itself with its primitive intensity where such precautions were not taken; as was seen more especially in Norway. Leprosy disappeared from England toward the 16th century. It was still prevalent in France about the 17th century; and it is a fact highly important as regards the general pathology of the disease, that tubercular leprosy seems to have disappeared before anæsthetic leprosy. There still exist cases in the south of France, along the shores of the Mediterranean. It is the same in Italy, Spain, and Portugal.

If leprosy decreased in Europe towards A.D. 1500, thanks to the prophylactic measures taken, and a certain regard for hygiene, curiously enough, at that very time, it began to invade America and various colonies by means of the long voyages of discovery undertaken in those days of daring adventure. The European wanderers carried into America, the Antilles, &c., not only their cruelty, their alcohol, and their vices, but also their leprosy. To slave-dealing, to the introduction of negroes, a race highly leprous, America is indebted for the deadly disease. It is a telling fact, which will again come under notice, that the Indians of North America and the savage tribes of Brazil,

who would have nothing to do with the invaders, escaped leprosy; and to this day they have not suffered from it. On the contrary, where there was free intercourse with them, as in Mexico, Venezuela, and Trinidad, it found ready victims.

The islands of the Pacific were attacked by leprosy at a more recent period; and the Sandwich Islands in the middle of the nineteenth century. This awoke Europe to the fact that any country which allows itself to be freely visited by a race infected with the malady, will be sure sooner or later to suffer. The inhabitants of the Sandwich Islands escaped contagion until the above time, but then it was that Chinese emigrants flocked in and so infected Hawaii that, in less than fifty years, every fifteenth* of the inhabitants of that unhappy country has become leprosy.

The United States and Canada long hoped that they might escape, but American dermatologists have of late years anxiously observed the progress of leprosy in their midst, brought in by Norwegians on the Atlantic side, and on the Pacific side by shoals of Chinese. The sad fact has also declared itself that the foul malady does not confine itself to Norwegians and Chinese, but attacks healthy Americans born of healthy parents. Happily there has been no reckless carelessness on the part of Canadian and American medical men. Segregation has been strictly enjoined, and so the disease has been kept well under restraint.

As a fitting termination of this historical and geo-

* A common but mistaken idea. The proportion is about every fortieth.—H. P. W.

graphical study, I shall now give a list of the countries in which leprosy is still prevalent :—

EUROPE.

Norway.—In 1882 there were 1500 lepers out of a population of 1,900,000. When I visited the country in 1884 I found :—

| | | | | | |
|-----------|---|----------------------------|------------|-------------|-----|
| Bergen | { | In Lungegaards Hospital .. | 66 lepers. | Can take in | 85 |
| | | Pleiestiftelsen .. | 170 .. | .. | 250 |
| | | St. George's .. | 63 .. | .. | 70 |
| Molde | { | Recknoes Pleiestiftelsen | } 66 .. | .. | 106 |
| | | Hospital | | | |
| Trondhjem | | Hospital | 166 .. | .. | 240 |

Total 531 in August 1884.

As there were some lepers in the general hospitals of Christiania, &c., we may consider that in 1884 there were 600 lepers under hospital care, and, therefore, about 900 scattered over the country. At that time they entered the hospitals when they pleased, and left when they pleased. When under treatment they made various articles for public sale, and mended old shoes. I have seen lepers in Bergen and other places selling soap, hair-oil, tarts, &c., in the market-places. In July 1885 the Norwegian Government decreed the forced and absolute isolation of lepers. Leprosy from that time has decreased in a marked way.

Sweden.—Very few (no segregation).

Iceland.—About 100 (no segregation).

*Russia.**—Lepers are found on the shores of the

* Leprosy is making its way steadily in Russia. Lately lepers from the government of St. Petersburg have been treated in the hospital of that city, and the disease has appeared in Kowno, Vitebek, and Twer, where heretofore it has been unknown.—H. P. W.

Baltic, in Esthonia, Livonia, Courland, Finland, Cherson, the Crimea, and among the Cossacks of the Ural. They are numerous in the Caucasus, the delta of the Volga, and in Astrachan (no segregation).

Austria.—Now and then in Hungary and Galicia (no segregation).

Roumania.—

Turkey.—Lepers are found in Macedonia, Thessaly, Roumelia, Crete (700 out of 250,000 inhabitants). They abound in Constantinople. There is an hospital, but no segregation.

Greece.—In Acarnania, Etolia, Laconia, Messina, and islands of the Archipelago (about 300); no segregation. Leprosy seems to be on the increase in Greece and the Archipelago.

*Malta.**—Some lepers.

Italy.—Lepers are found in the public hospitals. The leper-house at St. Remo is now used as a general hospital. No segregation. Cases are met with along the Riviera di Ponente, Comacchio, and probably elsewhere. In Sicily there are about 100 lepers.

Spain.—Lepers are scattered over Catalonia, Valencia, Asturias, Galicia, Andalusia, and Granada. No segregation. There are leper hospitals at Granada and Malaga.

Portugal.—A great number in the mountainous district of Lafoes; also in the Bas-Beira, Estremadura, and Algarve. Leper-house at Lisbon.

* A letter, dated Palace, Valetta, Nov. 15, 1886, addressed to the Right Hon. E. Stanhope, M.P., by Sir J. L. A. Simmons, G.C.B., Governor of Malta, states that in the several islands there were twenty-nine lepers.—H. P. W.

France.—Lepers are found about the Rhone delta, in Provence, along the shores of the Mediterranean, and especially on the Riviera di Ponente, and at Nice. Fresh cases occur in families otherwise perfectly healthy. In those districts leprosy is steadily fixed. No segregation.

ASIA.

Arabia, Syria, Palestine.—Lepers abound. They are found in Lebanon. A leper hospital at Jerusalem.

Persia.—The disease is very common over vast regions.

Asia Minor.—Leper hospital at Scutari.

*East Indies.**—More than 100,000. Leper hospitals at Calcutta, Madras, Bombay, Pondicherry, and Colombo. No segregation.

Indo-China.—Leprosy prevails extensively in Burmah, Siam, and Malacca (very severe). It is equally active in the French colonies of Cochin-China, Annam, Tonquin; indeed, in these parts its ravages are terrible. No segregation.

China.—Lepers are innumerable in China. We may say that, in proportion to the population, there are more lepers in Burmah and China than in any other part of the world. Leper-houses are there quite as common as they were in England during the fifteenth century. They are crowded with patients, and hundreds of sufferers cannot be admitted. In

* By the last return there were 131,618; but it is considered by those who know India well that there are at least 250,000. Some maintain that half a million would scarcely embrace them all.—H. P. W.

Canton there are 900 in one hospital, but in the city there are 2500 at large, who live by begging, &c. No segregation.

Japan.—Many lepers, but no segregation.

Islands about India.—They have a large supply of lepers.

Kamtschatka.—Some lepers.

Aleutian Islands.—Some lepers.

AFRICA.

Algeria.—Messrs. Arnould and Poncet (Cluny) tell me that there is nothing known of leprosy in Algeria.

Tunis.—A few, but very rarely seen.

Tripoli.—Some lepers.

Morocco.—Some lepers.

Egypt.—A great number.

Abyssinia.—Very numerous.

Darfur.—A great number.

Senegambia.—Many are found, especially along the sea-coast.

Sierra Leone.—Numerous along the sea-coast.

Gabon.—Numerous along the sea-coast.

Congo.—Numerous along the sea-coast.

Cape of Good Hope.—Many lepers. Strict segregation is not practised. Leprosy is increasing to an alarming extent. There are two leper hospitals near Cape Town.

Natal.—Some lepers.

Mozambique.—Some lepers.

Zanzibar.—Some lepers.

Islands off Africa.—The African Islands are infected by leprosy. The disease exists in the Azores, but not so badly as in Madeira. In Madeira it prevails chiefly on the eastern side of the island, particularly at *Ponta del Sol*. Lepers are found in villages 2500 feet above the sea; few only in the towns. During the last nineteen years, the disease, according to Dr. Goldschmidt, has greatly increased. Out of a population of 134,000, there are at least from 500 to 600 lepers; yet in the leper hospital at Funchal never more than from 6 to 12 lepers are found. They go where they please. No segregation. At St. Helena there are lepers; and in Madagascar they abound. No segregation. Leprosy is on the increase. The same may be said of the Mauritius and the Isle of France. In the Seychelles and neighbouring islands leprosy exists.

OCEANIA.

The Sunda Islands, the Philippines.—There are not many lepers in these parts. The disease takes chiefly the anæsthetic form.

The Sandwich Islands.—Every fifteenth of the population is a leper. There are from 3000 to 4000.* Molokai is a colony of isolation.

New Zealand.—Lepers are found, but not many.

* Every fortieth. "There are 1030 lepers here at Molokai" (letter of Edward Clifford, dated Dec. 30, 1888). It is difficult, on account of the long incubation, to speak accurately as to those at large, or under care elsewhere. Dr. Arning thinks they do not exceed a thousand. Population by last return, 80,578.—H. P. W.

Australia.—Leprosy is beginning its work (the result of Chinese and Indian emigration) in New South Wales and Victoria.*

AMERICA.

Greenland.—Some lepers.

Canada.—Norwegian emigration has established a focus of infection in New Brunswick.

United States.—Norwegians have brought leprosy into Minnesota, Wisconsin, and Michigan. The Indians of the north-west are beginning to suffer. The Chinese † have established leprosy in California, San Francisco, and Oregon. Lepers are found in South Carolina, New Orleans, Louisiana, and Texas, and the disease is much on the increase. The Government, at the suggestion of medical men, is adopting measures of the strictest segregation.

Mexico.—Lepers are numerous. They are chiefly on the high plateaus of Mexico. No segregation. In 1868 there were only 50 lepers in the hospital, St. Lazare.

Central America.—A great number of lepers.

Ecuador.—Many lepers.

Venezuela.—Many lepers.

Uruguay.—Many lepers.

The Guianas.—They swarm in French and British Guiana. No segregation. In Dutch Guiana there are comparatively few, and the disease is stationary. Segregation.

* Queensland, &c.—H. P. W.

† And Americans returning from the Sandwich Islands.—H. P. W

Brazil.—Leprosy is very rife in the provinces of Maranhã, Para, Pernambuco, Bahia, Rio de Janeiro, and Parana. It is also very common in the south of Minas and at St. Paul. The wild Indians of Brazil know nothing of leprosy. There are leper hospitals at Bahia, Corte, Minas Geraes, Pernambuco, and Rio de Janeiro.

Antilles.—All the Antilles (great and small) are infected by leprosy, and especially in Trinidad, where there is a leper hospital, but no segregation whatever. At Trinidad, out of a population of 180,000, there are 480 lepers. The disease is on the increase, and the leper-house of Desirade, in Guadaloupe, is far too small to meet the wants of the island. At Curaçoa, where Dutch *régime* prevails, and applies strict isolation, leprosy is little known.

We are now in a position to maintain that leprosy can propagate itself in the most opposite climates—in Greenland, Iceland, and Norway on the one part; in the Antilles, Bengal, and Madagascar on the other. It manifests itself as readily in northern regions as in tropical; on the sea-coasts as actively as on the high plateaus of the Himalayas, the Caucasus, and Mexico. It exists as vigorously in mountainous regions, where all is dry and airy, as in low places marshy and damp. It is then difficult indeed to say how far climatic conditions influence the propagation of leprosy. To suppose that they produce it would be absurd indeed.

We also find that the whole human race is subject to the disease, and that the several families of man, as regards readiness to receive it, may be classed as

follows* :—The yellow and black, the white, and then the red. By the term red I allude to the Indians of America, who, having carefully avoided intercourse with the leprous, have entirely escaped the malady. The tubercular form is dominant in Norway, Trinidad, Spain, Madeira, and the Sandwich Islands; while anæsthetic leprosy is the more common in Hindostan, the Isles of Sunda, the Philippines, and Guiana. The mixed form is met with from time to time equally in every leprous land.

* It is always dangerous to make these sweeping unqualified statements, especially when the premises from which they are drawn must be unreliable. The Red Indian who has nothing to do with the leprous will, unless some accident intervene, escape leprosy; but where the disease has free play among the red men they receive it, we are told, as readily as others. Dr. Leloir (see page 5) admits that in Mexico, Venezuela, and Trinidad they become "ready victims."—H. P. W.

CHAPTER II.

Is Leprosy Contagious ?

NO sane person would suggest that leprosy comes spontaneously, and few would now with any degree of confidence set forth the cause of the disease. The all-important question is rather, "Is leprosy contagious?" for once proved that it can be conveyed from man to man, every wise community will then be induced to take precautions against contamination.

Let us consider the point calmly, cautiously, and honestly.

Dr. Besnier.*—Leprosy has not many origins. It proceeds exclusively from the leprous. Everywhere the leper can contaminate those who live with him; and in every country he can impart the disease under certain hygienic and social conditions. Certain climates, certain races, certain regions, present a particular aptitude for maturing the leprous agent, while others seem to be more or less unsuited to it; but no race, no individual, no country, can claim absolute immunity.

In leper lands, that which produces leprosy is not

* ERNEST BESNIER, Member of the Academy of Medicine, Physician of the Hospital of St. Louis, Paris. Author of 'Sur la Lèpre,' &c., &c.

the soil, as in malaria; nor water, as with so many infectious maladies; nor decaying food; nor destitution, as in lathyrism, pelagra, &c. It is the leper. Take a country foul with marshes, or a cholera district, in which of old cholera prevailed, remove every inhabitant away and go there, you may still contract cholera or intermittent fever; but in regions which lepers have deserted leprosy cannot be engendered. On the other hand, whoever you may be, if you take up your abode where lepers are settled, even though you may not live in constant and close intimacy with the leprous, you may be attacked by the disease, and that in a very short period. If in a leper country you, after the example of Lutz for the Brazils, take particulars of the lepers, you will find that there are as many foreigners in proportion sufferers as natives. Out of 652 segregated on the 1st of April, 1886, in Molokai, there were 19 half-breeds, 19 Chinese, and 7 whites of different nationalities.

I consider it my bounden duty to let no doubt remain, but to make it perfectly clear that leprosy is a transmissible disease, and proceeds from only one source, the leprous. Man carries it onwards, and it follows man's movements. The story of the malady, its vicissitudes, its precise localisations, which can be mapped out with singular exactness, put the matter beyond all question. From India to Egypt, from Egypt to Greece, Italy and the rest of Europe, its halting-places can be traced up to the most remote period. In the middle ages, at the very time when it was dying out throughout Christendom, it was revived

by returning Crusaders ; and then again stamped out by isolation and improvements in social life, save in certain well-defined centres. In more recent times and in our own day leprosy has passed from Europe to America ; first to the south, carried there by the early colonists from Portugal, and thence into the Northern States by Scandinavian immigrants, and by ever-increasing crowds of Chinese.

And now, at the end of the 19th century, while in Norway leprosy is slowly but gradually diminishing through better sanitary arrangements, improved mode of living, and strict segregation, there still are, in the south and west of Europe, centres of leprosy ; some of long standing, and others which have been renewed by fresh importations. There are also, as has been already shown, far-off lands rife with leprosy, Asia continuing, as of old, possessed of inexhaustible sources of the malady.

Leprosy is not, then, as many medical men fancy, an historical disease hardly worthy of thought. No ; it is ever alive, ever reviving, threatening without cessation all who approach its haunts, and the study of its mode of propagation and transmission should therefore be of deep interest to all. Indeed, it may well be anxiously asked, Does this terrible disease penetrate the system indirectly, carried by the air, the soil, the water, the food ? Is it conveyed by contagion strictly so called ?

The idea that leprosy proceeds from external things is no novelty, and such a conclusion was reasonable, inasmuch as its favourite seats are always in foul and

filthy districts. At the same time, it is a fact not to be questioned, that numerous leper groups have never been exposed to any of the conditions supposed to engender leprosy ; while, on the other hand, large populations so exposed have never known a leper among them.

But since the discovery of the leprosy bacillus we have to take quite a new view of the question, for possibly that bacillus may be found in the air, or soil, or water, or food. It is not enough to know that lepers have drunk stagnant water, eaten decayed fish or tainted food, or that they have lived on diseased corn, but rather to find if that water, &c. &c., contain the bacillus of leprosy.

That is, I maintain, a question of primary import, a research which, at the outset, has to be conducted with the greatest possible care. Alas! neither Hansen, nor any other in Scandinavia, has taken any trouble about it ; and, on inquiry, I find that, of the great laboratories of Europe, where questions of this nature are so ardently considered, not one of them, and we cannot except even the laboratory of Berlin, has made researches in this direction.*

One writer alone, Arning, an English physician long resident in Germany, who has studied leprosy in the Sandwich Islands with high ability and rare sagacity, has, under favourable circumstances, made close researches where the leprous element is prolifically active. He has examined the air, water, and food,

* This is somewhat overstated. Certain experiments have been made.—H. P. W.

and thus far has found nothing. But that is no proof that nothing is to be found. The natural history of the leper microphytes and bacteriological technics, it may be said, are not sufficiently advanced. Still, provisionally, these negative results take us back to our essential formula that leprosy comes always direct from the leper, and that the agent of transmission differs in this respect from that of cholera, consumption, or typhoid fever.

But leaving behind all this ignorance and these mere hypotheses, let us hasten to examine, independently of the agent of transmission, under what condition this transmission takes place, and in what way it is possible to comprehend it.

In times of old, in the middle ages, and up to the present century, the danger of contact between the leprous and the healthy has never been questioned; but, at the commencement of this century, the abandonment of all specificness of diseases and the readiness to dwell on negative facts shook belief in the contagiousness of leprosy, and induced the incautious and uncritical to side with Norwegian anti-contagionists—Daniellsen and Boeck; supported as they were, after a while, by the prestige and authority of Virchow. But at the moment when the new idea that leprosy is not contagious spread with the rapidity attending all great errors, the fact became palpable, that, through conveyance of the disease by man to man, there had sprung up a series of leper-centres entirely new or actively resuscitated, and that with a most remarkable rapidity.

From this epoch dates an ever-increasing reaction, which commenced fully thirty years before microbes were thought of. It was helped on, also, by facts observed in Madagascar, the Sandwich Islands, and the many countries to which lepers from Norway, China, and other centres of leprosy emigrate; indeed, we may say in districts close to the very borders of France.

How could the conveyance of leprosy from man to man be doubted when the disease was found always to increase or decrease, just as segregation was neglected or observed; that on the arrival of immigrant lepers they produce leprosy where it was never known, and revive it where it had been stamped out? And, further, a more scientific study of heredity has led to the conclusion, that much which has been attributed to heredity was probably the result of contagion.

Truth is great and must prevail. Even now, were I to write down the names of those thoroughly qualified to give an opinion who are contagionists, and then take from the non-contagionists those who advise or practise isolation, I should have almost a complete unanimity on the side of contagion.

