

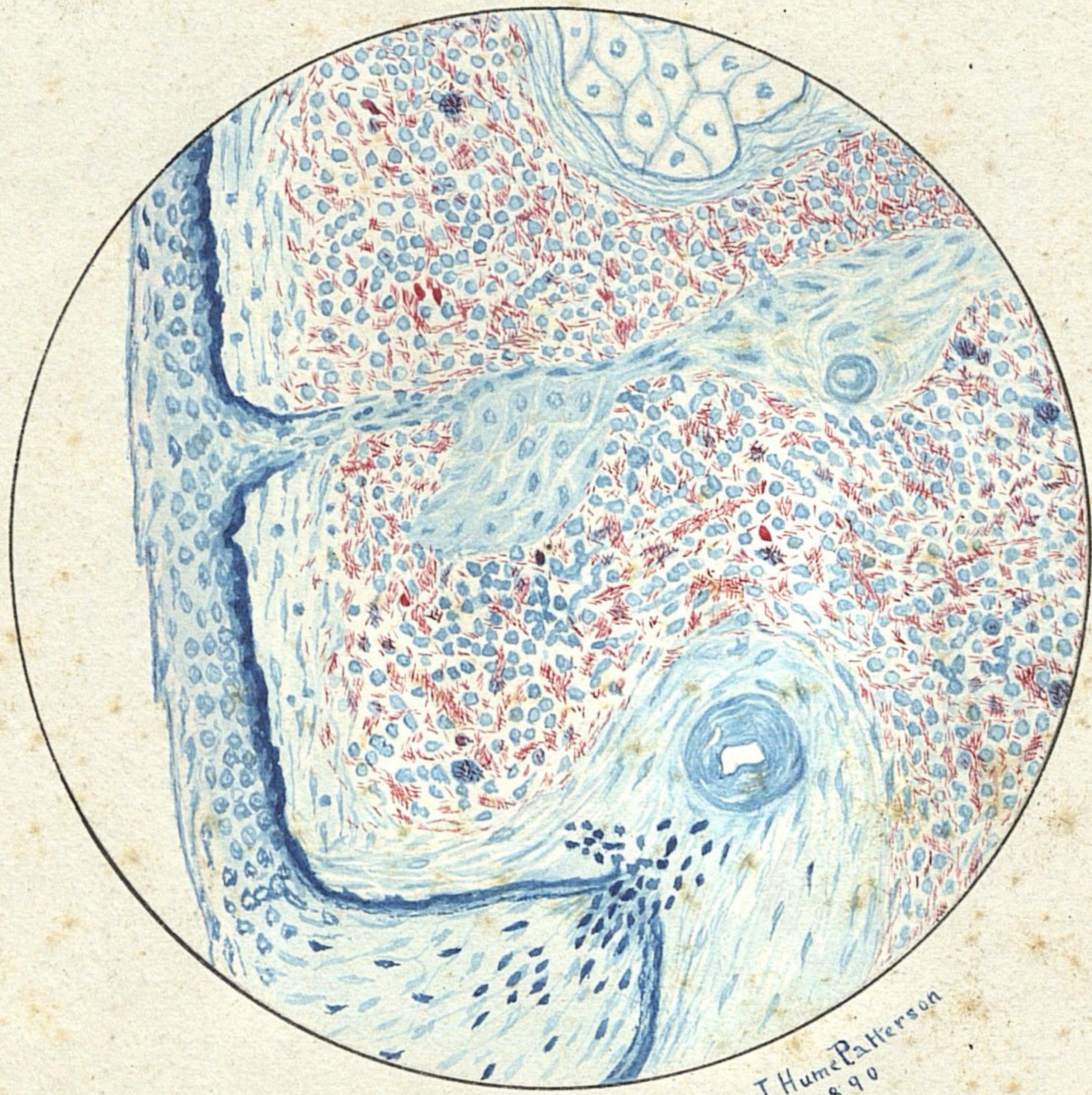
*A Thesis on Leprosy
Elephantiasis Græcorum
with special reference to its occurrence
in the Colony of
The Cape of Good Hope*

by

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M. B. & C. M. - 1879.*

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J. Hume Patterson
1890



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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 ~~was~~ 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 Israelites in their exodus, and with them obtained a footing in Palestine.

