A Thesis on Leprosy
Elephantiasis Gracorum
with special reference to its occurrence in the Colony of
The Cape of Good Hope
by
Henry David Rooke Kingston
M.B. & C.M. - 1879.

1890.
Contents

1. History of Leprosy

2. Symptoms of Leprosy

3. Etiology of Leprosy

4. Contagious Nature of Leprosy

5. Hereditary Tendency of Leprosy

6. Pathology of Leprosy

7. Treatment of Leprosy

8. Cases of Leprosy

9. Animals affected with Leprosy

10. Distribution of Leprosy

11. Tissue and Bacilli of Leprosy Vol I. Frontispiece and Engraving

12. Photographs Illustrating Leprosy Vol II.
The History of Leprosy.

The disease of which I propose to treat in this thesis is now generally called true Leprosy, to distinguish it from the many and various forms of disease which have, from time to time, in the history of Medicine, been confounded with it, under the same or similar names.

It is a disease which was known to the very earliest writers on Medicine either as occurring among their own nation or as affecting the inhabitants of other Countries.

The earliest glimpse we have of it is probably in Egypt, from which country it was certainly carried by the Hebrews in their exodus and with them obtained a footing in Palestine.

Greek and Roman writers two or three early dates speak of it as a disease foreign to their own soil, but we already firmly planted in that of Egypt; in which country we may safely conclude, it has existed in the same form in which we know it now from the very remotest ages.

In India, and China too, the accounts of Leprosy are hardly less ancient, though it would
probably appear that the disease was gradually creeping northward in that direction. Since in Japan its first occurrence is stated to have been observed within at least a measurable period of time.

However this may be, there is less doubt that it passed from Egypt to Greece and thence to Rome from which it spread with the conquering armies of the Empire to the chief peoples of Northern Europe who passed it on again to the more remote and inaccessible regions of this quarter of the globe (Hirch's Handbook of Geographiccical & Historical Pathology Vol. II pp. 2 et seq. and Helora on Diseases of the Skin, "Archeo-Siphra" by Kaposi p. 121; also publications of the New Sydenham Society.)

It is certain that it was known and had been long prevalent in England, Wales & Ireland in the Tenth Century since hoards of silver and silver coins founded on before during, and from previous to, that period. (Sir James Simpson, Archæological Essays, Vol. II p. 41 and Archeo by Mr. Jonathan Hutchinson in the British Medical Journal - March 22, 1870.)
Much has been written, especially by Sir James Simpson (op. cit.) on the rapid and terrible extension of leprosy through England and into Scotland about the time of the Crusades; so there can be little doubt that a more severe and virulent form of the disease was propagated at that time through those Kingdoms.

The Crusaders, who set out full of hope and enthusiasm, returned crushed and shattered by the terrible hardships and privations to which they had been subject in the prosecution of their extraordinary quest, and no doubt many of them suffered from this and other diseases to the infection of which they had been exposed, and to the attacks of which they had been exposed, many of them.

It was chiefly after this that the many Hospitals, or rather Asylums, were founded for the refuge and isolation of sufferers from this fell disease, and traces of these still remain in many parts of the Country in the Names of "Spitalfields" , "Spital lane" and "Liberton" (Leper Town) with its Holy Bower, or Oratory, "Well", reputed sovereign for the cure of...
severe cutaneous disorders. Miracles were worked by Saints and relics, and yet the Monks, custodians of the sacred shrine, became affected with the very desire for the relief of which pilgrims were flocking to the Shrine.

Crowned heads and valiant warriors fell before his destroy, and it was not until the magic virtues of cleanliness, fresh air and light, dispensed by the Goddess of Civilization, had penetrated to the usages of home and board, that the loathsome pest sought in vain for congenial soil on which to foster and flourish baffled from our shores.

Isolation and a formal living-burial had deprived the patient of the power of perpetuating their affliction. The improved manner of life which came with that great wave of independence of thought, and emancipation from degrading superstition, known as the Reformation, brought fresh vigor and vitality to the Nation and its system was able to throw off the predisposition to the attacks of vice.
decide which had before made it the ready
vehicle of thisdecisive and destructive cure.

The names by which Leprae has
been known in various Countries are of some
interest. The Hebrew term *sorath*, *saraath*,
or *tsorath*, a word spelt in many and
various ways but which I give thus on
the authority of a Hebrew Scholar, signifies
measles and was applied to many
diseases and severe disorders which the
state of Medical Knowledge of the time
was unable to differentiate.

The Arabic *juzam* or *jodham*,
also variously and phonetically spelt but
given me thus by the present Professor of
Arabic at Cambridge, signifies inflammation,
and is stated by Avicenna and other
Arabic writers on medicine to have been
given from the destructive nature of the disease.
The root implies cutting or lopping off,
and I note with great interest since no
where else can I find any trace either
in the Bible or in the description of
the disease so fully quoted by Sir James
Simpson and others from Medieval London.
of a knowledge of the undulating or "anesthetized" variety of leprosy, which we now find so universally associated with the "Tuberouslotted" form. Descriptions as distinct and more vivid than we could from mere in abundance of the nodular, pre-deforming disease but of the other, so different in effect, however much we may believe in an identity of origin, there is never a word. Such a condition too one may be sure, had it been present, would not have escaped notice.

For moralists and preachers it would have afforded a fruitful text, as the members "which had offended" were cut off one by one, and certainly those who observed so carefully the signs by which a leper was to be distinguished, before being condemned to banishment from his skin and kind, would not have omitted this most obvious and surprising feature, had they observed it, and known that it was part and parcel of the disease they were studiously attempting to weed out.

Whether it was actually non-accidental...
on whether perchance it was divorced from its companion and included with some other diseases, I leave not here able certainly to determine; but the latter is at least highly improbable, not only because in that case the solitary effects of incorporation would not have been obtained, but because there is little doubt that there are very some cases of the so-called "Maxed form" would have occurred, exhibiting those symptoms of contraction and mutilation together with that disfigurement and corruption of the "form divina" with which Physicians were so well acquainted.

The Greek writers on Medicine called the disease "Elephantiasis" because it was great and terrible, and probably also because of the forced and expressionless countenance worn by many of the sufferers, and suggesting most viciously the appearance of the rugged pachyderm.

This term, with the reference to its origin, now survives in our modern nomenclature, although some authors, perhaps preferably, certainly more conveniently, make use of
the term "Lepra" which, although it has a different origin and does not by its derivation really designate this kind of disease, has long been used in connection with it.

The Arabs, while they called leprosy "fizzam" applied the term "Daas FIL" or "elephant disease" to a very different condition, one which we know now as "Barbadoes leg", drawing a very apt comparison between the appearance of the patient and the leg of an elephant.

When the revival of learning in Europe led to the study of the writings of ancient authors it was found that many of the old Greek treatises on medicine had perished in the downfall of the Roman Empire, but that translations and adaptations from them survived in Arabic.

These then were rendered into Latin and in doing this the term "Daas FIL" was not unnaturally reproduced as "elephantiasis" or "elephantiasis", confusing it therefore at once in the minds of those who read
of it, with the different condition already
known by the same name.

"Juzan" or the other hand, they rendered
"Leprosy" a term applied by the Greeks to
various scaly eruptions which were correctly
indicated by its derivation. When this mis:
name was perceived the writers came to
distinguish the condition as L. Arabica
and L. eucremona as are now the two kinds
of Syphilis.

It was no doubt greatly owing to
those Philological blunders that such com-
fusion prevailed with regard to these diseases.
All kinds of scales and scaly cutaneous
eruptions have at different times been
supposed to be leprous, whilst up to quite
recent times the lymphatic hypertrophied
lymph and serotum were without hesitation
included in the same category. The
real nature and cause of that strange
disease have been but lately discovered,
and the most important points in connection
with it have been brilliantly illuminated
by the masterly investigations preformed
of Dr. Patrick Manson at St. Mary's, China.
The leprosy of Leucoderma is that of Leucoderma, in which the skin loses its pigment, and along with other trophic changes becomes a dead or snow white.

In the returns furnished from some parts of India at the time of the Report drawn up by the College of Physicians, this so-called "White Leprosy" was not distinguished from the true disease and by many residents in India the great and important difference is not known.

In Crete also I have been told by a traveller of education that outside the walls of the Town of Canea are two villages inhabited by pink and white "lepers."
afflicted with "a scaly skin disease in which the fingers and toes dropped off". He adds that he was not allowed to examine them closely, but if the latter statement is correct it is no doubt because true leprosy was in some cases associated with Leucoderma or Leishyosis.

One of these, no doubt, is what in the Bible is referred to in the phrase "A leper as white as snow" - a Hebrew word meaning mottled or spotted, Paras or Alcora, being also sometimes used in this connection.

To return then to the nomenclature of the disease from which these considerations have led us, we find Lepra alone or qualified by the adjectives tuberculosus, nudosa, and anæsthetica. We have also Leontiasis (of the Greeks in olden times) from the wrinkled condition of the forehead, and Satyriasis.

Then in Modern languages, it is called "Reddish" by the Norwegians, important on account of the great prevalence of the disease in that Country, and the Cause
with which it has been studied by some illustrious Physicians; Assassal by the Germans meaning originally an eruption, and Meloachtschd by the Dutch.

In the Colony however the more familiar term is "Lazenis - Zeikte", or Robben Island the offensive word "Melaachtsch" or leper, I never heard, and in Dutch the disease was euphemistically referred to as "De zeikte = the illness. or the disease".

In ancient Scotland the disease was called the "Nipfel or ail", ("La grosse malade" of the French), and a leper was sometimes known as a Messel and his disease as "Messelie", words derived from the Latin "Mucida", a diminutive of mucis, wretched and the French form of which was "Messelie". These latter forms date from about the middle of the Thirteenth Century.

It obtains of course peculiar or local appellations in every country where it is known and of these a long list could be drawn up, but it is unnecessary to refer to them further.
(See Helena p. 118, and Hracha p. 14, of: cit.;
and Report of Royal College of Physicians
1864.)

The Symptoms of Leprosy.

We come now to consider what
are the symptoms, what is the appearance
of this disease which we have seen
extending from remote Antiquity to the
present day and attracting so much
attention from Medical men, Philanthro-
philists, and even Legislators.

The appearance is remarkable enough
and indeed constitutes a chief part of
this disease. To indicate it I might
extract descriptions and phrases from the
very full account of all the forms
specifie in more than thirty pages of
Helena (p. 134); or I might draw upon
my recollection, and aided by the
Photographs I have taken, describe certain
various characteristics exhibited by the
many cases I have seen.

To lepole these sources I shall
refer presently, but to start with I shall quote the greater part of the description given by Bernhard Gordon a Professor of Medicine in the School of Montpellier in France, who wrote about the year 1303. I quote it (as translated by Sir Jas. Simpson, cit. p. 65) because a comparison of it with the photographs annexed, or with some of the many excellent plates which illustrate this disease, will at once show how identical is the leprosy of the present day with that which prevailed in the middle ages, and also because it is so accurate and concise as to excite our admiration as a specimen of ancient medical literature.

The symptoms are a reddish colour of the face verging to blackness; the respiration (breathing) begins to be changed; the voice grows raucous, the hairs become thinned and meagren and the perspiration breaks in profusion; the mind is melancholic; in some cases scales protrude and eruptions break out over the whole
body; the disposition of the body begins to be loathsome.
2. The invariable signs are enlargement of the eyeballs with loss of their luster, redness of the eyes, swelling of the nostrils externally and contraction of them within; voice nasal; colour of the face glossy, verging to a dark red hue; aspect of the face terrible with a fixed look and with nomination and contraction of the junctures of the ears. And there are many other signs as pustules and excrescences, atrophy of the muscles, particularly of those between the thumb and forefinger; insensibility of the extremities; fissures and infections of the skin — and other marks which authors prominently mention, but for me those suffice which are to be found in the face."

I would please here to note that the symptom just mentioned of atrophy of the adductor muscles of the thumb, is one well known at the present day in Chloria, and it is a popular belief that it is one of the certain
signs of leprosy; so much so that patients come to the European doctors complaining of this muscular weakness and alleging that they must certainly be becoming leprous though they can detect no other signs; and in such cases it is not infrequently found to be due to some other cause. (Dr. Maclean.) I am not aware that it has been observed at the Cape but possibly it might be found were it sought for.

Gordon then proceeds to say: "3. The signs of the last stage and breaking up of the disease are corrosion and falling in of the cartilage forming the septum of the nose; fissure and division of the foot and hand; enlarge-ment of the lips and a disposition to glandular swelling; dyspnœa and difficulty of breathing; the voice harsh and barking; the aspect of the face frightful and of a dark colour; and the pulse small and imperceptible."

In this section Surgeon gives the original Latin word after "fissure and division" as "diisura" and this I have tried to
connect with the falling off, or absorption, and shortening of the fingers and toes, as characteristic of the Anæsthetic form of the disease; the Anæsthesia itself having been mentioned in the second section.

I have failed hitherto to find any warrant, in Classical Latin usage, at any rate, for translating this word in this way and whether it may have been employed in Medical Latin in such a sense I am not able to ascertain. However the peculiar claw-like contraction which usually precedes the loss of the fingers is not alluded to, and other writers give no hint of such symptoms at all, so we must conclude, as I said before, that the affection was not known.

The disease as now known to us may be best described under the headings of Maculædæ, Tuberculædæ, and Anæsthesiæ, to which may be added a fourth or mixed form for cases in which the symptoms of the last two are combined.

The Maculædæ or Macular form is probably in most cases merely the
precursors of the Tuberuloid, although I
gather from several of the Plates in Vandyke
Carter's large work, in Tilbury Fox's Atlas,
and Geo. Fox's Atlas, that maculae of
various colours and appearance may be
found widely distributed over the body
without nodules, or the usual manifestations
of the nodular form. These marks may be pink
(on white skins) or brown, yellow, or dull red;
they may be depressed or raised, but if
depressed the edges are usually red and
exhibit enlarged and protruding Conspicuous.

The first Plate of Daniello's (Boech's
splendid Atlas) shows small dark flecks
on the nose and forehead only; the second
shows much larger blue marks, more
extensively distributed and accompanied with
some very small lutes. The blue marks
are seen to consist of enlarged and altered
capillaries.

Tilbury Fox's Atlas shows pink maculae
of some size with white centres.

Geo. Fox's (American) Atlas shows dark
maculae with white centres, all on the body.

The Atlas of the Sydneyium Society No. 29
shows a face with polycromic coffee coloured
discolorations enclosing patches of normal skin.

Most of Dr. Carter's illustrations exhibit
various and strange forms of similar eruptions.

Of my own cases the only one that bears
any similarity to these is that of the little
boy J. S. Case xxxix, where on the cheeks
and clin or enlarged capillaries, but
these are not circumscribed nor is there
any white centre. In the case of the
German infant H. Otto whom I saw in this
Country (see p. 215.) there were brown
patches, raised and more of the nature of
shattered nodules.

The dark brown stains of most of the patients
on Robben Island would to a great extent prevent
the observation of such signs, but as I shall elsewhere
explain my hurried and necessarily imperfect
examination of the cases may have led to
my overlooking them even were they present.

These patches when first developed are often
hypoaesthetic but after a time and when the
centre has become white they lose sensibility.

Otto's brown patches were decidedly anaesthetic.

Kaposi, after particularly describing many
varieties of Macule and "The Phenomena just described are all regarded by Ramilisen and Bock as prodromal symptoms of the tubercular form of lepra." (Helbra p. 141.)

The Tuberculated, Tuberosus or Nodular form is the most important because the most severe, and I believe the most frequent, though various observers consider that the Anæsthetic form occurs as frequently.

A reference to Plate 1. and many other of my Photographs will show the appearance presented by a sufferer in all its nodous deformity.

It is to be regretted that the term "Tubercular" is still so often applied to this form now that it has come to have a special and very different meaning in Pathology. I have endeavoured to avoid it and to use instead the terms Tuberculated and Nodular and at all events to avoid "Tubercle" as a designation for the swelling trespassing.

Lepra Tuberosa et Nodosa as quasi by Kaposi and are unacceptinable.

Illustrations of this form are given by
Drunken acne, as shown in Plates 44 and 45 and in a later plate where a few tubercles are seen on the face of a woman which is considerably cicatrizied and drawn to an extraordinary extent. The Apethorn Sooy, Plate 29, also shows them on forehead, nose, and around the mouth.

Hillbury Fox gives an excellent illustration of the form in which there are not the prominent nodules but a general thickened and wrinkled condition of the skin of the face, which is more usual appearance.

My Photo of Case XXII is a very typical example of this kind.

The same is well seen as it occurs in a European (or rather American) in Geo. Fox's Atlas.

The skin of the face is discolored thickened, soft, and greasy. Prominent nodules or ridges separated by deep sulci are seen on the forehead especially, and also on the cheeks, while the nose, lips, and chin are all in different cases variously enlarged and deformed. The eyelids generally escape, but D. & B.'s plates show that this is not always the case, and my Photo of Case XXII illustrates this same thing. In this same Case another
of the nodules is also taking place a somewhat infrequent occurrence.

In T. Fox's plate a certain roughness is also visible.

Nodules more or less prominent are in some cases distributed over other parts of the body; on the wrists in my Case XLIX, and over the body in T. B's. Plate 3.

In addition the cornea often becomes thickened and opaque and blindness results in the end. This was present in both my English Cases and is reported to be frequent in Norway. A partial opacity is seen in T. B's. plate already referred to and in Plate 29 of the Sydenham Society Atlas, but I shall show, it is much more rare in the Cape Colony, there being no Case of blindness or even dimness in any of the cases I photographed though I cannot be quite sure that there was not one among the few bad cases confined to bed and whom I did not fully examine.

The tongue and fauces become infiltrated the latter sometimes ulcerated, and the process extending into the tongue the voice is
affected and finally lost. I shall have several instances of this to bring forward; 

Sr. Caesar XIX + XCV. 

Le also P'co.

fold of tongue, and P'to in which the structure in the nose of the nose has proceeded to a fearful extent.

Dr. Parson of the New Somerset Hospital Cape Town states that he has seen a man whom the nose, eyes, tongue, and cheeks bones had disappeared and there remained nothing of the face but a part of the forehead and lower jaw!

The Anaesthetic or Mutating form of leprosy presents a very different appearance to the preceding. The condition found in an advanced case is well seen in any Plate 3, as well as in many others of the Photographs and is shown in two of the latter plates in Dr. Río Atlas. In one the hand is clubbed, the thumb only remaining, and that is crooked and claw-like. Also in their last Plate a contracted hand and clubbed foot are seen. This affection is produced by
morbid processes taking place in the nerve tracts which supply the part, the muscles are gradually paralyzed and atrophied. The contraction of the tendons follows, and the fingers are permanently flexed to a greater or less degree. An admirable illustration of this is to be seen in V. Carter's 1st Plate. The ulnar nerve is affected, and the ring and little fingers are bent. The tendons stand out in relief, and a red discoloration extends from the palm upwards.

Sometimes, at first, and frequently in the course of this process, blisters or blubs form on the fingers and ulnar result. These sometimes extend into a joint and the phalangeal bones are by or become necrosed and come away entire or by gradual suppuration. After such a process the wound heals, and the finger is permanently shortened. At times an internal absorption goes on at a phalangeal joint without any ulcer or suppuration and the finger becomes shortened, clubbed at the extremity, on which
the nails curved, and stiffened either in a straight or semi-floated position. This is not at all uncommon in South Africa and was to be seen in the first case I mention besides being present in many of the cases on Robben Island. It is not mentioned by Kaporse while on the other hand the dry manifestation mentioned spoken of on p. 167 is there unknown while the moist gangrene in which a portion becomes separated entirely is very rare. In contradiction of the statement in the interval (loc. cit.) that the hands of hands and feet are alone subject to manifestation I was informed that a case had been known on Robben Island in which the finger had extended high up in the axilla and a short stump of arm only remained.

In that case rudiments of nails were still to be seen on the stump, but I did not see any cases in which they persisted after the fingers themselves had perished.

One case is related in the Cape Commission Minutes in which the fingers wore so strongly
contracted that sheet lead had to be placed in the hands to prevent the nails growing into the palms.

The feet are affected in a similar way to the hands, and Dr. Parrot has seen cases where both hands and both feet had entirely gone. In another case both the feet and some fingers; while in a third, all the fingers and all the toes were wanting. I should have to relate many similar cases, though of a less severe extent.

The process is gradual, and generally intermittent, healing taking place readily between the destructive actions, and frequently, as in my Cases II and L., a second change resuming. A merciful result of the Anaesthesis is that as a rule no pain is felt during the process, though frequently severe constitutional disturbance accompanies the suppuration.

I see it is stated by Dr. Anderson of Singapore ("Photographs of Leprosy in the Straits Settlements 1872") that "in a "confirmed leprosy it is stated that a "certain is very rarely met with", 
This is true probably enough in such cases as his present, occurring in the former instances of miserable Clarence reduced almost to skeletons, and vividly realizing the words quoted by... that it might well pass for the almost "corruption of the human body on this side the grave." (See Anderson's Plate 5.)

Of the Mixed form but little need be said as it has no distinctive characteristics but is merely the occurrence of the other two forms in the same person. The condition is not nearly so common as the others; I find but eight cases in fifty-two. It is certainly not, as old Jonathan Hutchinson would have us believe (Brit. Med. Journ. Feb. 15, 1870) merely a transition stage through which all cases pass in their progress from acute histic to tuberculous or vice versa. That is to say, the Amaurotic form will always eventually become tuberculous, I can emphatically disprove by a reference...
to many of my cases in which the affection of hands or feet has remained unchanged for years without a sign of tuberculosis, and Dr. J. D. Hillis of Dublin forcibly supports the same view in the Brit. med. Journ. of March 22.