Dr. Besnier here justly corrects his friend M. Constantine Paul, where he claims Dr. Tilbury Fox and Dr. Farquhar as non-contagionists. I say *justly*, because they are, as the following quotation clearly proves, decided contagionists:—

“The leprosy report of the College of Physicians tells us that the almost unanimous conviction of the most experienced observers in different parts of the

world is quite opposed to the belief that leprosy is communicable by proximity or contact.

“ These physicians, many of them necessarily able men, knew, generally speaking, nothing whatever of leprosy ; few had seen a leper, and scarcely one in 500 had closely studied and treated the disease. Their report, as far as it rested upon evidence sent in by order of the Government from various parts of the world, was reasonable. The mistake lay in committing a learned body to a strong expression of opinion on the subject. Common sense should have told them two things.

“ 1. That the evidence supplied was of little worth, as they who made the returns cared little for lepers, never studied the disease for any length of time, and were, therefore, ill-fitted to give an opinion. The few who did know something of lepers, by close scrutiny of the malady, were they who spoke with caution, and even the ablest and most experienced had not been long enough engaged with a disease, whose incubation is for years, to justify any reliance on their reports.

“ 2. But the serious mistake of the College was want of caution in their verdict. They rashly committed themselves, when they might so easily have said that, while many declared leprosy non-contagious, it was not yet time to speak, except with caution, upon a matter of such great importance. Before a judgment of worth could be delivered, further scrutiny of many years may be required.

“ In order to show with certainty that the disease is not contagious, it would be necessary to remove all

the impediments that have been raised by tradition, popular prejudice, and legal enactments, which have kept lepers practically in an isolated world of their own ; and with that to secure the freest intermingling of lepers with the healthy of the community (which does not at present take place), and, as a result, to observe no increased spread of the disease, then and then only could we fairly say that leprosy cannot spread by contact.

“As Mr. Macnamara very pointedly observes :—
‘That leprosy does not spread by contagion in India is in itself an hypothesis ; but, presuming it to be a fact, it may be explained, for although lepers move about among their countrymen, they are to a great extent isolated from them. Who ever saw a healthy native touch, much less eat with, one afflicted with leprosy ? In many parts of India, the fact of admitting a leper to a general hospital is sufficient to drive away every other person out of it. The wealthy leper may purchase immunity from some of the social evils to which his poorer brethren are exposed. But even he is frequently obliged to leave house and home and wander as an outcast over the face of the earth, visiting shrines and holy places in expiation of his sins, which he believes have been punished by the infliction of leprosy.’

“But we may appeal to positive facts, showing that leprosy is spread by the free contact of the healthy with the leprous, in districts in which its appearance and spread can only be explained apparently in this way ; and where, in some cases, the diet and the

morale of the people have marvellously improved, and leprosy is not endemic in the district.

“Dr. Davidson, in speaking of leprosy in Madagascar, remarks :—‘It certainly deserves notice that, while the laws of Madagascar excluded leprous persons from society, the disease was kept within bounds ; but after this law was allowed to fall into disuse, it has spread to an almost incredible degree. This is, no doubt, due in part to lepers being allowed to marry, but the natives are strongly convinced that the disease is inoculable.’

“Then we refer to another very remarkable series of facts. Leprosy was thought to be unknown in the Sandwich Islands till 1859, and, on close scrutiny, cannot be traced further back than 1852, or at the earliest 1848. The malady seems to have been brought by the Chinese in 1848. Here heredity is out of the question. The disease arises in a clean nation, is unnoticed at first, and spreads slowly ; and in no case can we better study the question of contagion. It so happens that the hygienic state of the nation and colony has improved and not deteriorated. Animal food is within the reach of all. Labour is in great demand and well paid for. The natives are now clad like Europeans. The climate is perhaps the finest in the world. Taxation is light. Yet, notwithstanding, leprosy spreads and has spread from and around known lepers as centres of contagion. Dr. Hildebrand saw the first leper in 1853 about 20 miles from Honolulu ; in 1861 he had become very bad, and six other persons in his neighbourhood

had taken the disease. The same thing was observed in 1864 in another village, the tax-gatherer of which had been for years the only leper in the place. Dr. Hildebrand observes that the natives are of a very social disposition, much given to visiting each other—hospitality is considered by them a sacred duty. . . . About one-fourth avow contact with other lepers as a cause. Of course, in such a case as that of Honolulu, where the disease is *propagated* apparently, and not *produced*, it is of no use looking for the ‘*de novo*’ cause of leprosy.”

Thus powerfully supported, Dr. Besnier continues his reasoning :—

In England the opinion of the contagiousness of leprosy is rapidly on the increase, and in Scandinavia so much is it so that men of the highest repute, who, two years ago, were anti-contagionists—Hansen, Sand, Cæsar Boeck, Kaurin, &c.—are now of an opposite opinion.

But if we wish to examine wisely how the contagion of leprosy works, I would observe that we are not dreaming of contagion as exhibited in acute virulent diseases, such as small-pox, which goes on spreading itself with an appalling speed, or any such disease ; but of that hidden contagiousness of diseases of long incubation and of evolution in progress highly irregular, of which consumption is a familiar example.

It must also be remembered that leprosy is not invariably and under all circumstances contagious and productive. It spreads only where it finds certain conditions, among the chief being, as far as we yet

know, all individual and social defects, dirty and wretched promiscuousness, and too close packing. Hence it is that, in old countries, where there is advanced civilisation and sound sanitary regulations, the disease makes no progress beyond that arising from immediate contact. There contagion may be said scarcely to exist.

Still, as I have already observed, the disease may show itself in any place, even where least expected. Of this M. Vidal, in 1885, gave a striking example :—

“ In 1872, Dr. Hawtrey Benson placed before the Medical Society of Dublin a leper Irishman, who had contracted the disease in India, where he had lived twenty-two years. This man’s brother, who had never left Ireland, except for a short stay in England forty-six years before, slept during a year and a half in the same bed and wore his brother’s clothes. He became a leper, and was brought before the same Society. There was no leprosy in the family, and the disease has for ages been unknown in the British Isles.”

Such clear cases are necessarily rare in non-leprous countries, because the conditions under which they can occur are rare ; but when they are established under such unquestionable authority, I ask myself, how is it possible for any one to misinterpret them ?

And my question is only the more forcible when we find that what is rare in non-leprous lands is common where leprosy prevails. The most recently published case is that given by Dr. Kaurin of Molde, who, up to its discovery, had doubted the contagiousness of leprosy.

He thus writes:—"The more I am engaged with leprosy, the more cases I examine, the more I am convinced that the malady is transmissible from one person to another." Reference is here specially directed to a child, whose parents and grandparents were free from leprosy, and who had four brothers or sisters. This was the only child of the family, who was a favourite of a leper brother of the child's grandfather, and he was the only one who frequently slept in the leper's bed. He alone became a leper. Will any one attribute the attack to lateral heredity? Surely it is safer far to say that it came from living in close contact with a miserable leper covered, as he was, with sores, whose bed was formed of half-rotted hay, its only cover dirty pillow-cases, old petticoats, and various rags useless during the day.

If now we go from individual cases to attacks on the many; if we study the development of new centres appearing in Europe and beyond the seas, we find that leprosy passes from the leprous to the healthy. Take as examples the epidemics of the province of Alicante, Cape Breton, and Louisiana, and that—the most marked of all—of the Sandwich Islands, the last named contemporary with that of Alicante, spreading with a rapidity palpable to all. It is no question whatever of leprosy cases having been known in Hawaii long long ago (they must have been few indeed, otherwise their existence would not have been doubted). Admit the fact if you please, but that would not prevent leprous foreigners from China and elsewhere creating a new attack, and that

possibly a more violent one than had ever before been experienced.

And here I would observe that leprosy, like other diseases (cholera, small-pox, the plague, &c.), at times gradually loses its violence, so much so that it becomes rare and altered in character, and at last is scarcely noticed. It was so when the Crusaders returned to Europe and brought with them leprosy of a vigorous character, and that at a moment when it was beginning to disappear from Central Europe. The new outbreak spread actively through Christendom.

Uncertainty as to the way contagion of leprosy acts, the numerous cases in which contact between the healthy and the leper takes place without harm resulting ; all this strikes very forcibly many observers, and leads them, on the ground of these negative examples, to deny altogether the contagiousness of the disease. But negative facts may, as a matter of principle, be disregarded ; for two reasons, first, because a malady may be contagious without its being necessarily and fatally so for every one ; and next, because these facts in no way weaken the positive facts which prove the transmissibility of the disease.

And it must be remembered that leprosy, like consumption, is or is not contagious under certain conditions, of which some are known, some unknown. In both contagion is at times terribly active, whilst at others it remains enigmatical and doubtful. That does not keep us from admitting that consumption is contagious. Why should a different rule guide us when dealing with leprosy ?

Dr. Leloir.—Hereditv being insufficient to explain the appearance of a great number of leprosy cases, we are compelled to admit that those cases (they are very numerous) are the result of direct or indirect contamination. Logically, therefore, my study of clinical facts (I leave out entirely the pathological anatomy and the bacillus) leads us to admit that a certain number of cases cannot be explained, save by contamination. Leprosy is, then, a contagious disease.

I have already published certain facts which can only be explained by contagion. My desire is to continue further the subject and accumulate proofs. But, before doing so, I will set forth the objections which have been offered by a number of writers to show that leprosy is not contagious; and their value I will discuss by producing facts which at first might be deemed proofs of the non-contagious nature of the evil. In answering those objections, by opposing pretended negative facts by facts positive, I shall, I trust, make still clearer this already evident proposition: Leprosy is a contagious malady.

1st. We are told that doctors in leprous countries do not believe in this contagion. A statement utterly untrue. Without going back to olden times, or even to the middle ages, when the profession deemed leprosy palpably contagious; without referring to Schelling, the great observer, who, after years of study in Surinam, has declared stoutly that the disease is contagious, I will come down to the present moment.

In Norway, Drs. A. Hansen, Eklund, Sand, C. Boeck,

Rogge, are on the side of contagion. Further, and what to a certain extent proves that the medical world in Norway hold leprosy to be contagious, is the fact that the Norwegian Government has issued an important decree announced by me in my work on Leprosy in Italy. "By a decree of June 6, 1885, the Norwegian Government has decided that lepers shall be strictly isolated. Medical inspectors are charged to see that the isolation is complete. If the leper refuses, he shall by force be taken to a leper hospital. The separation of husband and wife shall not be required, save under special circumstances." This decree in itself shows how much contagion ideas have made way during the last few years.

Read the well-known inquiry in India directed by Tilbury Fox and Farquhar, and what do you find? There medical men and those who live in the most leprous parts of India declare on the side of contagion. Tilbury Fox himself in his work 'On Diseases of the Skin' (ed. 1873, p. 321), says:—"The causes of the spread of leprosy are chiefly three: marriage between lepers or with lepers, heredity, inoculation and cohabitation." Erasmus Wilson, anti-contagionist in 1856 (*Lancet*, March), became contagionist in February 1873. Vandyke Carter, who has so long and so well studied leprosy in India, and who was against contagion in 1867, withdrew that view in 1876, nay, we may say that he now declares himself for contagion. Nearly all the doctors of Dutch Guiana, and among them Dr. Lyons, are contagionists. It is the same in Mauritius. Munro, who studied leprosy

in St. Kitts, &c., is a stout upholder of contagion. So also is Macnamara in Bengal, and a host of others in various countries, whose names we have not space to mention. Dr. de Verteuille, in his report on leprosy in Trinidad, hesitates in declaring himself. "To this question, so interesting in every respect, I would fain give you a categorical answer, but I hesitate. Nevertheless, I must confess that I hold that leprosy cannot be conveyed from man to man." Further on he cautiously adds, with a prudence one cannot but admire: "It seems to me, in our researches as to the causes of leprosy, we must confess that an important part is played by propagation through marriages, hereditary transmission, and associating with the suffering. The last named would lead to the admission that the disease can be conveyed from the leprous to the healthy. Prudence, then, suggests the adoption of restrictive measures. I therefore do not hesitate in recommending isolation, which I deem good for the unfortunate lepers themselves as well as for society at large. Even with this view I do not wish it to be supposed that I am in favour of contagion, so many facts militating against it. At the same time, I dare not maintain that leprosy is absolutely intercommunicable. As matters now stand, I am compelled to allow that isolation is highly important."

In their valuable report, sent me from Brazil, Drs. Magalhoes and Mayrinck do not admit that leprosy is contagious, but they do inform us that it is not found among the wild Indians of Brazil:—"It is evident, they say, that it was imported into the

country by Portuguese and Africans, because it existed not among the Indians before the discovery of Brazil, nor after among those who kept themselves entirely apart from foreigners." These distinguished medical men recommend segregation.

Facts we have seen compel the generality of medical men, whatever may be their opinion as to the causes of leprosy, to admit that the increase and propagation of the disease is in inverse ratio to the segregation applied. Such admission is of the highest importance as bearing upon the contagion theory.

Dr. Leloir then presents a special case, which, he says, is to him ample proof that leprosy is contagious:—Jens Andal, born in 1824 at Nordina, near Molde, entered the hospital of Molde in February 1883, as an anæsthetic leper, with the disease far advanced, and died there February 1884. No one of his family—he had twelve brothers and sisters, all in the best of health—ever suffered from leprosy. He was married for twenty-seven years, and his wife was sound and well in 1884. He had by her eight healthy children, the oldest twenty-seven years of age, the youngest seven.

Leprous virus, we are told, does not spread itself when imported into non-leprous countries. That is an absolute denial of all that has been and can be observed. If doctors who put forth that objection have simply in view European countries, we at once ask, why it is not the same with countries where there was no leprosy known until lepers imported it? It is a proved fact, and these anti-contagionists know it well,

that throughout all time the invasion of a country by leprosy has coincided exactly with the introduction of lepers into that country. It is admitted that the races who have kept themselves apart from the leprosy have remained intact.

But let us go again to recent facts of our own day. The study of them is ample to show that leprosy is contagious.

1. *The Epidemic of the Sandwich Islands.*—The works of Hildebrand, Endess, Saxe, Woods, White, Kneeland, Tryon, Arning, &c., have given fully the history of this highly important leper attack. In spite of the assertions to the contrary by M. Le Roi de Mericourt, M. Vidal, before the Academy of Medicine, and my friend Dr. Brocq in the 'Annales de Dermatologie,' have made clear the value of this epidemic, as showing the transmission of leprosy from the sick to the healthy man—in other words, how powerfully it bears upon the subject of contagion.

As to whether leprosy was known in the Sandwich Islands before 1848 is of no importance whatever. M. Quoy may or may not have seen it there in 1819. This much, however, is certain, it was in any way exceedingly rare, and the natives knew nothing of it before 1848. Hildebrand was the first to discern a case in 1853 in the house of a Chinaman named Ahia, who lived at Honolulu. Eight years after, Ahia's neighbours and some of his friends had taken the disease. In 1861 there were six lepers in the immediate neighbourhood of Ahia's dwelling.

From that time the evil spread with a terrible

rapidity. The persons contaminated settled here and there, each creating a new centre of infection. The rapid diffusion of the disease was favoured by the fact that it visited a population that had been well prepared for its reception ; so much so, that in 1865, out of a population of some 45,000 inhabitants, there were 230 lepers. In 1866 the Government began to take measures for the isolation of lepers in a portion of the Island of Molokai. Although 400 were interned in 1866, the disease continued its ravages. In 1881 there were 800 there, and in 1881-82* there were 4000 Hawaiians known lepers. During fifteen years about 2000 lepers died at Molokai.

Surely with these facts before us, it seems impossible for any one to declare leprosy to be non-contagious, and segregation a serious cruelty.

Small isolated epidemics.—When a disease is very contagious, one person affected, placed in the midst of the healthy, creates around him a ring of infection. It is the same with small partial epidemics ; when one can observe them sufficiently localised there is then an opportunity for the better determining the mode of propagation of the disease, and its degree of transmissibility. The possibility for a person afflicted to make, in the midst of a population previously healthy,

* The statement was put forth by men who treated the leprosy question from a political, not a scientific point of view, and is not to be relied on. There are now a thousand and thirty lepers segregated, and about another thousand at large. The latter number is not based on any actual investigation. Taking the population of the Hawaiian Islands at 80,598, that would give a leper to every forty of the population. Terrible scourge ! Awful visitation !—H. P. W.

a centre of disease, constitutes the characteristic of a contagious capability. Knowing how much the question of the contagion of leprosy is still discussed, we scarcely hoped to meet with examples. Imagine then our astonishment when, on carefully re-reading the original memoir of White, we found there particulars of the two following small epidemics :—

2. *The Epidemic of Cape Breton*, noted by Fletcher, and published by Dr. A. M. Phédran of Toronto, sent by Dr. Duhring to the American Dermatological Association in 1881 :—

(1) Betty MacCarthy, of Prince Edward's Island, native of Lancashire (England), married in 1836. In 1852 she became ill and died of a disease designated at Tracadie leprosy. She had five children.

a. Richard, who died of leprosy, having suffered from the disease twenty years.

b. John, who died of leprosy after twelve years of the disease.

c. Mike, died of leprosy after suffering ten years.

d. William, who died of leprosy when he was twelve years old. He was washed and buried by Joseph Brown.

e. Mary, who died after being twenty years a leper. She married John Doyle.

(2) John Doyle died after six years of the disease.

(3) and (4) Two daughters of John and Mary Doyle died of leprosy.

(5) John Brown, who took care of William MacCarthy during his illness, and after his death washed

and buried him, became shortly after a leper and died of the disease.

(6) James Cameron, of Scottish origin, married in 1866 Susanna MacCarthy, one of the daughters of Betsy, and had by the marriage two children who, and also the mother, are in good health. He often slept with Mike MacCarthy, and in 1870 presented undoubted symptoms of leprosy. He is now (1881) suffering severely from the disease.

This simple story is full of instruction. Some might appeal to it as favouring heredity ; but surely, quite apart from heredity, it proves clearly the transmissibility of leprosy from the sick man to the healthy. It, in fact, places before us three persons having no hereditary antecedent, utter strangers to the MacCarthy family, becoming lepers after having had intimate doings with the lepers of that family.

3. *Epidemic of Louisiana.*—Formerly, says Dr. White, there were lepers in Louisiana. A hospital was founded for their reception, and soon the disease almost entirely disappeared. During the present century no trace of it in the province was seen until 1866, when a woman became a leper :—

Madame Ourblanc, whose father was originally from the south of France. She died in 1870, leaving six children, four sons and two daughters. In the homes of the first and fourth sons, leprosy appeared in 1872 ; in the house of the second, it broke out in 1871 ; the older daughter died of some violent disease, the other became a leper. All these children lived at Abbeville, where the mother also resided. In 1875 a

nephew of Madame Ourblanc, who lived eight miles off, became a leper. In 1873, leprosy also appeared in a young woman having no relationship with the Ourblanc family, but who had frequently nursed Madame Ourblanc during the latter days of her illness. In due season the disease broke out in a young man who lived some miles from Abbeville, who also had no relationship to the Ourblanc family, but he had often slept, in 1875, with the fourth Ourblanc son, who had then been a declared leper for three years. Other cases of the disease have shown themselves in the neighbourhood.