Greek and Roman writers too of an early date speak of it as a disease foreign to their own soil, but one already firmly planted in that of Egypt; in which Country we may safely conclude that 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 (Hirsch's Handbook of Geographical & Historical Pathology, Vol. II p. 2 et seq. and *Hæmorrhoids or Diseases of the Skin*, Article "Lepra" by Kaposi, p. 121; both 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 laws ^{were} framed and Asylums founded for lepers during, and even previous to, that period. (Sir James Simpson's *Archæological Essays* Vol. II p. 41 and Article by Mr. Jonathan Hutchinson in the *British Medical Journal* - March 22. 1890.)

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; as there can be little doubt that a more severe and virulent form of the disease was propagated at that time through these Kingdoms.

The Crusaders who set out full of hope and enthusiasm returned crushed and battered 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 attack of which the cruel vicissitudes they had suffered, eminently predisposed 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" (Loper Town) with its holy Well, or Oily 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 Charm, became affected with the very disease for the relief of which pilgrims were flocking to the Shrine.

Crowned heads and valiant warriors fell before the destroyer 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 fasten and retired baffled from our shores.

Isolation and a formal living-burial had deprived the smitten 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 vigour and vitality to the Nation and its system was able to throw off the predisposition to the attacks of vice

disease which had before made it the ready victim of this viridious and destructive curse.

The names by which Leprosy has been known in various Countries are of some interest. The Hebrew term *sora'ath*, *sâre'ath*, or *Tsorath*, a word spelt in many and various ways but which I give thus on the authority of a Hebrew Scholar, signifies indignancy ^{or allow} and was applied to many offensive and severe disorders which the state of Medical Knowledge of the time was unable to differentiate.

The Arabic *juzam* or *jodhâm*, also variously and phonetically spelt but given me thus by the present Professor of Arabic at Cambridge, signifies mutilation, 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 ^{this} with great interest since no where else can I find any trace either in the Bible or in the descriptions of the disease so fully quoted by Sir James Simpson and others from Mediæval writers.

of a knowledge of the mutilating or "Anasthotic" variety of leprosy, which we now find so universally associated with the "Tuberculated" form. Descriptions as distinct and more vivid than we could frame, there are in abundance of the nodular, face-forming disease sent 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 prevalent, 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 described so carefully the signs by which a leper was to be distinguished before being condemned to banishment from his kin 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 sedulously attempting to weed out.

Whether it was actually non-existent

It would
 the salt
 signs for
 all the
 advanced-
 world has
 search -

or whether perchance it was divorced from its companion and included with some other disease, I have not been able certainly to determine; but the latter is at least highly improbable, not only because in that case the salutary effects of segregation would not have been obtained, but because there is little doubt that then as now some cases of the so called "Mixed form" would have occurred, exhibiting those symptoms of contraction and mutilation together with that disfigurement and corruption of the "form dismen" with which ^{the} 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 fixed and expressionless countenance worn by many of the sufferers, and suggesting not inaptly the appearance of the rugged pachyderm.

This term, with the reference to its originators, 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 Arabians while they called Leprosy "jizam" applied the term "Das 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 Grecian treatises on Medicine had perished in the downfall of the Roman Empire, but that translations and adaptations from them survived in Arabia.

These then were rendered into Latin and in doing this the term "Das Fil" was not unnaturally reproduced as "elephantia" 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.

"Juzam" on the other hand they rendered "Lepra" a term applied by the Greeks to various scaly eruptions which were correctly indicated by its derivation. When this mistake was perceived the writers came to distinguish the condition as *L. Arabum* and *L. Græcorum* as are now the two kinds of Elephantiasis.

It was no doubt greatly owing to those Philological blunders that such confusion prevailed with regard to these diseases. All kinds of severe and scaly cutaneous eruptions have at different times been supposed to be leprosy, whilst up to quite recent times the lymphatic hypertrophied leg and scrotum 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 & experiments of Dr. Patrick Manson of Amoy, China.

("The Filaria Sanguinis Hominis" 1883.)