Adorning many cases studied by himself in British Guiana in which the Ancestral form had lasted, twenty, twenty-five, and twenty-eight years without changing, the patient was sinking from that form of the disease alone.

Aseptic leprosy generally terminates by exanthemata or diarrhoea.

The Tuberculosted form almost always by disease of the lungs the morbid action which began in the foot passing upwards and affecting successively the lung, and the branches, the above causes may however also terminate the case. It is too, far more rapid in its course than the first named, hardly spares its victims more than a few years, while the other may last, as we have just now seen, upwards of twenty
years; or, as in two remarkable cases, I shall bring forward, he arrested and allowed the patient many years of perfect health, with no further indication of its influence.

In conclusion, I would again draw attention to some of the plates in Dandreessen & Bock which I have not before partly mentioned, showing the appearance of the ulcers and also of the malleus, on internal organs; to photographs in Wolff's "Lepra Studien" and in Anderson's "Photographs of Lepers at Singapore" where raw ulcers on hands and feet are to be seen in his profession. Also to some coloured plates and most excellent drawings of the microscopic appearance of the ulcers in "Brehm's "Lepra."

At the last moment before closing the thesis I was able to add a note to this section to mention the splendid "Traite de la Lepra" of Henri Selon - Paris, 1886 - which, with its many woodcuts and magnificent plates, is of some of the most telling examples.
of the disease, I should certainly have referred to, to draw comparisons between them and some of my own cases and to point them out as illustrations of the various forms of which I was speaking, had I obtained access to, or knowledge of, the Book before.

The illustrations of the Macular form on Plates II & III are by far the best I have seen, while the varieties of Nodule on Plate I are at once classical and striking.

On Plates IV & V are varieties of ulcers both suspicious & discreet.

Then come engravings of wrinkled faces, typically mutilated hands and a foot, to show and shorten so that its sole is almost circular.

A typical tuberculated face affection, mostly the lower part, and worst a horrible ulcerated leg. On Plate VII, while 8, 9, 10, 11 & 13 are Photographic Portraits, most splendidly reproduced, of some of the more unusual forms and the most terrible Countenances.
which it is possible to imagine.
Some fearfully contracted and
shortened hands and feet complete the
list.

The work ends with five drawings
of the brain and a map. I regret
that to the treatise itself I cannot
now refer.
The Etiology of Leprosy.

The causes which have been adduced as giving rise to this disease are almost as numerous as the remedies which have been proposed for it. They have been as various as the conditions of life under which its victims have been found.

Climate, the most opposite, have been blamed and as I shall show afterwards its geographical distribution, as indicated by a map at once negative, make an idea.

Poverty and dirt are found in all their wretchedness, without the disease, in our large cities, and out of the way parts of Ireland. Even famine and the resort to the most miserable foods has not been enough to develop it there.

In Tierra del Fuego still more miserable conditions of life and far worse filthy food - for they eat putrid whale and the garbage of the shore - do not generate leprosy.

It is found among the well fed and upper classes in India and the Cape Colony and attacks Europeans resident in any part of
the world where it is endemic. The Hawaiians are a well-fed, strong, athletic people living in a perfect climate. (See Miss Berie's Hawaiian Archipelago to which an interesting account of the Soper Settlement on Molokai is added by a Visitor to the Island at the time, 1874.)

Prepared or boiled prepared rice and other grains have been charged with the contagion.

By far the greatest attack has been made upon fish and even at the present date it is accepted, may be insisted on by Mr. Jonathan Hutchinson President of the Royal College of Surgeons (Brit. med. Journal March 22, 1870) as the sole means whereby the Bacillus gains an entrance into the body.

As an alternative he suggests that this diet may not by "stimulating into" specificity a bacillus common both to "tubercle and leprosy".

It is certainly the case that many of the peoples among whom leprosy is endemic do consume much fish salted and even semi-pickled, but on the other hand there are to this many exceptions.
Some of the Tribes of India never touch fish yet are supposed the Kaffirs do not eat fish and yet leprosy is spreading among them. Mr. Hutchinson by the way states that the disease is unknown in Natal. This is now no longer the case. It is attracting much attention, as it is found to be increasing. It is found among the Indians (imported) and now among the Natives in inland Districts.

Of other Provinces I will give one account in a special section.

In fact all those peoples who live largely on fish, especially salted and badly preserved are also subject to other conditions of life and to habits which would sufficiently account for the transmission of a Contagious Disease. While so far fish itself there are but few places or communities in the world who do not use it as food whenever they can get it, and these few the fish have no immunity from the disease. The North American Indians obtain plenty of fish from the great Rivers and Lakes but were free from Leprosy
as long as they were not contaminated by people from leprous parts of the world.

How the disease arises, whence the bacillus origin we can no more tell than whence any other infectious disease has had its origin; nor as a matter of fact whence any plant has sprang which now sees fit to flourish in particular soils, capable under inimitation, of growing elsewhere and exhibiting with modifications due to conditions and environment, wherever it is found, its specific characteristics.

It has been found at Robben Island that the Liepser coronavirus destroys all the fat and that fat itself and fat-producing foods tend to check the disease which always advances most rapidly in low and impoverished states of the system.

Curiously enough even this is not universally admitted, for we find in the celebrated Report of the College of Physicians in 1867, that at Damascus the lepers asserted that they suffered after taking oil, and had to avoid it; the same is stated of the Natives in one place in India. It is very probable however that this be
many other things among ignorant people was simply a local superstition, for it is in opposition to all other experience and to the undoubted good effect on the general condition obtained by the treatment of the patients with stimulating and nutritive oils such as Cod-liver and Charcoaloga.

Jr. H. Eliot has stated that in his opinion fish oil was by no means a necessary factor in the production of the disease; that he had seen a great deal of it in the Timjinto, one thousand miles from the Sea, among Brahmins who would never touch fish and whose ancestors for four thousand years had never eaten anything but grain; their descendants being some of the finest men he had ever seen.

He had also seen leprosy gradually developing itself among native soldiers in the Himalayas ten thousand feet above the Sea level. He remembered a Company of Sepoys going out for a Station in Rajputana and remaining for three months on deplorable duty. They had very poor pani to eat, an inferior kind of barley. When
that Company of Soldiers got back to head quarters they looked more or less ill and their faces appeared blaster. Eight or ten months afterwards his attention was drawn to these men by the Doctor of the Regiment who pointed out some of these had developed signs of leprosy.

He says that "the medical men thought that bad water and inferior grain "developed the disease" and I am disposed to think that they were literally correct. They probably meant that these things had caused it and certainly this looks more like a de novo origin of the disease that anything else I have come across, but then leprosy was common enough among their race, these men may have had the germs lying dormant in their systems, having acquired them by leprosy or contagion, and now when they were reduced by hardship and privation an impetus was given and a rapid development caused a manifestation of the disease.

This indeed may be a parallel to the famous case of King Robert the Bruce
of whom it is related by many Historians of his time that he was a leper, and Barbour, his Biographer, describes the origin of his complaint to have been cold and exposure. Whether the disease he calls "enfundeying" or "ane fundyng", an obscure word of which an exact translation has not yet been proposed, was really the leprosy which is elsewhere ascribed to train, is not certain, but he says: "for through his "cold lying when in his spot unvisited was "he first felt that hard pimplet;"

(Sir James Simpson's "Archaeological Essay" p. 181. Note by Dr. Joseph Robertson. See also. p. 113 et seq.)

Dr. Atherstone, from long experience and close observation is distinctly of opinion that neither a particular diet, poverty, nor want can cause the disease, but that they aggravate and intensify the symptoms and so cause the more rapid spread of the disease. "The genu, however originated, must be there first."

Dr. Weir says of a boy who was supposed to have been infected by leper...
companions that "his food has always been
"good and sufficient in quantity; flesh meat
"being eaten every day and fish only occasionally."

Dr. W. A. Ross, late Surgeon Superintendent
of Robben Island, says that at one time
salt fish was issued for victuals instead of
meat or two days a week; the days on
which the Boat arrived from Cape Town
with the fresh meat, but too late for that
day's dinner. It was noticed that after eating
the fish they became feverish, after the
third day a rash broke out and the fever
then gradually passed away. The rash
occurred in patches of flattened lenticles
or shiny red blotches. Since the salt fish
was discontinued the number of such cases
has decreased.

Dr. A. J. H. Venn also supports what I
have already said that the probability is
that the microbes having gained an entrance
may lie dormant for many years till
something occurs to reduce the individual
to a state far below that when they begin
to increase and multiply and the man
falls a victim to the disease.
We know now from the latest discoveries that it is just when the multiplication of Bacilli themselves is interfered with, that they begin to form spores which may more easily than the full grown organisms, be carried into other situations; and their total number is of course enormously increased.

Canon Baker has shown the symptom very much improved by a change from a fish diet to that of fresh meat and good bread, but at the same time points out the possibility of the germs being conveyed by fish when, as is known sometimes, to be the case at the Cape, they have been cured by actual lacerations.

To refer to other authorities, Hirsch (Handbook of Geographical and Historical Pathology, p. 36 et seq.) shows that the theory of the fish consumption, of which the latter is such a strange representative, is out-sided and utterly untenable since leprosy is endemic in many places where there can be no question of a fish diet and still less of the exclusive use of that kind of food. He also no doubt
indicates the real origin of the supposition, in the idea that fishes themselves were subject to leprosy, and so communicated it to men, the fact being that the supposed leprosy of fishes was really a parasitic disease, the so-called "tubercles" being as Danielsson & Beeck have shown, a vegetable parasite and perfectly harmless.

Also he notes that leprosy has disappeared from many places although no material change has taken place in the food of the people.

In some parts of India leprosy is less common where fish is more used, than in adjoining districts. In the Punjab and Assam the natives eat no fish, yet suffer from leprosy, whilst in Aroean where they eat much the disease is rare. The Brahmins of Mysore are strict vegetarians and would lose Caste by eating fish, yet leprosy is not uncommon.

Of regions of Cherva, such as Nankeen, the same may be said. In Central China the rich only can afford to buy fish, while leprosy is the curse of the poor
vegetable feeders. The Japanese Physicists also are opposed to the idea of fish as a cause. At Trocaz in New Brunswick almost the only part of British North America where leprosy is found it is confined to the French immigrant and their descendants, the English & Indian inhabitant of the same district living with rare exception, free from it.

It was supposed to have been introduced from Normandy but more probably from the West Indies. Many persons having emigrated from Guadaloupe & Martinique to Canada. (Note p VIII in Report of Coll. of Physic).

The inordinate use of pork has been pointed to in Brazil but there again "there are many Negroes who have "never eaten pork."

Helara, or rather Kaprose, dismisses these considerations curtly, pointing out "how many persons of the upper classes "are attacked by Leprosy of the most "malignant kind though living in populous "cities under all the favourable conditions
"of European Civilization," (Nelken on Disease of the Skin Vol II New Sydenham Soc.)

A curious relic of the etiological theories of the Middle Ages survives in Madeira, is found in India, and has now had some sort of support and respectable grievance to it by the Royal College of Physicians!

We find in the "Silica Medicinae" of Averland Gordon of Montpellier, who wrote in 1305 (Sir James Simpson): "Considere loci et personae qui ad mensa "videndit Leprosum". That the idea is found among the Squames is probably due to its having originated with the Arabian Physicians and so travelled East and West. Under this idea they "never eat fish"-- but yet have leprosy!

It is curious enough that after this observation Dr. Carter Stebbins and Shepherd should have "had an impression on their minds" that there was any foundation for the popular idea, and still more that the College should have preserved it in their summary (Report p. 116).
Finally the theory of a fresh causation in general and Mr. Hutchinson as its advocate, have been scourged with a light sarcastic hand by Sir Morell Mackenize in the pages of the Daily Graphic—March 26, 1890.

Enough has been said to show that no race of men is exempt from the ravages of this disease and that when once introduced into any country it will spread with greater or less rapidity according as the conditions favorable to it and to its communication are present or not. To stating however goes too far in proving it an importation into South Africa where we read that "it is chiefly met with among the imported African races such as the Hottentots and Negroes", (Sproat pp. 53-475) the fact being that the Hottentots are of all other the aborigines of the Country widely spread as they were, on its discovery, over the central and western portions, having been displaced at an early date from the eastern parts by the Hottentots, Kaffirs, Zulus, who
were successively invaders from the far north east.

Further climate, then, nor pace, nor habits, nor food are the true cause of 
infamy, no made of life is sufficient 
to produce it; rather do the facts go to 
prove that the etiological factor has the 
significance of a predisposing cause even 
if it be a potent one; least for the production 
of the disease we must have a specific noxious 
agent, a peculiar infective substance which 
had been more or less widely diffused 
through Europe in former times, but is now
active only at certain points in this part 
of the world, though it still makes itself felt 
over a great range of territory outside 
Europe." (Herschel Vol II p 132)

The "specific noxious agent" was at 
last discovered in the form of a Bacillus by 
Hansen in 1874 and his observations were 
afterward confirmed by Kénesier, 
Cornil and Köhne in 1876, 1879, 1881, 
1882.

The further discussion of this 
branch of our Subject I shall take up
under the special heading of Pathology, and in the mean time proceed to give various facts with regard to the transmisssion of the disease, particularly in the Cape Colony, in special sections devoted to Contagion and Heredity.
The Contagious nature of Leprosy

The question as to whether the disease is contagious or not is one which has been continually raised and has been usually answered in the affirmative.

The disease which among the Jews were included under the name were as we have seen various, and for all of them strict isolation was enjoined. When a case was in any way affected the sufferer was allowed to rejoin his fellows never, and thus we may be sure that for cases of real leprosy the isolation was maintained.

Lepers however mingled, as lepers, to a certain extent with the community as they do in Eastern lands at the present day and the ideas which were then prevalent as to the modes of infection were probably such as to allow such to run considerable risks from touching articles handled by lepers while they avoided sedulously the
"contagious breath" in which they suffered
the chief danger to lie.

During the prevalence of leprosy
in the Middle Ages its contagious nature
was undoubted, and a much stricter and
more practical isolation of cases was
practised, both in this Country and
on the Continent of Europe.

Sir James Simpson in his Essay
on this subject (Archaeological Essays, 1867)
gives innumerable instances of the laws
and enactments passed to attain this object,
and a List of the Leprosy Hospitals of
which mention or traces have been found
in England and Scotland, with much interest-
ing information regarding them.

The Report issued by the Royal
College of Physicians in 1867, founded on
statements made by District Surgeons in
the country
India declared the conviction of the most
experienced observers to be quite opposed
to the belief that leprosy is com-
municable; and the report of Dr. Lewis
and Cunningham to the Government of India
in 1876 founded on the examination
of the cases in the Asylum at Almora in the District of Kumaon in the Himalayas also declared that there was no foundation for the idea that it was contagious. (Physiological and Pathological Researches of the late T.R. Lewis 1888)

Such statements were a great surprise to many who had opportunity of observing the disease and examining the facts; in particular instances, both in India and in many other parts of the world, it was not long before the evidence given by the District Surgeon was examined and criticised, and many facts brought forward and much light thrown on the subject. ("Leprosy a Communicable Disease" by C.H. Macnamara now Surgeon to Westminster Hospital, Published in Calcutta in 1866 and re-published in London 1889.)

Many instances where contagion was the only possible explanation were then brought forward and it was also shown that the evidence of the best observers among those who had reported
to the College of Physicians was entirely in the same direction. Since then a great bulk of evidence and opinion has been brought to the front ("Leprosy and Insane Grums" J. P. Wright 1889) and a number of notable instances have become widely known, such as the case of the returned soldier's brother in Ireland who became a leper, the Hawaiian Convict inoculated by Dr. Arming and the world famous case of Father Damin. These at least, but points standing out more distinctly, show a mass of evidence of the same kind. Many of the Cases which I shall quote later point unmistakably to contagion and particularly those of R.C. and H.O. (Vide pp. 166. and 215.)

Rather than quote again cases already available and many of them well known, I shall proceed to draw from the report of a Committee of the Legislative Assembly of the Cape Colony in 1883, a number of instances which were within the personal knowledge of those who gave evidence or were engaged in
the Commission.

Here Mr. G. Yeller mentioned a case where a farmer's son, a boy from a perfectly healthy family, borrowed the overcoat of a loper boy with whom he had been playing and wrapped himself in it as a protection from the rain. Within a few years this boy was a pronounced leper. What more likely than that, assisted by the moisture, he was inoculated in the neck from the collar of the loper boy's coat?

Dr. Ducard, the Surgeon Superintendent of Robben Island, knew of a case where a man named E. became leprosy after using a flute belonging to a leper.

The Reverend Canon Baker knew of a Carpenter on the Island, when he was Chaplain there, who had become infected from using tools which were also used by a leper.

Dr. Sandberg knew of a man knowing cohabited with a leprous woman and afterwards learning she was a leper, and also of Europeans who came to Cape Town
and contracted leprosy there. While admitting that these might be due to local circumstances, he felt that they seriously shook his confidence in the supposed non-communicable nature of the disease.

Dr. H. Edward Mann of a married woman in Cape Town infected by leprosy. Her husband had been married before and had a healthy family. After his wife's death he cohabited with a coloured woman for some time, who subsequently became a confirmed leper and died. The man had before this, married again, but shortly after the death of the coloured woman he himself developed signs of leprosy and finally died a confirmed leper.

One cannot avoid the conclusion that he had also infected his second wife.

He also pointed to the fact that there were then (in 1883) five Europeans, lepers, on Robben Island, none of whom had ever seen or heard of the disease before coming to the Colony, who could not therefore have brought an hereditary taint, and whom it is impossible to
suppose had all been subjected to such privations and rude remedy and miserable diet as to produce profound cachexia and generate a disease.

He also knew of one child in a perfectly healthy family which had been reared by a Hottentot woman. The apparently healthy but wild and sullen child, became a leper.

Mr. De Swartt knew of a case where a whole family living on a magnificent farm in the Western District, the richest part of the Colony, were all lepers. That cannot here be accounted for. Contagion and heredity are the only explanations of such facts as those.

Dr. Murray quoted a case where a European, a married man, exhibited symptoms of leprosy and after suffocating from the ulcerated stumps of his diseased digits, died. His wife and sisters died of leprosy. Of their three or four children one only became leprous.
but at a very early period. These children
had the same dummies as far as
credibility goes, but this child was the
favourite of the father, who allowed it
to sleep in the same bed with himself
and his wife. We can hardly doubt
then that it became infected by Contagion.

We have here three cases where
the disease was in all apparent probably
communicated by the husband to
the wife.

Dr. Turner also writes from the
neighbourhood of Saltounaugh, where
he says the disease is spreading with
alarming rapidity, and where he can
count more than twenty cases in
one small place alone. He has not
the slightest doubt that it is contagious
and in more than one case has
been the disease contracted through marriage.

I am glad to hear these cases,
and the occurrence of cases in different
districts to point to in this con-

sequence, since very poor occurrence does
not sufficiently cases of the kind.
It will be seen from the notes which I took on Robben Island, and detail in the second part of my paper, that in one case only did I get evidence of a husband and wife both being affected; and that not only among the patients themselves, but among all their parents and relations, so far as I was able to learn anything about them.

I might, had I grounded an opinion on this basis alone, and so, especially if by chance I had missed this particular case, have concluded that such a thing never or most rarely took place. From this again conclusions adverse to the supposition that this disease was really contagious might most naturally have been drawn.

This is exactly the result arrived at by Dr. Lewis and Cunningham in their paper on Leprosy published by the Government in India in 1876. ("Phthisiological and Pathological Researches," London 1888)
They examined fifty two married spouses in the Asylum of Almora in a Northern Hill District of India, and they found that twenty five men had had twenty non-epileptic and eight epileptic wives, while twenty seven women had had twenty five non-epileptic and ten epileptic husbands. There were eighteen non-epileptic wives or husbands, but out of this number seventeen were marriages between spouses in the Asylum so that but one case remained where contagion could possibly have affected the other spouse, and as they found no other evidence of contagion among the cases there, they naturally decided entirely in favor of the non-contagious nature of the disease. Such is the state of things in Asylums, and I can only suggest that, as the cases I have quoted show, a more extended inquiry throughout a country or district would reveal facts tending to support an opposite conclusion, and it is to be
noted that even then at Almonry they
found four patients who had each both
parents leprosy.

The experience of the Superintendent
of the old Somerset Hospital Exe-Town,
where the women were formerly isolated,
led him to believe that it could be
acquired by cohabitation and also by
direct inoculation and that these
causes operated more readily when the
person was reduced to a low state
of health through privation.

Dr. Atherstone had learned from
a leper woman that she had lived
for sometime in the same house with
two people who had leprosy and who
afterwards died of the disease.

In Ruigoland a number of
families have become affected and it is
believed that the disease was carried from
the Colony when many Ruigoes were removed
from the neighbourhood of Port Beaufort.

The “Headman” Ruigoe was a leper
and his son die of it. Two
other families living in the same
Valley subsequently became infamous.

In two instances they concluded
that Kaffir Natives Doctors have become infected
by treating leper patients. Kaffirs and
Kaffir cattle look upon the disease as
contagious and write isolation to be
enforced.

The Rev. Mr. Ross, a resident
in the Colony, holds the firm opinion
that leprosy is spread by inoculation either
by direct contact with the secretions
or purifying sores of the patient, or
transmitted by the clothes, utensils, pipes,
used by the leper and by others. He
points to Madagascar where so long as
the law excluding lepers from Society was
strict the disease was kept in check
but when that law was relaxed it
spread with almost incredible rapidity.

Curet Baker having been for
some years Chaplain on Robben Island
and having devoted much attention to the
subject is strongly of opinion that contagion
is a most powerful factor in the spread
of the disease.