All these facts speak loudly indeed of themselves. There is no necessity to proclaim their worth.

There are cases where persons, living in non-leprous countries, never having dwelt where leprosy prevailed, whose parents were in every way healthy, have been infected after having associated with sick, who had come back from colonies in which leprosy was rife. Such cases are absolutely demonstrative. They are open to no objection, and would be sufficient in themselves to show that leprosy is contagious.

Dr. Leloir having given the important case already noticed by Dr. Besnier (published by Dr. Hawtrey Benson, June 1877, 'Dublin Medical Journal') supplies further striking examples.

The following case, reported in June 1882, as occurring in America, seems, he avers, difficult to explain, save by contamination.

Dr. Edmundson Atkinson reports the case of a married woman, about forty years of age, who, on the

10th October, 1880, came to help at the University Hospital Dispensary. By birth she was a German, but had always lived in Maryland, never once having left it. She had had nine children, of whom six were alive, and seemed to be in excellent health. Her husband also was a sturdy man. The first skin affections appeared in May 1878, from which time her disease has made slow but steady progress. According to Dr. E. Atkinson, the cause of her so suffering was her intercourse with a man named Brown, who had lived in the same street with her in Baltimore for two years. He had been her next door neighbour for one year. Brown was at this time one of the three sole cases of tuberculous leprosy existing in Maryland. The two families became intimate; but, according to the woman's statement, her conduct had, as regards Brown, been at all times strictly decent. Brown now had leprous nodules on his face, and health generally very bad. Dr. Atkinson states that leprosy showed itself on the woman some years after she had been the neighbour and friend of this one of the three sole lepers of all Maryland. It is very difficult to see in this coincidence anything less than a certain cause producing a certain effect.

In good truth, these cases seem to me unquestionable examples of direct inoculation. Here is another, related by Munro ('Leprosy,' 1879, p. 46):—

“An Irishwoman, inhabiting Stepney for thirty years, never having left England, was attacked by mixed leprosy in 1866, and died of the disease in 1874. Her quarters were close to the East and West

India Docks, and being a sail-maker, working in a factory and mixing with a crowded population, many of whom came from leprous countries, and not a few coloured men, she took the disease from some one who had reached England a leper."

Leloir now asks, What is the result of this our discussion of the subject of contagion? It is simply this, that a great number of cases of leprosy can only be explained by the direct or indirect infection of the healthy by the virus of the leprous. It is possible, also, that lepers may scatter their bacilli and spores, so that the soil and water of a certain district may be contaminated for a period more or less lengthy. The contagiousness of the soil so infected would last for a limited time, and the limit would be in direct relation to the amount of virus distributed by the leprous.

Dr. C. L. Drogat-Landré.*—It is an established fact that every disease, the heredity of which has been proved—consumption, cancer, &c.—and from which father and mother have suffered, will, almost without fail, appear in the children (all conditions otherwise equal).

As to contagion, it is altogether different. There must be a coincidence of different conditions on the part of the infectant and infected. With the infectant, a certain stage of the disease; with the infected, first, the susceptibility (age, sex, constitution, &c.) and then, all the circumstances for direct or indirect infection.

* Dr. C. L. DROGNAT-LANDRÉ, author of 'De la Contagion Seule Cause de la Propagation de la Lèpre.'

We are asked, if leprosy is contagious, how is it that the contact so constantly proves harmless? I answer thus:—Diseases are contagious only at certain periods of their working, and I have every reason to believe that such is the case with leprosy; and it may be that the infecting stage is of very short duration. On the other hand, very few persons may be in a recipient condition.

The Doctor, finding himself exposed to so many unjust attacks by anti-contagionists, considered it necessary to protect himself by unquestionable facts—facts which, had he not written another word on leprosy, would have been strong indeed on the side of contagion.

During the past thirty years there have been, he says, twelve remarkable examples of the children of European parents being attacked by leprosy. In those examples there can be no question of heredity, as they were Europeans of families in which leprosy had *never* been known. Their parents were of the highest class of colonial society, and they themselves all born strong and well. The particulars were thoroughly known to all who at the time were living in Surinam.

But, before setting forth Dr. Landré's facts, I would observe that all these cases developed in *leprous countries*, and, however much their history may impress many with their being due to contagion, they are no *positive* proofs of contagion, but only of infection. However cogent such details and histories may seem to me or any other, the anti-contagionist will never admit their value as "classical testimony."

He may, and fairly enough, reason thus:—As to the cause of leprosy, or how such cases quoted by you are to be explained, I know not. I am, I admit, an agnostic in the matter, and, so long as I have such a mass of negative evidence on my side, I must believe that there is an infection, whence it comes, how it goes, and how it acts, to me utterly unknown, which causes that which you attribute to contagion.

The position thus presented is an honest one, and not to be despised. In reply, I say here are the facts. I give them as supplied by Drogat-Landré. They, with others of the same character, must go for what they are worth; and, if not convincing to the non-contagionist, I must hope to convince him by bidding him consider carefully the development of such new foci as those in Canada, Louisiana, Spain, California, Victoria, Queensland, New South Wales, &c., where leprous infection existed not until the leper brought with him the foul disease. But to the facts.

1. *Mademoiselle S.*, born of a well-to-do Dutch family, was attacked by leprosy in her early youth. The parents could not explain the matter. It was a complete enigma to them, which remained unsolved until the daughter was thirty years of age. A slave, when dying, sent for the mother, and told her that she had often placed her child with a leper.

2. A grandchild of a retired major went to a school kept by a European—a widow. This lady had a son, upon whom certain spots appeared, thought at the time to be of no importance. He attended his mother's school with the rest of the pupils. After a

time the first signs of leprosy came upon the daughter of the major. The trouble did not stop there. The child gave the disease to the mother, then to the father, and at length to a little girl, of whom we shall speak presently.

The major and his wife were Dutch. The widow's child died of leprosy.

3. *Mademoiselle K.*, born in the colony, became a leper, and died when she was about twenty-four years of age.

For many years no one could account for the attack. M. F., being one of a commission at the leper hospital, Batavia, had brought before him a leper negress, who was in the last stage of leprosy. That woman, having deemed M. F. to be the father of the girl, confessed that she had often and designedly taken her to the house of a leper. A few days after, the slave died.

4. In the family of an officer of position there were several children, of whom only one became a leper. She, being still young, spent her time chiefly with the daughter of the major, to whom we have referred in the second case. The young lady died of leprosy in the colony. Her father was Dutch, her mother English.

5 and 6. Of four daughters of a member of the court of justice, the two oldest were lepers, and died when nineteen and twenty-two years of age respectively. The oldest had been nursed by a negress who was severely attacked by leprosy, which eventually killed her. The second daughter was nursed by her mother. Some years after these young girls had left

school the disease came upon them so violently that it was necessary at once to isolate them. From their early days they had been deprived of their mother's care. There is every reason to think that the first symptoms of the disease had already long existed.

The father was Dutch; the mother and grandmother were born in the colony—the last-named of European parentage. All belonged to distinguished Dutch families, and had always lived in great comfort.

7 and 8. The daughter of a barrister, having lost her mother, was nursed by a negress. She had as her constant companion a little girl about her own age, whose father was a member of the Colonial Council, and rich withal. These children were in their little games continually associated with a negro boy, who had on him spots thought to be from psoriasis, a disease known in the colony by the name *heef*, but which afterwards proved to be leprous. He was sent to a leper hospital. The sad results of this continual contact soon appeared, for, at sixteen, the barrister's daughter was an advanced leper. She died young. Between eleven and twelve, leprosy appeared in the companion of her childhood, and she died a sad leper when twenty years of age.

The parents of these two children were Dutch.

9. A doctor observed on one of his children, a boy of two years of age, a small spot on the outer side of the thigh, without any preceding sore. This spot increased but slowly, and seemed more and more like a mark of psoriasis. After a time other spots appeared on the limbs, on the back, and on the face. When the

child was six years old the nature of the malady was evident. The centre of the large marks, which had the form of "psoriasis scutellata," was white and anæsthetic; the red spots which covered all the scrotum became swollen and thick. Later on, the colour of the face changed from red to be more or less livid; many tubercles came on the chin, lips, nose, and ears. When twelve the child died of dysentery, which was then epidemic in the colony.

That child had been nursed for the first months by its mother, afterwards brought up on cow's milk, biscuit, &c., never having tasted flour of bananas, said by Dr. Vinkhuyzer to be most injurious. It had drunk nothing but rain water, that used by the leading families of Paramaribo and deemed excellent. In a word, the hygienic condition of the child, in the most extended sense of the term, was all that could be wished. The child had, unknown to the parents, been often taken to the house of a leper.

There could be no question of heredity. The father of the child was Dutch, and the mother born in the colony of Dutch parents; the ancestors on both sides known to us as going back to the sixteenth and seventeenth centuries. What but contagion can explain such an attack?

10. A daughter of a captain of the Colonial Marine, born at Surinam, became a leper, and after a few years died. Particulars are unknown. The parents were Dutch.

11 and 12. With an interval of some years, the first signs of leprosy were seen on two children of from

five to six years. Both were born in the colony of German parents, who were engaged in the mission of the Moravian Brothers. The first, a girl, had a very suspicious mark on the arm. She left the colony with her parents, who returned to Germany. Beyond that we know nothing. The other, a boy, was sent to Holland with clear marks of the disease upon him. These children were brought up with everything about them to secure the best of health. At the same time, it is a fact that the missionaries have their families constantly in contact with negroes and mulattos of the colony.

The number of leprous Europeans in the colony of Dutch Guiana has always been in proportion to the opportunities of coming in contact with lepers. Position in society, more or less home comfort, has had no influence whatever.

Take for example the private soldiers : they present the largest number of cases, because they associate in the most intimate way, and constantly with the very persons among whom leprosy is most common.

Again, in the higher classes, leprosy is there frequently found, but chiefly among men (one a doctor), rarely among women, and for this clear cause—the women scarcely ever speak to a leper.

Among the Dutch peasants who arrived in Surinam in 1845, and are settled on a low damp plain near Paramaribo (for the most part very poor), leprosy is unknown. They live together, never marry beyond their settlement, have as little as possible to do with the outside world, and have an abhorrence of leprosy.

The contrast with the other classes of the lower people in this respect is very striking. It can only be explained on the ground that leprosy is contagious.

Dr. N. B. Emerson.*—Hawaiian Report, 1888. —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 Naea thought he had the disease about ten years before his death. His case was reported by the Rev. D. D. Baldwin, M.D., of Lahaina, in a communication to the Minister of the Interior, the Honourable Charles G. Hopkins, dated May 6th, 1864.

In 1863 Dr. Baldwin obtained, by reports from the deacons of his church at Lahaina, the names of sixty people who were supposed to be afflicted with the disease. Dr. Baldwin made personal inspection of these people and came to the conclusion that not more than fifty were cases of leprosy.

In Dr. Hutchinson's Report to the Legislature in 1868, I find the following:—By reports furnished to the Government by the different tax assessors, by direction of the Minister of Finance, the following number of persons on the different islands were represented as afflicted with the disease of leprosy:—

| | |
|--------------------------------|-----|
| Hawaii | 75 |
| Maui, Molokai, and Lanai | 112 |
| Oahu | 80 |
| Kanai and Nuhau | 7 |
| Total | 274 |

* Dr. N. B. EMERSON, President of the Board of Health, Honolulu, &c., &c.

Since that time leprosy has made fearful strides. It is not necessary to the argument to trace with precision the curve that graphically represents the increase of leprosy in these islands from that date to the present time. It is a fearful story, and should teach us that leprosy is undoubtedly communicable, and that the only way to rid this fair land of the scourge is by the segregation of all lepers.

R. W. Meyer, Molokai.*—The whole civilised world and others recognise leprosy as being the most loathsome and dreadful of all diseases which affect the human race, and most medical authorities, as well as other observers, consider the disease to be communicable from man to man, also to be hereditary.

That the spread of this scourge on these islands has been truly fearful, is known to every one here, and that it would not have spread as it has done unless it were communicable appears to me to admit of no doubt.

Dr. A. M. Brown.—That there may be no ambiguity in what all this implies, I emphasise conclusions, feeling assured that they are such as will ultimately meet with recognition.

Leprosy is a disease which still occupies a prominent place in the list of human maladies, and one which, though not generally epidemic, occasionally assumes that character. Observed from earliest ages, its cause and origin remain unknown. It is evidently

* R. W. MEYER, a well known proprietor on the island of Molokai ; a philanthropist of the highest intelligence, fully informed on matters connected with leprosy in the Hawaiian Islands.

non-spontaneous, specific in its nature, and has a definite bacterial element. It is contagious and transmissible in various ways, some of which are known. Exclusively a human malady, its sole medium of communication is seemingly by direct contact of man with man; and it is to the individual affected we ought to look for it rather than to race or country.

Medical Officers in Burmah.—In Burmah the view taken by medical officers is, that the malady is, under certain conditions, highly communicable from person to person. In all the gaols, hospitals, and asylums, lepers are segregated. Among the criminal classes lepers are common, and a special gaol has been provided for their accommodation at a place called Myanoung, on the right bank of the Irrawaddy.

So deeply rooted in the minds of the people is the belief that leprosy is contagious, and with such aversion is the disease regarded, that those afflicted are often cast out from house and home, and left to live, or die, in the public thoroughfares. These national prejudices are sometimes founded on truths which have been investigated without being proved.

Some time back a Burman, about twenty-five years old, applied for advice in consequence of two small patches of tubercular leprosy, first noticed a year or so previously, one situated on the ball of the left thumb, and the other not far from it, on the anterior and outer aspect of the forearm. There was not a trace of the disease to be found on any other part of this man's body. He had been living for the three pre-

ceding years in marital relations with a woman who, when he married her, was the subject of incipient but unrecognised leprosy, and from inquiries made at the time, the conclusion that the disease was communicated by the wife was irresistible.

Since it has been demonstrated that a very definite bacillus, cultivable on blood serum, is constantly present in leprosy, scepticism as to the contagiousness of the malady will in due course doubtless disappear.

Dr. John D. Hillis.—“I lately saw in Georgetown, in a respectable family, a case of leprosy of a boy about fourteen years of age. His relatives have been free from the leprous taint for several generations. A few doors lower down I subsequently found another case of leprosy of long standing. The boy alluded to happened some time ago to be covered over with boils, some of them open sores; and it is a well-authenticated fact that, whilst in that state, he could not be kept from going down the street every day to play with the other boy, who was suffering from leprosy. After a few weeks had elapsed a suspicious eruption appeared, which was subsequently recognised by several medical men as leprous; and when I saw him he presented all the signs and symptoms of tuberculated leprosy. The colleges may rule as they will, but cases such as these, and others that I have recorded, have left such an impression on my mind, that no mere weight of authority is sufficient to make me doubt the correctness of the opinion I

* Dr. JOHN D. HILLIS, late Medical Superintendent, Leper Asylum, British Guiana.

have formed, after a careful study of the whole subject, viz. that leprosy is contagious.”

Don Salvador Calatayud, Denia, 1729.*—Among the people of this locality and the inhabitants of the surrounding districts leprosy is a disease of horrible appearance, incurable, eminently contagious (*eminente contagiosa*), and capable of propagating or transmitting itself from the sick man to the healthy, and that by contact direct or indirect.

Sir Morell Mackenzie.†—It would be foreign to the subject of this article to discuss in detail *the causes of leprosy*, but it will perhaps 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 (and others) that the consumption of salt fish, &c., 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

* DON SALVADOR CALATAYUD, ‘Observaciones Practicas sobre la Lepra.’ Denia, 1729.

† SIR MORELL MACKENZIE, late Physician to the London Hospital, &c., &c.

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 "*exceedingly rude* to refuse to sleep in a 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 a wilful insult in this country.

The evidence of the contagiousness of leprosy 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 baneful 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 morbid element. And this is the part that scanty and tainted food, dampness of climate, and prolonged exposure to cold and wet, play on 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.

Dr. T. A. Wise.*—The universal Asiatic belief

* Dr. T. A. WISE, author of 'History of Medicine,' &c., &c.



that leprosy is contagious is expressed in the story of India by medical authority and legislative enactment. It is communicable by contact, by breathing the same air, by eating together, by wearing the clothes or ornaments of a person labouring under the disease. The contagious nature of leprosy is not always apparent, as the attendants on patients labouring under the worst forms of leprosy often escape. After a careful examination of this important question in Bengal, I found that it required a peculiar disposition of the person before it affected him.

Dr. Vandyke Carter.*—All the evidences which I have collected ultimately point to propagation from individual to individual, and this can occur only outwardly by way of contagion, or inwardly by hereditary transmission.

By contagion is signified the direct or indirect communication of disease outside the body from person to person. Mediate or indirect contact is manifold and includes many possible manners of transmission, as by tainted excretions, tainted clothing, or other material, or by aerial or little apparent foul emanations; the efficacy of all such means depending, not only upon varied violence of contagion, but upon favouring or counteracting qualities of the media concerned, and upon similar states of the recipient himself. The direct communication of disease is hedged round also by modifying influences belonging to both giver and taker; and these influences are so powerful and com-

* Dr. VANDYKE CARTER, Bombay, long known as one of the ablest writers on 'Leprosy,' &c.

plex, that the event in question becomes rare enough to be regarded by many as matter of doubt. Finally, if the inadequate circumstances under which strict medical inquiry has hitherto been conducted, be taken into consideration, it is no wonder that the view of contagion, as applied to leprosy, is still much debated. Individually, I am unable to furnish any demonstration of the accuracy of such view, and, in the absence of indubitable proof, shall not enter upon a discussion of this vital subject. Only, I think that the new collateral evidence of transmission by man which is furnished by my present analysis of leper localities in Kattiawar, deserves particular notice, both in itself and as a datum to be further tested ; for, regarded broadly, the peculiarly close connection and serial sequence of leper villages most obviously point to some method of transmission, and, so far as has appeared to me, there is no other agency at work than man, and the surroundings he acquires.

I have noticed for the first time a certain method of dissemination of leprosy which deserves particular attention. Taking the more infected districts, we find that, while much of the surface is covered by disease, yet the leper villages are not indiscriminately scattered ; and the remark everywhere applies within fixed areas. Thus the chief town always represents a chief "focus" ; next, the villages immediately around are affected ; and beyond these, pass off, as it were, lines of leper localities in various directions, which may meet and blend, or become continuous with similar lines in adjoining districts. At present I find hardly

a single instance in which a leper village does not form either a focus, or a part of lines or groups, such as those now mentioned.

Next, adverting to the less infected areas, a similar methodic distribution of leper villages is found. All display these striking features of "foci" and lines of infested places, where alone leprosy is to be found; and from the circumstances of their isolation amidst numerous uncontaminated localities, such lines become even more distinct than they are in coast-lying and other areas more largely attacked.