That the two diseases may co-exist in the same patient I am able to show through the kindness of Dr. Macleish of China who has lent me a Photograph of a Chinaman suffering from Barbaodes leg and Elephantiasis scroti and also Leprosy of the Anæsthetic form affecting the hands. (Photo reproduced, see Plate 34.)

Another disease even now in many places confounded with true Leprosy is that of Leucoderma, in which the skin loses its pigment, and along with other trophic changes becomes a dead or snowy 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 drop 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 ~~the~~ Leucoderma or Ichthyosis.

One of these, no doubt, it is which in the Bible is referred to in the phrase "A leper as white as snow", - a hebrew word meaning mottled or spotted, Baras or Abaras, 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 tuberculosa, nodosa, and anaesthetica. We have also Leontiasis (of the Greeks in older times) from the wrinkled condition of the forehead, and Satyriasis.

Then in Modern languages, - it is called Spedalskhed by the Norwegians, important on account of the great prevalence of the disease in that Country, and the case

with which it has been studied by some illustrious Physicians; Assaly by the Germans meaning originally an eruption, and *Melaatschheid* by the Dutch.

In the ^{Cape-}Colony however the more familiar term is "Lazarus-zeikete". On Robben Island the offensive word "melaatsch" a leper, I never heard, and in Dutch the disease was euphemistically referred to as "De zeikete" - "the illness" or "the disease".

In ancient Scottish the disease was called the "Nyeckle ail", ("La grosse maladie" of the French), and a leper was sometimes known as a *Mescl* and his disease as *Mesclerie*, words derived from the Latin *Misellus*, a diminutive of *misere*, wretched, and the French form of which was "Mesclerie". 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.

of "Long-zeikete"
Lungs disease
i.e. Pneumo-pneumonia

(See Helera p 118, and Hirsch p 4, op: cit: and Report of Royal College of Physicians 1867.)

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, Philanthropists, and even Legislators.

The appearance is remarkable enough and indeed constitutes a chief part of the disease. To indicate it I might extract descriptions and phrases from the very full account of all the forms given in more than thirty pages of Helera (p 137) or I might draw upon my recollection, and aided by the Photographs I have taken, describe several various characteristics exhibited by the many lepers I have seen.

To both 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 1305. I give it (as translated by Sir Jas. Simpson, *op. cit.*: p. 65,) because a comparison of its phrases 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.

He says (I condense somewhat.) "The promontory signs are a reddish colour of the face verging to duskiness; the respiration (breathing) begins to be changed; the voice grows raucous, the hairs become thinned and weaker and the perspiration & breath incline to foetidity; the mind is melancholic; in some cases scales, pustules and eruptions break out over the whole

body; the disposition of the body begins to be loathsome.

2. The infallible signs are enlargement of the eyebrows with loss of their hair; rotundity of the eyes; swelling of the nostrils externally and contraction of them within; voice nasal; colour of the face glossy verging to a darkish hue; aspect of the face terrible with a fixed look and with acrimination and contraction of the pupils of the ears. And there are many other signs as pustules and excrescences, atrophy of the muscles and particularly of those between the thumb and fore finger; 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 pause 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 China, and it is a popular belief that it is one of the certain

i.e. from paralysis
of the Ulnar nerve
—
H.H.
pointed out by
Mr. Jackson Anterior
& followed by him
to be due to its
exposed position
& liability to injury
Phy. Clin. Lect. 1850
see also vol. p. 100

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 leprosy though they can detect no other signs; and in such cases it is not infrequently found to be due to some other cause. (Dr. Macleish.) 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 feet and hands, enlargement of the lips and a disposition to glandular swelling; dyspnoea + difficulty of breathing; the voice hoarse + barking; the aspect of the face frightful and of a dark colour; and the pulse small and imperceptible."

In this section Simpson gives the original Latin word after "fissure + division" as "scissura" and this I have tried to

? Leprosy alone
or Syphilis without
N.H.
"Probly Leprosy alone
may cause this"
Dr. A. J. Graham

connect with the falling off, or absorption and shortening of the fingers and toes, so characteristic of the Anæsthetic form of the disease; the Anæsthesia itself having been mentioned in the second Section. I have failed however to find any warrant, in Classical Latin usage at any rate, for translating the 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 clawlike 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 Maculated, Tuberculated, and Anæsthetic, to which may be added a fourth or mixed form for cases in which the symptoms of the last two are combined.