His conclusions after reading the
Report of the College of Physicians was
much the same as that of Dr. Macmillan
viz., that there was strong evidence in
it in favour of contagion and he pointed
to cases where gentlemen had taken the
disease from their attendants and servants
drawn from their Master, when the introduction
of a lodger into a household had led to
the disease in several of the family, and to one case
where a patient was believed to have
been infected from sleeping in the bed
of a leper. He mentions the opinion
of Dr. Hooghe, who reported on leprosy
in Norway in 1835, that it was com-
municated along with ictioli, a complaint
very common there, and almost universal
among the lepers. A terrible appellation
true of their sufferings!
It is likely at any rate that the
constellation would give every opportunity for
inoculation, and this seems to have been
the case in one instance where a girl
aged twenty-five associated with a
hospital girl and became infected with
the disease; a sister who slept with her
and subsequently a brother aged fifteen,
became infected, and lastly the mother
fell a victim to this disease. Heredity
is thus excluded, and those people lived
in a healthy district two thousand feet
above sea level and never suffered from
cold or infections of any kind; they
were moreover all severely affected with
itself.

There are many circumstances which
would operate more strongly in favour
of contagion (not in hot climates such as
the greater moisture of the skin, the
open pores, the fewer clothes worn, and
the therefore greater frequency of scratches
and an authority such as Erasmus Who,
though not believing at that time that
the disease was contagious under ordinary
circumstances in Europe, expressed it as his decided opinion that it was possibly contagious in tropical and semi-tropical countries.

Dr. Living also believes it to be communicable, and gives his opinion as to how infection may take place, he says "We cannot shut our eyes to the fact that leprosy very frequently occurs in members of the same family even where hereditary transmission is out of the question and that Europeans not infrequently become lepers by residence in countries where the disease is endemic."

In speaking of the disease as found at Laure, New Orleans, and Rio, he says "Do the physiological and natural relations of the country alone explain these facts? If not we are driven to the conclusion that the disease is in some way communicable from the unhealthy to the healthy. For my own part I am inclined to believe that though leprosy is not contagious in the ordinary sense of the word it is nevertheless propagated..."
By the inoculation of the excretions of those affected measles in the same way though not in the same degree as typhoid and cholera are propagated; but as typhoid is developed but slowly there is far greater difficulty in tracing it home to its source. From 1793.

To return to Cases at Robben Island. Cuvier relates the case of a barber that in his line of of typhoid which he was believed to have contracted from putting the bodies of deceased persons into their coffins.

This man's mother subsequently developed signs of the disease which she believed had been conveyed to her through washing her son's clothing. As she was an Englishwoman it is most improbable that there was any taint in her constitution before the birth of her son, who had moreover reached middle age before he became affected.

Dr. Wringe relates the case of J. K., a boy of about fourteen years old who acquired the disease on Robben Island. His parents and grand parents on
The pedes are English and Scotch; his brothers and sisters are free from any trace of the disease. It is supposed to have been contracted by washing the fish, hooks, and beating them for hours when not feeding with them; an occupation in which it is extremely likely that both he and the before might be scratched with the same hooks. And otherwise, he must most certainly have often received scratches from hooks, fish, or rocks, and it is evident that he lived in free communication with the before.

He is affected with the Anaesthetia from his fingers being contracted with loss of common sensation to some extent in both hands. His feet do not appear to be affected as yet. His food has always been good and of sufficient quantity; broth, fish, and other food being eaten every day excepting occasionally. The disease is progressing but slowly. His general health has always been good.

He has been treated with Castor-oyster oil and some other medicines from which however he has never appeared to derive any benefit.

V. D., a colored man of mixed breed from Angola Bay, was formerly cook for the
lepers. He states that none of his family have had the disease. His left hand first became affected and two fingers are now contracted. The disease is progressing slowly.

Dr. Wyman quotes also two remarkable instances in which men suffering from necrosis of the bones of leg and foot and with an open wound in each case lived for many years in the leper wards without contracting the disease.

Coesar Africamus, a tall well built West Coast man of pure race had an open wound of the foot associated with necrosis. He lived for ten years in the leper ward and attended to the patients as Wardenman or Hospital orderly and dressed their sores. He has no trace of the disease about him. His habits are cleanly and he states that he has always been careful and always cleaned his own eating utensils.

I, Eason, a tall well built man of mixed race but principally of European blood, acted for about the same length of time in the same capacity. He also had an open wound of the leg.
from necrosis but escaped the disease. He exercised the same care with regard to cleanliness.

It is noteworthy that in these cases the men were aware of the breach of surface of the wound from which they suffered, and of the danger to which they were exposed; and we doubt that the part was always protected by a dressing. Moreover, it is well known that a sinus filled with granulations, chronic in its nature and discharging pus, is not in the same degree susceptible of infection by infectious and other matters, as is a mere scratch of recent origin.

The pus corpuscles (phagocytes) are believed to take up intruding bacilli and carry them off, and I have seen such under the microscope, large cells actually enclosing several bacilli.

The non-absorbent nature and thus protective power of the granulation tissue is no doubt a considerable factor in this case.

Yet the risks that these men ran,
greater even than that of other attendants on leprous cases, was no doubt considerable, and it forcibly points to the peculiar and as it were relentless nature of the contagion in this disease.

Leprosy so prevalent as it is in China is there universally believed to be contagious but exactly in what degree as in which we are learning from the evidence before us, and from that supplied by observers in other parts of the world, to consider it; and this belief is aptly expressed by an Chinese proverb communicated to me by a fellow graduate lately returned from that Country, for they say "Thái ko ssiang-chhîng khah ho' si' kò tî hî nîng". "A leper lodger is better than a man with the itch in the opposite house."

As a note in this connection and with reference to the prevalence of leprosy among the inhabitants and especially this lepers, of Norway, I may mention that during eight years in South Africa, with many Convicts under my charge
and seeing much of the poor and lower classes, I never came across a single case of Scabies.

In June 1889, at the very time I was visiting the island and taking the photographs, a Select Committee of the Legislative Council began its sittings. They visited Rottnest Island the day after I left the Colony. A great deal of evidence was collected as to the prevalence of leprosy throughout the Colony, and some interesting cases were brought forward.

Dr. H.C. Wright mentioned a case he knew of a widow and living with her a daughter in an advanced state of leprosy. The mother was shown no signs of the disease, married a widower with one son by his first wife. Both these men were well known to live and were perfectly free from leprosy. After some time the husband was attacked, then his son, and lastly the mother of the girl the original sufferer. Further, a little Holland girl, a homeless waif, was taken for shelter and protection to the gaol at
Wynberg; she ran away and was lost for several months. At last it was discovered that she had been living with the family just mentioned, and she was brought back. She had previously had no sign of leprosy, but after having lived in this infected house, the disease began to show itself, and she was sent to Kitchener Island. She is no doubt one of the girls shown in my photograph.

Of course nothing of her family history was known, but it is to say the least, a very extraordinary coincidence, while the cases of the husband and stepson point unmistakably to contagion. The daughter and her mother died of the disease.

After this it is hardly satisfactory to find before engaged as greengrocers, sweet-makers, candle-makers, fishmongers, and woodcutters. Still less to find a healer woman dealing in needle and thread, baking bread with her hands.

At Kalk Bay many leper are engaged in curing frock and a woman
in an advanced stage of the disease was
seen to cross the road and kiss a
German farmer’s child.

Dr. Simmons knew of a farm on
which a coloured man, a loper, was em-
ployed in butchering and other work
about the house. The farmer’s daughter
about ten years of age, developed symp-
toms of leprosy. Next another coloured
man, a wagon-driver and great friend of
the first mentioned, became a leper. Then
the farmer himself fell a victim. -
He had avoided his daughter as much
as possible and was probably infected
by his wagon-driver, with whom in
the course of work he would naturally
come much in contact, and necessarily
would handle the same things. -

During the illness of this daughter a
young woman came to assist for some time
and she also is now a confirmed
loper. These had never previously been
any leprosy in that family. Two
elder children are married and healthy.
Some younger ones were at school and
did not come home often, and were kept apart as much as possible from fear of contagion and have never developed the disease. These events took place in the course of fifteen years. The farmer and the nurse are still alive.

Again, a farmer adopted an orphan child of whom he became particularly fond and who was constantly with him. The farmer became a leper, and the child now a married man with several children has since developed the disease. The farmer died two years ago. I was perfectly certain that there was no leprosy in the child's family.

In the case of a leper boy on the Island, who is unfortunately not named so that I cannot point him out on the Plate, he and another were the only two leprosy children in a family of which the father was an Englishman. In the mother's family no case of leprosy had ever been known before.

At the place where they lived by the sea - the father is a fisherman - there
were blues, and blue children and the
two who became affected used to associate
with these blues and had often been
seen sharing sweets with them. Children
frequently share the same sweet and nothing
is more likely than that the disease
should be communicated by the saliva.

Dr. Cox knows of a case in
which he was convinced that the dis-
ease had been contracted through contagion
and indeed many of the District Sur-
gon's wife was communicated with,
answered to the same effect.

He considers it very dangerous
the fact of a white blue woman fol-
lowing the occupation of a Todlow
though he can point to no instance
of communication of the disease by her
as yet.

The Hon. Mr. Atkinson, M. L. C.,
the eldest and one of the best informed
medical men in the Colony, is more
fully convinced than any of the Con-
tagious nature of this disease and names
of several cases in which he believes
it was undoubtedly conveyed by accidental inoculation.

In another place he mentions the sad case of a well-to-do gentleman who had contracted the disease from a schoolfellow who came from a leperous family. Both were now suffering from it.

He points to the danger of allowing a woman and two children, all lepers, to be engaged in washing and ironing clothes and selling fish; more especially as some of her other children had lately shown signs of the disease.

The Rev. Canon Baker of Keal Bay points to cases in his own experience. A. B. was affected with tuberculosis leprosy. His youngest child died of it and then his widow after him. A married sister of A. B. is advanced life manifestations symptoms and died of the disease. It is at least highly probable that the wife was infected by her husband.

In a house at Keal Bay resided C. D. and his wife. A girl from a leper family often visited the house. C. D. became
affected, and then his wife; both then left
the neighborhood and subsequently died.
To the same house came a family of
which a daughter aged twenty-five was
attacked by the disease and afterwards
lost of her Brothers. In their case at
any rate there was no appearance whatever
of hereditary tendency.
Both these cases were of the cutaneous
form.
R. G. suffered for many years from
the neuralgic form. In the same house
a niece of eight years old became af-
sicted, and afterwards, one or two other
members of the family also succumbed
to the disease.

Referring to the Irish case he recalls
that a woman died some few years ago
of leprous in her neighborhood and that
one at least of those who were in close,
afinity clothing were supposed likewise
to have contracted the disease.

A patient now on Rubben Island
was the first of his family who was
a leper and he only because so after
marrying into a leprous family. After this several members of his father's family who associated with that of his wife also became leprous.

A similar case was known in India where a man known as leprosy, some members of his family left the neighbourhood. These all escaped the disease. Others who remained became infected and were soon the centre of a village of lepers who had contracted the disease by marriage or other personal contact.

Finally, Twenty District Surgeons can point to cases in which they are convinced that the disease was communicated by contagion. Three or four others believe in the fact but are not certain of instances. Thirty one are not aware of any case but several of them add that they have had little experience of the disease.

Such is the evidence from the Cape Colony and the recent literature of the subject seems with like account.
from other parts of the world, I have
attended to some and shall not quote
these, but in conclusion I shall briefly
notice the recent and only recorded instance
of successful experimental inoculation.
Unsuccessful attempts have been, from
time to time, made, and we have already
seen that the disease is not in all cases
nor under all circumstances communicable,
and that a healthy body has the power
of resisting and throwing off the mortific
germs, we do not now draw the positive
conclusions from the experiments which the
experiments necessarily naturally did.
The results however are certainly remarkable

Dr Leloir of Lima, quoted by
Archdeacon Wright, tells how "the venerable X"
inoculated himself and that repeatedly
with blood and pus and even incised
particles taken from a mule of a horse
venereal lopez, but all without effect. He
then persuaded twenty healthy persons to
submit to the like operation and in
no one of the cases did there appear
anything beyond a certain inflammation.
of the lymphatic vessels. All those inoculated continued healthy year after year.

Procter inoculated himself, seven men and two women, and also Dr. Cauquina and six others, all being of the age of twenty-five and upwards, and in no case did recovery result.

We can only suppose that the body was in these cases capable of resisting and overcoming the vitality of the bacilli. The conditions favorable to their spore formation did not occur; and those that remain are chiefly defective nutrition, and finally they were destroyed.

It is also possible that inoculating gradually, a protective influence may have been obtained, such as we see in Pasteur’s treatment for rabies, so that when emboldened with success, actual reper tissue was introduced, the system was fortified against it. Further, all these persons were imbued with confidence, and no doubt some enthusiasm, a factor by no means to be disregarded
in any question affecting the vitality
and vigour of the human frame. We are
probably still far from knowing all the re-
sistence the mind is capable of exercising
on the body, but evidence is rapidly
accumulating which may yet compel us
to formulate new principles and adopt
new methods of practice.

The Case of Kaimo the
Hawaiian Convict is in this connection
somewhat to the point. Condemned to
death for murder his sentence was
commuted on condition of his allowing
inoculation with leprosy matter. This
was done by Dr. Arning on the 30th
September 1881. (Note. This letter from the
Board of Health, Honolulu, gives the date
of inoculation as November 5th 1885, but
that given by Dr. Beanie quoting Arning
is probably correct.) It had previously
been ascertained that he had no
leprosy taint himself, nor in his family,
so far as could be judged or ascertained,
and it was stipulated that he should
never be allowed outside the Prison Walls.
The result has been that he is found on the 20th April 1888 - an advancement of tuberculosis leprosy. The symptoms are detailed at length on p. 67 of Dr. Wright's Book.

2. Dr. Arning last saw him on June 5th 1886 at which time no sign of the disease had appeared.

1. Of the condition in the meantime we have no account prior to the date when symptoms first showed themselves, but fourteen months after the inoculation Dr. Arning writes that the bacillus lyophile was found to be in the sputum. Previous to that, the numbers had been large at every examination for the first six months, after which they had gradually diminished.

Of course we must allow for possible though undiscovered baccillary taint and for "endemic causes" whatever they may be attributed to be: but we have here a man surrounded by fire, disposing influences - for those we must admit - climate, race, confinement,
monotony, and the depressing conviction that he was, after all, doomed to succumb to a disease to which he knew his countrymen to be liable and with which he fully believed he had been effectively inoculated.

What wonder then that the disease took its natural course with him while it had failed in other cases.

It is to be feared that the opportunities for such experiment will not often occur. It is with disgust (but not surprise) that we read that sentimentalist have even now blamed Dr. Arney and the Hawaiian Government for their bold and thoughtful action, fraught as it is with valuable information and warning to humanity.

Now that the existence of a specific bacillus has been definitely ascertained, the difficulty of believing in Contagion will be almost entirely removed. All minds will be disposed to accept it as a fact and the
question will be resolved into one of studying the properties and peculiarities of the micro-organism and ascertaining under what conditions it can or cannot be transferred from one body to another.
The Hereditary Tendency of Leprosy.

That this disease can be transmitted by parents to their children has been long and seldom doubted. The facts in support of such transmission are strong enough and probably on account of their being more obvious and less far to seek they have obtained almost universal acceptance.

Dr. Lewis and Cunningham in the paper already quoted found in the Asylum at Armona, that of the eighty lepers, twenty-eight, or thirty-five per cent, had one or more leprous relatives which gives a proportion of one hundred and forty times greater than the percentage of lepers to the total population of the District and points unmistakably to the distribution of the disease by families and therefore to hereditary predisposition.

In four cases, child parents were affected, and in two of these cases, four and three children respectively were also leprous.
In the twenty-eight cases, seventeen had one or both parents syphilitic; ten had brothers or sisters; five had sons, and six had other relations, mostly nieces. The figures also seem to indicate a strongly marked tendency to follow the female line of descent. Besides the four cases where both parents were affected the mother alone was so in two cases, the father alone in three.

They point out that among the Hill Tribes more is known about relations than is usually the case among Natives in India, and that their figures are unusually reliable; the only point being that they were then understate the cases from the fact that many of the patients had not for long lived of their families.

Of the fifty-four cases I examined at Robben Island twenty-five were of syphilitic relations, and that the number is not greater is no doubt due to the very cause indicated above.

The Coloured people in the Colony
are much scattered, families have little
association and very near relations are often
really quite unknown. The observations
of various men in different parts of
the country shew how valuable su
formation some of which I shall now
collect.

Dr. Birkwood knew of the son of
an Espar who was born after his father,
contracted the disease and who was
also attacked, the father being dead
before the disease showed itself.

Dr. Laidlum had been a broth-
child of four years old born of Espar
parents who had the tuberculated form
without alleviation.

At one time, before the present female
Espar wards were built it was found ne
cessary to remove the females from the
island to the Old Somerset Hospital because
the means of separating the sexes not
being sufficient, it was found that young
Espar were being born there.

In one case the mother lived but
little sign of the disease, she had suffered
from a large boil on the sole of the foot which ulcerated and eventually healed with but little discharge. It was of a suspicious character, such ulcers being common among lepers. Her son had the disease fully developed.

Also he mentions a case of a child a year old and another shortly after birth already leprosy.

Dr. Edson has known of many cases where children have shown symptoms at a very early age, the earliest being three years; a case of the tuberculated form.

A very large proportion of the children born of leprosy parents on the Island were lepers.

Mr. Needham knew of a European woman who came as a chronic sick patient and had a small sore on the foot. She finally developed leprosy and it was found that one of her family had previously died of the disease.

A woman had been admitted three times and twice had been taken out by her husband with whom she lived though
in a fiercely advanced stage of the
disease. On each occasion she had a child
and each child was at labour. One died
of the disease, the other lived till some
years at any rate. The mother eventually
died.

It was found that among the Tshoga,
who carried it from the Colony to the
Transkei it was at first confined solely
to certain families.

It is interesting and most important
in this connection to learn that the bacilli
have actually been discovered in the
testicle. M. Comte communicated to
Académie de Médecine in October 1881
that he had found them lying free in
the tubercles of the testicle. In this
situation and in some others in the body
they are three or four times as large as
those found in the cutaneous tubercles and
this increased size is apparently due to
their development not being hindered
by compression.

Also in the cells of the dermisis
acculated in the tubercles of the testicle, sperms are found, some free and others agglomerated in masses.

Now it comes to pass that the disease is not found developed at birth, or very shortly after it, we are at present quite unable to say.

That the sexualipower of before is in very many cases not destroyed is sufficiently obvious from what has gone before. Loss of power is believed at Rotten Island rarely to occur except in the last stages where general exhaustion would sufficiently account for it, but of the "libido incurvabilis" at one time generally believed to accompany the disease, I do not find that there is any sufficient proof.

That the women were at times loose in their behaviour and suppressed desire was noticed.

A Hottentot woman was said to have been seduced because her admission to Kaffirs had refused to cohabit with her on account of her race, not because
of the disease. The Superintendent in charge of the females, before they were sent to the Island believed them more libidinous than other women, but it must be remembered that they were of the lowest class of Halfbreeds and were kept, who are at no time particularly reserved or modest in language or behaviour, and they were here well fed, unoccupied, and without opportunity of gratifying desire. To a great extent also social restraint was removed by their condition and the way in which they were regarded as outcasts.

This little I learned from the men themselves will be found in the Notes to their several cases but as my examination of them was generally conducted in public, with a group of men and boys standing round it was a point on which I did not often enquire.
The Pathology of Leprosy

I have already shown in the Section on the Etiology of the Disease that other causes having been proved to be insufficient, we can the more readily accept the conclusion that Leprosy is altogether due to the changes produced by the action of a specific micro-organism.

The credit of the discovery of this microbe is due to Armauer Hansen of Bergen in Norway, who in 1873 communicated to the Medical Society of Christiania the fact of the existence, in the tissues of leprous growths, of the bacilli, of special Bacilli resembling closely the bacilli found in tuberculosis, but differing from them in that they are somewhat smaller and also react differently to certain staining reagents.

This discovery at once threw great light on the whole of the morbid process, but did not become generally known until the investigations of Maizer...
in 1879 established the same fact.

Hansen then published his discovery more widely, and since that time Cornil, Köhner, Henn, and others, have by extensive observations added much to our knowledge of the subject.

The new growth which is found causing the protrusion of a luprous ulcerosity consists of what is known as "granulation tissue," and the disease was therefore long ago classed pathologically by Virchow as one of the "Infective Granulomata" along with Syphilis, Lupus, Glanders, Tuberculosis.

The essential condition common to these diseases is one of the deposits, in certain localities, of new material consisting of rounded cells, with large and distinct nuclei, closely resembling leucocytes or white blood cells.

Among these are more and less large ones called by Virchow "luprous cells" and supposed by him to be in some way peculiar to the disease. Peculiar they may doubt are, but in no way cancels the being indeed the direct result
of the pruris factor in the case, the Bacillus Lepra, which by its action on the infiltrated cells alters their character and produces their peculiar appearance and size. These cells indeed are found to be simply crowded with leucocytes and when suitably stained offer a striking object in the field of the microscope, even lying, as they do, in a tissue already loaded with microbes.

On the occasion of my last visit to Robben Island I prevailed on the man H. I. Case to allow me to remove one of the smallest prominent nodules on his face. It may be seen in Plate I, at the lower corner of the nodule on the left side. This I preserved in absolute alcohol and since my return have made sections of it, stained and mounted them and offer two of them for examination in illustration of my subject (Selvins).

They have been treated with a solution of Ruchins, a stain which
remain in the bacilli even after it has been removed from the rest of the tissue by processes which I need not now detail but which allow of the application of a blue contrast stain to the cells themselves among which the deep red stained bacilli stand out distinctly.