One can hardly help searching for some reasonable explanation of the phenomenon. This is certain: fortuity and chance can hardly be held responsible for such marks of method; for even if, amongst the several ways in which leper villages might be distributed on one area where they are numerous, it should happen that a focus, group, and line be formed, it is not likely that a precisely similar arrangement should obtain in three or four other like areas adjoining; and still less is it probable that, in all other places where leper villages are but few, the latter should still assume an identical disposition. I can nowhere find such a concurrence of local physical characters as might serve to account for this distribution method; and, so far as I know, neither climate nor telluric conditions—as general elevation, hills and valleys, water-courses and currents, vegetation and cultivation, kinds of soil and substratum, &c.—are so invariably alike, as they should be upon any hypothesis of this kind, which may be proposed as sufficiently applicable to the case.

And if we inquire on general population features, no clear light whatever appears.

Failing thus to perceive the desired clue, I would turn for guidance to such dynamical features as change and movement of local population, degrees of intercourse between adjoining and distant villages, between villages and towns, and towns themselves, and towns with capitals, or other towns, &c., belonging to adjoining areas, which have not yet come under scrutiny. The circumstances of my inquiry being such as to exclude the possibility of verifying this view in detail, the question must remain for future consideration; nor should I attempt to judge if the leprous plague has followed a particular track in attaining its present distribution.

However, I would insist, on the evidence already submitted, that disease is now disseminated over the land after a certain fashion only; and, as a possible solution of this enigma, I repeat that no leper village is found to be isolated; but, on the contrary, all such villages are connected with others immediately adjoining—the rare uninfected spots intervening being temporary or incidental exceptions. For myself, all these data may be said to point to transmission of the leprous disease by human intercourse—that is by contagion.

Dr. W. Munro.*—As the whole of the foregoing part of this work has been a series of proofs of the contagiousness of the disease, I have little more to say in this section than to try to meet a number of

* Dr. W. MUNRO, author of 'Leprosy,' &c.

objections that have been raised against the theory. I must premise, however, that by using the word "contagion," I do not pretend to express any distinct belief as to the probability of the disease being conveyed by simple contact, being more inclined to believe that it is carried by inoculation in most cases, though long-continued contact even of unbroken healthy with diseased skin may be sufficient.

This experienced and able writer on leprosy gives a long list* of instances in support of his statement, and expresses himself very strongly against the hasty manner in which the one voice of centuries has been disregarded.

Thus it will be seen cases are not wanting to add to the other proofs that the disease is communicable. I must also say that I think that the universally received opinion (of the contagiousness of leprosy) which has obtained for ages in countries where the disease has existed so long, and been held to be contagious by all medical authorities up to the time of Schillingius and Hilary, such authors being close observers of natural phenomena, though they were not so much given to collecting causes and giving details as those of the present day—I think an opinion, so supported, should have been treated with far more respect than it received in the College of Physicians' Report.

The doctor sums up the proofs of the contagiousness of leprosy, as set forth in his valuable work, as follows:—

* See 'Leprosy,' pp. 86-87.

1. It has always spread from race to race wherever an infected race was brought into contact under favourable conditions with a non-infected one.

2. It has been and is most prevalent amongst those races and nations among whom the freest communication with lepers is allowed by public opinion and law.

3. The so-called proofs of heredity commonly advanced being utterly defective, most, if not all the cases accepted by some authors as hereditary, are best accounted for by communicability.

The cases on record of probably communicated leprosy strongly support this view, and, taken with the other proofs, show that the disease is undoubtedly communicable, it may be only by long-continued contact or inoculation,* but possibly through drinking-water.

After pages of high testimony in proof of a most important point connected with a terrible disease—man's direst scourge—I may fairly ask with this noble and learned physician :—Can it be truly said that the instances of supposed contagion are so few and imperfectly related as not to assist in proving that leprosy is contagious? I think not, keeping in mind the long period of incubation, the ignorance of the greater mass of the population of the countries where the disease is prevalent, causing great difficulty in tracing long-forgotten or wilfully hidden chances of

* The fact lately observed that mosquitos can imbibe the *filaria sanguinolenta* suggests the possibility of some cases of leprosy being communicated by those insects. The physician in charge of the Leper Hospital in Madeira, holds that the disease is conveyed in that island chiefly by mosquitos.—H.P.W.

receiving the contagion. Looking too at the extreme difficulty in satisfactorily proving the communicability of some diseases, with even a very short incubative stage, I think many of the cases on record are, especially when the proof they afford is taken in conjunction with the history of the disease, quite conclusive as to its contagious nature, it being always to be kept in mind that one positive case overweighs fifty negative ones.

CHAPTER III.

The Chief Objections to the Contagiousness of Leprosy. ; What are they worth?

THE following five objections embrace all that has been said against the contagiousness of leprosy :—

1. Leprosy cannot be conveyed to animals by inoculation.

2. Attempts to inoculate man with the disease have all failed.

3. Married couples live together for many years, one being leprous, without the other being affected.

4. Doctors, nurses, hospital dressers, and others attending on lepers never take the disease from their patients.

5. Lepers settled in the midst of great cities do not convey the disease to others—they do not create centres of leprosy.

Objection 1. Leprosy cannot be conveyed to animals by inoculation.

Dr. Besnier.—Quite true ; leprosy does not inoculate animals. If this disease, like consumption, had a bacillus which speedily manifested the disease, we should not have to discuss its contagiousness. It is not sufficiently considered, that man presents a field of culture fitted for the development of almost all

pathogenic germs ; but it is not so with other animals, which are unaffected by diseases which with man are common. Had leprosy been conveyable to animals generally, the fact would be palpable wherever the disease prevails ; and we may, from the non-existence of leprosy save with man, safely conclude that to man only it is confined. For my part, I consider every endeavour to inoculate animals with leprosy simply useless, because hopeless.

Dr. Leloir.—Nothing is more difficult than inoculating animals with certain human diseases. As full proof of that I call to mind the difficulties and long gropings that I had to endure before I succeeded in inoculating animals with lupus.

In vain did N. Hansen try with leprosy matter to inoculate cats, rabbits, and monkeys. Kobner was no more successful with monkeys, frogs, and various fishes ; and the same failure attended the experiments of Hillairet, Gaucher, and E. Vidal on pigs. True Neisser in inoculating dogs and rabbits, and Otto Darnsch rabbits, mice, and cats, believed that they produced local leprosy, because they saw the tissues about the nodule of inoculation invaded by bacilli : but read carefully the observations of the writers, and it will at once appear that their experiences with inoculation, while highly interesting, are in reality but utter failures.

Dr. Leloir gives valuable particulars of his own attempts to inoculate guinea pigs, and, after a close scrutiny of all that he and others have done, comes to this decision : A vigorous examination of facts ob-

served leads to the conclusion, that as yet all attempts to inoculate animals with leprosy have failed.

And so they always will fail. Perhaps the boldest testimony, with respect to inoculating animals with leprosy, is that given by Dr. Wynne, of Robben Island. The pigeons, the mice, the pheasants, the old Turkey cock and his limping children, all exhibit the deepest sympathy, the most expressive fellow-feeling, with poor suffering humanity. Interesting fact, undoubtedly; but of this we may be assured, not one of them had leprosy. Go to the Zoological Gardens, at Hamburg. There, among the large collection of pheasants, there are, at least, 10 to 15 per cent. of the birds similarly affected.* Every

* Professor Henry Stewart of New York lately wrote a very interesting paper on the many parasitic diseases which assail fowls. The scales of the legs, he states, are often thickened, and the shanks enlarged to double their proper size. The origin of this disease was not known, nor its character understood, until they were discovered by Professor Stewart some years ago, when, by a microscopical examination of the large scales, they were found to result from a thick hardened exudation of the serum from the skin, caused by the presence of minute burrowing *acari*, which form galleries under the scales, and thus give rise to the disease. It is most frequent among the Asiatic fowls, whose legs are large and covered with loosely placed scales. These offer attractive harbours for the insects, in which they increase enormously, and worry the fowls so much that all egg-laying is stayed. The mite is almost precisely like the *acarus* of mange, which so much troubles dogs, cats, and other domestic animals. The introduction of a diseased Brahma cock from the flock of a noted breeder was the means of infecting more than thirty in a few days, which, if left uncared for, would speedily have manifested "Robben Island Fowl Leprosy." It was this sudden appearance of the disease which led to an investigation, and the discovery of its nature.

Fortunately, the remedy and means of preventing the trouble are simple and easy. Crude petroleum or kerosene oil, mixed with an equal

poultry-yard will show us specimens of *leprous* fowl with bowed legs, incurvated claws, and nodular and hypertrophied articulations. Only recently among my own poultry I had marked examples of birds thus malformed. As to the mice "with the usual characteristics of leprosy" they had some of them to take a long journey, for they were examined most carefully at "Koch's Institute,"* Berlin, and not a trace of leprosy could be found in them. Leprosy is an affliction of man, and of man alone. If any other animal could take the disease, examples, and many of them, would long ago have appeared in every leprous country.

Not a word more need be said on this first objection. Indeed, it would have been amply sufficient had I reasoned thus: If animals cannot take leprosy, that fact is no proof whatever that by contact man cannot convey the disease to man. If animals can receive leprosy by inoculation, by the food they eat, or from some other cause, then is there just so much more reason to believe that the malady is contagious.

Objection 2. Attempts to inoculate man with the disease have all failed.

Dr. Besnier.—This objection carries with it no

quantity of raw linseed oil or castor oil, thoroughly brushed into the scales of the leg, will destroy the mites at once.

The mixture applied under each wing will keep away all parasites.—
H. P. W.

* Professor Koch is deemed the first by far in bacteriological research. Even Pasteur must yield to him in that delicate, and I may say, mysterious study.—H. P. W.

weight whatever. The non-success of the inoculation of a disease is no proof that it is not contagious ; for inoculation is only one way by which contagion acts ; and many maladies not inoculable are known to be contagious, such as diphtheria, cholera, typhoid fever, scarlatina, &c. Then again, bacteriology is not sufficiently advanced that we can pronounce an affection uninoculable, because, as yet, it has not been conveyed by inoculation. Of this we have ample proof in the fact that tuberculous scrofula, once declared uninoculable, is now everywhere admitted to be inoculable. Nor must it be forgotten that we can never be in a position to speak decidedly upon the point, until the inoculating matter shall have been taken and tried at various stages of the disease.

Then again, save under very extraordinary circumstances, to try the experiment upon man would be a highly criminal act, which no doctor has any right to attempt. Only one experiment, truly legitimate, and at the same time scientifically conducted, has ever been made. That occurred in the Hawaiian Islands, on the 30th September, 1884, in the case of a murderer who had been condemned to death, and had his sentence commuted on his consenting to be inoculated with leprous matter. The operator was Arning, who gives the following interesting account of what took place:—With the prisoner's written permission I commenced operations, after having previously made a most searching inquiry as to any leprous taint in his family, and a close examination of his own body. This examination satisfied me that, as far as I was

able to judge, no trace of the disease could be found in him at the time. A further step was to ensure that the prisoner would not be employed outside the prison walls.

I inoculated Keanu on the last day of September, 1884, and for the four weeks following I saw him daily, and after that once a week for several months; a microscopic examination of the inoculation spot being made every time. After that period the convict has been examined by me regularly once or twice a month. The microscope revealed the presence of the *bacillus lepræ* in large numbers until the middle of March, 1885. They have since gradually diminished in numbers; but a recent excision of a small part of the scar shows their presence even yet, i. e. nearly fourteen months after inoculation.

I do not consider my experiment with Keanu concluded, or mature for scientific publication; and even if future observation should show us no trace of leprosy developing, we should not be able to infer more from the experiment than that in this case inoculation proved ineffectual.

Dr. E. Leloir.—As a fact it may be maintained, that up to the present moment (December, 1885) no one has ever succeeded in inoculating man with leprosy. Still, as Dr. Vidal has justly observed, there are many diseases, the transmission of which by inoculation is no longer questioned, which present to this day great difficulties in the way of inoculation: such as swine-pox, diphtheria, consumption, lupus, and also erysipelas.

In support of his assertion Dr. Leloir puts before us the following daring experiments :—

Some thirty years ago the venerable X—seeking the cause of leprosy, the study of which he pursued with a zeal that has given to us his brilliant treatises—fully convinced that the disease is not contagious, and not wishing to do to others what he would not like done to himself, inoculated himself with the blood and pus of a tuberculous leper ; at times introducing a small particle of the tubercle, and that frequently, but with no effect. He then proceeded to inoculate twenty healthy persons, they, of course, consenting. In no one of the cases did there appear anything beyond a certain inflammation of the lymphatic vessels. Nothing whatever, even locally, was there indicative of leprosy.

All those inoculated were closely watched year after year, but they continued thoroughly healthy. This negative result, well known to all Scandinavian doctors, has tended to spread abroad the conviction that leprosy is neither contagious nor inoculable.

The inoculations by A. Hansen, of which so much has been said of late years, are of no value, inasmuch as he inoculated lepers suffering from anæsthetic leprosy with matter taken from those who were afflicted with tubercular leprosy.

Profeta inoculated two women, aged 25 and 31, and eight men, of whom he himself was one ; then Dr. Cagnina and six others, aged 35, 47, 29, 41, 25, and 43, all fully aware of the danger incurred, and quite ready to face it. Nothing was left untried as to

the mode of inoculating, but the result was always the same—no appearance whatever of leprosy.

Dr. Munro remarks, with great force:—In the very few cases in which inoculation was practised, the systems of those undergoing the dangerous experiments were not in the least likely to have had any tendency to be affected, they being in good health and well fed. The case of Dr. Livingstone, who was attacked *after suffering privation*, having scratches on his hands; one mentioned by Larrey, in which the disease began on the stump; and that of Hildebrand, in which a European child in Borneo was affected by thrusting a thorn into himself, after a leper boy had in his presence done so,—all tend to show that inoculation is the chief, if not the only manner, by which the disease is propagated, such propagation only taking place quickly, when some special circumstance, as the person being wounded, makes inoculation easy and certain, while more prolonged intercourse is generally necessary to afford opportunities for inoculation in ordinary circumstances. It is possible at the same time, however, that in tropical climates, where the pores of the skin are constantly opened, a kind of inoculation, through the skin so to speak, may be prolonged, and repeated applications of the discharges take place, even without any scratch or wound existing on the body of the person so affected.

Dr. Leloir justly observes, that if the experiments which have been tried upon man and animals do not prove that leprosy is not inoculable, they do at least

prove that leprosy is not easily conveyed from man to man. The whole world sets forth that truth, for were it otherwise this earth would, in these days of universal and speedy travelling, soon become one vast lazar home—indeed, soon it would know man no more.

I had written thus far, and felt thoroughly satisfied that the unsuccessful attempts to inoculate man with leprosy were no proofs whatever of the non-contagiousness of the disease ; still, although supported in that conviction by the high authorities I have quoted, *positively* there was nothing in its favour. That difficulty has now been, I do not say removed, but certainly much reduced in force, for, on November 15th, 1888, I received the following official communication through Her Majesty's Commissioner and Consul-General in Honolulu, and at once placed it before the public :—

‘THE TIMES,’ Nov. 19, 1888.

November 15, 1888.

“SIR,—About a year ago you kindly placed before the public my warning against the danger of leprosy again actively assailing England. In several of our colonies public meetings have lately been held, calling loudly upon the authorities to move at once, that the advance of leprosy may be stayed, and that in lands, be it remembered, which have only recently been invaded by the disease.

“Allow me to make known to the world at large the important and highly interesting fact that at

last it has been shown, by a terrible experiment on a criminal condemned to death, that leprosy can be conveyed by inoculation—a fact that, in itself, goes far to prove that the malady is contagious, and therefore may be conveyed anywhere at any time by a leper.

“ H. P. WRIGHT,
Rector of Greatham.”

OFFICE OF THE BOARD OF HEALTH,
HONOLULU, H.I., *Sept. 26.*

SIR,—I have the honour to acknowledge the receipt of your communication bearing date September 20, 1888, enclosing a letter from Archdeacon Wright to Major Wodehouse, Her Britannic Majesty's Commissioner and Consul-General in Honolulu, requesting positive information in regard to Keanu, the prisoner confined in Oahu Gaol, who was inoculated with leprosy by Dr. Arning.

In reply I beg to submit the enclosed statement, the result of an examination made by Dr. J. H. Kimball, Government Physician in Honolulu, and myself on September 25, 1888.

Hoping that this will meet the wants of Archdeacon Wright, I have the honour to be your Excellency's most obedient servant,

N. B. EMERSON,
President of the Board of Health.

To His Excellency Jon. Austin, Minister of Foreign Affairs.

OFFICE OF THE BOARD OF HEALTH,
HONOLULU, *Sept. 25.*

This is to certify that we, the undersigned, have this day carefully examined one Keanu, a Hawaiian man, in confinement at the Oahu Gaol, who was inoculated with leprosy by Dr. Arning on November 5, 1885, and we find his condition to be as follows :—

Ears tubercular and considerably hypertrophied ; forehead the same ; face, nose, and chin show flattened tubercular infiltration ; mouth clean, no tubercles ; face generally presents a leonine aspect.

Hands puffed, fingers swollen at proximal phalanges, tapering to distal phalanges ; tips of forefinger and thumb of left hand are ulcerated from handling hot tin cups of tea or coffee, indicating anæsthesia.

Body.—Back thickly mottled with flattened tubercles and the surface uneven to feel, colour of the same a yellowish brown ; front of the body, chest, and abdomen presents plaques of tubercular infiltration of larger size than back, separated from each other by wider intervals and of a brighter colour, in some cases a ruddy pink, especially over upper part of sternum.

Legs.—The infiltration thins out as far down as the knees, there being one large bright patch on the inside of the left thigh ; legs below knees quite clean, and skin smooth and even to touch.

Feet.—Œdematous, have poor circulation ; bluish colour ; soles of feet clean.

Seat of inoculation, outer aspect of left fore-arm, upper third, shows a dark purplish scar about $1\frac{1}{2}$ inches long by $\frac{5}{8}$ inch wide, irregular in shape, keloid in aspect, dense and inelastic.

The tests for anæsthesia were not made. Eyes with sclerotitis, muddy, and infected.

No signs of palsy about muscles of face, orbiculares palpebrarum, hands or fore-arms.

It is our decided opinion that this man is a tubercular leper.

N. B. EMERSON, M.D.,
President of the Board of Health.

J. H. KIMBALL,
Government Physician, Honolulu.

I have said that the present condition of Keanu, while it does not remove the objection, that as yet there is no positive proof that leprosy can be conveyed by inoculation, it certainly reduces its force. I speak, I think, the mind of Dr. Arning, who, with the wisdom, caution, and honesty of an able and high-minded experimentalist, writes thus:—(December 1, 1888) “I have as yet refrained from publishing the full account of the inoculation, as I considered the report incomplete from a scientific point of view, and have written for further information. At the same time the report is amply sufficient to establish the simple fact, that Keanu, who was positively free from any trace of leprosy at the time of the inoculation, has since become a confirmed leper.