The Maculated or Macular form is probably in most cases merely the

precursor of the Tuberculated, 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 radiating capillaries.

The first plate of Danielssen & Boeck's splendid Atlas shows small dark flecks on the nose and forehead only; the second, shows much larger blue marks, more extensively distributed & accompanied with some very small tubers. 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.

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

The Atlas of the Sydenham Socy Pt 29

shews a nose with extensive copper coloured discolorations enclosing patches of normal skin.

Most of W. 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 chin are enlarged capillaries; but these are not circumscribed nor is there any white centre. In the Case of the German Sailor H. Otto whom I saw in this Country (See p 215.) there were brown patches, raised and more of the nature of flattened nodules.

The dark brown skins 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 hyperaesthetic - 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 maculae adds "The Phenomena just described are all regarded by Danielsen + Boeck as prodromal symptoms of the tubercular form of lepra" (Hebra p. 141.)

The Tuberculated, Tuberos 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 hideous 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 excrescences.

Lepros Tuberosa + Nodosa are given by Kaposi and they are unexceptionable. Illustrations of this form are given by

Danielssen & Boeck in Plates 4 & 5 and in a later plate where a few tuberc^{les}~~les~~ are seen on the face of a woman which is besides cicatrized and drawn to an extraordinary extent.

The Sydenham Socy, Plate 29, also shows them on forehead, nose, and around the mouth.

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

My Photo: of Case XXIV. 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 plate 6 shows that this is not always the case and my Photo: of Case XLV. illustrates the same thing. In this same case ulceration

of the nodules is also taking place a somewhat infrequent occurrence.

In J. 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 Wrist in my Case XLIX, & over the body in D. & 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 D. & B's plate already referred to and in Plate 29 of the Syden. Socy. Atlas, but as I shall shew, 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 ulcerate, and the process extending into the larynx the voice is

affected and finally lost. I shall have several instances of this to bring forward; See Cases XIII & XIV. — See also D & B's Plate of tongue, and Pl^{te} 11 in which destructive ulceration of the nose & fauces has proceeded to a fearful extent.

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

The Anæsthetic or Mutilating form of leprosy presents a very different appearance to the preceding. The condition found in an advanced case is well seen in my Plate 5, as well as in many others of the Photographs and is shown in two of the latter plates in D. & B's Atlas. In one the hand is clubbed, the thumb only remaining, and that is crooked and clawlike. 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 trunks which supply the part, the muscles are gradually paralysed and atrophied 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 lost, the tendons stand out in relief and a red discolouration extends from the palm upwards.

Sometimes at first, and frequently in the course of this process bubbles or blebs form on the fingers and ulcers result; these sometimes extend into a joint and the phalangeal bones one by one 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, over which

Thickening

the nail curves, and stiffened either in a straight or semiflexed 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 Kaposi while on the other hand the dry ^{mummification} ~~mummification~~ spoken of on p 167 is there unknown while the moist gangrene in which a portion becomes separated entire is very rare. In contradiction of the Statesman (loc: cit:) that the bones of hands and feet are alone subject to mutilation, I was informed that a case had been known on Robben Island in which the process had extended high up in the humerus 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 ^{myself} 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 were 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. Parson 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 shall 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 & L., a ~~sound~~ sound stump resulting. A merciful result of the anaesthesia 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 confirmed leprosy it is stated that a cicatrix is very rarely met with".

This is true probably enough in such cases as he presents, occurring in the persons of miserable Chinese reduced almost to skeletons, and vividly realizing the words quoted by Sireau in his opening page that this is "a distemper so noisome that it might well pass for the utmost 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 Mr. Jonathon Hutchinson would have us believe (Brit: med: Journ: Feb 15. 1890) merely a transitional stage through which all cases pass in their progress from anasthetic to tuberculated or vice versa. That as he says, the Anasthetic form will always eventually become tubercous, 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 tuberosity, and Dr. J. D. Hillis of Dublin forcibly supports the same view in the Brit: med. Journ: of March 22. -

Adding many cases studied by himself in British Guiana in which the Anac: tuberc form had lasted, twenty, twenty four, and twenty eight years without changing; the patients now sinking from that form of the disease alone.