The other section stained with a special preparation (Alun Carminio) shows more distinctly the arrangement of the cells and the other constituents of the skin itself.

I have also had a drawing made to allow of reference to the condition without the microscope and a photograph taken, which however does not show much beyond the more distinct "lepra cells" and large aggregation of bacilli. It will be found on the last page of Photographs (Plate 35).

The appearance presented by a section of leprous skin prepared in the manner described shows at once the amount and distribution of the
G. B.

Gælle, the infiltration of leucocytes and the effect produced by these on the other layers of the corium.

On examining with a low power one sees at once that the bacilli are not equally distributed over the section and that, in fact, there is one region from which they are entirely absent; this is the epidermis, which in all its three principal layers is, as a rule, perfectly free from the invasion of the microbes (or from cells containing them) crowded as they are in the substance of the corium which lies beneath it.

What an important bearing this simple fact has upon the much discussed question of contagion it is well perhaps to pause at once and consider.

The evidence goes to prove that the disease is not transmitted unless by the passage of fluids from a broken surface of the skin. The first glance through the microscope reveals the reason. The infective agency does not lie near the surface.
They are separated from it by a dense resident layer.

Another point we observe is that it is in the outer portion of the corium that the bacilli lie most thickly; that there is a zone, in fact of greatest frequency, and that this is divided from the epi-

dermis by a band of connective tissue in which few of the granular cells are present and few bacilli.

The microbes thin off too as we pass downwards to the deeper parts.

Armed patches free from the red-stained organisms may also be seen and these under a high power prove to be formed of a cubical epithelium in fact glandular tissue.

A power of some 500 to 800 dinameters turned upon the section shows the enormous multitude of the bacilli.

The field is crowded with them and we can see half little of the tissue itself in many places. The epidermis is more or less distinctly seen to lie free from them but it is and among
the cells of the new growth below, they
appear in clumps or bundles, and every
here and there, are distinctly seen to be
enclosed within the outline of a large
and rounded cell. This is the "cupula
cell" of virchows and now we see it
the focus of action of the invading
microbes.

In many places closely packed bundles
of the rod-shaped organisms suggest
the natural inference that they were
first lately enclosed, but have broken
loose, while all about he's scattered the
same distinct forms.

Under the dense, well-defined
stratum corneum is seen the pigment
layer or stratum granulosum, so much
more distinct here than in specimens
we usually see, in that it bears a
large amount of pigment, the skin
being that of a man of colour.

An increase in the amount of pigment
has however been observed in cases of
occurring in Europeans and this accounts
for the darkening of the skin almost
always present to a greater or less degree in leprosy.

The Malpighian layer is seen to be in places thinned and flattened out as though by the pressure of the growth beneath, but the papillary processes are enlarged and indeed in parts hypertrophied to a very great extent, irregular in shape, and forming peaks which press far down among the cellular tissues below.

This prolongation inward is seen in places to be connected with certain dense masses of cells, which may also be found alone, concentrically arranged and presenting exactly the well known appearance of the "birds nests" of an epidermis. Pressure from the surrounding cells has prevented their expansion and caused them by a familiar process, to become flattened and to coalesce.

In the outer part of one of these nests I have seen an ovoid cell packed with bacilli and in the trabeculae too they may be found, though they are absent
from the normal Malpighian layer itself, or found only in the rarest instances. It is possible to see in places among the granulation tissue a fine network of the connective tissue cells and one may observe that the bacilli lie in lines here and there, as though disposed in the finer lymphatic space, which some competent observers believe that they actually do.

The bacilli themselves are seen to be straight rods, provided at the extremities of process, believed to be spore-forming, and indicated by a clear space in the middle of the rod is frequently observed. The Bacillus Lepra resembles most the tubercle bacilli but is somewhat shorter and fatter. (It is said to be from 0.004 to 0.006 of a millimetre in length and 0.001 thick.) It differs from it in that it can be stained with Methylen Blue and some of the other aniline colours as well as by Gram's method which distinguishes it at once, as the organism of tubercle resists all these.
It has been found by Corvisier to be increased in size when it exists in other localities than the skin; the liver and the tubules of the testicles, e.g., being free from compression and attaining to a size of 12 to 15 thousandths of a millimeter. In their normal condition they are said to resemble also those of Koch's mouse leukaemia but to be less delicate; they therefore come between it and the tubercle bacillus in size. Another account (Saintet Jul 30 1881) makes it resemble the Bacillus tuberculosis believed by some to be connected with ordinary malaria.

Seemous deposits have been found in many internal organs and specimens of these are given in RB's Atlas.

The same processes occur in the mucous membranes which are found in the outer skin, and the results produced by swelling and subsequent ulcerations vary with the locality.

A very good case of infiltration
of the largest in an Egyptian beggar is published by Dr. Mackanu in the Journal of July 23, 1881, with a diagram of the appearance.

In comparing the deposits of leprosy with those of syphilis and tuberculosis we note that they are much less apt to degenerate and break down than the ommata of the first, and differ from the second in having no sort of capsule or limit in the tissues they invade.

When ulceration occurs it is from a general debility or from some local injury or irritation; and in some old tubers a mass of detritus has been seen upon which ulceration might very possibly follow.

In a fully formed tuber there is but little normal tissue left, the bacilli having apparently brought about a metamorphosis of the cells of the endothelium itself.

The large cells (Lepros Cells) present sustained a brownish appearance and possibly this as well as the increased
pigmentation of the skin is produced by the colouring matter of broken down blood corpuscles.

An important point still to be considered is the condition found formed in cases of the Anaesthetic form of Erythrozy. I have not myself had an opportunity of working at this branch of the investigation for want of the necessary material; the urgent request I made to the Authorities in Cape Town not having met with a response, perhaps for want of a P.M. for some months.

I gather from the accounts given by other observers that the state of the nerves is much as one would expect it to be. That is to say invaded by bacilli.

In 1862, Danielson had described changes in the peripheral nerves going to supply the affected parts. The fine branches were red and swollen, the morbid process appearing chiefly to affect the Neurolemna. At a later
Period they became brownish and finally were faded to a yellow, and completely atrophied. The same signs of wasting was noticed on the nerve branches at a later period of the disease and the thickened nerve might be traced in its course to the spinal cord. The swelling was irregular, being more marked where the nerve was superficial and exposed to pressure. Virchow & Barbe found in addition that there were actually gomphocera cells infiltrated through the nerve fibre itself in its most intimate relations; and now the presence of xanthelli in and among these cells has been actually demonstrated.

It is necessary to obtain specimens from a case of not too long standing for after long duration the nerve fibres atrophy, the xanthelli perish. Nothing is to be made out but the increased amount of interstitial fibrous tissue which has replaced the proper structure. Why the nerves in one case, and in another the skin, should be attacked
we cannot tell; but it is worthy of remark that when the form is Anaesthetic the bacilli are far away from the surface and that when ulceration occurs in such a case there may be no bacilli at all discharged with the pus and fluids from the wound, the bullae and subsequent ulcers being secondary to the nerve lesion and being the result of atrophic change at the surface.

Such discharges would not then be contagious and thus perhaps some of the misconceptions on this subject may have arisen.

That the bacilli and their spores are the actual cause of the pathological processes in leprosy is almost conclusively proved from the fact that we find the same bacilli in the same relation to the tissues, in all cases of the disease from all parts of the world; and also that the resulting effect is obtained by the action of processes minute in their character and constant in their appearance.
the lepra cell in its development from the leucocyte bring always de:  
compared by the rod shaped organism which we can have no hesitation in  
referring to as "Bacillus Lepreae".

Some points in the question of  
leprosy in animals and of cultivation  
I shall take up in another Section.

Having practically studied Bacteriology with Dr. Edington here and the  
preparation and examination of sections of leprous and other tissues, I have  
still been much aided in my comprehension of the various appearances  
by comparison of my specimens with the accounts given in several  
works—chiefly Hebra's p. 172; Leipzig  
p. 181; "The Lancet" for July 30-1881  
p. 181; "An Abstract of Lectures on Leprosy"  
by J. L. Biedenhorn, Christiania 1886; "Medical  
and Surgical Memoirs" by Joseph Jones of  
Louisiana Vol. II New Orleans 1884 & Ullman  
"Dermatologische Studien" Hamburg Leipzig 1886.
From all time this disease has been looked upon as incurable, and at the present day with our growing knowledge of its nature and characteristics we cannot even yet point to any remedy from which a cure may be at all expected.

In the older times prevention was esteemed the better way, and the course adopted was one aimed both at the contagious and hereditary transmission of the disease.

The rules of the Graceside Hospital of Edinburgh in 1591, as to remaining within doors and not resorting to any other place were enforced 'under the pain of hanging'. And 'for the better obedience thereof and for terrifying the said lepers' that there be one gibbet set up at the gate of the said hospital.'

While in 1556 still older times more drastic measures were employed, for it is recorded by Hector Boëce that before the Reign of Malcolm Canmore one of
the "auds manneris" was that "He that..." was brublet with the beiling evil, or fellin..." loof or wood or being sic infinititae as "successis the decretit for the fled to the..." son was geldit, and his wifeket blacke..." and spread in forther."..." The woomen that was fellin..." Lifer or had any other infection of..." blude, was loowit for the company..." of men and yif she concavit harm..." under sic infinititae, batthe she and her..." harm was buryit quik."..." These and many more facts of the greatest interest are given by Sir Jamis Lewis in his Archaeological Essay on Leprosy and Lepros Hospitals in Scotland and England.

Treatment of the same "lario" kind and on a scale large enough, if we can believe the account, actually to stamp out the disease has been done...at any rate employed in Clunia. I learn from my fellows Graduate alread...good, that in the District of Yai-an...Fukin Province, in the S.T. of Clunia...
there are at the present day no lepers.

The County is some twenty miles Square
and from that part no lepers come to
the Hospital, the natives asserting that
the disease is unknown among them. In
explanation they relate that at one time
leprosy prevailed there to a frightful extent
and was increasing so rapidly, that it
threatened the infection of the whole com-

munity. Whether at least there assumed
a more virulent type or whether the con-
ditions for its transmission were unusually
favorable we cannot tell, but the facts
were so obvious that a Mandarin or high
official of the District determined to take
steps for its suppression. He therefore invited
all the lepers and their families to a
great feast, and having carefully secured
their attendance he caused the doors to be
closed and the building to be set on fire.
The lepers perished and the plague was
stayed. It is certain that no other
cause can be indicated to account for
the immunity of this tract of Country.

Its characteristics are the same; the
manner of life of its inhabitants is the same as that of other districts. The people live in a similar state of dirt and destitution with those of other parts; their diet is of the most miserable description and should be sufficient, if Mr. Jonathan Hutchinson is to be believed, to produce the disease in one generation, for it consists almost solely of salt fish and sweet potatoes! They have not even rice, which does not grow in that and the neighbouring districts.

It is not related that any retribution, similar to that which followed the good Bishop Hall, fell upon the worthy Mandarin and it may be supposed that his laudable intentions were recognized; but at the same time the advisability of such a widespread mania was not perceived by others and his example was not generally followed. Leprosy is rife in most parts of China.

This bears really on the question of contagion and another fact under the same head is that the Wall American Indians and some of the Tahis in South...
America who have kept aloof from strangers are to this day free from the disease while its virulence in the Sandwich Islands where once introduced by the Chinese has been alarmingly feared.

So strong was the belief in the incurable nature of this malady in the eighteenth Century that to profess or attempt to cure it amounted to a positive proof of the practice of Witchcraft, and a clergyman actually brought against an unfortunate woman Christiana Livingstone in Edinburgh in 1594 of practising the forbidden art she having "affirm'd that she could have preserved a quark like noist expert men in Medicine are not able to do." Her method was harmless in itself for "she took a Reid, eek it, blew it, baked a bannock with the "blode of it and gaf the sampe to the "Sper to eat." No doubt it was the "prentice in whiche she acted and her intention which condemned her.

The celebrated Michael Scott, Philosopher and Wizard of Tife, writes "It ought "to be known that the blood of dogs
"and of infants two years old and under, when diffused through a leaf of boiled water disperses the Lepra without a doubt."

Translated by Simpson from his "De Secretis Naturae". That this terrible superstition as regards the blood of children is not yet extinct in all parts of the world is proved by an Extract from a Letter from an English Merchant in Persia, in Laemmert, Bruges, published in the Papers last year. He says that terror had prevailed there during the last fortnight (in May) from the disappearance of about a dozen children, and one supposition was that they had been taken and killed for the benefit of sufferers from Lepra, it being an old superstition that a Cure could be obtained by eating the internal organs of a young healthy child, washing in its blood and anointing the body with its fat. Whether or not that accounted for the disappearance of the children is purely a matter of conjecture, and the Public Schools were promptly closed.

Other extraordinary "Cures" are given...
and their modus operandi explained in an old work in my possession "Secrets of Art and Nature" collected by Dr. Jen Wodder and enlarged by Dr. A. Roud 1660.

Among the "Secrets of Physic and Surgery" he quotes from "Cordaus Mijaldus", "Roscellus", "Mr. Rogers" and others.

"For an Elephantiasis... Some that have had this Leprosie have been cured by frequent eating of Frogs' or Lizards, the heat of their blood being abated and the breast melancholy being corrected. Thus you "must understand that of Frogs that leap and "not of those that creep or go slowly "for they are venemous."

"Herb feet with Vipers and sod, are "wholesome food for Leprous persons as some "have proved."

"The blood of a first born sun wherein "there remains some of his blood will cure "Leprous persons as I have seen under "experience."

A villanous mixture of their "animal vegetable and mineral is also described at length and lastly "Some
say that Leprosy persons involved in a
lake wherein a dead carcass (i.e. corpse)
is reeled are cured by it. But we know
not concerning what Leprosy they speak
for one is a fluid of Seals another is
called Elephantiasis. Likewise it is not
observed whether that happens always or
in which it comes a very commendable caution.
Perhaps sometimes by chance.

To make a man Leprous, "The blood
of a Leprosy person is taken in which
Wheat stands long soaking and this
be quins to them or prepare to put them
and so the Leprosy is taken." This as
a means by which the disease could be
communicated might possibly attract our
attention could we credit these written
with any accuracy of observation whatever
but I fear it must be admitted after
what I have quoted that the treatment
they describe was not only valueless but
purely imaginary & theoretical.

At the time I visited Robben
Island no treatment was being pursued,
but at previous times some of the more
recently invented remedies had been tried
though without marked effect.

In 1883, Dr. H. Eladen stated that he had three patients under treatment to whom he was giving Teucrium officinale (Eucalyptus globulus) internally and that he was very pleased with the results so far. Also that Dr. Stevenson of Rossett had many patients under the same treatment and was a great believer in the remedy.

As this point was not taken up by the Commission in 1889, I cannot say what the result may have been, but one may suppose that had there been marked success we should have heard more of it.

In the case of which I have note, I shall be able to point to two at least in which the disease in its anaesthetic form has been permanently arrested;—for very many years at any rate. In Case II there was no history of any treatment or sufficient cause for the arrest, and in the case of the man whose case I have only is affected I heard no particulars.

Dr. Allison relates a remarkable case of cure in a Kaffir boy named
"Babians" on whom he had "tried every thing without effect". He was of the
Anesthatic form of the disease and confined
to the fingers and hands which were
ulcerated and quite insensitive, and the
finger joints deeply affected. Babian
went to Kaffirland and was treated by a Native
Doctor and came back in a few months
perfectly cured. The Kaffir Doctor col-
lected herbs and boiled them and made
the hemp thrust in his hands night
and morning. One day the decoction
was too hot, nearly boiling in fact, but
he did not notice it till he saw his
fingers drop off in the foot, leaving no
feeling in the hands. This was many
years ago and there has been no return.

Another instance is related to Mr.
which a Cook on the Island in the same
way accidentally got rid of the disease and
his fingers by boiling them off.
The list of drugs which have
been used in this disease is a long one
as quoted by Helora, and some additional
ones are mentioned by Living and by
Robson Roose ("Leprosy and its Remedy" 1890).
It may be said at once that Mercury, Arsenic, Antimony, Phosphorus, and Iodine, all of which have been extensively tried, are positively harmful. The first causing anaemia and increasing the ulceration, while the last was found by the Norwegian Physician Danielssen & Boeke to cause the disease to assume an acute form. The Arsenides have the same effect. Most other mineral drugs are at least useless.
These have been tried however from time to time remedies from which a certain amount of improvement have been obtained even in the Tuberculated form.
The chief of these are Chaulmoogra oil (Oleum Gynocardiæ) Gurjun oil or Botan Cashewnut (Anacardium) Goa Powder (Chrysoardium) Hydrocortyle Asaetica and Carbolic Acid.

Chaulmoogra oil has been used in doses of six to twelve minims and upwards three a day internally and at the same time rubbed into the skin with a kind of massage once or twice a day. It is certain
but this has often relieved the local symptoms and in some few cases it has seemed to have held the disease in check, so that there has been no advance during five or six years at least. Dr. Vandevere Carter approves its use.

The Boy Harold S., whom I saw at the Whitechapel Infirmary and whose case will be found at the end of this paper was being treated with this oil in ten minute doses in capsules three times a day by general injection. He expressed himself as most sensible of the benefit derived from it and Dr. Lister the Medical Superintendent writes me "When the case came under my notice three years ago there was extensive ulceration of the lower foot, face, ears, head and scalp and there was hardly any hair present. He has been treated almost continuously with Oliven Syphocardiis Myx and by injection. He has markedly improved in general health; his hair has grown and he cannot live with any comfort without the oil."
Gingipin balsam is used as an emulsion with equal parts of brine water, in doses of one to four drachms twice a day or oftener and also as a liniment. The Nova-Scotia Physicians have given it a fair trial but are not convinced that it is in any way superior to simple massage.

It has been stated on the authority of the Governor of the Andaman Islands that cases have been effected there by the use of this oil. The Lepers were convalescent and it was therefore possible to enforce the rubbing in of the liniment for four hours a day, while small doses were taken internally. After eight months it was said that even in cases of long standing the patients were able to run and use a heavy juckassa and that every symptom of leprosy had disappeared. Alluded to by Sir Henry de Villiers, Chief Justice of Cape Colony.

The Casheen Nut has been given in various ways; its oil used as an external application and by Beaufortburg combined with small doses of Mercury.
Dr. Lüttig ("Leprosy" p. 144) saw a case undergoing this treatment at the hands of Prof. Erasmus Wilson in which some local improvement seemed to follow, but Dr. Gavin Milroy believed he saw distinct evidence of the injurious effect of the Mercury in cases so treated.

"God powder and its constituent Chrysor: sulfonic acid have been especially recom: mend by Umma in the Journal of Practical Dermatology for July 1885 (Monatshefte für Prakt. Dermatologie). He states that the external application of the drug combined with the internal use of a pre: paration called Ammonium Sulphide: tity: sulfone will cure cases of virulent tuberculous leprosy. His reports of two cases are certainly very encouraging. Dr. Aidenhage found this treatment has per: formed some good in one case but has completely failed in several others." (Robson Rose, "Leprosy" p. 78)

Hydrocystyle Atinica has been used in doses of the dried powder one to two: 

grs. per diem in divided doses. It's
record is even less satisfactory than the last. According to Dr. Hardy, a Dr. Lefevere, who was said to have been cured by the use of the drug, succumbed to the disease in less than three years after the supposed cure. (Robben, Rose, p. 79)

I find it noted that many years ago this remedy was fairly tried at Robben Island in both forms of the disease and was continued for many months but without any good result whatever.

Of Carbothioc acid a little better account can be given. It has been employed by Dr. J. W. Fleming in India in ten cases, most of whom were decidedly improved. He gave one to four minimi of the acid internally several times a day, and as a liniment, acid and oil of gysanice one to eight or more. The chief effect seems to have been obtained from the external application.

(Indian Medical Gazette Vol. II p. 114)

Dr. Laurie (Ind. Med. Gaz. Sept., 1878) obtained satisfactory results in some cases of the anaesthhetic form by nerve stretching.
Electricity has proved of some use in paralytic conditions and has been of benefit in anaesthesis, used by Danielsen & Boeck, Hebra, p. 193.

Donovan's solution was used at the Cape in past years, evidently reduced the tuberculous masses but its action was the drug kept off those the disease progressed more rapidly than before.

The inoculation of Syphilis, erysipelas and a "gendarme" microbe by Danielsen & Boeck, Campana, & Cornelius, respectively, have proved worse than useless, instead disastrous.

After all it may be doubted whether anything will produce much better effects than can be obtained by general treatment.

The patient should if possible be removed from the country where the disease is endemic and where conditions are certainly favorable to it, and placed in some healthy, cool climate to rest, at any rate, the advance of the disease. This can of course only be done in very exceptional cases. The general
strength should be maintained by good food, warm clothing, beer, wine, Cod liver oil, rice and tonics, especially quinine. Lancing abscesses fails to be gain doses and I do not find that it has been used in large doses. Probably like many other drugs it has been fairly tried and found wanting, and no particular mention is made of it. Possibly also to great expense, till lately, has prevented its use on a large scale and for any length of time, and now that the disease is known to depend on a micro-organism its well known antiseptic properties may be applied with the purpose of destroying the virulent or making its existence difficult.

A means whereby we may destroy the Bacillus without injuring the patient is now the well recognized object of our search.

Treatment empirical, or founded on any other hypothesis, may be dismissed to the limbo of forgotten things. We may prolong life, if that be a desirable object, we may make our sufferer better and more
comfortable; from being cachectic make him
almost robust ("Diseases of India", Normanby) but while that relentless microbe lurks
in his tissues ready on the least failure
of its nutrition to start into active form
formation and rapidly perpetuate its species,
we cannot flatter ourselves that we are
affecting a cure.
So long as it remains there it will
exercise its functions and produce its effect,
and til we have found means of
ousting it, we can do little more
than assuage the patient.
Cases of Leprosy at the Cape of Good Hope.