“Keanu had not developed any signs of leprosy when I saw him last, on June 5th, 1886. Up to that time he had, at my especial request, been kept confined to his cell and the prison yard, and not been employed at hard labour on the roads like the other prisoners, so as to avoid any outside leprous contamination.

“Taking into account the advanced state of the disease he presents now, and allowing at least a year for this development, he must have presented initial lesions just about three years after the inoculation. The turbulent state of political affairs at Honolulu during the year 1887 has, I am afraid, prevented any careful observation of the march of disease in this important case.

“Although I accept poor* Keanu's fate as most

* Enthusiastic sentimentality costs very little, and readily takes in the simple. It is a combination of a little that is kind with much

substantial evidence for the possibility of direct contagion of leprosy, still we must not forget that it does not convey a positive proof of the fact. As all experiments on animals have failed, even the limited number of cases of artificial leprosy in rabbits being well open to doubt, the question could only definitely be settled by the inoculation of a healthy individual of untainted nationality in a country free from leprosy."

The reasonableness of Dr. Arning's view of Keanu's case all must readily admit; but of this we may be certain, his present condition will be quite sufficient to encourage a growing and well supported conviction that, in a highly leprous country, the disease can be and is communicated, and that rapidly, by vaccination becoming inoculation thereof. Such a view is by no means a novel one, and, if it can be maintained, it

that is silly, and often does great harm. Dr. Arning has been severely blamed for inoculating Keanu. That able physician is world known for his long and skilful labours in behalf of the leper. He has lived among lepers for years, liable himself to become a leper; he has sedulously applied the microscope, and that with delicate care, to soil, water, food, air, vaccine matter, &c., that he might, if possible, discover the cause of leprosy's rapid progress in the Hawaiian Islands. And what is the reward he gets? The sentimentalist proclaims him cruel and heartless for inoculating with leprosy a condemned murderer, who, to save his life, submitted willingly and gladly to the experiment. "The experiment was performed [says the Doctor] after mature deliberation, and on the authority of the advisers of the Crown and the Privy Council of the State; influential foreigners, laymen, and learned judges reporting in committee on the subject. It was done with the condemned criminal's written consent, and with all such due care and exactness as to really advance our knowledge of the obscure disease. Will it not stand as having been done in the interests, not against the laws, of humanity?"—H. P. W.

suggests, nay it demands, the greatest possible care on the part of all who, in leprous lands, are engaged as official vaccinators.

To this important point let us now turn our attention. It is worthy our careful consideration, and is closely connected with the objection now specially before us.

Dr. Bakewell, in the year 1868, when Vaccinator-General of Trinidad, made grave allegations against vaccination before the Vaccination Committee of the House of Commons. He stated that it was an active conveyor of leprosy, and had increased the disease in Trinidad, Demerara, Barbadoes, and Jamaica; quoting the opinions of medical men in the several islands, as given in the Leprosy Report of Physicians, in support of his statements.

Dr. Munro, an opponent at all times as just as he is powerful, met the Vaccinator-General with the following facts, based upon unquestionable returns, set forth not to prove that leprosy cannot be conveyed by vaccination (for Dr. Munro, as we shall see, admits that it can), but that such was far from being the case in the West Indies:—

To dispose of Dr. Bakewell's statements, I may say: 1st. He is contradicted by the very Report to which he refers, at least as regards Trinidad and Barbadoes; while in Jamaica, although two medical men then thought the disease on the increase, their opinion is contradicted by a comparison between the consensus of 1861 and 1871; showing that, in 1861 there were 778 lepers among a population of 441,264,

while in 1871 there were only 749 in 506,154; or in 1861 1 in 567, in 1871 1 in 676 of the population. In other islands it is held to be decreasing, as Tobago. Only in Demerara is it unanimously decided (so far as mere opinion can decide such a matter) that it is on the increase; but this is distinctly attributed to the free intercourse of lepers with the healthy since 1838. Besides, Demerara is a badly vaccinated colony, so how could vaccination have *greatly* increased leprosy in it?

Dr. Bakewell admitted that Trinidad was a badly vaccinated island, only one half being protected in some districts, and in others none at all. *À fortiori*, a better vaccinated island would show a greater increase of leprosy; yet in Basseterre, St. Kitts, I found that from 1st January, 1867, to 30th June, 1871, the average living births were 280, the average vaccinations 137, the average age when vaccinated 18 months (calculated from 300 vaccinations). But I found that 98 children born died in the first 18 months, thus only 182 were left unvaccinated under the ordinary operation of the Act of 1854. But in 1854, 504, and in 1862, 359 were vaccinated, so that the real number unvaccinated would be less than that given above. I may say that I have every reason to believe that the other districts of St. Kitts have been almost, if not quite, as well vaccinated as Basseterre. Yet in St. Kitts, taking three periods, 1817, 1854, and 1872, I find there has been both a relative and absolute decrease of lepers.

In order that I might not compromise Dr. Munro

by leaving it to be supposed that he thoroughly repudiated the conveyance of leprosy by vaccination, I, at the end of last October, wrote to him on the subject. I alluded to the misleading and disturbing statements of Dr. Bakewell, and observed as follows: "In Jamaica with, in 1861, but one leper in 567 of the population, there was but little chance of the vaccine matter coming from a leper; but in such a country as the Sandwich Islands, where every fortieth inhabitant is believed to be leprous, and many have the disease incubating, the *vaccinifers* must constantly be (they vaccinate *en masse*) distributors of vaccine liquid crowded with bacilli; in other words I deem them the innocent causers of a terrible spread of leprosy." I received the following answer (it is dated November 3rd, 1888): "I am decidedly of opinion that by careless vaccination, bloody matter being taken with the vaccine lymph leprosy can and most certainly would be propagated. My argument against Dr. Bakewell simply showed the absurdity of his wild statement: that it was a common cause of the spread of leprosy in the West Indies. I decidedly consider that leprosy can be inoculated. You are, of course, right in the great difference of the danger in a population with one leper in 40, as compared with one in 1,500. I do not think, however, that vaccination, carefully done with vaccine lymph only, could cause the spread of leprosy. All the difficulties, however, can be got over by the use of calf lymph.—&c.,

"W. MUNRO."

The authority of Dr. Arning—no mean supporter—is entirely with Munro. His experiments fully justify the opinion set forth in the above letter. Arning, when in the Hawaiian Isles, found that, in some instances, new vaccinating centres seemed to have corresponded to new leprosy centres. He did not lay very much stress on that, because there are many reasons why it should be so. Still it led him to try some most carefully conducted experiments. And what was the result? He discovered bacilli in the lymph and in the vaccinal scabs taken from lepers, and at once, by way of warning, he called loudly upon all engaged in vaccinating among the leprosy to be delicately careful. In a letter received by me dated February 16, 1889, are the following words, which deserve to be written in letters of gold:—"The fact of the rapid spread of leprosy over the Hawaiian group after the introduction of very general, and I may say very careless vaccination, can never be overlooked. And once more, let me insist on the desideratum, that not only ought arm to arm vaccination in a leprosy country to be abolished altogether and animal vaccine used, but that this use of bovine lymph be coupled with utmost precautions. Never should a vaccinator, depending on the security provided by the calf lymph, forget that at mass-vaccinations he can convey germs of disease from one case to another by not thoroughly disinfecting his lancet from each patient. Still better would be the use of new points for every case."

The following facts, given by the eminent Professor

Dr. W. J. Gairdner, bear closely on the question before us, and strongly uphold Dr. Arning in his unqualified warning:—

“Six or seven years ago the parents of a young boy, fairly healthy in appearance, but with a peculiar eruption on the skin, brought him to me, and along with him a letter from a medical gentleman whom I had entirely, or almost entirely, forgotten, but who stated himself to have been a pupil of mine in Edinburgh considerably over twenty years before. It is unnecessary to enlarge on the particulars of this case further than to state, that, after more than one most careful examination, in which I had the assistance of my colleague, Professor McCall Anderson, we came to the conclusion, which we announced to the parents, that the boy was suffering from incipient, but still quite well-marked, leprosy in its exanthematous form; a diagnosis afterwards amply confirmed. What struck me at the time as most peculiar was, that this case, coming from a well-known endemic seat of leprosy (an island within the tropics), and with a letter involving medical details by a medical practitioner of many years' local experience—sent to me, moreover, for medical opinion and guidance—should not have been more frankly dealt with by a diagnosis announced even to the parents, before they left the island. The father of the child was a sea-captain constantly engaged in long voyages—for the most part between this country and the island alluded to. Both father and mother were Scotch, and there were several other children, all reported as quite healthy,

as also were both the parents. Under these circumstances I wrote to the medical man—who in the sequel may be called, for brevity, Dr. X.—simply stating the diagnosis arrived at, and indicating the line of treatment proposed. The parents were informed that it would be best for the child to live in this country, and his mother agreed to remain with him accordingly. And, as they appeared anxious to have every available suggestion and advice, I mentioned the name of Dr. Robert Liveing as having given much attention to the subject, and offered to write to him if they would take the boy to London, as they appeared desirous of doing. Although I wrote to Dr. Liveing, circumstances unknown to me led to a change in their plans, and, instead of going to London, they went to Manchester, where, I believe, some physician was consulted, but I do not remember who he was. Ultimately, the mother determined for a while to settle in Greenock, and I placed her accordingly in communication with Dr. Wilson of that town, who for sometime thereafter remained in medical charge of the case.

“Meanwhile, the course of post brought me in a few months a reply from Dr. X., not only entirely assenting to our diagnosis as communicated to him, but stating that he had been perfectly well aware from the first of the case being one of leprosy, but had deliberately chosen not to affirm the fact or even to allude to it in any way, either in his communications with the parents or in his letter to me. No reason was assigned for this (as it appeared to me) very

remarkable reticence ; but, as I did not wish to have the credit of having discovered for the first time what a gentleman so much more familiar with the disease might have been supposed to have overlooked, I took means to inform the parents of Dr. X.'s reply, and of his having been all along of the same opinion with regard to the disease as we were.

“After this the matter passed out of my mind, and for several years I neither saw nor heard of this child, except accidentally and in a way entirely to confirm first impressions. About three years ago, however, while engaged in lecturing on specific diseases, and among others briefly on leprosy, I made an effort to find out something more about this patient. The mother had removed from Greenock, and had brought over the whole family to Helensburgh, where, as I learned, they were visited by Drs. Reid and Sewell, and from the latter I now learned that the poor boy had gone steadily to the worse, and was extremely feeble, covered with sores, and in a most deplorable condition physically ; but still receiving every attention and care that constant medical treatment, with the most faithful and loving maternal nursing, could afford to lighten his sufferings. I accordingly proposed, within the next few days, a visit to my old patient as a matter of satisfaction to myself. Unhappily there was no other apparent object, either as regards diagnosis or treatment, for a visit which was, nevertheless, very gratefully accepted.

“The case was now in the most advanced stage of leprosy, proceeding to mutilation of the extremities,

and accompanied not only by external sores, but presumably by internal lesions, which had reduced the patient to the last stage of emaciation. It was on this visit that the curious particulars now to be related were first brought to my knowledge by Dr. Sewell, and afterwards confirmed by the statement of the mother, showing very clearly, though, of course, upon second-hand information to a certain extent, that Dr. X. had a very special reason for his extraordinary reticence in the first instance. Her husband, who in his frequent voyages had opportunities of coming into communication with Dr. X., had remarked to him how very strange it was that, even in writing to a medical man about the case, he had given no hint of his opinion about it. The Doctor's reply to this was, in the end, to the effect that he had kept silence because he did not wish to compromise a boy of his own, whom he (Dr. X.) believed to be a leper, and from whom he believed at the time that the boy he had sent to this country had become infected with the disease. He further explained that he had vaccinated his own boy with virus derived from a native child in a leprous family, and, as I understood (though perhaps not definitely so stated) that leprosy had declared itself in the native child after the vaccination ; and, further, that (using his own child as a *vaccinifer*) he had vaccinated our patient directly from him. Before sending the last-named patient away with his parents, he had satisfied his own mind not only that his own boy was leprous, but that he had in this way become the source of the disease to another ; but, the disease

in his own child being in a very mild form, he was anxious not to disclose its existence. Meanwhile Dr. X. had died ; his estate had passed into the hands of trustees ; and I was informed that this reputed leper-boy had been, under the instructions of his father and his guardian, placed and retained at a public school well known to me in this country, and that the boy was pursuing the usual course of a public-school education, in entire unconsciousness of the disease with which he was supposed to be affected.

“ This information, so communicated, placed me in rather a difficult dilemma, namely—was I justified in taking steps to ascertain the truth of the story as regards Dr. X.’s boy, either by personal investigation or, at least, by inquiries conducted so as to result in a well-grounded and scientifically exact opinion as to the facts ? And, further, supposing that such opinion should turn out to be that Dr. X.’s boy was a leper, was it a matter of duty, on account of others, to formally disclose the fact, be the consequences to the boy what they might ? It was hardly probable that a boy generally known to be a leper would be retained permanently in any public school in this country, even had it been unquestionably a matter of medical doctrine that such a proceeding was quite safe. On the other hand, the boy was receiving the benefits of an English education at the express wish and on the responsibility of his father and guardian, and without (so far as appeared) any misgivings on the part of anyone. He was an orphan, and in what was to him a foreign land ; his remaining under instruction

might be, and probably was, a matter of the greatest possible importance to him. To bring him, therefore, even by an indiscreet inquiry, under the ban, which in many or most countries still attaches to leprosy, was certainly no part of the business of an outsider, and could only be justified at all by an overwhelming sense of duty to others.

“ Under these circumstances I thought it well to consult, privately, one or two of those friends in London whom I believed to know most about leprosy, and among others Dr. Liveing, whom I was able to remind, at this stage, of my previous letter. These friends concurred in assuring me that, in the rather improbable event of their being personally consulted as to the retention of a leper in a public school (it being presumed, of course, that he was physically fit otherwise), they would have no hesitation in affirming that the other boys would not be endangered by such proceeding. As I happened to be very well acquainted with one of the medical officers (though not the ordinary medical officer) of the school in question, I communicated these opinions to him, and stated to him at the same time the extraordinary circumstances which had begotten, for me, such a lively interest in the son of Dr. X. In the course of a few days I was informed that an inquiry had been held by the medical staff; that the boy had been sent for and privately examined (though not ostensibly ill in any sense); and that it was, beyond all doubt, considered to be a case of leprosy. The medical authorities decided, however, that under the circum-

stances it was not their duty to sound the alarm, or in any way to disturb the boy's education.

From this time onwards (except the death of the first patient soon afterwards) I heard nothing more of these matters till a few weeks ago, when I was asked to see Dr. X.'s son professionally on behalf of the school authorities; and, if so advised, to request Dr. Anderson also to give an opinion as to the present state of health of this young man, who happened at the time to be visiting some friends in Glasgow. It was represented to me that he had maintained, on the whole, fairly good health since I last heard of him through my medical friend, and had not been incapacitated from school-work except on account of a contagious eczema which had been prevailing, and with which he had been affected in common with other boys. Apparently, however, the opinion had arisen that his general health was not quite so good, and that in view of a cutaneous affection of this kind, apparently communicable, existing, it was no longer expedient that he should remain at the school. Indeed, I could not but come to the conclusion that his removal, on public grounds, had been practically settled; and with every desire to soften the blow as much as possible to the poor boy, it was felt to be necessary that his guardian, at least, should receive unequivocal and unbiassed testimony as to the actual state of the facts and circumstances under which the decision was arrived at. Under these circumstances I saw and examined this boy, and made a report, along with Dr. Anderson, to the effect that

the disease was evidently leprosy, though of a remarkably mild type, as shown by discolorations and cicatrices, and also by large anæsthetic areas on the back of one limb. All breaches of surface, however, and all discharge had ceased at the time of our report, and Dr. Anderson felt still in a position to affirm that no danger to others could occur from the boy's remaining at school. On this last point I did not feel able to give an unqualified assent to my colleague's opinion ; but as regards the matters of fact and observation there was no doubt whatever, and our report accordingly on these was substantially as above."

A medical officer in charge of the Trinidad Leper Asylum, having expressed himself dissatisfied with the case set forth by the professor, Dr. Gairdner gave the following straightforward reply, supporting his opinion by a valuable "contribution towards the truth"—a letter from Dr. R. F. Black, of Trinidad, written to the Acting Surgeon-General of the island for the information of the Governor:—

GLASGOW.

SIR,—In submitting to you some curious facts and statements which had been brought under my notice as bearing on the above subject (see Journal, June 11th, 1887), I was exceedingly careful not to obtrude any opinion of my own. It was clear from the first that the mere statement of such detail would waken up some very old controversies, and would perhaps involve very serious practical issues ; but these considerations did not appear to me to justify withholding the facts, but rather the public statement of them in as unbiassed a form as was possible. My own experience

of leprosy has not been such as to permit me to form or to maintain any general conclusions whatever, apart from sources which are as open to your readers as they are to me. I will only say here, therefore, in reply to some of your correspondents:—

1. That, according to my information, it is all but certain that both Dr. X. and his wife were Europeans, and their son (the presumed vaccinifer and actual leper) has all the characteristics of unmixed European or British blood.

2. That the same remark applies, still more absolutely, to the "sea captain" and his wife, and that the whole of their progeny, as I saw them, were entirely without traces of other than European, or more definitely Scottish extraction.

3. Dr. X. confessedly vaccinated his own child from a leprous family, though probably not from an actual or apparent leper, and then vaccinated the "sea captain's" boy from his own.

My own opinion on these facts is of no consequence at all, and I do not mean, therefore, to enter into any controversy on the subject; but the letter here enclosed having reached me in such a way that I feel entitled, if not bound, to use it as a contribution towards the truth, I place it in your hands with the remark that the author of it is in no way responsible for its publication.

I am, &c.,

W. T. GAIRDNER.

Letter from Dr. R. F. Black, Port of Spain, Trinidad, in reply to a circular (No. 1818) marked "Confidential," from C. Burgoyne Pasley, Acting Surgeon-General, Trinidad.

76, QUEEN STREET, July 16th, 1887.

SIR,—I have the honour to acknowledge the receipt of your confidential circular, No. 1818, dated 12th instant, and beg to state, for the information of His Excellency the

Governor, that my experience of leprosy agrees with the statements of Professor W. T. Gairdner of Glasgow, contained in your circular, and that I am of opinion that the disease in question is communicable by vaccination lymph from healthy vesicles alone being used.

I myself have seen two or three cases of leprosy following vaccination, and have questioned the parents closely, but failed to ascertain or detect any family taint in either; both the parents were respectively from Africa and China, the other was of Creole parentage, but all the children were born here. With reference to these facts I may mention here that as far as I can recollect, the periods of incubation after vaccination were from two to three years, in fact immediately after vaccination all were seized with obstinate cutaneous eruptions. As these were casual cases I kept no memoranda, and as they did not return I lost sight of them, they probably concluding that it was hopeless to do so. I am also of opinion, for the reasons here stated, that arm-to-arm vaccination, in Trinidad at least, where leprosy is decidedly on the increase, is bad, as many very respectable families here are tainted with the disease, and nearly all the Portuguese have some member of their families actually diseased.