Anasthetic Leprosy generally terminates by exhaustion or diarrhoea.

The Tuberculated form almost always by disease of the lungs the morbid action which began in the face passing inwards and affecting successively the larynx and the bronchi; the above causes may however also terminate the case. It is too, far more rapid in its course than the first named, rarely spares its victim 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 Daniélescu & Boeck which I have not before particularly mentioned, showing the appearance of the ulcers and also of the nodules on internal organs; to photographs in Walff's "Lepra Studien" and in Anderson's "Photographs of Lepers at Singapore" where raw ulcers on hands and feet are to be seen in vile profusion. Also to some Coloured plates and most excellent drawings of the microscopic appearance of the skin in "Bidenkap's" "Lepra".

At the last moment before closing the thesis I am able to add a note to this section to mention the splendid "Traité de la Lèpre" of Henri Leloir - Paris - 1886 - which, with its many woodcuts and magnificent plates of some of the most terrible 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 ulcer both serpiginous + discrete,

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

A typical tuberculated face affecting mostly the lower part, and ~~and~~ a horribly ulcerated leg, ^{one seen} on Plate 4; 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 skin 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.

Climates, ^{of these} the most opposite, have been blamed and as I shall show afterwards its geographical distribution, as indicated by a map at once negatives such an idea.

Poverty and dirt are found in all their vileness, 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 more 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 Bird's Hawaiian Archipelago to which an interesting account of the Leprosy Settlement on Molokai is added by a Visitor to the Island at the time, 1844.)

Diseased or badly prepared rice and other grains have been charged with the causation.

By far the greatest attack has been made upon fish and even at the present date it is accepted, may insisted on, by Mr. Jonathan Hutchinson President of the Royal College of Surgeons (Brit. Med. Journal March 22. 1890) as the sole means whereby the Bacillus gains an entrance into the body.

As an alternative he suggests that this diet may act 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-putrid, but on the other hand there are to this many exceptions.

Some of the Tribes of India never touch fish yet are Leprosy, the Kaffirs do not eat fish and yet Leprosy is spreading among them. Mr. Hutclinson 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 amongst the Indians (imported) and now among the Natives in inland Districts.

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

In fact all those people 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 as for fish itself there are but few races or communities in the world who do not use it as food whenever they can get it, and these few we find have no immunity from the disease. The North American Indians obtain plenty of fish from the great River and Lakes but were free from Leprosy

so long as they were not contaminated by people from leprous parts of the world.

How the disease arises, whence the bacillus springs 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 sprung which now we find flourishing in particular soils, capable under limitations, of growing elsewhere and exhibiting with modifications due to condition and environment, wherever it is found, its specific characteristics.

It has been found at Robben Island ^{that the Syphers} crave 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 Ganasees 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 like

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 nutrient oils such as Cod-liver and Chaulmoogra.

Dr. H. E. Eliot, ^{of Cape Town} stated that in his opinion fish diet was by no means a necessary factor in the production of the disease; that he had seen a great deal of it in the Punjab, one thousand miles from the Sea, among Brahmans who would never touch fish and whose ancestors for five 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 from a station in Rajputana and remaining for three months on detached duty. They had very poor grain to eat, an inferior kind of barley. When

that Company of Sepoys got back to head quarters they looked more or less ill and their faces appeared blacker. Eight or ten months afterwards his attention was drawn to these men by the Doctor of the Regiment who pointed out that some of them had developed signs of leprosy.

He says that "the medical men then 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 than 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 heredity 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 Plague
viz a millet.
A merchant from
Calcutta has just told
me (Nov. 1900) of the
growing belief in India
that Bubonic Plague
is caused by old millet
that the
villages in his country
say that the
Plague is in old stores
of millet & are liable
to burn them & even
the village when Plague
breaks out. That perhaps
the first cases of Plague
in Calcutta were
in the upper stories
of houses opposite a
wharf where there
were stores of millet
backed by a high
wall over which it
seemed the germs
must have passed
to reach their victims
H.H. H.D.