For the greater part of the eight years I spent in the Colony I saw but little of Leprosy.

It was practically unknown in the Coast districts of Kuyasa and Khumane, of which I was stationed, though fish was plentiful and was eaten both fresh and salted by the Natives and others. Among the prisoners who were sent there from various parts of the Country I recognised one case only during my Surgeoncy of the Convict Stations.

In the earlier stages of the Tuberculated form there is so little to indicate the disease that it might possibly have been overlooked amongst the many dark and rugged countenances of the natives with whom I had to deal. It is certain, however, that no case ever increased sufficiently to attract attention, and in fact no
symptoms of the kind were ever common
planned of, or brought to my notice.
The one case I discovered was
of the Anaesthetic form and very slight.
It was visible in the hands only and
though I have no note of the case
I remember their appearance distinctly.
A coloured lad was brought to
me by the Overseer, as clumsy in
his work and giving for excuse the
crippled state of his hands. He attri-
buted their condition to the effects
of a scald from dropping a pot or
kettle in lifting it from the fire.
I found the hands stiff and dis-
truly anaesthetic; their appearance was
not such as would be caused by
the cicatrices and contraction of a severe
scald. The fingers were thickened and
seemed slightly shortened, they had less
than their natural flexibility, and the
joints were stumpy; the nails covering
over them. There was, however, no
sign of ulceration at any of the joints
and the process had no doubt been
one of internal absorption. The skin on the back of the hand was thick and in places of a dull grey colour, and both harder and rougher than it would naturally be. The man was however not unable to grasp or shake or pick handle and it was not necessary to exempt him entirely from labour.

During a visit to the Eastern Province early in 1889 I saw a Case in the neighbourhood of Alice, Victoria East. It was an old Kaffir in a very advanced stage of the Anaesthetic form. Short portions only of the proxime phalanges remained to his hands, and of his feet nothing was left beyond the metatarsal bones, and they appeared greatly shortened. On both hands and feet there were large white patches of cicatricial tissue bearing evidence to previous extensive ulceration. His face was unaffected and I understood that he had no other indications of the disease. He was unable to stand and helped himself along the ground in a
sitting posture in which manner he had come some distance from his hut to the border of the medical field where we found him. Such cases are not uncommon in many parts of the colony.

Cases on Robben Island.

In April 1889 I first visited the Government Lepers Asylum on Robben Island in Table Bay which is reached in three quarters of an hour from Cape Town by a small steamer which calls twice a week and remains a few hours.

I paid other visits during the month of June and took the photographs annexed. I also took down from themselves such notes as I could obtain, and these with the description of the Cases will form the remaining portion of my paper.

The Colonial law does not as yet compel the segregation of lepers. An Act was passed in 1884 but
it has not been found possible as yet to enforce it. The Lepers are sent here as paupers on the Certificate of the District Surgeon. They can, if they insist on it, obtain their discharge or visit their friends on the main-land and return. Every means is used, however, to hinder and discourage this practice, and before long the necessary accommodation will be provided, the Act will be promulgated, and an attempt will be made to gather all the Lepers in the Colony into one or more Asylums, and by isolating them there, stamp out the disease. At present the men have considerable liberty, but the women are located in a walled enclosure at some distance, where access to them is impossible.

There were at the time of my visits 110 Lepers, viz: 83 males and 27 females, of whom 8 males and 1 female were European, the remainder being natives of the islands. I photographed 56, either singly or in groups and shall now
proceed to give Notes and remarks on the cases illustrated by the Plots.

Case I.  Plate 1, 2, 3, 4, 9, 11.

Kaspar Jantze - aged 28.
A "Bastard Hottentot", or half-breed between Hottentot and Malayese, from Riverdale.
District, has suffered from the disease for the last fifteen years and been on the Island for the last five years.
He is a very remarkable specimen of the most advanced stage of the tuberculated form of the disease.
He is a tall man of apparently much greater age than that which I give on the authority of an intelligent native who had known him for some years as an off-colored Wardenman (Case IV)
The age of a native must always be taken as approximate only.
They are often without the vaguest notion of it themselves.
In his case the progress of the disease has been comparatively slow.
The external appearances are far in advance of internal affections. The voice, however, is somewhat husky though not weak or husky. The air passages are sometimes affected by cold and the nose suffers from some dyspnœa.

The eye is remarkably bright and indeed elevation of the cornea is common in some parts of the world and occurs in both the cases I have seen in this country seems to be almost unknown there for I found no case of blindness nor indeed of thickened cornea at all.

The photographs exhibit better than words could describe the extraordinary condition of the skin of the face, the enormous ridges on the cheeks, the deep wrinkles between them, the marked "leontiasis" of the forehead, the large swollen nose and thickened and rugged lips, the enlarged and pendulous ears. The upper part of which however is clear (Vide Plate III).

This Plate shows also some enlarged
glands in the neck, at the back of which there are also one or two tubercles.

The hands have a swollen appearance and are apparently thickened, but the joints of the fingers are unaffected, giving them a somewhat tapering form (see Plate IV) at the end.

This man averred that he had no anaesthesia or loss of sensibility in any part. The same statement was made by most of tuberculated cases but I was unable from want of time during the visits to verify the except in the roughest manner.

Kasper Jontze can give no history of leprosy in his family.

He had five brothers and two sisters all well.

When he left Riverside he was the father of a child there, one year old, and neither child nor mother showed any signs of disease.

He believes himself still quite capable of sexual intercourse.
He has never suffered any pain but the skin is frequently itching.

His own account of the commencement of the complaint is not very clear. He states that for about a month he felt a weakness and trembling of the legs, which did not however disable him from work, that in bringing a waggon and even through a rain he got wet to the neck, and that soon after that the change in his face began, and proceeded rapidly from that time.

I am not disposed to attach much importance to this incident, a sufficiently common one in the life of a Coloured lad. We are therefore left as in nearly every case I have to quote, without any idea of the determining causes of the disease.

He had received, in common with the rest, no treatment, and, as in most cases his general health was good. He believed himself to be better since some incisions were made for
for the purpose of microscopic examination, but this was probably only imaginary.

The sections figured and described on another page were cut from a round knoblike excrescence at the left corner of the lower lip, which I removed for the purpose.

The skin was very soft though thickened; it gave way under a pair of artery forceps, and when giving an injection of cocaine it was evident that sensibility was normally acute.

Case II

George Tank, aged 30.

A Kaffir who had grown up at Kimberley, having gone there about the age of 18.

He is an advanced case of the pure anaesthetic form of the disease from which he has been suffering for the last five years.

He states that when unable any longer to work he made his
way home but that the chief drove him away and would have dispatched him with the desegai had he attempted to remain. He cannot give any clear idea of who or where "the tribe" are and as may be judged from his expression he is wanting in intelligence.

The condition of the hands is well seen in the Plates. On the left hand nothing remains but the metacarpals and on the right, shortened portions of the proximal phalanges only.

I had frequently occasion to remark that the left hand was further advanced than the right. It seemed to be a rule which further observation might confirm.

White patches indicate the position of former ulceration and are not I believe due to leucoderma.

He has been on the Island three months only, and the disease of years to have been for some time stationary, while before that it made rapid progress.
Anaesthesia, to the extent at any rate of dulness of perception, for it is not absolute, extends to the elbows. On the legs it extends to the knees and the feet are in the same condition as the hands, entirely destitute of use, but perfectly free at the present time from ulceration. The face shows no sign of disease and the general health is good.

Case III.  

Christian Coetzee, aged 22, an "Africanauer" or coloured man of mixed blood.

A case of pure Anaesthetic leprosy.

This lads face is a good evidence of the distinctness of the two forms, for it will be easily seen how perfectly unaffected it is. The eye: placen was clear and the expression intelligent.

He had suffered from the disease for five or seven years and its progress has been slow. At present it appears
to be arrested and lie not as ward
man having considerable use of his
hands; the anaesthesia being less than
usual; sensibility is normal over the
carpus and from thence upwards.

The thumbs are somewhat con-
tracted but otherwise unaffected, the nails
and distal phalanges being perfect.

The other fingers are all much
contracted and shortened the distal
phalanges, especially on the left hand,
having disappeared altogether, though
traces of the nails still remain on
the shortened ends. This persistence
of the nails even when the reduc-
tion is much greater than here, has
often been remarked, and a case
was described to me by the Resident
Surgeon on the Island, where nails
could still be seen on a stump
only about half the length of the
humerus. These nails are however
always deformed and contracted and the
sensational account of "five perfect nails"
on a mere stump at the shoulder

has no greater foundation than this.

In the last case, as in many others, no trace of malaria remains. He can give no history of leprosy in his family.

The first symptom which presented itself was pain in the fingers and in the bones of the leg. He attributes this to a chill and to his having continued to drink brandy when suffering from it.

His feet were first affected. The toes have ulcerated on both feet, and from one foot two pieces of bone came out. The other discharged no bone, and both have now healed up, and are free from anaesthesia.

When the hands first became affected he noticed a swelled and painful line running up from them to the axilla, the glands of which were enlarged. After this the knuckles ulcerated and portions of bone came away. The point of one finger dropped off entirely. This I found to be quite
the exception, the more usual being the discharge of pus and a rapid absorption of the bone and other structures of a joint; after that the discharge of pieces of bone, and in a few cases of an entire distal phalanx. It was rarely that the ulceration proceeded so rapidly and so surrounded the fingers that necrosis and spontaneous amputation occurred.

He has never lived with lepers though there were many in the district in which he stayed at different times. He has had two children and at the time of his leaving them, when they were one year and nine months old respectively, they and their mother were well.

**Case II**

Paulinus Martin, aged 49

An "Africana" (i.e. his mother was a poor woman, his father a "Bastard Malagasy"; i.e. of Malagasy father and
Slave mother.

His case is of the pure Anaesthetic form, and is remarkable in that it appears to have been arrested for the last 28 years and in fact to have undergone spontaneous cure.

He relates that he was first affected about the age of fourteen, when he had “rheumatic fever,” for some fourteen days. He went to work again but was soon after laid up for four months, after which his hands were contracted.

When again able to work his fingers were apt to get injured and in consequence they swelled, and bane came out.

The last was so affected before he was twenty one, for at that age they had healed up for the last time and he married.

He has had ten children—four dead, at the ages of twenty years of “black fever,” nine years of inflammation of lungs, two years eight years.
months, and eight months, of fits.
The other children and his wife who is still alive are all healthy,
but one child was born blind.
His feet have never been deformed and he has now at any
rate no anaestheua in his hands.
He states that there never was
loss of sensation and in fact that
he is not a leper at all.
I am however satisfied that he
has suffered from leprosy and that
his recalcification as to anaesthesia of
the hands is not to be trusted.
In Case III the feet were not
anaesthetic though mutilated and hence
a stile milder form of the disease
is seen. The appearance of the
hands too is very characteristic and
I think unmistakably indicates the
case.

The left hand is most deformed.
The fingers are shortened to the middle
of the second phalange, and contracted
and distorted nails remain on all but one.
The thumbs and little fingers are both strongly contracted though but little atrophied. There is pretty free movement at the metacarpophalangeal joints and the wrist action is unimpaired.

The right hand is not so bad and had its condition been due to accidents to a stiffened hand only, one could expect that it would have suffered more than the left. The little finger has lost its distal phalanx. The third finger has its distal phalanx contracted and the nail distorted and projecting. The thumbs, first and second fingers are strongly contracted.

Their condition is clearly shown in Plate 7.

Case 5

Tom Beer, age 19.
A Bastard Hottentot from Stutterheim near Klip Williams Town.
A case of pure anaesthetic form...
of two years standing.

When first attacked he felt some stiffness in the head and a pain in his leg and knee. The right foot is normal. The left foot has suffered most of all, and he walks with a crutch, but even here the big toe is unaffected. The second and third toes are contracted and clubbed, while the fourth and fifth are entirely gone.

The scar of an ulcer is to be seen on the inner malleolus and several scars on the outer side of foot, together with a small, deep "punched out" ulcer, now healing.

On the left knee there are some old scars, the remains, he states, of an old trouble in that joint with which he was laid up for six months in the Hospital at King when a small boy. I therefore conclude that the consequent weakness of the left leg predisposed it to the destructive influence of the leprosy, though as I leave before
observed the disease seems to show a preference for that side of the body.

In the Photograph is well seen the earlier stage as it affects the hands.

The thumbs are normal and mobile.

The forefingers have both suffered slightly, the middle joint especially of the right being swollen and the joint some what narrowed, apparently from absorption without ulceration. The middle finger of the left hand is most affected being thickened and distinctly shorter than the first, the end blunt and the nail deformed and terminating the true caitl finger instead of being on its dorsal surface. The other fingers of the right hand are unaffected, of the left but slightly so.

This lad presents on his hands, arms and foot some brown patches circular and smooth, not scaly nor white in their centres and not anaesthetic; they appear to be scars of previous boils or sores such as
coloured children are subject to, and my opinion is that they are not in any way connected with the present disease.

His face is perfectly unaffected and particularly bright and intelligent (more so than here appears).

His general health is remarkably good as his lively manner and appearance clearly showed.

Case II.

William Moses or "Moos"

aged 35. Bastard Hottentot (Rotten White Mother Hottentot) from Mahriesburg district, Saldana Bay.

A case of mixed form of seven years standing.

The face is but very slightly affected there being a little thickening about the eyebrows only, and that not at all conspicuous.

He has, what I did not commonly find in pure tuberculosis cases a certain amount of anæsthesia.
in the foreland.

It feels somewhat 'numb'

All the fingers are more or less shortened and much contracted the
thumbs, as usual, least so. The first
fingers of the left hand remain's straight
but is much shortened. His fingers
have frequently been ulcerated.
The feet have suffered much
also, and two toes are now wanting
in the left foot.
The hands below the wrists
and the feet below the ankles are
anesthetic.

He has never suffered any pain
and his general health is good
and has improved during the year
he has been in the Island, during
which time the disease has also made
less rapid progress than it was doing
before.

Case VII

Plate 8.7.13.

Michael Montgomery - 14-
A Half breed of English father and Boer
Mother.

A case of pure tuberculosis form.

The general thickening of the features is fairly well seen here. The hands are quite unaffected as far as the joints and fingers go, show a certain puffiness such as we observed in Case I.

His voice for the last two months has been very hoarse and his breathing has become affected so that he is unable to run as he formerly could.

The disease is clearly therefore attacking the larynx and air passages and seems to be progressing rapidly.

His general health is however good and I was informed that when he first came to the Island three years ago, there was "almost nothing to be seen", and that signs have been distinct for the last year only.

As I had no one but the patient himself to depend on for information I am unable to say more as to his condition on admittance.

A half brother of his is however
also a leper on the Island (Case XXXI. 3:0).

The shape of this boy's head as well as his expressions indicate the limited state of his intelligence; he was in fact somewhat idiotic.

Case VIII.  Plate 8.

Rudolph Le Roex.

12½. Aceer, from Caledon, has been 9 months on the Island.

I will for convenience take his case here in order to indicate the difficulties of diagnosing leprosy in its earlier forms.

This boy's skin is thick, his features are coarse, and he is deeply freckled and sunburnt, but the most careful examination reveals no sign of leprosy and he is in fact perfectly free from the disease.

A certain thickening over the eyebrow is perceptible but there is not with it the discolouration visible in even the slightest manifestations of leprosy.
and it is in fact nothing more than a feature of his general type, and might easily be matched in many lads in this country and perhaps even more easily in Ireland.

Probably at the time of his being sent here there was some further condition of skin and it which led to the mistaken diagnosis, and which has proved temporary.

That any of his family had been affected I could not learn. He had three brothers and three sisters, all well since the date of my visit. This boy has been discharged.

Case IX.  

John Gibson.  Age 26 (3)

A Hollender but apparently not pure bred, from Caledon.

A case of mixed form of five years standing which began by affecting the face in which he felt a burning pain. Following this there came pain in the leg and foot, and under the foot
formed one of those deep circular punched out ulcers which are so frequently noticed in cases of leprosy in the Colony.

His fingers have become affected in the last five months only and in them also he has had much pain, an unusual circumstance. They have been, and some still are, ulcerated, and he has pain in the arms and legs which also feel weak.

Anesthesia is present to some extent in the cheeks and in the back of the hands only, other parts being normal.

He can give no history of these in his family previously, and his wife and one girl child of eight years old are healthy. A boy, however, (Case X) is a leper.

This man in spite of the pains speaks of his appetite and general health as good.

Case X       Plate 9 10

Jacobus Gillson - 6 years
Son of the last case, is a puny weakly child who has suffered something under a year from the Anaesthetic form.

When he came to the Island four months ago, one hand only was affected, while now both are considerably contracted, though the fingers are not yet shortened.

The left hand is more strongly contracted than the right. He suffers at times from pains in the legs but the feet do not yet show signs of disease.

Both eyes and mouth are watery and weak and he is altogether a miserable little specimen.

Case XI  Plate 8, 9.

Jacobi Van Wyk, 23.

Hollander from the Faur and claims to be pure bred, he is however rather tall and somewhat too dark and has probably a mixture of West Coast Slave blood. It is in fact extremely rare to find any but Malays of pure breed in the Western Province.

He is a pure tuberculated case.
of three years standing. The disease seems to have begun with an ulcer under the foot which lasted six months, at which time he was in bed, and it was two months before he was able to go about. This may have been the first symptom, but at the same time it was a year before his face began to swell when he also had neuralgic pains in the eye. He has been two years on the island, and in that time the face has got worse but he no longer suffers from pain.

He knows of no case among his relations and the only child he claims was born but a short time before he came here.

Case XII. Plate 8.

JACOBUS JACKSON 18.
Mozambique from Somerset West.
A case of the pure anaesthetic type of seven years standing.
His hands first became affected and at some later time a paralysis of
of the facial nerve of the right side occurred and the consequent flabbiness of
that cheek is now visible.

The left hand is on the
whole somewhat the worst and the
fingers are much shortened and contracted,
but the little finger of the right
hand has lost two phalanges altogether.
Both hands are extended as much
as possible in the photograph. He has
had but little ulceration of the joints,
but the back of the right hand
shows several dark scars apparently
from previous sores.

His general health is good but
he has lately become slightly hoarse.

Case XIII

Johannes Adams - 30 -
Hottentot from Figuetberg.

A very well marked tuberculated
case of over six years standing, in which
the thickened forehead and sunken and
ruptured nose present a singularly ugly
and bat-like appearance.
He states that first the fourth felt muscle and that a knob appeared on it and after that the voice gradually sunk in.

His voice is now reduced to a whisper the mole has quite disappeared and the appearance of the throat is distinctly that of syphilitic ulceration. I am disposed to think therefore that in this case syphilis is present as well as leprosy; for the voice is different from that huskily tone produced by the thickening process which has taken place in some of the other cases.

He has a wife and one child healthy and one boy. (Case XIV) in a somewhat similar condition to himself.

His hands are perfectly normal but he complains of some sore on the feet.

Case XIV.

Plates 9, 10.

Andrew Adams - 9 years.

Son of last case.
Purely tuberculated form of two years standing.

Here the eyebrows and upper lip are much swollen, the ears also are very much enlarged and their surface is indurated and oozing; there are many small nodules about the cheek and chin. The nose is swollen and thickened at the point, and the bridge seems to be depressed, but at the same time it must be remembered that the nose is so flat normally in this race that a small boy frequently has no more than a button without any bridge at all, and I believe that in this case the effect is due entirely to swelling of the point and of the eyebrows. His voice is clear and his throat unaffected. His hands it will be seen are quite normal. His general health is good.

Case XV.

Plate II.

Mellesimus Solomon - Aged 12 (?)
Parched Hollenstot.

It has been three years on the island and was long sick before that so that the duration of the disease as well as his age is doubtful. I believe him to be 15 or 16.

A Case of the Anæsthetic Form.

All his fingers are much constricted and the distal phalanges somewhat shortened. The nails are long and claw-like.

There are traces of ulcers on the right hand and some of the fingers of the left are ulcerated at the present time.

The middle toe of the right foot is very short, the others are hardly affected.

During the last three years pain in the left leg has been followed by a gradual contraction of the knee joint which cannot now be straightened and he hobbles about in a sitting attitude.

He states that his mother
died a fever and that her face and hands were swelled and the head a
pore under the foot, but that the hands and feet were not contracted
so that it must have been of the tuberculosis form.

I receive the statement with some caution however as it is the only case
I came across in which the form of
disease was different in parent and child.

He is a pale weakly child
and whatever his age, it is evident
that his growth has been stunted.

He was however cheerful enough
and an object of mingled pity and
amusement to the others, in account of his
grottesque appearance and movements.

Case XVI.  

Kerido (= Cupido!) Peters
age 19. A mixed Hottentot and
Mozambique from Klapsnus in the
Paarl.

Pure tuberculosis case of three year
standing.
The face is swollen generally and the features thickened and enlarged without pain and without any loss of sensibility.

He can give no history of the disease in his family.

Case XVII

Hann Togci aged 40.

A Biquin Kaffir coming from Beaufort West having left Kaffirland at 15 or 16.

Is a Tuberculous case of two years standing.

The face is here swollen and the features enlarged while the surface is pitted or seared by numerous small deep cicatrices the result of ulceration in tisueles on the skin which are now entirely healed. They are quite like the pits of variola from which as I ascertained he had never suffered.

He has had no pain and his general health is good. He had a wife who was healthy but without children.
Case XVIII.

William Reutz — aged exactly 48. A European, his father a Dane, and his mother a German, born at Grondoff Point, comes from Stutterheim.