In conclusion, I may mention that I am also of the opinion that leprosy, like tubercular phthisis, and cancer, &c., is hereditary and contagious.

I have the honour to be, Sir,

Your obedient servant,

R. F. BLACK.

Dr. C. B. Pasley, Acting Surgeon-General, &c.

The latest testimony as to the "deplorable increase" of leprosy in the West Indies, and its propagation by

vaccinating with tainted lymph, is that supplied in a letter, dated George Town, Demerara, January 19, 1889:—

The leper asylums at Trinidad and Barbadoes are full, and those at Mahaica and Goreham in British Guiana are full to overflowing. Patients are now being received in the Colonial Hospital, Georgetown, where I saw several a few days ago. These facts, however, afford no adequate criterion of the extent of this fearful encroachment. In the country districts the case is worse. Dr. J. N. Veendam, a Government medical officer, out of about 250 labourers, most of whom are coolies, found some 50 tainted with leprosy. Dr. J. Bechtinger, of St. Thomas, D.W.I., who has devoted 27 years to the study of leprosy in the West Indies, the Sandwich Islands, India, and British Guiana, says, that undoubtedly one cause is the contaminated vaccine virus, and he does not hesitate to say that vaccination is responsible for a serious augmentation of the disease.

During a visit up the River Essequibo, the British Commissioner and Resident Magistrate, Mr. Michael McTurk, of Kalacoon, a man of keen powers of observation, told me he knew for a fact that leprosy was communicated by vaccination. He was intimately acquainted with a healthy family in which one of the children was infected with leprosy by vaccine virus from a leprous child. The unfortunate victim was isolated in a small building in the garden of its parents' house, and after some years of suffering succumbed to this hideous malady. As an explorer

Mr. McTurk had been much amongst the Indians, all his servants and boatmen belonging to that race, and he had never known or heard of a case of leprosy amongst them. This was confirmed by Mr. John Bracey, of Bartica Grove, an Indian trader of twenty-nine years' experience amongst the Macousi and Wapisiana tribes, and by the Rev. J. Keelan, the missionary to this Indian settlement. No Indian in the wilderness will allow himself or his children to be vaccinated, and their immunity from leprosy is attributed to this circumstance.

Dr. John D. Hillis, F.R.C.S., formerly the Medical Superintendent-General of the Leper Asylum, Mahaica, British Guiana, quotes several cases of leprosy communicated by vaccination, and says: "I have already given some cases in which there could be no reasonable doubt but that the disease was produced by vaccination with tainted lymph . . . and we have the testimony in favour of this mode of propagation from such men as Tilbury Fox and Erasmus Wilson." *

Much, very much seems to imply, that leprosy can be communicated by inoculation, and is communicated by vaccination. I have given some interesting facts, and having done so, as in duty and prudence bound, I leave the decision of this important and delicate question to time and the steady scrutiny of zealous and earnest leprists.

Objection 3. Married couples live together many years, one being leprous, without the other being affected.

* Signed W. Tebb.

Dr. Munro.—In regard to married couples, when the husband is leprous the procreating power is generally lost, so that the risk to the wife is exactly the same as that of any other person continually in contact with a patient. Again, although at no age is there immunity from attacks, yet the tendency to the disease certainly seems to be greatest within the first 30 years ; as in 47 cases, given by Wortabet, 36 were attacked before 30 years of age, and only 4 after 40. Similar results appear in Daniellsen and Boech's tables, which show that, in altogether (in Norway and Europe) 272 cases, 134 were attacked before 20, and 202 before 30 years of age. In 72 cases on St. Kitts I found that, in 36 cases of joint evil, the mean age of attack was 24, the earliest 6, and the latest 50. In 36 tuberculated cases the mean age was 16 years, the earliest 3 years, and the latest 50. Thus 49 of the 72 cases were attacked between birth and their twentieth year, and 61 before they had completed their thirtieth year, leaving only 11 attacked after that age.

The greatest tendency to the disease appears to exist from the tenth to the twentieth year. After the thirtieth year is past the tendency appears to become almost nil. The bearing of this on the escape of women married to lepers is obvious. The earliest age at which any married man was attacked in St. Kitts was twenty-eight years ; it was sometime thereafter before he became a confirmed leper ; in the meantime his wife, who was about the same age with himself, was rapidly passing beyond the age of

susceptibility. The wives of those attacked later in life would have still less chances of being affected.

Thus leprosy attacking a male prevents marriage, and, when it occurs after marriage, by the time the man is in a state to communicate the disease, his wife has from her age become in most cases insusceptible.

In spite of these facts, which tend to keep down the numbers, the undisputed testimony that wives, in a variety of instances, have been attacked after husbands, and that where inquiries have not been carried far enough to decide which was attacked first, married couples have been noted as both being lepers, renders the argument against contagion worthless. Tilbury Fox, Planck, E. Wilson, Van Holst of Dutch Guiana, Manget of Demerara, and Nicholson of Antigua, each quote a case of a European affected by, or, at least, after cohabiting with a leper woman. Kopasi mentions an Italian affected at Cairo, whose wife was attacked two weeks later. The Proto-Medico (Corfu) and Reynaud (Mauritius) mention three cases of wives affected from husbands. Dr. Carney (Guiana) says: "A woman lived irregularly with an old leprous African, and she afterwards became leprous." Vandyke Carter gives similar cases to Reynaud's, and mentions one case of a husband affected after a wife, and two of wives after their husbands. In one of the last cases *her* son was also attacked. Macnamara gives four cases of wives after husbands, and one of a husband after a wife. Those so attacked belonged to healthy families. Be-

sides these, Schillingius distinctly tells us, "I could point out many examples by name, both of husbands and wives who have contracted the disease during marriage."

Drs. Besnier and Leloir are fully in accord with Dr. Munro, the latter giving interesting particulars of three striking cases, remarking, with truth and great force, that negative cases can be met by a goodly number of cases positive. He also observes, that with husband and wife the contaminator, as long as possible, conceals the injury done to the other; and then supports his position by quoting M. Leudel, who, in 1884, showed that consumption, an admitted contagious disease, is rarely marital.

On the whole, facts encourage us to go heartily and entirely with Munro, when he sums up his reasoning thus: In the face of the cases quoted I cannot but think, that the statement that wives or husbands are never affected from one another, or at least after one another, is incorrect, and any argument founded on it falls to the ground.

Objection 4. That doctors, hospital-dressers, and others attending on lepers, never take the disease from their patients.

Dr. Besnier.—It is with pain and grief I answer this objection, having well in my mind the unfortunate Sisters of Charity, and the noble Father Damien, who have, through their holy self-sacrifice, become victims of this terrible disease; and, not less to be honoured, the faithful doctors who, leper stricken, have fallen before a relentless foe. Attendants do not take the

disease! Can that be said when from 9 to 10 per cent. of the Kokuas employed at Molukai become lepers, and, out of 943 sufferers in that awful home of sorrow 52 contracted the disease, while striving to relieve the sufferings and minister to the wants of their Hawaiian brothers and sisters? Happily, with leprosy as with other maladies, they who succour the sick are, for the most part, mercifully allowed to escape the scourge. Go to the great hospitals of Paris, to the 'Midi,' 'Lourcine,' 'St. Louis': there we literally handle day by day contagious matter, and yet, a foul disease with but one mode of transmission—inoculation—is rarely conveyed to the operator. The exceptions, however serious they may prove, are soon forgotten. For more than fifteen years I have had experience on this point in the hospital St. Louis, and within my own personal observation I have never known, in the disease to which I allude, a single case of its contagiously affecting a doctor, a religious, a medical student, or any other attending on the sick.

Such being the case, are we to be astonished that they, who in hospitals attend upon lepers, are not affected by a disease which, it must be remembered, requires no continuous handling.

Dr. Leloir.—I have seen in the leper hospitals of Norway, especially in Bergen, a certain number of sick suffering from various skin diseases (lupus, eczema, favus); also in that of St. Remo, lepers in the same ward with skin-affected patients—indeed it is the same in the hospital of St. Louis in Paris. Never have I known a hospital-attendant, or any patient,

become leprous. At the same time, Schelling, Macnamara, Landré, Hillebrand, Robertson, Livingstone, Carter, Pasquier, and many others, have published cases where attendants on lepers, even doctors themselves, have been after a time attacked by the disease. Only very recently, 13th October, 1885, Dr. Vidal placed before the Academy of Medicine the case of a Brazilian doctor who attended lepers, and himself at length became a leper. Then again how many medical men, Sisters of Charity, nurses, &c. are constantly attending on the consumptive, teignous, &c., who continue in perfect health, and those are diseases far more contagious than leprosy.

Dr. Munro.—The argument that hospital-dressers, surgeons, and others attending lepers are never attacked, were it even true, is of no value, as the same might be said of such persons in Lock Hospitals; yet no one denies that the disease there treated is communicable. But the case of Dr. Robertson, medical attendant of the Curieuse Asylum, and those of several hospital-dressers, some of whom at least were of clean families, are on record. Similar to these, though not occurring in leper asylums, were the cases of Dr. Livingstone and Kirk, threatened with disease after attending a leper; and such cases as that of a Brahmin servant, of healthy family, who was attacked after twelve years' attendance on a leper master, having had to wash and dress his sores. Carter mentions two cases occurring in the children of a Sepoy in charge of the Dhurumsala hospital, who with his wife was healthy.

No doubt, of many exposed to the disease only a certain number take it, but exactly the same may be said of every contagious disease. Even the most violently *infectious* diseases, poisoning every fluid surrounding the patient, never attack all exposed to their influence; how much less then can leprosy, which requires either direct inoculation or very prolonged contact to be repeated constantly, attack all brought in any way into communication with the diseased person? That it does, however, sometimes attack a number of persons from one source is proved by the series of cases mentioned by Macnamara and Landré, and those already spoken of by myself.

Objection 5. That imported leprosy never spreads.

Dr. Munro.—As to leprosy never spreading when imported, I have already shown that it is not likely to do so in a well-fed population; but Dr. Owen Ree's case of the Irishwoman in Stepney, and Gaskoin's case from Guernsey, must be accounted for otherwise than by contagion, brought from abroad, before the assertion can be accepted as correct, or any argument founded on it be accepted as of value.

Dr. Besnier.—It is a favourite cry, and we have recently heard it here, that lepers come to Paris but never cause a spread of leprosy; how then can the disease be contagious? Look, they add, at the lepers cared for in private families, in health-retreats, in your own hospitals, in some of your religious communities: have they ever extended leprosy in Paris? No, not that I am aware of, or to express my view more exactly, not yet. Large cities, large hospitals,

and other places I have named, are little likely to cultivate and foster the leper element. There, be it remembered, the strictest possible attention is paid to the laws of hygiene : bathing and washing are the rule, the medical man's supervision is regular, free intercourse with the non-leprous can scarcely exist, for the lepers treated are in so repulsive a condition that all other patients studiously avoid them. The state of things is precisely the opposite of that found in the lands of the leprous ; in every way the reverse of the conditions which produce centres of the disease.

Dr. Leloir.—Leprous virus, we are told, never spreads when it is brought into a non-leprous country. Why, that is an absolute denial of all that has been observed and can still be. It has been proved, and these objecting doctors know it full well, for all experience has evidenced it, that the invasion of a country by leprosy has always coincided with the introduction of lepers into that country ; and races, which have avoided intercourse with leprous people, have remained intact. For the truth of this we have only to refer anti-contagionist doctors to the very histories of leprosy, that some of themselves have so ably written.

But here I need not enter further upon this important point. It will be carefully examined when we consider the, to us, very serious question, "Is England in danger?"

CHAPTER IV.

Is Leprosy again to become epidemic in Europe?

TO rashly put forth a scare may draw public attention to the scarer for a little moment, but it is a notoriety no sensible man would seek. Equally true is it, that he is a craven creature who is afraid to speak out boldly, when he believes that there is cause for warning against a threatening trouble. Of course the value of that warning will depend entirely upon the authorities by which it is supported. All this applies particularly to leprosy, and to those who declare that the disease is greatly on the increase; and that, unless due precautions be taken, it will ruthlessly invade our Colonies and other lands in which it is as yet unknown,—nay, that it will become again, and that speedily, a common scourge throughout Europe.

That my conviction is entirely in that direction I readily admit; and I as readily admit that, by itself, such conviction would be next to worthless. But I base that conviction on the highest testimony, and am supported therein by outbreaks of leprosy, some in far-off lands,—others almost at our very doors.

First, let us examine what has recently taken place in our Colonies and other lands, and then study carefully the valuable advice of those whose long practice among lepers entitles them to be heard.

In Australia the alarm is being sounded. During January of this year, in Victoria, the attention of the Board of Health was directed to the necessity of taking further steps for the prevention of the spread of leprosy. Special action, they said, was being taken in France and England; how much more, they reasoned, ought Victoria to be on its guard, seeing that the Chinese were ever crowding in to the colony. At that time there were only four known cases of leprosy in Victoria, viz., two in Ballarat, one in the Sandhurst district, and another at the Leper House near the quarantine station. It is always very difficult to get statistics as to leprosy. Friends and relatives hide the poor sufferers, and not a few live and die unknown. The Central Board of Health undoubtedly were well aware of that, for they successfully urged the Chief Secretary to insert in the Public Health Law Amendment Bill a clause, providing for the treatment of lepers. It authorised the Governor-in-Council to make orders from time to time, directing that the lower quarantine station, or other suitable place, should be set apart for the reception and medical treatment of lepers, and directing that such lepers "might be detained, until released by order of the Minister or of the Central Board." Unfortunately the measure was not passed, but the matter will, it is said, receive further consideration at an early meeting of the Central Board of Health.

A paragraph in the Sydney Paper of April, 1888, gives the following facts without comment, as if the

news was nothing extraordinary:—"A Chinaman, suffering from leprosy, was found living in a street off Belmore Park, City, to-day. He was removed to Little Bay Hospital Leper-house, where seven other Chinamen similarly afflicted are confined."

The *Townsville Herald*, 29th Dec., 1888, bids Australia beware:—

"All Australians should read an article in the October number of the *Nineteenth Century*, on Leprosy. We take great precautions to prevent the introduction of hydrophobia among our dogs. But we have no safeguard against the importation and spread of leprosy in the persons of Chinese colonists. The danger to human life in Australia is far greater in the latter than in the former case, and leprosy is a more terrible complaint than even hydrophobia. Leprosy is far more common among Chinamen than is generally known, and it often first makes its appearance in their hands. That the disease is transmitted by contagion is undoubted. Yet we calmly permit the hawking of vegetables and fruit by Chinamen of the lowest class, and few people even take the trouble to wash apples or oranges handed to them by 'John' out of his basket, before eating them. We frankly confess our desire to see both the production and distribution of fruits and vegetables in North Queensland transferred from Chinamen to Europeans. Vegetables can be profitably grown by white colonists, and it is really their cheap distributing power which gives Chinese the monopoly in this branch of agriculture. Were there no Chinese hawkers, householders

would procure their supplies from green-grocers' shops, and in Municipal markets."

In Queensland there are, it is thought, many lepers. The position of the Colony and its climate have rendered it a favourite resort for Chinese. In March last (1888) a sad announcement was made:—"A telegram from Georgetown says that some Chinese lepers have been there for some time, living with aborigines, among whom leprosy is spreading. An enthusiastic public meeting passed resolutions urging the Colonial Secretary to take immediate steps to prevent the further spread of leprosy on the Ridge Goldfields." *

Leaving Australia let us pass over to South Africa. There matters are still worse. At a meeting of the Maritzburg Working Men's Association, in March of last year, a telling appeal was made for protection against leprosy. Mr. Hershensohnn moved:—

"That this Association is of opinion, that it is high time that the Government took steps calculated to eradicate that foul disease, known by the name of leprosy, as it is endangering the safety of the public."

* A recent report gives an alarming account of the ravages of leprosy among the natives of New Caledonia. How far that report is true at present we cannot say; but we may fairly suppose that the disease is actively at work in this French penal settlement. The numbers given were 4000 lepers, of a population not exceeding 25,000. Such a percentage is out of the question, 400 would be something terrible to contemplate. Inquiry should at once be made, and, if leprosy does prevail in the island, all necessary precautions should be taken by the Australian colonies. We know how California has suffered by lepers fleeing to it from the Hawaiian Islands. Fugitive French convicts and others may also speedily carry the disease to regions already beginning to feel the scourge.—H.P.W.

In doing so the mover said, that the question was one of the greatest importance. At this moment they were surrounded by a danger, of which they knew but very little ; but which, nevertheless, was a very great danger. The Press had drawn the attention of the Government to the existence of this disease in the Colony, and, after a great deal of writing, the Government had appointed a Commission to inquire into the subject, whose Report was issued in July, 1886. From that report he gathered that, prior to 1843, such a disease as leprosy was quite unknown in this Colony. In that year, however, a couple of Kafirs brought the disease to Greytown, and since then it had spread alarmingly all over the Colony. The report computed the number to be very small, but to his own knowledge in Weever County, where the Resident Magistrate had reported the existence of only seven lepers, there were two kraals infected with the disease, and he thought that the number would be nearer twenty or thirty than seven. Distributed over the Colony he estimated that there were something like several hundred lepers. Leprosy, he said, was a disease for which a cure had never yet been found. The doctors of the Royal College of Physicians denied that the disease was contagious, but he contended it was, and asked, if it were not, how came it to spread so much in this Colony? There were several lepers in this very city, and one, a poor miserable woman in a degraded condition. Before they had time to think of it they might have the foul disease in their very midst. There were several lepers in

the Zwartkop. And leprosy had this peculiarity, that its germs lay dormant in the body for many years. Notwithstanding the report of the Commission nothing had been done, but, from his personal experience of the Governor, he knew him to have the good of the Colony at heart ; and he believed that, if they were to represent the matter in a proper light to him, he would take steps to remedy the evil. In conclusion, he called upon the Secretary to read certain extracts from the Leprosy Commission Report, and then moved his motion, which was duly seconded and carried.

The resolution, so plainly reasonable, was forwarded to the Government, and in due season a reply was received that the matter was under consideration, but that the question was beset with many difficulties. The *Natal Witness*, in a leader (April 28th, 1888), comments severely on the Government's hesitation.