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 "enfundering" or "ane fundying", - an obscure word of which an exact translation has not yet been proposed, - was really the leprosy, which is elsewhere ascribed to him, is not certain, but he says - "for through his cold lying Duben in his gret mischance was he Huin fell that hard perplexite".

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

Dr. ^{of Grahams Town} 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 exag-
gerate and intensify the symptoms and so cause the more rapid spread of the disease.
"The genus, however originated, must be there first".

Dr. Wynne <sup>assist. Simpson 12
Robertson 1859</sup> says of a boy who was supposed to have been infected by leper

of "foundering"
of a horse?
an inflammation
of the hoofs which
even drops off & which
was said in Dr. Atherstone
to be caused by a
surfeit of milk
rain. H.H. 1850

companions that "his food has always been good and sufficient in quantity; flesh meat being eaten every day and fish only occasionally".

Dr. W.H. Ross late Surgeon Superintendent of Robben Island says that at one time salt fish was issued for natives instead of meat on 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 tubercles or shiny red blotches. Since the salt fish was discontinued the number of such cases has decreased.

Dr. ^{James} Atherstone 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 par 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 nutrition 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 known the symptoms 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 lepers!

To refer to other authorities, Hirsch (Handbook of Geographical and Historical Pathology, p. 36 et seq.) shows that the theory of the fish causation, of which Hutalin's case is such a staunch representative, is one-sided and utterly untenable since leprosy is endemic in many places where there can be no question of a fish diet at all, still less of the exclusive use of that kind of food. He also no doubt

of "The Great Market
Square" Smith field
1890

indicates the real origin of the supposition, in the idea that fish themselves were subject to leprosy, and so communicated it to man; the fact being that the supposed leprosy of fishes was really a parasitic disease, the so called "tubercles" being as Danielssen & Boeck 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 Aracca 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 China such as Hankow 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 Physicians also are opposed to the idea of fish as a cause. At Tracadie in New Brunswick almost the only part of British North America where leprosy is found it is confined to the French immigrants and their descendants, the English & Indian inhabitants of the same district being, 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 Guadeloupe & Martinique to Canada. (Note p VIII to Report of Coll. of Physns).

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

Hebra, or rather Kaposi, dismisses these considerations curly, 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," (Hebra or Diseases of the Skin Vol II. New Sydenh Socy.)

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 respectability given to it by the Royal College of Physicians!

We find in the "Lilium Medicinosa" of Bernhard Gordon of Montpellier who wrote in 1305 (Sir James Simpson)

"Comedere lac et pisces in eadem mensa
"inducit Leporam". That the idea is

found among the ^{of India} Sanatlers, 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 Drs Carter Steinhilber + 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.)

Very possibly the idea
arose from some
misapprehension of
the scales of fish
or from the oil of
of Sympathies — The
scales head surface
annihilated producing
when eaten a similar
effect. H.K. 1900

Finally the theory of a fish causation in general and Mr. Hutchinson as its advocate, have been scourged with a light sarcastic hand by Sir Morell Mackenzie 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. Dr. Living however goes too far in proving it an importation into South Africa where he says that "it is chiefly met with among the imported African races such as the Hottentots and Negroes", (Leprosy pp. 53 & 45.) the fact being that the Hottentots are of all others 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 Kaffirs, Haffirs & Zulus who

were successively invaders from the far north east.

Neither climate then, nor race, nor habits, nor food, are the true cause of leprosy, no mode of life is sufficient to produce it. "rather do the facts go to prove that this ~~stratological~~ factor has the significance of a predisposing cause even if it be a potent one; that 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." (Hirsch Vol II p 42)

This "specific noxious agent" was at last discovered in the form of a Bacillus by Hansen in 1874 and his observations were afterwards confirmed by Carter, Neisser, Cornil and Köbner 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 trans-
mission 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 this disease is contagious or not, is one which has been continually raised and has been usually answered in the affirmative.

The diseases which among the Jews were included under this name were as we have seen, various, and for all of them strict isolation was enjoined.