Has suffered for the last five years with his hands only, for his feet are unaffected with the exception of a sore under one of them.

His face is unaffected but the lower lip is very white moist and furnished a condition which I have learned to associate with constitutional syphilis, and I have no doubt that at some former time this man has suffered from the slight form of this disease which is so prevalent in the Colony.

The symptoms of leprosy began with the right hand which in this case is more, advanced than the left, he first felt the foreigner numb and from that the disease progressed for four years and has been stationary.
for the last year or so.

In the left hand the distal phalanges and the nails are all gone, with the exception of the thumb, the stumps are thinned and scarred. The right hand is still further advanced, the second phalanges having also almost entirely disappeared though nails remain on the stumps of the thumb, first and second fingers. This hand is much scarred by ulceration, and, as he says, by burns, caused by holding the hands to the fire the heat of which the anaesthesia prevented from frying. It is probable however that the low state of vitality caused them to miscate more readily than they otherwise would, and indeed ulceration in these cases is frequently preceded by blebs not necessarily caused by heat.

The left hand is still moveable, the right much stiffened and contracted.

The anaesthesia however extends further up on the left side up to the
middle of the fore arm, while on the
right it extends to the wrist only.
He suffered much pain while the
disease was active, ulceration going on,
and the bones gradually coming away.

Of eight children, two sons have
died of leprosy, which developed at
the ages of 20 and 28 and lasted
eight years and two years respectively.

The father being then perfectly healthy!
In their case therefore it was not likely
to have been an hereditary taint.

They had previously been strong and
healthy young men, and their mother
died without any sign of leprosy.

These boys suffered chiefly in the
legs and feet had anaesthesia and
clearly had the same form of disease
from which their father now suffers.

The other children died:
two girls at about eighteen of "lung
disease", one at seven years, and
two at four years. His wife had also had
two miscarriages.

I elicited these facts in reference
to my surprise of the existence of tuberculosis which they perhaps to a certain extent confirm.

One son still lives and is healthy.

Case XIX.  

Franz Jacobs. 38.

Off-coloured sputum (his father having had some coloured blood) from Maltby District.

A case of mixed form of four and a half years standing.

The face is but slightly affected though the thickening is distinct especially over the eyebrows.

The affection of the limbs is symmetrical; the thumb and forefinger of each being untouched while the other fingers are all somewhat contracted, but there has been no ulceration nor any apparent abscession at the joints and they are in course of recovery not shortened.

Sensibility is dulled from the
elbows downwards, there is not complete anaesthesia but that numbness which these cases always present.

This sensation, or loss rather of sensation, occurring in the legs was the first symptom noticed, and this now extends as far as the knees.

In the right foot both phalanges of the big toe are wanting, having been discharged from a deep ulcer under the foot. The toe however is not shortened as in most cases, but remains almost of full size and drawn upwards and laid over the metatarsals. The other toes have not lost bone, and are not shortened.

The left foot shows no external sign of disease.

This man states that his face which is now only slightly affected began to swell and thicken at the same time as the symptoms presented themselves in the limbs, and I would draw particular attention to this point since it, even more than the cases
we have already seen, negates the statement lately made by Dr. Jonathan Hutchinson, in his papers in the British Medical Journal, that the distinction between tuberculated and anasthetic is artificial and temporary, the disease always passing from one form to the other.

We have heard many cases of each form unaltered, though of many years duration and in this a typical and equally divided case another form has supervened on the other both began simultaneously.

He can give no account of the disease in his family. His wife and two children of five and seven years are all healthy. He has been married ten years.

He states that for a year or so after he had noticed the first symptoms his sexual powers were unaffected, but that on one occasion he suddenly found himself unable to complete the act of coition. One testicle swelled up, and he was led
up for over two months and never again attempted connection.

He now feels quite well and experiences desire and dreams, but has no nocturnal emissions.

His urine comes in a full stream but is at times somewhat delayed in starting.

His general health is now quite good.

Case XX.

Samuel Adams - over 40 -
Fallen a Malaguey - Mother "Bones" (a. Bones) - a Slave imported by the Dutch. He himself was a Slave and was already married at the time of the liberation of the Slaves in 1834.

Comes from Pejutbog and has noticed symptoms for the last year and a half.

He is affected with the liver...

...circular force only.

He first noticed a "hole in the foot" one of these deep circular
perforating ulcers which are so frequently met with in this disease. After
that the face became swollen and
painful, but now there is no longer
any pain and he declares that there
is no loss of sensibility anywhere;
that the face is not at all numb.
This it will be observed is
the case in the greater number of
Tuberculated Cases.
This means more though destitute
of budge has not fallen in from
disease, it is merely the shape natural
to his face accentuated by some
swelling of the point.
Another particular noteworthy
in this case is the considerable
amount of hair on the face.
He has a full beard for a
coloured man, many of whom have
either a very slight amount or
are destitute of it altogether.
His face as well as some
others in the same and the next
Plate shew at once that a falling
off of the hair is not in all cases a consequence of the disease as was at one time believed. Indeed looking at the infrequency of beards among coloured men at all, I consider that the evidence here is against it.

As will have been seen he has only lately become affected but now, he has, as usual, no beard.

His general health is very good.

He has had four children of whom one is still alive and well, the others having died after growing up to the age of 20 or more.

His wife is a little older and much more active than himself. He can give no other family history.

Case XXI.

Abram Jantjes, aged 53.

Calls himself a "Bastard Africander" or term it may be remarked of very
various application, his suffer being the same and his mother a German.

This is a mixed case of eight years standing, the face being considerably affected and the hands only slightly so. The feet are not at all implicated.

He first felt an itching in certain places, over his head and "principles" appeared there; these places were "dead" and did not sweat as he worked; that condition has now however passed away and they are just the same as the general surface of his body.

His nose was at first closed up from swelling of its lining membrane but that has also become normal.

His face it will be seen is most curiously seamed and puckered, there is however no loss of sensibility.

The fingers are slightly thickened and the nails are dropping off from ulceration. There is however not
much evidence of the Aesthætic form at all.

He suffers pain in cold weather and during the wet and stormy day on which I took the Notes he was confined to bed.

He can give no history of the disease in his family.

His wife has had eleven children, two of whom died as children, the others are alive and all healthy, with the somewhat doubtful exception of the Case next following.

**Case XXII.**

Christian Jantjes, 22.

Son of the last case by a "Malagasy" mother.

This case is one of Erysipelas at all is of the tuberculated form only, and very slight.

I myself was more than doubtful whether the appearance of his face was not due to other causes and neither he nor his companions believed
him to be affected.

He is a cripple from having been run over by a carriage some years ago, the right leg having been crushed and the left foot also injured and now showing a scar.

He has ulcers on the right foot, one forming near the heel and now getting very deep, a possibly a first symptom.

The left leg is breaking and the skin dry and scaly but that is of recent date only.

It is to be remarked that he has no Anaesthesia or numbness anywhere.

I consider him to be of a nervous Constitution weakened and deprived of proper exercise by the accident, and not febrile.

Case XXIII.

Richard Cuddele

age 56. A native of Gosport, Harps, slue and formerly a Seaman of the Navy.
Has suffered from Tuberculated lymph for the last seven years.

Though he can give no account of how it was contracted, he admits having lived a wild and careless life for some years in the Colony, and describes a severe morbid fever followed by a very obstinate gleet, the whole aggravated by his unsteady habits and the fact that he continued to do farm labourers work all the time.

He was evidently at that time leading a very rough life, and was no doubt exposed as well to risk of possible infection from his companions.

About two years after that his forehead began to swell and look red, veins at the same time becoming visible on the surface.

After a while the foot became affected. He says that a very small round little made its appearance in the sole of each foot, that these discharged water only and no pus, and that after a while they closed up.
of themselves, that the feet then swelled and became painful.

He states that he has now some loss of sensibility in each foot, and up the leg nearly to the knee, and that this is bounded by quite a distinct line. On examination I found a brown discoloration of the skin over a tendril about half way up the calf and ending in a line nearly six inches below the spot to which the anaesthesia extends. The legs however are not affected and he presents no other sign of Anaesthetic form. His hands being perfectly free.

He got one time left the Island but finding it impossible to set work in most places on account of his appearance he gladly returned to the asylum where he has now remained for a year and a half, and for the refuge afforded he expressed himself most grateful.

He has a wife and two children now living; one child has died of fit.
and these otters have been prematurely born.

**Case XXIV.**

Jane Verhicle - 28.

"Africanae." His father being an "Africanae" and his mother a Boer woman, he would in health be nearly white or only just off coloured and his face shows particularly well the darkening and dull red appearances due to the disease.

He is a case of perfectly pure interrelated leprosy of three years duration. He is a big strong man whose general health is very good and who is able for and has done a great deal of hard work both before and since he came to the Island.

He believes himself to be improving since he came here one year and a half ago.

The upper part of the face and the ears are much swollen and the "leontiasis" is well marked. He has
However no anaesthesia or even dulness of sensation in the face and present no other symptoms.

He attributes the disease to a cold or chill which no doubt partly to the repair. In high fever which frequently occurs in the complaint.

He knows of no other case in his own family but his mother suffered long from a large ulcer of the leg and was for some time an inmate of the chronic sick wards here as a pauper. She however returned to Middlesex bury soon twelve or fifteen years ago and died without showing any signs of leprosy.

This man was a labourer on the farm of Wijesfoeder's High Middlesex bury.

Another boy from the same farm was here as a labour and left the island five or six years ago returned to his family and subsequently died.

That this boy, Robert, was the first case or that farm I am not able distinctly to state, but I infer that it was so.
The farmer's daughter, a little girl of eight years old, became infected with leprosy and died at the age of fifteen. Subsequently to the appearance of the disease in the child, her father, Albert Stipe, exhibited signs of the disease and remains a leper to the present time. His wife and many other children are perfectly healthy.

We have thus a chain of four cases on the same farm of which our present case is the last link, and all these cases were of the bacteriologic form. It would require very careful inquiry on the spot to ascertain the dates and exact sequence of events, but, as far as I was able to gather them, the facts seem to point to an infection one from the other in these four cases, and also to indicate, what I believe to be the case, that the two most marked varieties of leprosy are more or less distinct, and whether by infection or heredity tend to reproduce the same form.
Case **XXV**

Andrie Adonis - 29

"Afrikaner", from Tulbagh, a pure racemated case of two years standing.

He attributes the commencement to having drunk cold water when very hot, soon after which his face began to be swollen.

His legs also swelled and were painful, he had no boils under the foot but the point of one toe is now sore and slightly ulcerated.

He suffers from rheumatic pain in the arms but has no loss of sensibility.

The lining membrane of the nose is much swollen and its passage is closed; his voice is very thick and indistinct and the air passages generally seem to be affected as the breathing is obstructed and difficult and he suffers from severe cough.

He is altogether weak and sickly and as an exception to the general rule he has continued to grow worse since he came to the Island.
His eldest brother died a bitter here, and his father's sister also suffered from the disease. Those cases like his own were of the intercalated form.

Case XXVI.  Plates 12, 11.
Marthinius, about 18.  A Kaffir, cannot give any account how long he has suffered, worked once for some months at Kimberley.

He is a case of the Anaesthetic form pretty far advanced.

The thumb and two fingers only of each hand remain, but even they are extremely crooked, twisted, and stumpy, and here the right hand has suffered most, its fingers being more shortened and deformed than those of the left; all the nails are twisted; the thumb and middle finger are moveable, the first being quite stiff.

On the left hand all three are moveable at the metacarpal phalangeal joint though otherwise stiff and hooked.

He declares that there is no bow
of sensation, and certainly he can use those portions of fingers that remain to tie his boot laces to.

Of his feet the left is the worst, two shortened stump-like toes only remaining. On the right foot four toes remain very much shortened.

The left leg only is numb or partially anaesthetic.

He can of course give no account of his family or even of himself and his intelligence is certainly below par. His general health is fair.

**Case XXVIII.**

Philip Troup - 20.

Bastard Hottentot. His father being a Hottentot and his mother an off-coloured woman.

An Anaesthetic case of twelve years standing from Bedford District.

Here the right hand has suffered most, the fingers being very much contracted and a good deal shortened, on the left hand they are but slightly.
shortened in the distal phalanges, though all bent and stiff at the middle joints. His mother and one brother died of leprosy, father and two sisters were healthy.

I regret that in this and the remainder of the male cases my notes are less full than I could wish. In fact having been unable again to visit the island I have to rely on some notes made for me by the Chaplains and these did not include the point of anaesthesia.

The extent to which it usually occurs may be estimated from the previous cases, but I am pretty sure that even here the facts noted do not convey the whole truth and that in some cases a more careful examination and testing for which I had unfortunately no time, would have revealed a more extended loss of acute sensibility of which the patient themselves were not aware. I am also of opinion that in many cases of long standing normal sensibility returns to
parts which were at one time detached of it.

**Case XXVIII**

John Shows - 15 -
White "Afrikaner" i.e. Colonial born of mixed white parentage belonging to Cape Town. He has however apparently a slight strain of coloured blood indicated by his hair.

He is a Tuberculous case of six years duration, and the boy is one of the most pitiable objects on the Island.

His face is of a dull leaden colour furrowed and seamed with scars. The mouth has been particularly the seat of ulcerations, the lips are almost entirely destroyed and the opening is much contracted and distorted in shape.

The voice is husky and almost inaudible.

The hands are slightly puffy but otherwise unaffected.
The boy is stunted in size and miserably ill-developed. His mother was a leper; father, one brother and one sister healthy.


Tuberculated case of four years standing, from Kimberley. Has three brothers and three sisters all well and no tubercles in the family. He is a very typical case of the more ordinary form of the disease, the features being much thickened without prominent latches. His hands also are thickened, His general health is good.

Case XXX  Plate 12. Andries Morau - 18. Bastard Malay from Cape Town. An Aneuristlic case of over six years standing in which both hands and foot have suffered severely. His fingers are much shortened.
and greatly contracted; the disease is in active progress and the right hand is now undergoing ulceration with separation of the bones of some fingers.

He is a weakly looking lad but his face shows no sign whatever of thickening or tuberculation.

Both parents, two sisters and two brothers are healthy.

The fact of there being no pure Malay here is I believe not from the absence of leprosy among them but owing to the greater coherence and stability of the community and their taking care themselves of any cases of the disease which occur.

Case XXXI.

Job Harris - 25.

"Hottentot" from Queenstown. He is however too dark to be pure Hottentot and has probably a mixture of Kaffir or other blood.

He is a very advanced case of the Anaesthetic form.
His fingers are all entirely gone, his toes are much shortened and contracted.

The disease has lasted for two years. His countenance is most peculiar and he appeared to me to be almost idiotic.

His father died of leprosy; mother, two brothers and one sister are well.

Case XXXII.  
Daniel Swartz - 35 -

"Bastard" of Beun fellow. Holburned mother. The white blood predominating. Comes from Utinage.

Anesthetic form far advanced; last now apparently stationary.

The disease began seventeen years ago and for the last fifteen years he has been on Abbeau Island.

This man, says I believe a criminal and virtually imprisoned here. But allowed a certain amount of liberty with the other lepers on account of his condition.
He was of a fierce and almost savage disposition, for some time refused to be photographed and would give no clue as to the commencement or progress of the disease.

He refused also to take off his boots. His legs I understand are all completely gone. His fingers are also gone, very short stumps of the proximal phalanges alone remaining, with the exception of the thumbs, which are much shortened apparently by internal absorption, without ulceration, and on them the nails are still visible. His parents, three brothers and one sister were all healthy.

Case XXXIII.  

Plates 17.

Jacob Small. 18.

"Africander," off coloured from the Caledon District, has suffered for three years and yet shows but very slight traces of the disease.

What there is is of the tuberculosis form.
He is a fine strong, and at first sight, healthy looking lad, but there may be noticed a certain fullness of the face and grossness of the features.

The skin is more sallow and redder than would be natural, in parts and these red brown discolorations are most evident over the eyebrows and on the cheeks.

There is none of the vomiting or capillary engorgement visible as in other localities on P. I. Case XXXIX.

I regret not having fuller notes on those early cases but this lad and the next were employed in some work on the Island and only presented themselves at the last moment of my last visit when I had not time to do more than photograph them.

The disease is here evidently progressing far more slowly than is often the case.

He is a half brother to Mr. Ml. Case VII. q.v. and though he has only been a few months on the Island it would
appear that indications had presented themselves in both about the same time, for in the former case they were said to be "hardly apparent" three years ago and he was probably sent thus early partly on account of his defective intelligence.

I am not able to say which parent was common to both though probably it was the mother.

Case XXXII.  Plate 17

Christine August 20.
"Africander" slightly off-coloured from Malacan.

Has suffered for one and a half years from the tuberculosis form, but in him it is already more advanced than in the last case.

The forehead, cheeks and chin are thickened and on these may be seen small but distinct nodules in patches, most distinct on the superciliary ridges, at the angle of the mouth and on the lower lip extending downwards to the chin.
He is otherwise unaffected and knows of no case in his family.

**Case XXXV.**

**Plate 18.**

Kerrin Calagau - 15.

Irish, from Caloaini district.

Has suffered from the anaesthetic form for seven years.

His hands and feet are in a terribly crippled condition. The left hand is much the worst; the fingers contracted and somewhat shortened.

Both hands and feet have been subject to frequent and severe ulceration.

The right foot is now covered with a pustule, the chief and I fear the only form of treatment at present in use here.

The face is free from swelling and nodules, but the facial nerve on the right side has been affected causing a paralysis of the muscles on that side as in the case of J. J. Case XII.

I learn that his mother died of leprosy but of the form it took in her case I have no particulars.
Case XXXVI

Eplhranis Fites - 28 -

Bastard Hottentot.

A slight tuberculous case of four years duration, shows a general thickening of the face and swelling of cheeks and lips in particular.

The hands are slightly irritable but he is otherwise unaffected and his general health is very good.

His father and mother are healthy.

Case XXXVII

I wish to add here the description of a case which I did not myself see, but of whom I have a rough and indistinct photograph which was taken on the Island some little time before my visits, and from which I have had a drawing made and photographed.

The subject of it is a fine looking African of some 60 years of age of whose name I can find no note.

His features are almost European.
and he is but very slightly off coloured. His hair is straight and quite white, he has a large white moustache and short beard.

He is a case of the Anæsthetic form and the peculiarity in this instance is that the disease has been confined entirely to the left hand and further that it has now for many years been stationary and indeed may be regarded as one of spontaneous cure such as was seen in P. W. Case IV.

The disease thus confined to the left hand exhibits another peculiarity in that the thumb which usually escapes, at least longest, is here entirely destroyed both phalanges being gone.

All three phalanges of the first finger are likewise wanting. The second and third fingers are strongly contracted at their middle joints, the little finger is bent at a right angle.

The face is quite free from swelling or nodules but the left eye is white and apparently sightless. Whether this was due
to leprosy or not I cannot tell, but taken with the fact which I have already noted of the wonderful immunity from blindness among the natives here, I should rather suppose it due to some other cause.

The mutilation of the hand had in this case taken place I was told very long ago, and the man had been for many years on the Island where he was employed in some way which prevented my coming across him during my visits.

**Case XXXVIII**

*Plate 20, 30.*

Margaret Smith - 24

Hollander halfbreed, i.e. Scotch father and Hollander mother.

A mixed case of four years standing.

Here there is very decided general thickening of the face which is most evident on the cheeks, lips and chin, the forehead and eyebrows are less affected than is usually the case.

The nose has fallen in completely
the face has been much ulcerated and the auricle has disappeared. The voice is very hoarse.

It is difficult to say whether in this case we have leprosy alone or together with syphilis. Either might alone produce the appearances but I am inclined to think the more and peculiar voice due to syphilis and the appearance of the lipoth through revealed by the leprosy support that view. I noted the case as distinctly syphilitic at the time.

I may here mention that the "nodes" or blisters etc. are generally present and so useful in confirming a diagnosis of that disease in this country are almost invariably absent in the Colony where the disease though very common indeed is not nearly so severe in its effects as it is in this country. Tertiary symptoms being quite rarely seen.

As a clue to previous constitutional disease she states that she had "this sickness" when a child, but was then "cured of it", and that it again broke out
about five years ago. 

That I am unable to give fuller 
particulars is due in part to the extreme 
difficulty of getting any definite information 
from such subjects, and also to the fact 
that all my notetaking, but more especially 
that of the female Cases, was done under 
extreme pressure of business. 

The Female Asylum was at some 
distance and was reached by cart and the 
time at my disposal for taking either Photos 
graphs or Notes was extremely limited. 
while it was quite impossible to obtain 
rapid or intelligent answers from the un 
fortunate women themselves, whose ideas 
as well as their power of expressing them, 
even in Dutch, are naturally torpid, a 
condition much increased no doubt by 
their isolated and monotonous manner of life. 

Her hands have suffered fre 
quently from ulceraion, the thumb and 
two fingers of the right hand are straight 
but considerably stiffened. The distal 
phalanges are shortened, the nails remain 
but are raw and ulcerated, the third
and fourth fingers are much shortened.

The fingers of the left hand are swelled and distorted, literally and the nails are ulcerated. There is but little shortening and more of the usual contraction.

Both wrists and the back of the right hand show ulceration at the present time.

She states that the hands were first affected and that afterwards the face began to swell.

The toes are shortened like the fingers, but bows have not come away; the same is true of the fingers, the shortening being due to ulceration and absorption.

She can give no account of cases in her family. She had no brothers or sisters.

Two children have died non-epidemic, each about four years old. One of "heart," the other of "chest" disease. One other child (Case xxxix) is here and now shows signs of the commencement of the disease.
Case XXXIX.

Jack Smith. 5 years old.

Son of the last case by a white father.

A well grown and very good looking little fellow, but said to be always languid and rather delicate and to have suffered much from worms.