“ If the Government would face difficulties instead of seeking either to escape or circumvent them, the task they set themselves would be rendered much easier. Considering that the report of the Commission was published on the 28th of September, 1886, it is not satisfactory to learn, that the Government has formed no opinion, and is undecided as to the course of action to be taken. In the Commission's report it was hinted, that to secure the object aimed at—segregation and isolation of those affected—some degree of delicacy and regard for the feelings of the natives would have to be exercised. It is probably the regard for the feelings of natives which prevents

the Government from moving, but, in a matter of a nature so urgent as this, it is, we hold, a crime to exhibit any delicacy. If an evil has to be stamped out, whether it be a moral, social, or sanitary one, the foot must be put down and kept down. The Commission took upon itself to assure native chiefs and headmen that the Government had no intention of exercising compulsion. If this assurance was authorised, it was a most improper proceeding on the part of the Government, as the object of a Commission is to have the fullest and most searching inquiry; and reports and suggestions are worthless, if they are to be hampered by conditions laid down before the inquiry commences. If it was unauthorised, the conduct of the Commission was inexcusable, and tended to defeat the object for which it was appointed. We recur to this disagreeable subject, not only because public opinion is at last awakening to the necessity of action, but because it is attracting attention in the neighbouring Colony....It is bad enough to know that diseases are rampant, but it is far more terrible to learn that, through the apathy of Governments and the indifference of local authorities, a new phase of horridness is being introduced."

As we go southwards matters become worse. Speaking at Cape Town of leprosy before the South African Medical Association, June 28th, 1888, Dr. Charles F. K. Murray gave the following valuable warning:—

"Viewed by the medical profession as an incurable disease, and with a divided opinion as to its powers of propagation through contagion, very little time and

practical attention is given to leprosy. An uncertain light being thus thrown upon it by medical science, it is only natural that the public should feel but slightly concerned about it; and that concern only felt by the more educated of the upper classes is not at all shared by the lower, who cheerfully harbour their diseased relatives, and, unless driven by necessity, will not allow them to be sent elsewhere for treatment. Impressed as I am with the danger threatening the public health from this source alone, and with the risk of contagion at certain stages of this disease and under certain conditions, I think it is high time that the public should be warned as to what is really taking place in our midst. Is it just that we should adopt in this disease the *laissez faire* policy, and allow lepers to carry on the various trades which they do at present, such as hawkers of fruit, vegetables, and fish, tailors, dressmakers, laundresses, buttermakers and confectioners. I believe firmly that if the present *wacht en beetje* course is adopted, we shall hand down to posterity a disease which will prove here, as it has already proved itself elsewhere, to be the most loathsome scourge that the human race is subject to.

Now, what do we find exists here? Referring to the report of the Select Committee of the House of Assembly, in 1883, we find abundant evidence of the spread of leprosy in this country, and that the disease is slowly but surely gaining ground amongst the white population. The result of the inquiry of that committee is briefly and clearly stated, and the only known remedy pointed out, namely, 'segregation,'

and yet practically nothing has been done. Acts of Parliament may be drawn up and passed, but they are never promulgated, and still the evil grows, till one day there will be a rude awakening.

Dr. Murray may well speak earnestly and anxiously, for in the Cape Colony lepers undoubtedly abound, and one is compelled with him to ask the serious question, 'What will the end be?' In 1884, the Leprosy Repression Act was passed, giving the Colonial Secretary the power of ordering any known leper to be removed to some appointed asylum or hospital, there to be detained during pleasure, and kept apart from all other inmates not afflicted with the same disease. Males in such hospitals, to be segregated from females. Nothing could be more sensible than such an enactment, but to this day it has been of no avail. It has never been promulgated, the Government not having had at command sufficient funds to put it in force. Nor is there, we fear, any prospect of its being effectively worked, judging from the answer received by Dr. Atherstone from Government in August 1888:

Dr. Atherstone asked whether any action had been taken by the Government, under the provisions of the Leprosy Repression Act, to check the spread of that terrible disease. The honourable mover, said he put this notice on the paper because of the spread of leprosy, especially in the western districts. Several distressing cases had been reported to him. The care-taker at the Round House, Camp's Bay, had a family of twelve children, and the mother and two of

the children were afflicted with leprosy, and yet they were engaged in washing and ironing clothes, and selling fish. Moreover, some of the other children a few weeks ago showed symptoms of the disease. Recently a sad case was reported to him of a well-to-do gentleman having contracted the disease from a school-fellow years ago. It happened that the school-fellow belonged to a family in which leprosy existed, and he communicated it to this gentleman. Both were now suffering from the disease. He was informed that in one house at Kalk Bay there had been three generations of lepers. He was pleased to see that the sum of £10,000 had been placed upon the supplementary estimates, providing for the removal of curable lunatics to the mainland, and hoped that the splendid building on Robben Island would be prepared for the reception of lepers with as little delay as possible. Many respectable families would be glad to pay handsomely for a comfortable asylum, in which their afflicted relatives could be treated. He suggested that the Government should remove the whole of the lunatics to the mainland, and set Robben Island apart for the segregation and isolation of lepers. Letters which had been received from England showed that people were deterred from coming to the colony, owing to the alarming extent of the disease.

Mr. Tudhope, Colonial Secretary, said the matter had not been overlooked by the Government. They were fully alive to the importance of taking steps to proclaim the Act of 1884, had funds been provided

for the purpose. When he made inquiries as to the cost of carrying out the Act, he found that 9,000*l.* would be necessary to provide segregation throughout the colony. The provision of such a sum, in the present state of the finances of the Colony, would be impossible. Meantime the Government were taking such steps as lay in their power, by increasing the accommodation at Robben Island to provide for the isolation of cases. There were now at Robben Island eighty-eight lepers,—sixty-six males. Owing, however, to the absence of compulsory powers on the part of the Government, it was impossible to induce persons to reside on the island permanently. If compulsory powers were granted, persons could be entirely segregated, and so prevented from communicating with their fellow-men.

Mr. Tudhope during the debate stated, that although leprosy existed to a very large extent, it was not, he believed, on that rapid increase so generally supposed.

To show to what a terrible extent it does exist, I give brief extracts from the Reports of the District-Surgeons for the year 1886:—

Albany. Leprosy is not often seen in this district, but during the year there have been two cases in the Hospital. These sufferers are now at large, owing to the want of legal authority for their detention.

Albert. Leprosy exists in this district, but no new case has been reported to me.

Alexandria. Leprosy is spreading rapidly, and, unless some active and efficient measures are soon

taken, will become a matter for the most serious consideration.

Bathurst. The total number of cases of leprosy seen by me has been only five,—two in the Convict Station, two in the Trunk Hospital, and one at large.

Caledon. There are several cases of leprosy to my certain knowledge in the district, and these cases are not solely confined to the coloured population ; but, as we have no power to compulsorily isolate and treat them, these lepers mix with the rest of the population, and I am sure will spread the disease still more. I would strongly recommend the promulgation of the Leprosy Act, as I am convinced that, unless the disease be checked now, it will cause great suffering (at least in this district) in the future.

Cape Wynberg. On leprosy I have nothing further to add to my previous remarks thereon, forwarded for several consecutive years. I believe it to be considerably on the increase, and should be stringently dealt with.

Cradock. Fifteen cases of leprosy have occurred, *all in an early stage.*

Hope Town. It is impossible to say how many persons are suffering from leprosy. It is probably not very common, though now and then a case is seen, usually by accident. One female leper with the loss of all her fingers and toes is a pauper supported by the Government.

King William's Town. There are a few cases of leprosy in Grey's Hospital.

Malmesbury. With reference to leprosy the disease

is slowly but surely increasing, each fresh case acting as the nucleus to a more or less extended infection. I would humbly but strongly recommend, that a rule should be enforced, not allowing any leper, once confined on Robben Island, to leave the place on any pretext whatever.

Middleburg. There are three cases of leprosy in the town. The sight of one of them, crawling about the streets, is loathsome indeed.

Paarl. Leprosy is on the increase. It would be an unspeakable blessing if forcible isolation could be resorted to, for, if things are allowed to go on as at present, a very considerable part of this division is likely to be affected in another quarter of a century, and we shall hand down to posterity unchecked one of the most heinous of all diseases. As I said, leprosy is on the increase. It is deplorable to see what strides it is taking. I cannot give statistics, for people who are affected hide themselves, and often it is only by accident that one comes upon them.

Peddie. I know about fifteen lepers in the district. The only remedy will be to have them removed.

Sleynsburg. With regard to leprosy, afflicted persons and their friends know that social death follows discovery, and in consequence the cases, unfortunately for friends and neighbours, are not found out until the disease is far advanced, and other healthy persons perhaps contaminated. Both varieties of the disease are met with, but the anæsthetic variety is oftenest seen. Nothing less than complete isolation will suffice to rid the land of this scourge.

Stuttessheim. One case of leprosy sent to Robben Island from the gaol, and one case in its earliest stage now at the Convict Station, are the only ones seen by me during my term of office :—since last May.

Tulbagh. Two cases of leprosy have been brought under my notice during the past year, but I have reason to suppose that many more might be brought to light. Amongst the white population cases are sometimes hidden, so that the family may not be shunned by their neighbours, and the coloured people do not apply for treatment until the disease has reached an advanced stage.

This sickening picture of leprosy presented by the Cape, the loud cry of medical men for the isolation of lepers, and the warning they give of the terrible result that must follow unless timely measures be adopted, are surely a lesson to us all, which we should do well to heed. With Europe's ever-increasing inter-communion with South Africa and Madagascar, where lepers abound, ought not care to be taken, lest once more a fresh fire of leprosy be lighted up in our midst?

Crossing the Atlantic, and landing at New Orleans, the cry, "Europe! beware," is still heard, for there, very lately indeed, has been an alarming outbreak of leprosy. In the *British Medical Journal* of Nov 24th, 1888, we find as follows :—

"Dr. Henry W. Blanc has published in the *New Orleans Medical and Surgical Journal* an important series of notes on forty-two cases of leprosy observed in New Orleans,—all the cases having been seen for

the first time within the last five years, and the large majority since the beginning of 1886. It is known that the disease has long been endemic in Louisiana, but we were not prepared to be told, that so large a number of cases, amounting to no less than 1·7 per 10,000 of the population of New Orleans, could be collected by a single physician ; and even when full allowance is made for the facts that Dr. Blanc is in charge of the skin department of the Charity Hospital, and that the majority of lepers gravitate to New Orleans, the numbers still appear to be large. He himself admits that no previous writer has ever reported as many cases in New Orleans. Leprosy, he says, is undoubtedly increasing in the city, slowly, but steadily. Whether the same might not be said of the whole civilised world is a serious question, which will surely engage the careful attention of sanitarians and public authorities before many years are passed. Of Dr. Blanc's forty-two cases, twenty-nine were natives of Louisiana, and twenty-two of New Orleans,—seven were born in Germany,* one in Austria, one in England, one in France, and one in Italy. The length of time these people had been resident in Louisiana is not in all cases stated ; but the shortest period actually given is twenty years. It was ascertained that ten of the patients had relatives who were suffering from the same disease. In a few cases there was presumptive evidence that the disease had been contracted by accidental inoculation.

* It has been observed that of all immigrants from Europe natives of Germany most readily take the disease. Why, *quien sabe!*—H. P. W.

In others the patients had resided in localities where there was reason to believe that the disease was unusually prevalent ; and, altogether, the evidence in these cases, so far as it goes, is in favour that the disease is acquired, rather than hereditary. Dr. Blanc, like most other observers who have been brought into direct contact with the disease, says that the only plan that seems likely to prove of lasting benefit to all concerned is complete and perfect isolation of the lepers."

If we leave the leading city of the south of the United States, and make for the city of cities, Philadelphia, there also leprosy has been, within the last few months, very active. On the 18th of May 1888, *Health* tells us thus :

"The recent cases of leprosy in Philadelphia have been the means of awakening a new interest in that loathsome disease. Dr. Charles W. Allen, in the *New York Medical Journal*, gives a most complete account of the disease, and the views of the best authorities regarding its communicability. His conclusions are as follows : (1) Leprosy has existed to a considerable extent in this country during the past twenty years. (2) The tendency is for the disease to increase, not only from immigration, but also from the occurrence of sporadic cases. (3) It is a contagious disease, and may be transmitted from parent to offspring. (4) Transmission also probably takes place, in some instances at least, through inoculation. (5) Segregation has been proved to be the only sure means of freeing a country from its ravages. (6) It is the duty

of the Government to establish central leper-hospitals, or isolated settlements, for the protection of the community at large."

But in the United States outbreaks of leprosy are not confined to the great cities on the coast. Norwegians have brought it into Minnesota, Wisconsin, and Michigan. The Indians of the North West are beginning to suffer. The Chinese have settled leprosy in California (especially in St. Francisco) and Oregon, and even a worse influence seems to be coming in from Honolulu. Early in June last, Mr. John Putnam, United States Consul to the Sandwich Islands, made a warning Report to the State Department, that a large number of persons afflicted with leprosy, or giving evidence of leprous tendencies, emigrate from the Islands to the United States yearly. The aggregate is said to be much larger than is generally supposed. It is impossible, says Mr. Putnam, to give statistics, but, when the whites are convinced that the disease is upon them, they, if they have the means, flee from Hawaii before full development, to escape imprisonment on the "horrible Island of Death."

And there is danger from a nearer home of leprosy, and a very serious danger. In the *New York Tribune*, of Feb. 2, 1889, we find the following report from Havanna :

"This city is threatened with an epidemic of leprosy in its most hideous form. In Zanfa Street there are over 150 Chinese in a decayed, leprous condition who freely mingle with other people, and actually make and expose for sale cheap candies and cakes."

But while this rapid progress of leprosy is going on, so that lands, which until lately have scarcely known a leper, are now becoming heavily afflicted, is there, it may be asked, any sign of the disease making fresh attacks on countries in Europe? I answer undoubtedly there is; so much so, that the highest authorities bid the over-confident beware.

Leprosy has greatly increased of late in the Russian provinces of the Baltic; so much so that last year a "Society for combating Leprosy" was founded in Dorpat, under the presidency of Professor Wahl, but otherwise composed almost entirely of lay members. In order to judge of the actual number of cases, Dr. Hellat of Dorpat travelled through the Baltic provinces, and collected highly valuable information. His results show, that the reports made to Government were most imperfect. In Livonia he found 276 cases, though the official statistics only reported 108. In Courland he found seventy-six cases, and in Esthonia twenty-six. The present epidemic is, he thinks, to be traced, not to the old cases in the 13th and 14th centuries, but to quite recent importation of new cases—usually soldiers—from southern parts of Russia. He mentions that Dr. Paulsen of Holmfors, near Dubbeln, states that, though five-and-twenty years ago no leprosy existed in that locality, it was imported by an affected soldier about that time, and there are now 1·4 per cent of the inhabitants who have the disease.

To this we may add that leprosy is also spreading in other parts of Russia. Of late lepers from the

government of St. Petersburg itself have been treated in the hospital of St. Petersburg; and the disorder has appeared in Kowno, Vitebek, and Twer, where heretofore it has been unheard of.

But leprosy, in its modern epidemic attacks in Europe, has not confined itself to northern lands; it has been equally violent, if not more so, in Spain. An inhabitant of Sagra, called "Indian," because he came from the Philippine Islands, settled at Parcent, about the year 1850. He had then the first symptoms of the disease, but knew not how grave was his trouble. He resided in a friend's house, and after a time two others were attacked. From Parcent leprosy made its way, not slowly, but very surely, to the villages Jalon, Sagra, Alcalali, Vall de Laguart, Orba, Llosa de Carnacho, Murla, Sanet, &c.; and so recently as August, 1887, M. Pollio, French Vice-Consul at Alicante, reported to the Minister of Foreign Affairs, that more than twenty communes of the Province of Alicante are suffering from leprosy.

Such accounts are heart-rending when seriously considered, but the miseries of man at a distance from ourselves are rarely felt seriously by us. The case which I am about to relate will, I doubt not, call forth more sympathy than all the suffering of Alicante, simply because it is very close at hand, and the leper, a boy whose affliction has already been before us, driven by his disease from a noble institution, in which he had hoped to receive a first-class education.

The head master considered it his duty to send away a Foundation Scholar from Fettes College,

Edinburgh, on account of his being affected with leprosy. A suit was brought against the Governors of the College, and during the past year (Nov. 1888), Lord Fraser gave the following decision:—

“The boy was ill with leprosy when he entered the School, although the disease was dormant. It broke out at intervals afterwards, although the head master said nothing about it, not being willing to injure the pursuer’s prospects as a student in the College. This was acting with all kindness for the youth, and no one could blame the head master for taking a course so considerate and humane; but, at the date when pursuer was dismissed, his leprosy again came to the front; and, there being an epidemic of another disease (eczema) among the boys, it was absolutely necessary to take action, so as to prevent the whole of them becoming lepers by contagion. A learned argument was submitted by the pursuer’s counsel, to the effect that leprosy was not contagious. Upon this point his Lordship was incapable of pronouncing any opinion, but the existence of such a disease in the midst of a community of boys like that of Fettes College was calculated to create such terror, as to impair the usefulness of the institution, and therefore the head master, approved of afterwards by the Governors, was justified in sending the pursuer away.”

I may add to this sad story, that a very recent case of leprosy has created alarm in Dublin. The authorities of that city have shown how fully they are aware of the necessity for prevention, wherever the malady

presents itself:— “At a Meeting of the Dublin Corporation on March 12, 1889, Sir Charles Cameron reported a case of leprosy. The disease, he said, was contagious, and formerly prevailed in Ireland. It was most desirable that the patient should leave Dublin for some place where leprosy was common, and where there was suitable hospital accommodation. The Committee authorised Sir Charles to take whatever steps were advisable.” *

I can now, I think, with much reason fear greatly that leprosy *may* become again epidemic in Europe. The admission *must* be, “Certainly there is danger.” But I am anxious to impress upon the public mind that the danger is great and imminent. That I may do so effectually, what better course can I adopt than support my desire by the telling words of able, learned, and experienced physicians, who speak after long and careful deliberation, and warn because they know how terrible a scourge is leprosy?

Dr. Besnier.—The question of the origin and propagation of leprosy is one of the gravest and most urgent which medicine in our day has to solve. In fact, the increase of leper centres now going on, and that in countries bordering on France, the development of our Colonial policy, and the ever-increasing intercourse of nations, give to this question a special interest and importance which it never before possessed.

There is not at this moment in Paris a doctor, closely occupied with dermatology, who has not leper

* *Pall Mall Gazette*, March 13, 1889.

patients, and who does not see every year a goodly number of new ones—Europeans who have contracted their disease in leprous lands, or inhabitants of those countries striving to mitigate their affliction by change of climate. Every year soldiers, sailors, merchants, hospital sisters, &c., bring back the malady to France. In Paris, the hospital of St. Louis has always a gathering of lepers in every stage of the disease. Only the other day M. Vidal took under his care a soldier who had contracted leprosy in Cayenne, while I admitted a sailor who had just returned from Madagascar. During the summer months of 1887 the fresh set coming under my own notice comprised a religious of St. Vincent de Paule, returning from Rio de Janeiro, commended to me by Dr. Brochin, jun.—she is affected with the most violent form of leprosy that can be imagined; a horse-dealer from la Creuse, sent to me by M. Dujardin-Beaumetz—he caught his leprosy in the province of Valentia; a French employé in the consulate of Rio Janeiro, presented by Dr. Sichel; a young Frenchman born at Port-au-Prince of French parents, who had resided there some years; an Italian merchant returned from Buenos Ayres, brought to me by his brother, a medical man.