When a cure was in any way effected the sufferer was allowed to rejoin his fellow men; and thus we may be sure that for cases of real leprosy the isolation was maintained.

Lepers however mingled, as beggars, 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 men to run considerable risks from touching articles handled by lepers while they avoided sedulously the

"contagious breath" in which they supposed 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 practiced, both in this Country and on the Continent of Europe.

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

The Report issued by the Royal College of Physicians in 1867, founded on statements made by District Surgeons in India, ^{and other countries} declared the conviction of the most experienced observers to be quite opposed to the belief that leprosy is communicable; and the report of Drs 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 J. R. Lewis 1888)

Such statements were a great surprise to many who had opportunity of observing the disease and ascertaining the facts in particular instances both in India and in many other parts of the world, and it was not long before the evidence given by the District Surgeons was examined and criticised, and many facts brought forward and much light thrown on the subject. ("Leprosy a Communicable Disease" by C. N. 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 ~~Surgeons~~ ^{Physicians} was entirely in the same direction. Since then a great bulk of evidence and opinion has been brought to the front ("Leprosy an Imperial Danger" H.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 Loper, the Hawaiian Convict inoculated by Dr Arning and the world famous case of Father Damien. These are however but points standing out more distinctly above a mass of evidence of the same kind. Many of the Cases which I shall give 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.

Thus Mr. G. Villiers mentioned a case where a farmer's son, a boy from a perfectly healthy family borrowed the overcoat of a leper 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 leper boy's coat.?

Dr. Riccard the Surgeon Superintendent of Robben Island knew of a case where a man named F. - 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. Landsberg knew of a man having cohabited with a leprosy woman and afterwards having died 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-contagious nature of the disease.

Dr. H. ^{Ebden} Evans knows 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 such scanty 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 nursed by a Hottentot woman then apparently healthy but who afterwards developed signs of leprosy. This child alone out of all the family became a leper.

Mr. De Suidt 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. Diet cannot here be accused. Contagion and heredity are the only explanation of such facts as these.

Mr. Murray quoted a case where a European a married man exhibited signs of leprosy and after suffering much from the ulcerated stage of the disease, died. His wife has since developed leprosy. Of their three or four children one only became leprous

but at a very early period. These children had the same chance so far as heredity 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 probability communicated by the husband to the wife.

Mr. Turner also writes from the neighbourhood of Saldanha Bay, 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 seen the disease contracted through marriage.

I am glad to have these cases and the experience of men in leprosy districts to point to in this connection, since my own experience does not supply 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 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 the disease was really contagious might most naturally have been drawn.

This is exactly the result arrived at by Drs. Lewis and Cunningham in their paper on Leprosy published by the Government in India in 1876. ("Physiological & Pathological Researches" London 1888).

They examined fifty two married lepers in the Asylum at Alurora in a Northern Hill District of India, several had been married twice or oftener, and they found that twenty five men had had twenty non-leprous and eight leprous wives, while twenty seven women had had twenty five non-leprous and ten leprous husbands. There eighteen had leprous wives or husbands, but out of this number seventeen were marriages between lepers 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 enquiry throughout a country or district would reveal facts tending to support an opposite conclusion, and it is to be

noted that even there at Almorá they found four patients who had each both parents leprosy.

The experience of the Superintendent of the old Somerset Hospital Cape 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. Atterstone 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 Fingoland a number of families have become affected and it is believed that the disease was carried from the Colony when many Fingoes were removed from the neighbourhood of Port Beaufort. The "Headman" Kengane was a leper and has since died of it. Two other families living in the same

Valley subsequently become leprous.

In two instances they believe Fingo Native Doctors have become infected by treating leper patients. Fingoes and Kaffirs both look upon the disease as contagious and wish isolation to be enforced.

The Reverend Mr. Ross a resident for twenty six years among the Fingoes has witnessed the spread of the disease among them during that time.

Dr. Altherstone, who is one of the oldest and most experienced medical men in the Colony, holds the firm opinion that leprosy is spread by inoculation either by direct contact with the secretions or suppurating sores of the patient, or transmitted by the clothes, utensils, pipes, &c. 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. Canon Baker having been fr.