This is the slightest case which I have seen and in the earliest stage.

He has been for a year and a half on the Island with his mother, and I am informed by the mother and others that it is only within the last four or five months that they have been able to detect the commencement of the symptoms which are now apparent.

He has a clear complexion and is very slightly coloured.

The skin of the face, cheeks and eyebrows presents a somewhat shabby appearance and is streched with dull red lines being evidently dilated capillaries and small veins.
There are, below the surface, not prominent and form a kind of network of which the vertical lines are the most evident.

This appearance is most distinct on the chin and is barely perceptible on the eyebrows even with close scrutiny. There are no brown patches or maculae and what I have described are the only symptoms present.

The glands of neck are not enlarged. The tongue is clean and the lips show no trace whatever of nervous patch, fissure to by which syphilitic so commonly exhibits itself in children in the Colony and which by the way is frequently the only manifestation.

The hands and feet are perfectly normal.

I am unable to say whether the disease showed itself in the mother before or only after the birth of the child, still less is it possible to state whether it is here hereditary or has been acquired since she came to this Island, but of course the former is the more probable.
Case XL

Mrs. Baumister - 29.

Born from Malmesbury.

A mixed case of seven years standing.

The face here presents a very typical appearance of the changes produced by the tuberculated form in a white person.

The complexion is of a dull livid colour, the nose enormously swollen and covered with the dull red lines of greatly enlarged capillaries.

These are to be seen also on the cheeks and other parts of the face but not to anything like the same extent.

The ears are much enlarged and the forehead thickened and wrinkled.

The skin had a thick and greasy look.

There is no dulness of sensation in the face. The throat is infiltrated and the voice very husky but there is no sign of ulceration in the glands.

The tongue is of a dead white, and much fissured - the lips also are white on their mucous surface.
She states that the face first showed signs of the disease with spots or blotches (maculae) and that the disease has made great progress during the last two years.

She has never suffered any pain.

The hands are somewhat stiffened.

The fingers being partially contracted but not at all shortened or stumpy at the ends nor thickened, and there has been no ulceration. There has been no material alteration in their condition in the last four or five years.

Partial anaesthesia extends to the elbows. The feet are unaffected but she feels the legs "jump" or occasionally at night. She has no other symptoms and her teeth and sleeping are good.

She knows of no other case in her family.

Her husband and only child, a boy of eight years old, are quite healthy.

She has been nine years married and has had one miscarriage at two months.
Case XLI.

Amsjé Klöber, upwards of 60.
Hotteled and slows blood from the Pearl.
Anaesthetic loss of nearly four years standing.

The first and second fingers of the left hand are very much shortened.
A very small part of the second phalanx only remaining; the thumb, third and fourth fingers are contracted.
Those of the right hand are also much shortened, strings of the fingers only being left. There has also been frequent ulceration of which the scars remain.

The left hand began first with pain, blodd, or blisters, and ulceration, the bone of the first finger came away bodily, but the other fingers suppurated and were absorbed gradually.
There has been no ulceration since she came here, the ulcers which then existed having healed up.
In this case the right hand is the worst.
Anaesthesia was marked on the hands and extended a little way above the wrists, but this is no longer the case, that condition having passed away. Her feet are quite unaffected.

She shows of no case among her relatives. Her husband and five surviving children are healthy, and have died of fever, measles &c.

Case XLII.  Plates 21. 31.

Maria Holmes - 18.

African-American, just off-coloured.

Tubercular case of two years duration. Has increased very rapidly.

The features are immensely thickened and distorted. The eyebrows, cheeks, and nose being particularly affected.

Small prominent tubercles have lately appeared on the left side of the face.

The breathing is impeded by the swelling of the lining membrane of the nose, but the patient has not
suffered and the voice is not hoarse.
She has no anæsthesia and has never suffered any pain; her general health is very good.

Case XLIII

Plates 22, 23.

Mrs. Hart—84

English, born in Cape Town.
Tubercular case, of seven years standing.

The face is of a dull leaden colour, and large dull red veins are seen upon it, while the skin is peculiarly tense and stringy; these veins have only appeared comparatively lately.

The nose, cheeks, lips and ears are greatly swollen and thickened; the skin of the forehead is also thick and hard, while the eyebrows and chin are comparatively free.

The hands show no sign of disease, but she suffers pain in them at times. The legs are somewhat rough and scaly.
She has been fourteen years married, has only one son, and has had no miscarriages. She knows of no case among her relations.

In her case the disease has been attributed to vaccination, and I elicited the following facts:

She was vaccinated in 1832 when smallpox was prevalent. The pustule came to a head and then dried up before the eighth day, when it was still red; after that it died away; there was no pain and the arm did not swell. About a year after that she began to notice brown blotches on the arm and soon after on the face where they were redder in colour; these gradually increased in thickness and from that it has gone on to its present state. The marks on the arm have only disappeared in the last two years. There are now no such marks from that vaccination while those of childhood are distinct.

There is nothing unusual in this
case of the course of a secondary vaccina

and while I can quite believe in the possibility of inoculation of the disease in this manner, I do not think that the facts can be taken as any distinct proof of it. As to the marks appearing on the vaccina-
stated arm only I fear that no great importance can be attached, as the questions and her attention were particularly deviated towards that arm, and others, even if they had been noticed, may have escaped mention. She at first denied knowledge of any case of the disease and only when I had been informed of the suspicion, did she, on a second occasion answer my questions with regard to it. At the same time it is to be noticed that Mr. B., Case XL, has suffered from the disease for a like period. She is also a respectable white woman to whom other causes of contagion might be supposed to be less likely to occur, and certainly at that time almost
every person in the Colony was re-vaccinated. Unfortunately in this case the question was not raised and as I did not at the time perceive the similarity of duration of the disease, I made no enquiries on the subject.

I should have presently to mention another case in the same connection but there also no definite conclusion can possibly be arrived at (Write Case XLIV).

Case XLIV  Feb. 26, 24, 23, 30.

Christina Trouka - 21 -
Half caste - Father Spanish, Mother Malabian.
A tuberculated case of four years standing, in an unusual condition.
The face is entirely covered with nodules, and these are now undergoing ulceration so that the condition is a particularly distressing one. The eyelids, usually free, are here loaded with deposit and ulcerated, but the eyes themselves are untouched. The nose is much deformed; the lips are particularly
affected and granulation and contraction are here going on so that the result will probably be similar to that reached in J. S. Case XXVII.

The throat is much affected, the voice being reduced to a husky whisper since the last four or five months.

The first appearance was a small nodule or "pimple" on the face.

Some two years previously the hand suffered from Variola and by its weakening and destructive action on the skin may possibly be due to present disconnected ulceration.

The hands are much swollen and ulcerated on the dorsal surface but show no sign of the peculiar, shortening and contraction of the unsubtle form of the disease. The feet are unaffected.

Here is no Anesthesia of the hands or arms.

She has suffered from great dys.

difficulty of breathing described as asthma.

for the last four months, planning that
The process which has destroyed the vocal cords has penetrated still deeper into the air passages.

She has two brothers and one sister alive and healthy, one of whom died of phthisis; she knows of no other case of leprosy.

Case XLV  Plates 20, 30.
Sophie Lütz  18.
Africaner, off-coloured only, straight hair.
A pure tuberculous case of seven years standing.
A typical case which appears to have been stationary for some time.
Suffers no pain; general health good. A brother died of leprosy on the Island.

Case XLVI  Plates 20, 30.
Delia August 18.
Africaner.
A very typical case of tuberculosis; conical form which has progressed very rapidly, since the present condition has
been obtained in only a year and a half.

The hands are somewhat swollen and puffy; the whole of the right arm presents a certain hard and bony appearance and the middle finger of the right hand is more swollen than the others and slightly stiffened.

The left arm is also to a certain degree harder than normal.

The feet are quite unaffected.

Her mother and one brother are alive and well, her father was a laborer.

Case XLVII

Plates 23, 24, 30.


A pure tuberculosis case which has in addition to the general thickening and subequal of the features a number of prominent nodules on the forehead, cheeks, and at the angles of the mouth.

The left eye was destroyed by an accident and not by disease, the others
and feet are unaffected.

Her father, mother, two brothers, and one sister are alive and well.

This is the other case in which the disease has been attributed to vaccination (vide Case XLIII).

She states that she was vaccinated at the time small pox was rife, in 1882.

She comes from the same suburb of Cape Town but was not vaccinated by the same Dr. as W. H. – She says that it did not "take" the first time and it was repeated, that then it did not "grow" was red and sore, but no vesicle. It is probable that as she must have been then about six years old this may have been a re-vaccination. She was then quite well but after that – how long she cannot tell – the symptoms commenced. Only one mark of vaccination and that very faint is now to be seen. She has two circular marks on the left arm of which she can give no explanation. I did not believe them to be due to vaccination.
But I have no note of their exact position. They were rather larger than a "suspense", a depressed ring surrounding a raised centre, or rather the circular centre seemed to lie of the natural level of the skin and the force alone to lie the deer.

It is of course possible that at such a time, of general vaccination as specially from a child belonging to a defterous family, but with the great certainty attaching to all statements of time and date given by people of this class and the possibility that slight symptoms might have been present and unobserved before the vaccination it is impossible to make any definite statement with regard to the case without suspicions that circumstances may appear.

I may mention that she also, like the last case, occasionally suffers from hardness and swelling of the arms, but the condition was not present at the time of very examination.
Case XLVIII

Susan Williams - 16.
African, dark coloured.

This girl was sent to the Asylum about two years ago at which time there is no doubt she must have exhibited some symptoms which were taken to be indications of a leprous taint. That there was strong probability of it was no doubt concluded from the fact that her mother and an elder sister had both died of leprosy.

Whatever the condition then was, it is now no longer present and she exhibits no sign whatever of the disease.

There are on her face and arms many small depressed verrucae such as result from a verrucous eruption in coloured people; they are scattered and not like the poxes of Variola. The note I made of them indicates them with dots.

She is aware of no dulness of sense; nor is there, in the fact, of any sort of symptom. Her health is good; she does
not appear to be at the least suggestive and these remarks are different from what I have seen in cases of previous eruptions of that disease.

Those markings are probably the traces of whatever led to the diagnosis of leprosy being made, and it must have been somewhat chronic since I note that she remained in the Old Somerset Hospital, a temporary asylum for female cases on the mainland, for three or four months before being sent to Robben Island.

I do not venture however to bring it forward as a case of cure, or regression of some symptoms of leprosy which were undoubtedly present, for I fear that it is more likely that some other condition was mistaken for it.

Case XLIX  Pls. 26, 27 32

Lenthine Stoffels - 118.

African ander.

Tuberolous form of three years standing.

The features here are not so much thickened but the corrugated is extraordinary
and a number of small nodules are visible on the chin.

The backs of the hands and arms also are covered with the same flattened tuberous swellings.

The first symptom noticed was burning and pricking pain. As other cases in her family.

In this and the remaining female cases I have to rely on my memory and on the answers rather imperfectly given in a note from the native.

**Case 2.**

*Plate 26, 27, 28.*

*Sara August - 40 -

Bush woman.

Has suffered since the age of 15 and is now an advanced case of the anaesthetic form.

Her face is perfectly normal; the depression of the nose is only that peculiar to her race; the contraction of the mouth is due to the importance of the occasion.

The hands, as may be seen, have lost all their fingers. The stumps remain
on the right hand, but in the left part of
the malleolar regions there were and a
small round-ended stump only remains.

The bursae, places here as in the
Case of H T Case II, I believe to be
due to previous deep ulcerations and not
to be of the nature of leukodermia. They had
every appearance of being cicatrization tissue;
the most extensive is a line which runs up
the ulnar side of the right arm.

She attributes the commencement to
a rolling and cold gel during the
menstrual period, after which she did not
menstruate for three months. Without
assigning it as a cause, this may have
marked the contest of symptoms as an
anomalous fabric attack is known to do.

Since that time menstruation has
become regular.

The disease appears to have been for some
time stationary and no further ulceration has
taken place; whether there has been any
gradual absorption, it is of course more
difficult to say. In many cases such a
process does (and) take place and without
any elevation or declivity of head long, the
fingers or arm becomes gradually shortened.
The hands of none of his people
who have been similarly affected.

Wilhelmina Du Toit. 24.
Africana. Very slightly coloured. Her father
an Africana. Her mother French.

This girl presents in her hands
a typical example of the Ancisthotic form.
She is in addition hemiplegic and unable
to stand and her head from some similar
nerve affection is in constant motion.
Her intelligence appeared to be extremely
limited.
She is the only one of her family so
affected.

Case 211. Plate 26.
Margaret Genevier. 24.
Africana. Father Africana. Mother German.
A case of the medals form which
has lasted for ten years but even now
has produced comparatively little change.
Her face is certainly thickened and deformed, separate nodules are visible but they are not at all prominent; the fingers are contracted but not ulcerated, and the joints are shortened to a very slight extent only.

She attributes the disease as usual to a cold, but her mother died from the same disease and her father is at the present time a sufferer.

The facts here are particularly remarkable, inconsistent as it is the only case I found among all those I examined where a husband and wife were both affected with leprosy. It is an occurrence remarkably rare, and naturally has been much insisted on by those who deny the contagious nature of the disease.

Case LIII.

Katharine Williams - 34.

Fallon Clerk - Mother Hottendorf.

A very slight case of cutaneous leprosy from which she has suffered for six months only.
There are distinct swellings on the cheeks and nose but what is most so, remarkable is the peculiar mottled condition of the forehead. White patches are to be seen on each side extending towards the midline. Her general colour is not dark but her face is redder than would be natural and the skin particularly glossy. These patches are very much lighter than the rest of the face but not shining white nor at all redly. They are not the result of crows and are no doubt of the nature of leucoderma, probably in an early stage and the only instance of it which I have come across.

My questions were so imperfectly answered that no note was given me of its duration. She is otherwise unaffected and her general health is good.

**Case III**

**Plate 30. 31.**

*Sarah Paris* - 50.

*Badred Hottebelt.*

A typical case of the mixed form of leprosy in which the forehead and cheeks...
Now the characteristic thickening and enlargement, the nose and lips are also enlarged but the swelling is not so great, nor are the features as much thrown out of proportion as if often the case.

The hands have suffered severely; the ring and little fingers of the right hand are shortened to the proximal phalanges and the corresponding fingers of the left hand are contracted.

Extensive areas of white cicatrix finger were to the severity of previous ulceration.

This disease has now been for sometime apparently stationary and though complaining of present of facial neurferences her general health is good.
Cases of Leprosy at Madeira.

On July 17th 1889 I landed at Madeira and during a couple of hours ashore I visited the Lazaretto in the Town of Funchal.

The place though much closed up, had a small garden and the rooms were all scrupulously clean and very cool. I found there four females and one male patient.

Of the women, one was a case of pure Anaesthetic leprosy of ten years standing in a small woman of low type.

One was of the Tuberculoid form not far advanced as regards the face, but the throat considerably affected, and the voice very hoarse and weak.

One was a case of Elephantiasis Anulare which had lasted for fifteen years. It affected the left leg only, which was of an enormous size from the knee down wards to the middle of the foot, the toes not being implicated in the disease. There is a large and deep ulcer on the heel which has been there for two years.
and is now healing.

The last was clearly Syphilis, in its secondary stage, with characteristic eruptions on face and hands. The throat showed traces of old destructive ulceration and the voice had the marked husky nasal sound peculiar to that condition.

The one man was also a case of secondary Syphilis. The throat was much ulcerated and the voice entirely gone. He had lost all his hair and the skin presented the scaly condition of Syphilis Pсорiati.

Three Cases were all called "cases" by the Attendant but as the Medical man in charge was absent from the Island, I was unable to ascertain whether that was really his diagnosis, or whether they were kept there as proper incurables and cured, the Syphilis at any rate, with isolation was expedient. The size of the asylum, and the small number of actual cases makes this probable.


Cases of Leprosy in England.

In December last I saw a case of the disease at Warley in Essex, which had been discovered and recognised by Mr. A. Wallis of Brentwood and noted of which he published in the British Medical Journal, October 21st, 1889.

H. Otto, a German, a suffering man, aged 51, presents an example of the mixed form of the disease. The face is swollen and the features thickened. It is most marked in the forehead and eyebrows, where the skin is distinctly elevated but without prominent nodules; there is the usual dusky redness but none of those enlarged capillaries which I have noticed in some of the white cases at the Cape. The eyes have suffered severely from ulceration of the Cornea so that the sight of the left eye is now completely lost and with the right he can only just distinguish the form of objects near him. The hands are stiff and contracted, several of the phalanges are absent.
Having been destroyed by ulceration and absorption, the nails still remaining. - The feet are also so much mutilated that he can walk only with great difficulty. The first and second toes of the right foot were removed in hospital, the others are shortened to mere stumps. The left foot is in a similar condition, but the process is hardly so far advanced.

I found here also that macular condition which is supposed by some to be invariably the earliest symptom of the disease, is by others treated as a separate and distinct form, but which partly from the dark colour of most of the patients and partly from the hurried and unavoidably imperfect examination I was able to give them, I had not observed in any case at the Cape, so that whether it commonly occurs there or not I am unable to say.

Here the shoulders, back, and arms present several, brownish, blotches of irregular shape slightly elevated and in those cases there appears to be some loss of sensibility. He first noticed pain in the foot...
of a shooting kind, the foot then numb
and became swollen; blisters formed, and after
about two years he was treated at the
German Hospital where portions of bone were
removed from his toes. He knows that
the question of leprosy was then mooted
but is not sure that a definite diagnosis
was arrived at. Almost a year after
that similar pains began in his hands
and the numbness followed, so that
he was unable to hold things properly
and even burnt his fingers without feeling
pain. The eyes began to be affected
about the same time. This was followed
over two years ago, and in March 1889,
he was last treated, when the left great
toe was taken off.

It is about six years ago since
he began to suffer from anything which
disturbed his attention, and at that
time he had been for six years resident
in England. At what time the pro-
dromal symptoms, if any, first appeared, it
is of course impossible to say, nor
whether there were muscular, gradual
infiltration of the skin of the face, or what is however most probable, slow and minute changes in the peripheral venous outlets of the fingers and toes. In any case the fact remains that active indications of disease did not present themselves until the man had been for six years removed from causes likely to produce the disease, whether from those obscure conditions which may be supposed capable of originating it, or from contagion. During those six years he had been occupied as a publican, a Dairy farmer, and a Chicken breeder, and cannot be supposed to have suffered from poor or insufficient diet, nor to have been restricted to fish. That his previous life also had not on the one hand compelled partly or monotonous diet, and lead on the other, distinctly exposed him to chances of infection, is at once evident; for his account is briefly as follows:

He was at sea from the age of 15, and at 19 he was engaged on the
South African Coasting trade and resided in Cape Town, in intervals between voyages, during seven years; after which he traded between Indian, Chinese and Australian ports till the age of 40, when he came to England. He says that he always lived well, was temperate and never took much either of salt meat or fish. In fact he was constantly in port and able to get fresh meat and vegetables.

On the other hand it is quite possible that some of his companions either in Cape Town or more probably at some port in the Indian or South seas may have been affected with leprosy. He says that he does not remember ever coming in contact with any leper, but as we have seen this disease is by no means always evident, and even a temperate sailor is not always very observant, nor very particular as to the class and condition of his female companions.

Independently of that, he may well have been exposed at some time to some chance of infection from the men
under strain. In Coasting vessels, Lascars and natives of all sorts are taken on and the Captain of a small vessel is frequently thrown into the closest contact with them. In fact, I have no doubt that at some time, probably not so very long before he settled in England, he became infected with leprosy, which did not develop for some time and that the earlier symptoms were slight and passed unnoticed.

Hereditary tendency in this case is probably quite excluded, at any rate both his parents were very healthy and lived to a good old age.

He is now married and so far has not communicated the disease either to his wife or to his children who are seven and three years old and both sturdy, healthy-looking little boys.

At the present date I learn that his condition is practically unaltered, but that he appears to be losing flesh.
In February of the present year I saw a case under the care of Dr. Lander at the Whitechapel Union Infirmary, particulars of which, with an admirable illustration of his present condition, have been given in the Illustrated Medical News of May 11th and 25th 1889, in a paper by Dr. Abraham; and in that of August 31st in which Dr. Radcliffe Croker gives the earlier history and appearance of the case when first seen by him in 1880; together with an illustration which, compared with that recently taken, marks in a striking way the advance made by the disease in the interval.

(Plate 33) The boy H.S. is now 18 and presents a pitiful example of the ravages of the disease. He closely resembles the condition of J. S. Case xxviii, Plate 12. The face is loaded with diffused infiltration and much discoloured. There is no very marked thickening of the nose nor are there swellings over the eyebrows, but the eyes themselves have suffered, the cornea having been rendered opaque by
frequent inflammations and the boy is now entirely blind.

The mouth is terribly contracted as a result of ulcerations following by granulations and cicatrice, and the lower part of the face altogether has suffered more than the upper.

He states that he has great difficulty in overcoming the tendency to contraction of the mouth but does his best to keep it open and to stretch the lips.

The hands are greatly thickened and covered with patches of swelling. At the time of my visit he was suffering from a number of ulcers on the fingers and back of hands.

The thumbs are strongly flexed at the first joint, a common symptom, as we have seen, of the Anæsthetic variety and which would allow us to call the case ruesid; the fingers are not however shortened and the nails are perfect.

The voice is very hoarse and husky and the larynx itself is evidently
involved to a serious extent.

There are patches of anaesthesia over
arms, legs, and face, and one small patch
on the abdomen.

Dr. Abraham states that he found
plenty of the typical bacilli in some
of the Saliva quickly scraped from the
surface of the ulcerated tongue and lips.
It would appear that the boy's
statements as to the duration of the
disease are not accurate. No doubt he
dates from prominent symptoms which he
can remember when he says that it began
three or four years after he came to
England.