The same experience is that of my colleagues of the St. Louis Hospital, and of many doctors practising hydrology, especially at Bagnères-de-Luchon, Uriage, La Bourboule, &c.

It is not solely for a general humanitarian purpose that I invite the attention of the Academy to this

awful malady, the treatment of which is extremely precarious ; it is also for the direct interest of our fellow countrymen, to draw towards them the watchful care of the sanitary police of our country.

Dr. Besnier tells us very distinctly what we are to expect if we fail to take due precautions.

If you are going to spread abroad the dangerous opinion that leprosy cannot transmit itself ; if everywhere, and under all circumstances, and without any exception, free intercourse be allowed to lepers, ever increasing in numbers, whom America produces and sends back to us, then, in all probability, but a few years will be required to bring about the result of which I now warn you, viz. :—leprosy once again dominant in France. Yes, that may indeed, soon come to pass, when we consider the increasing opportunities offered by transports, of placing in crowded and poor localities unfortunate lepers, many of them landing before the disease has declared itself.

Put such sufferers in one of those miserable fishing villages, where cholera finds itself so thoroughly at home, and you will soon see, allowing a certain time to elapse, a focus of leprosy in this our own loved country. Let those who are disposed to doubt this examine the causes of the leper epidemic which so lately assailed Valencia and Alicante. Such a scrutiny will soon convince them that, to be safe we must engage medical officers to inspect all soldiers and sailors returning from foreign service in our colonies. Those colonies are now many and widely extended, be assured that this our warning voice may

well be observed—a careful and effective watch should be exercised.

Dr. Leloir.—May this my book which has called for such deep research, so much labour, and struggles against so many difficulties, may it prove to the medical profession, and to rulers, that leprosy is not a disease to be disregarded, one that existed in days gone by and now is scarcely known; but that it is a frightful scourge, ever threatening, and slowly advancing. Surely, the very moment when we are trying to extend our colonies is no time for forgetting so dire an enemy.

So far from having departed from the face of the earth, as is commonly supposed, this malady is known far and wide. It assails thousands in India, Norway, the Sandwich Islands, and elsewhere.

So far from decreasing, the awful disease is at the present moment taking a new start, and that with increased severity, as is seen by its attacks on the United States, Canada, and especially by the recent multiplication of cases in the Sandwich Islands.

France, we may say, is loudly called on not to neglect leprosy. There exist in France leper centres, about the Delta of the Rhone, and along the shore of the Mediterranean between Vintimiglia and Marseilles, particularly at Nice. It touches our southern frontier, for it is rife in the north of Italy, in Spain, and in Portugal. Every year our colonies send to France a certain number of lepers. At this moment there are some 80 in and around Paris.

But it is with regard to our colonial possessions

leprosy so greatly interests France. It abounds in our old colonies Guinea, Martinique, Guadaloupe, Reunion Isle, and Cochin China. It is very common in Madagascar and Senegal, and rages in Indo-China, and remarkably so in Annam and Tonquin.

Leprosy therefore may well be studied by us, not merely for an interest purely scientific, but rather because it directly and seriously concerns our own dear country.

Dr. J. D. Hillis.—From all parts of the world we have intelligence of the increase of leprosy. Is the cause of this satisfactorily accounted for on any other hypothesis than that of contact of the unhealthy with the healthy? I have had more than twenty years' experience of the disease, one half of the time as superintendent of the largest leper asylum in the West Indies, and my opinion is, that leprosy, in some manner we are as yet unacquainted with, is thus communicated, and that whenever lepers are allowed to congregate, and no attempt made at isolation, other cases will in due course assuredly arise, irrespective of hereditary tendency, peculiarity of diet, locality, etc.

The following facts, that came under my own observation, support my declaration on the side of contagion. A shopkeeper at Demerara, whose business as contractor for provisions took him frequently to the asylum, became leprous. For at least ten years his wife remained free from any sign of leprosy. The case was well known, and I had been frequently called upon to explain, with reference to this very

person, how, if leprosy was in any way contagious, this man's wife escaped so long. In May 1886 this woman came to me with well-marked symptoms of leprosy, and was under treatment when I left the West Indies.

Such cases, at any rate, prove that one or two years do not suffice to thoroughly study such a disease as leprosy ; but, if they could be kept sufficiently long under observation, I am satisfied some startling realities would be brought to light.

Dr. Arning.—My attention, during my three years stay in Hawaii, was naturally drawn to the *numerous* cases of leprosy among the *white* population. One case more especially impressed on me the danger of infection for all of us, old residents, new comers, etc. A most healthy and careful member of the foreign colony contracted leprosy after a six months' stay in Honolulu. In a case of that sort one can hardly speak of predisposing influences of climate, etc.

Dr. A. M. Brown.—The dangers consequent upon leprosy contact have hitherto been under-estimated. It is true that lepers, immigrant or indigenious, when met with in the larger European capitals, have rarely given rise to the charge of contaminating those who come in contact with them. Then accommodation and management in public and private hospital establishments, the homes of religious communities, or even that of the family with safety, would seem to imply its non-contagious character as generally accepted. Few instances of contamination are as yet recorded, at least as far as is ascertained. But the

fact taken by itself is of little weight, and is no more than might be reasonably expected.

In common with other communicable diseases proper care reduces contagion to a minimum. The affected are placed beyond the reach of filth, poverty, and social promiscuity, and what is more for the safety of others, vaccination. But regarding leprosy as non-contagious, and permitting without inspection and control the importation of a foreign class, irrespective of diseased condition, cannot possibly show the like result in England. Widespread in our imperial possessions, leprous subjects find ready transport to our shores, and in a few years it will be surprising, if the contagious evil contributed by them does not find a place in the list of current maladies. The grown-up lepers on whom the disease is manifest might be medically and humanely dealt with, but what of the immatured and young, in whom there is little or no trace to raise suspicion? In our extensive maritime relations with other countries, many of them our own possessions, where lepra is epidemic, many such will assuredly annually arrive, and for a time at least find homes, and oftener in poverty than comfort, and they will leave before the malady has shown itself. The higher class, who arrive for educational objects, must not be overlooked in the account. Both of Professor Gairdner's patients give evidence of this, and, we may be quite sure, these are not solitary instances. The Indian Lascar or Chinese coolie finds his way to the seaport or larger city slum, if not to the public charitable institution, where the official

vaccinator is actively at work and little scrupulous. Unless the vaccination act be carelessly enforced what might not occur? Precisely that which we should naturally expect, and which has so often to be deplored. But there is more than this. There are the seaport, and city slum, and the boarding house dens, with their insanitary promiscuity. Such have always been a favourite starting point for foreign epidemic invasions from cholera to pest, and must afford a ready passport to leprosy, as they have done before in earlier times. This process, once fairly set going and the necessary time allowed, should we be surprised to find leprous centres of contagion forming themselves once more within our limits? We should say no.

Those who may feel disposed to think all this most unlikely, I would strongly remind of what has happened on shores which, if not neighbouring are not very far removed, namely, in Spain, Russia, etc. In Russia, since 1877, forty-nine cases of leprosy have been treated in the St. Petersburg hospitals. Very remarkable is it that half the patients were natives of the city. One more loud and warning cry, "England! beware."

CHAPTER V.

What means should be adopted to prevent the Spread of
Leprosy?

SEEING that leprosy is a terrible disease always more or less contagious, sometimes violently so ; that it is spreading rapidly in many lands, and likely to continue spreading, something, we are told, should be done, and that without delay. Quite true,—all that is possible should be done. But the serious question arises, “What is possible?” In vain is it, in the spirit of a wild zeal, to propose a scheme which cannot be carried out on account of its enormous expense. Equally useless would it be to attempt a plan which, to the inhabitants generally of a leprosy land, would be offensive and highly disturbing. It follows then at once, that before acting there must be careful inquiry, followed by cautious consideration of facts ; so that, when action does take place, success may reasonably be expected. I would, therefore, suggest that a Leprosy Association be formed *at once* in London, with branches in India, the Colonies, and our various possessions and dependencies. Information, on which implicit reliance could be placed, would by such a machinery be secured, and valuable suggestions received from those qualified to speak.

The Association, so supplied with facts and circumstances, would then, and not till then, be in a position to devise a reasonable scheme for the relief of lepers; especially when we consider how many who have occupied high positions under the Foreign and Colonial Offices would readily render their valuable assistance. Armed with such a scheme, applications might be made to the Governments of India and the Colonies, with every hope of their support; and so success crown the efforts of those whose sole aim will be to soothe the sufferings and sorrow of tortured humanity, and to stay, as far as possible, the progress of a disease which, if allowed to go on unopposed, threatens to become the scourge of the whole earth.

Until the "British Leprosy Association" be formed, and the required information gained, it would be well for all who long to help the tortured leper to study carefully the suggestions of Drs. Vandyke Carter and Munro, two veterans and heroes in the cause of the leper,—the former especially fitted to advise from his long experience and close study of leprosy in India, Norway, the islands of the Mediterranean, &c., &c.

Dr. Vandyke Carter.—"Both social and humanitarian motives would inculcate the systematic relief of the leprous sick, whose malady to themselves is so grievous and abiding, and to others so offensive, or even hurtful. To all who recognise a claim thus founded, the experience patiently and not uncostly accruing in Norway must appear equally interesting and encouraging. Being scientifically acquired, the principles

hereby evolved become applicable under conditions so widely diverse as those of Norway and India. First, as to country and clime there is no reason to suspect that leprosy anywhere differs in origin or nature, any more than it differs in signs, course, or consequence ; and this consideration at once disposes of conceivable objections to the best line of treatment being the same in both countries named. Analogy with other chronic diseases, common to Europe and the East, serves to confirm this view. Next, as to collateral circumstances, these are but subsidiary ; only in India the people being subject, more ignorant, apathetic, and prejudiced, it is for their leaders and the ruling powers to initiate the needful preventive measures, and to uphold these until, by spread of knowledge and experience of good effected, the public approval becomes assured."

"General treatment of the leprous as a peculiarly affected class may be either ordinary or stringent. Thus, the sick may be collected and dealt with as ordinary hospital patients ; without, that is, any regard to prevention or further amendments. Or, for permanent relief, they should be strictly isolated from the rest of the community, and amongst themselves the sexes kept apart ; isolation of this kind being practicable at the homes of the lepers, but better carried out in asylums. Evidently this last method is the only one likely to check and lessen the disease. It has, in Norway, proved to be beneficial in both these directions, as well as by awakening the people to a sense of rational self-help and a willingness to

co-operate further. Such an urgent and attractive stimulus is much needed in India, where the foundations of public hygiene have yet to be laid.

“Segregation is practicable in three modes, either separately or combined :—

“1. By erecting plain asylums at certain centres, each of which would be a refuge common to several districts ; and a place of detention under due management and supervision.

“2. By founding leper colonies or village communities mainly of the affected, who, while allowed more liberty of movement, should yet be prevented from mingling with the peasantry around : hence still the need of strict supervision. Many spots would thus serve—such as deserted forts, decayed villages, and places now waste, and yet not far from other sources of supply ; or not without near resources easily resuscitated.

“3. By requiring the strict isolation of leprosy subjects retained in their homes at the express wish of friends. Suitable separate lodgment would be indispensable ; unsuitable shelter is even now sometimes supplied. Joining of such home isolation with more public measures should not be overlooked ; for to it experience in Norway seems to point as a means essential to complete success within a moderate period of time ; and in India it would have to be still more largely resorted to.

“For carrying out the above, in addition to funds, legislative authority is needed to take up the vagrant sick, to remove the sorely diseased who is insuffi-

ently guarded at home, and at times to enforce continued isolation of the infected until medical sanction of liberty be granted. Such authoritative interference will, I am aware, be differently regarded by many, and disliked by the masses; yet it cannot at present be dispensed with, and sufficient precedent exists in several British enactments against smallpox and other contagious diseases of men and animals. Besides, as analogous, special institutions already exist for the permanently disabled, the blind and the insane; also, in most civilised countries, for those incurably affected with cancer and consumption. At one time, indeed, asylums for lepers were common all over Europe, where now the disease has become comparatively almost eradicated; whilst Norway still presents a number of these peculiar establishments adapted to modern requirements, not less than formerly of decided efficacy."

Dr. Munro.—"I have already tried to show the effects of segregation in Europe. How far there may be necessity for such segregation in the earlier stages of the disease may possibly be questioned; but in the later, the ulcerative stages, it is the undoubted duty of every government, with the well-being of the population at heart, to insist on such a measure, just as strictly as they would against smallpox.

"The segregation I advocate should include the entire separation of the sexes, except of those already married, and those only being allowed to live together if arrangements could be made for the immediate removal of any children born to them. Married rights

as far as the circumstances allow, ought to be considered.

“It has been objected by the Government of India, that the expense of segregating more than 100,000 lepers in asylums would be too great, but I hardly think this is a proper view of the case. No such asylums need be built, but segregation could still be enforced by the compulsory confinement of lepers to certain spaces of land, on which proper villages would be built for them, while they would, when able, be encouraged to work on the surrounding land. Properly managed, such communities might be partly self-supporting. Of course, after a leper was once put into such a village a severe penalty should be enacted from any one aiding or abetting him in leaving it. At the same time, there would be no harm, I believe, in allowing the lepers, under proper supervision, at times to see and converse with their friends at some place near the village, *so long as no contact was allowed.*”

“Probably over two hundred such villages would be required for the whole of India. Of course, medical officers would have to live near each village, but the work would be nearly, if not quite, all done by lepers. Such segregation would, I believe, in due season stamp out the disease.”

I can conceive nothing which would in time more favourably impress the mind of India, or more forcibly move the hearts of its people towards our rule, than a brave determination on the part of Christian England to show an earnest tender care for the lepers of India, and as far as possible, remove from it a malady, which

to its victim, is a living death: rendering him—horrible thought!—a *sepulchrum ambulans*.*

What a glory for England to use throughout the world her vast power and influence, under the guidance of a loving wisdom, in order that the progress of leprosy may be arrested, and the leper-stricken be cared for and comforted. Would that we all felt more the holy truth:—"Homines ad Deos nullâ re proprius accedunt quam salutem hominibus dando."

* I, this day, March 21st, 1889, received from Dr. Leloir the following confirmation of the Report as to the spread of leprosy in New Caledonia:—

"Justly alarmed at the rapid and increasing extension of leprosy in New Caledonia, which has attacked no less than 4000 of a total population of 25,000, the Council-General have at last determined to take steps for the stay of the malady, commencing at once with leper asylums.

"The presence of the disease in New Caledonia is not absolutely new. For thirty years it has raged in the north of the island, far away from Noumea, round Balade Station, and the medical authorities warned the Administration against the imminent danger of the epidemic spreading.

"A rigorous isolation of the infected will be no easy matter, for they belong to nomadic and wandering tribes, who will avoid sanitary segregation by fleeing to the mountains in the centre of the island, where it will be difficult indeed to reach them."—*Moniteur de l'Hygiene Publique, Mars 1889.*

That every seventh native out of a population of 25,000 is a leper still seems to me next to an impossibility.—H. P. W.



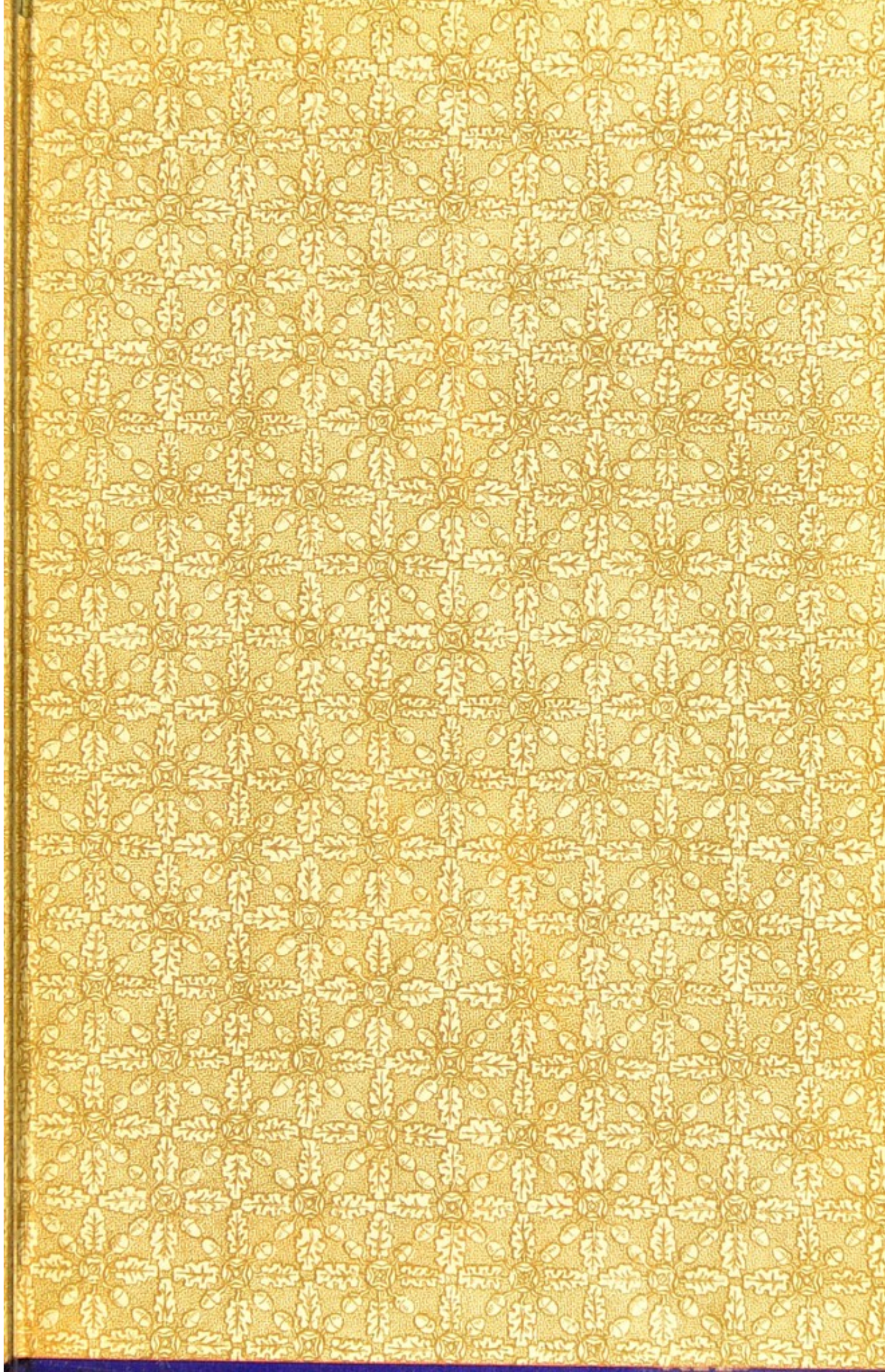
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