We have fortunately Dr. Audscliffe
Crocker's description of the case when
he first saw it in 1880; it had then
lasted three years having begun when
the child was five years old.

Harold S. was born in Barbados
and lived three years there, and then
three years by the Seacoast in Jamaica.
The impression is that he became
infected there, for soon after returning to
Barely there was noticed an extensive eruption of red patches over his body. On fasting, these left long-lasting orange discolourations.

Previously he had suffered from no illness except boils. There is no evidence (naturally) of contact with lepers, but it is declared that he had lived to a great extent on salt fish.

He came to England in August 1879. There was then some small brown tubercles on the left cheek and chin, and a dark brown infiltrated patch on the right buttock, the size of the palm of the hand, irregular in outline and in some parts considerably raised above the surface. This is formed by an aggregation of small tubercles.

In May 1881 there was a brown patch evidently tubercular on the left cheek and a smaller one adjacent. On the right cheek a tubercle the size of a threepenny piece and only slightly coloured, a few others could also be felt in the skin.
There were several small tubercles on the chin and two minute ones on the forehead.

All over the back and upper part of the chest were symmetrical orange discolorations of large size, and both arms were of a dull brownish hue to the elbows and continued of a lighter tint to the wrists.

There were several tubercles on the arms, mostly on the extensor surfaces, the largest being half an inch in diameter and there was a small one in the left palm.

The patch already mentioned was on the right hip and small tubercles were found on the outside of both legs, mostly on the right. The yellow patches and some of the tubercles were dulled in sensibility, but more recently formed ones were hyperesthetic. Complete anesthesia was only found in the centre of the large patch on hip to which brownish had been applied.

Six months later his general health had much improved and the tubercles on the face had nearly disappeared. He
had been taking Clarkianova at fifteen
minutes three times daily in the internal.

In January 1882 he was laid up
with a severe cold for a month. As
he was recovering fresh tubercles came out
on the face and lower limbs and afterwards
there was desquamation especially on the legs.

Fresh tubercles continued to appear on
the arms and legs and the older ones
increased in size. He was very subject
to colds and always worse after them.

Treatment was imperfectly carried out
as he was attending as an out patient.

In March 1884 he was readmitted.
His speech was thick with a nasal twang.

The skin between the eyebrows and
lower part of the forehead was thickened
and tuberculated; there were tubercles on the
eyebrows and upper lids which were fully
coloured. The eyebrows were gone but the
eyelashes still remained.

There was cloudy opalescence of both
cornea; the eye having "often got inflamed"
The iris was congeuilably deficient both at
the lower and upper parts.
The margins of the aloe vera were thickened and tuberculated and there were a few fresh tubercles on the cheek near the nose, and on the chin. The hair was thin, but the scalp was unaffected.

There was no other change till at the front of the right thigh near the knee, a patch was seen two inches across, darker, more raised than the others, and slightly scaly; below the knee and extending downward wards to the foot were similar smaller patches; on the dorsum of the foot a few, but more on the sole - the nails were normal. The left leg was not as much affected as the right.

He was put on Gergina oil and doses increased to 30 ry. three times a day. The oil was also used externally. He did not improve under treatment, and in May it was noted that a few more tubercles had appeared on the limbs, a brownish patch on the soft palate.

He was then discharged.

His subsequent treatment with Chaulmoogra oil during the last three years
and the improvement which has been obtained by it in his general condition, are mentioned under the head of treatment q.v. p. 114.

The commencement and course of the disease in the case presents features considerably different to those I have noted in the early cases on Robben Island, and indeed it is evident that almost every case has its own course and symptoms.

Not the least remarkable is the great difference in the period of incubation depending no doubt on great differences in the constitutional vigor and in the circumstances of life and surroundings.

In this case a delicate child became rapidly infected - for there was absolutely no room for suspicion of hereditary taint; in the last a robust sailor remains at least five years after infection without any obvious symptoms. It is no doubt in this way that insufficient and unwholesome diet operates in predisposing to, and aggravating, the disease.

By lowering the tone and resisting power of the system, it favours the advance
of disease.

A remarkable point which it is most important to remember in this connection is that Bacilli may live in peace, as it were, till their nutrition is interfered with and their existence endangered, when, in order to preserve their species no doubt, they at once commence a process of transformation. The spores themselves are far more capable of resisting destructive influences and should they be carried into other situations and thence obtain the necessary conditions for development they at once increase the peculiar effects which it is the nature of their particular species to produce and the disease, as we know it advances; or it may be, first makes itself known to us, the few and quiescent Bacilli never having produced sufficient effect to attract our attention.
Table of the Cases observed on Robben Island.

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Sex</th>
<th>Race</th>
<th>Age</th>
<th>Duration</th>
<th>Progress</th>
<th>Relative &amp; Copsers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>Hottentot</td>
<td>28</td>
<td>15 yrs</td>
<td>Progressing</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>&quot;</td>
<td>Kaffir</td>
<td>38</td>
<td>5 yrs</td>
<td>Stationary</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&quot;</td>
<td>Afrikaner</td>
<td>22</td>
<td>7 yrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&quot;</td>
<td>do</td>
<td>19</td>
<td>35 yrs</td>
<td>do</td>
<td>1. Half brother</td>
</tr>
<tr>
<td>5</td>
<td>&quot;</td>
<td>Hottentot</td>
<td>17</td>
<td>2 yrs</td>
<td>Progressing</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>&quot;</td>
<td>do</td>
<td>35</td>
<td>7 yrs</td>
<td>do</td>
<td>1. Half brother</td>
</tr>
<tr>
<td>7</td>
<td>&quot;</td>
<td>Portuguese</td>
<td>14</td>
<td>5 yrs</td>
<td>do (rapid)</td>
<td>1. Son</td>
</tr>
<tr>
<td>8</td>
<td>&quot;</td>
<td>do</td>
<td>12½</td>
<td></td>
<td></td>
<td>(Not a spouse.)</td>
</tr>
<tr>
<td>9</td>
<td>&quot;</td>
<td>Hottentot</td>
<td>26</td>
<td>5 yrs</td>
<td>do (rapid)</td>
<td>1. Son</td>
</tr>
<tr>
<td>10</td>
<td>&quot;</td>
<td>do</td>
<td>6</td>
<td>1 yr</td>
<td>do (rapid)</td>
<td>1. Father</td>
</tr>
<tr>
<td>11</td>
<td>&quot;</td>
<td>do</td>
<td>23</td>
<td>3 yrs</td>
<td>do</td>
<td>1. Mother</td>
</tr>
<tr>
<td>12</td>
<td>&quot;</td>
<td>Algerains</td>
<td>18</td>
<td>7 yrs</td>
<td>do</td>
<td>1. Son</td>
</tr>
<tr>
<td>13</td>
<td>&quot;</td>
<td>Hottentot</td>
<td>38</td>
<td>6 yrs</td>
<td>do</td>
<td>1. Father</td>
</tr>
<tr>
<td>14</td>
<td>&quot;</td>
<td>do</td>
<td>9</td>
<td>2 yrs</td>
<td>do</td>
<td>1. Mother</td>
</tr>
<tr>
<td>15</td>
<td>&quot;</td>
<td>do</td>
<td>12½</td>
<td>5 yrs</td>
<td>do</td>
<td>1. Brother</td>
</tr>
<tr>
<td>16</td>
<td>&quot;</td>
<td>do</td>
<td>19</td>
<td>3 yrs</td>
<td>do</td>
<td>1. Brother</td>
</tr>
<tr>
<td>17</td>
<td>&quot;</td>
<td>Kaffir</td>
<td>48</td>
<td>2 yrs</td>
<td>do</td>
<td>1. Son</td>
</tr>
<tr>
<td>18</td>
<td>&quot;</td>
<td>German</td>
<td>78</td>
<td>5 yrs</td>
<td>Stationary</td>
<td>2. Sons &amp; subsequent to Father</td>
</tr>
<tr>
<td>19</td>
<td>&quot;</td>
<td>Portuguese</td>
<td>51</td>
<td>½ yr</td>
<td>Progressing</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>&quot;</td>
<td>Malagasy</td>
<td>70</td>
<td>² yrs</td>
<td>Stationary</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>&quot;</td>
<td>Afrikaner</td>
<td>55</td>
<td>8 yrs</td>
<td>Progressing</td>
<td>1. Son doubtful</td>
</tr>
<tr>
<td>22</td>
<td>&quot;</td>
<td>do</td>
<td>22</td>
<td>7 yrs</td>
<td>?</td>
<td>1. Brother</td>
</tr>
<tr>
<td>23</td>
<td>&quot;</td>
<td>English</td>
<td>56</td>
<td>7 yrs</td>
<td>Progressing</td>
<td></td>
</tr>
<tr>
<td>Case No.</td>
<td>Sex</td>
<td>Race</td>
<td>Age</td>
<td>Variety</td>
<td>Duration</td>
<td>Progress</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>---------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>24</td>
<td>Male</td>
<td>African</td>
<td>28</td>
<td>Tuberc.</td>
<td>3 years</td>
<td>Progressing</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>do</td>
<td>29</td>
<td>do</td>
<td>2</td>
<td>do (rapid)</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>Kaffer</td>
<td>18</td>
<td>Anste.</td>
<td>3 ?</td>
<td>do</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>Hollentiel</td>
<td>20</td>
<td>do</td>
<td>12</td>
<td>Stationary</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>African</td>
<td>15</td>
<td>Tuber.</td>
<td>6</td>
<td>Progressing</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>Irish</td>
<td>18</td>
<td>do</td>
<td>6</td>
<td>do</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>Malay</td>
<td>18</td>
<td>Anste.</td>
<td>6</td>
<td>do (rapid)</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>Hollentiel</td>
<td>25</td>
<td>do</td>
<td>6</td>
<td>do</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>do</td>
<td>35</td>
<td>do</td>
<td>17</td>
<td>Stationary</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>African</td>
<td>18</td>
<td>Tuber.</td>
<td>5</td>
<td>Progressing</td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>do</td>
<td>20</td>
<td>do</td>
<td>1%</td>
<td>do</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>Irish</td>
<td>15</td>
<td>Anste.</td>
<td>7</td>
<td>do (rapid)</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>Hollentiel</td>
<td>20</td>
<td>Tuber.</td>
<td>14</td>
<td>do (stand)</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>African</td>
<td>60</td>
<td>Anste.</td>
<td>30</td>
<td>new.</td>
</tr>
<tr>
<td>38</td>
<td>Female</td>
<td>Hollentiel</td>
<td>27</td>
<td>Diseased</td>
<td>5 years</td>
<td>Progressing</td>
</tr>
<tr>
<td>39</td>
<td>Male</td>
<td>African</td>
<td>5</td>
<td>Tuber.</td>
<td>6 months</td>
<td>Progressing</td>
</tr>
<tr>
<td>40</td>
<td>Female</td>
<td>Dutch</td>
<td>29</td>
<td>Diseased</td>
<td>7 years</td>
<td>do</td>
</tr>
<tr>
<td>41</td>
<td></td>
<td>Hollentiel</td>
<td>60</td>
<td>Anste.</td>
<td>4</td>
<td>do</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>African</td>
<td>10</td>
<td>Tuber.</td>
<td>2</td>
<td>do (rapid)</td>
</tr>
<tr>
<td>43</td>
<td></td>
<td>English</td>
<td>34</td>
<td>do</td>
<td>7</td>
<td>do</td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>German</td>
<td>21</td>
<td>do</td>
<td>4</td>
<td>do (rapid)</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>African</td>
<td>18</td>
<td>do</td>
<td>7</td>
<td>Stationary</td>
</tr>
<tr>
<td>Case No.</td>
<td>Sex</td>
<td>Race</td>
<td>Age</td>
<td>Breed</td>
<td>Duration</td>
<td>Progress</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>46</td>
<td>Female</td>
<td>African</td>
<td>8</td>
<td>Tubercular</td>
<td>1/2 year</td>
<td>Progressing</td>
</tr>
<tr>
<td>47</td>
<td>do</td>
<td>do</td>
<td>13</td>
<td>do</td>
<td>do</td>
<td>do</td>
</tr>
<tr>
<td>48</td>
<td>do</td>
<td>do</td>
<td>16</td>
<td>do</td>
<td>do</td>
<td>do</td>
</tr>
<tr>
<td>49</td>
<td>do</td>
<td>do</td>
<td>18</td>
<td>do</td>
<td>3</td>
<td>do</td>
</tr>
<tr>
<td>50</td>
<td>Andern</td>
<td>10</td>
<td>African</td>
<td>25</td>
<td>do</td>
<td>Stationary</td>
</tr>
<tr>
<td>51</td>
<td>do</td>
<td>do</td>
<td>24</td>
<td>do</td>
<td>10</td>
<td>Stationary</td>
</tr>
<tr>
<td>52</td>
<td>do</td>
<td>do</td>
<td>31</td>
<td>Mixed</td>
<td>10</td>
<td>do slowly</td>
</tr>
<tr>
<td>53</td>
<td>Holstein</td>
<td>39</td>
<td>Tubercular</td>
<td>6</td>
<td>do</td>
<td>do</td>
</tr>
<tr>
<td>54</td>
<td>do</td>
<td>do</td>
<td>50</td>
<td>Mixed</td>
<td>do</td>
<td>do</td>
</tr>
</tbody>
</table>

Males 38, Females 18. Europeans 6, Cape Dutch 3.
Most of the remainder mixed breed.
Relation to leprosy in 20 cases: Master to 1 Case.
Leprosy in Animals

The question whether Leprosy ever occurs as an idiopathic disease in animals has often been mooted and is yet unsettled.

As Plate 36 I submit Photographs of some mice which I obtained on Robben Island, where they had been caught some years ago. They present a curious and diseased appearance, and as they were caught in the Chaplain's house which closely adjoins the leper ward, it is not unnatural that they should have been supposed to be themselves lepros.

Certainly if consuming crumbs dropped from leper mouths, or coming in contact with leper discharges, could affect these small animals they had every opportunity of becoming lepros.

On examination they are seen to be rather young mice and to have protuberances of a peculiar ulceration on the head, side, and at the root of the tail. That this might actually be
the new growth of a leprosous ulcer in process of ulceration seems not impossible. In the worst case the ears are destroyed and the eyes and muzzle generally, are implicated in the process.

On examination of sections made from one of these diseased areas (in which I have had the kind assistance of Dr. Edington of this University) one finds that the corium is free from the large number of bacilli found in leprosous tissue, but here and there, and in some situations pretty numerously, there are disposed cells somewhat similar to the lepra cells of Virchows, and densely packed with micro-organisms which stain somewhat readily with Methylene Blue, and of which the nature is not clearly evident, further than that certain points in the densely packed cell stain more deeply than others. This therefore can only be taken to be purely negative evidence. We are not in a position
to say that it is not leprosy, unless...

as we believe it to be the fact that old lepra cells do not stand so readily as fresh ones and these must have been in years or years, and then these organisms are enclosed within fibrinoytes, and we may suppose that these cells which have engorged them may have set up some change in their character. (A Microscope slide of this preparation will be found with the others.)

The probabillity are certainly some what against the hypothesis of leprosy, and unless it can be believed that the bacillus may develop its effects for more rapidly in the mouse than

in man, a somewhat serious ob.

jection lies in the fact that one at least of the mice is very young and none of them is of any size.

This condition resembles in some points what has been described as progressive gangrene in mice.

Other mice also supposed to be...
Leprous leprosy, from time to time, been caught on Robben Island, and of one of these Dr. Smyth, late junior surgeon, writes. "It presented the fol. lowing appearance: the incurved claws on the left forefoot, antemolar articulations; the right showed shortening of the limb; with the claws incurved and contracted upon a rounded mass of what remained of the metacarpal bones; a dry tuberculous incrustation on the right side of the snout involving a portion of the nose and upper lip, the contracted or destroyed tissues exposing the upper teeth on the right side of the mouth. On the outer side of both ears were tuberculous deposits, two on the right and one on the left ear.

A portion of the left ear was deficient at its upper edge as if it had been punched out. The mence was alive and I frequently watched it during the short time it lived. The poor little beast when
not frightened, and in its efforts to move in its narrow cage projected the weight brunt to some extent but did not essay to use it. The left one was used clumsily for it occasionally fell upon its side, sometimes one and sometimes the other. The claws of the left forefoot although incurved had not lost the power of contracting but it had lost much of the power of sensation judging from the fact that it was unable to bear its own weight for more than a few seconds" (?!)

"If frightened it attempted to use both of the fore limbs but the right was clubbed, shortened and nearly useless. It was gray, probably a very old mouse and died in about 48 hours after it reached me."

He says also that "12 young pleasantries turned loose near the lager wards last about there" and no doubt like the mice obtained a ready supply of old provisions."
deer off in about six or eight months. The legs became bony, the claws incurved, the articulations enlarged, and they walked as if bare-footed.

"Several young turkeys now (1883) lining about showing the same symptom as the pheasants, and an old turkey cock is affected with anuels: takeable leprosy!"

I fear however that there are no good in evidence than the case for such diseases though curiously resembling the anaesthetic form of leprosy are common among birds in other places and some such conditions have been proved to result from parasitic disease, and to be due to an acarus under the skin. (Dugast, Leprosy p. 351)

The rabbits of which there are many on the Island are never known to be diseased, nor I believe are the large black harmless snakes, also found in numbers.

Cattle have been known to suffer
from "probably cancerous tumours" of
the throat, and one pig at least was
returned to the Contractor as unfit
for food which had been fed on the
"waste" or refuse food from the leper
ward.

The idea is unpleasant, but it is
not stated whether there was anything
suspectious or only the somewhat common
"measles" of Jamaica.

I have found however a statement
in perhaps slightly better authority that
animals may suffer, for Dr. Bolton
of Mauritius refers to the Rev.
Coll. of Physicians (§ 88 of Report) "Animals
(Mammalia) are occasionally affected
with Leprosy. A young one brought
up at the Lepor Asylum died of
the disease some time since. A
report of the post mortem examination
of this animal was made by Mr.
Coulis, Veterinary Surgeon of Port Louis."

When we come to enquire as to
the results of experiments in the ini-
oculation of criminals with lepromous tissue
we find that there has been at least some measure of success. Although the large bacilli—holding cells quickly perish if introduced into the system of a rabbit they may, in dogs, lead to veritable leprous new formations. A piece of freshly excised treated tissue was placed beneath the skin of a dog without effect; but in the case of another dog which died a month after the inoculation, there was found beneath the scar minute delicate new growth crammed with these bacilli.

A similar result was obtained in the case of another dog. The new formations contained no trace of the old histological elements which were apparently absorbed and replaced by new elements.

The migratory cells due to the infection had taken on a new process of growth under the influence of the specific agents, the bacilli. The resulting disease must be regarded as a local leprosy produced by inoculation. ("London July 30, 1881 p. 186)
This is a conclusion of no small importance for we cannot believe that it is a long step from the local to the general, though it may be one which, from the peculiar conditions necessary, is not at once taken, and this is exactly in accord with what our clinical experience of the disease would lead us to expect. We find men returning from leprosy countries and for two years remaining apparently healthy where, after all that time, the disease begins to make itself felt.

How are the bacilli then scattered through the system or at least conveyed to distant parts?

No bacilli are usually found in the blood, and some careful experiment shows that blood taken from a healthy part of the skin contained neither bacilli nor spores for it did not develop anything under cultivation. Blood from a leprosy new formation developed bacilli which appeared first as small lance shaped bodies. This
blood presented an appearance differing from the normal in that it was richer in white corpuscles, some large with multiple nuclei, like pus corpuscles, and others smaller and round with a large oval nucleus, and in the nucleus fine distinct granules tinging reddish and apparently fibres. Nothing of the kind could be obtained from the blood of healthy individuals.

Hence it is suspected that the spores get into the blood by the perivascular lymph spaces where cells filled with bacilli are grouped, and the manner in which the eruption spreads in the skin and attacks the glands is often such as to suggest an affection of the lymphatics.

(Same ref. loc. cit.)

I had hoped to have had some fluid of cultivation experiment to relate in this place, and for that purpose I made great efforts to obtain some serum from the case in Easo. After some delay I received one tube only and that...
containing a small plug of clotted blood. It has been planted on gelatinous agar in an incubator, but as yet there is no result.
The distribution of Leprosy.

The regions of the world in which Leprosy is now known to be endemic are so extensive and the names of the Countries and Districts quoted are so numerous that I have thought it better to prepare a map colouring these parts red in which I observe by any of the accounts given that Leprosy is found.

In doing this I have been aided by a map prepared by Dr. A. Felkin in his "Geographical Distribution of Tropical Disease," by one in "Geographie Medicale" by Leon Punicare, Paris 1884, and by another by Professor Moschfeld of Munich as "After Lombard" in the Brit. Med. Journ. of March 1, 1891 (Is that in Italo's treatise "De l'Artère"?"

This through the most recent is not the fullest for I find some places free in it which are coloured in the French work. I have also consulted various lists in Hiroshi and other books.
which I have already quoted.

The most remarkable immunity certainly is that of Patagonia and Terra Del Fuego, where in the southern part at least a soul finds rest and the most unstimulated existence does not suffice to originate the disease. Another is the case of the Esquimaux who live in icy shires, close huts, and on a diet perhaps more barren fishy than any in the world.

The great centres such as Bremen, Norway, and India will at once attract attention.

In order to illustrate more particularly its occurrence in the Cape Colony, and South Africa generally, I have consulted an outline map of the Colony according to the returns in the Report of the Government Commissioner, already often referred to; which gives in formation on the subject up to the middle of last year and this will give us at any rate a minimum of the prevalence of Leptos.