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 conclusion after reading the Report of the College of Physicians was much the same as that of Dr. Macnamara viz: that there was strong evidence in it in favour of contagion and he points to cases where gentlemen had taken the disease from their attendants and servants from their master; where the introduction of a leper into a household had led to the disease in several of the junior members 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. Høegle, who reported on leprosy in Norway in 1855, that it was communicated along with itche, a complaint very common there, and almost universal among the lepers. A terrible aggravation truly of their sufferings!

It is likely at any rate that the scratching would give easy opportunity for inoculation, and this seems to have been the case in one instance where a girl aged twenty five associated with a leprous girl and became infected with the disease; a sister who slept with her, and subsequently a brother aged fifteen, became leprous, and lastly the mother fell a victim to the disease. Heredity is thus excluded, and these people lived in a healthy district two thousand feet above sea level and never suffered from cold or privations of any kind: they were however all severely affected with it.

There are many circumstances which would operate more strongly in favour of contagion (~~but~~) 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 &c. and an authority such as Erasmus Wilson, 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 leprosy by residence in countries where the disease is endemic".

In speaking of the disease as found at Bahia, New Orleans, and Rio, he says "Do the physical 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 inhibition of the excretions of those affected much in the same way though not in the same degree as typhoid and cholera are propagated; but as leprosy is developed but slowly there is far greater difficulty in tracing it home to its ^{true} source.

Leprosy 793.

To return to cases at Robben Island. Canon Baker mentions the case of a carpenter that in his time died of leprosy which he was believed to have contracted from putting the bodies of diseased lepers 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 English woman 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. Wynne relates the case of J. K. a boy of about seventeen years old who acquired the disease on Robben Island. His parents and grand parents on

Both sides are English and Scotch; his
 brothers and sisters are free from any trace
 of the disease. It is supposed to
 have been contracted ^{from} handling the fish hooks
 and beating them for lepers when out fishing
 with them; an occupation in which it is
 extremely likely that both he and the lepers
 might be scratched with the same hook.
 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 lepers.

He is affected with the Anæsthetic form,
 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, -
 flesh meat being eaten every day & fish only occasionally.
 The disease is progressing but slowly.

His general health has always been good.
 He has been treated with Chaulmoogra oil
 and some other remedies from which however
 he has never appeared to derive any benefit.

V. B. a coloured man of mixed blood
 from Alapa Bay was formerly cook for the

lepers. He states that none of his family ever had the disease. His left hand first became affected and two fingers are now contracted. The disease is progressing slowly.

Dr. Wynne 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.

Caesar Africanus a tall well built West Coast man of pure race had an open wound of the feet associated with necrosis. He lived for ten years in the leper wards and attended to the patients as Wardsman, 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.

S. Easen 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 no doubt the part was always protected by a dressing. Moreover it is well known that a sinus lined with granulations, chronic in its nature and discharging pus, is not in the same degree susceptible of infection by putrid 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 the case.

Yet the risk that those men ran,

greater even than that of other attendants on leprosy cases, was no doubt considerable, and it forcibly points to the peculiar, and as it were reluctant 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 that degree 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 ~~the~~ Chinese proverb communicated to me by a fellow graduate lately returned from that Country, for they say "Thai-ko siang-chhing khah ho' si" - kòe tui mung". "A Leprosy bedfellow 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 itch among the inhabitants and especially the leprosy, 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 Robben 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, a Widow had living with her a daughter in an advanced state of leprosy. The mother who shewed no signs of the disease married a widower with one son by his first wife. Both these men were well known to him and were perfectly free from taint. After some time the husband was attacked, then his son, and lastly the mother of the girl the original sufferer. Further, a little Hottentot 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 Robben Island. It is no doubt one, though I do not know which, of the girls shown in my photographs.

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 lepers engaged as green-grocers, sweet-makers, candle makers, fishmongers, and woodcutters. Still less to find a leper woman dealing in milk and kneading butter with her hands!

At Kalk Bay many lepers are engaged in curing fish and a woman

in an advanced stage of the disease was seen to cross the road and kiss a German farmer's child.

Dr. Senous knows of a farm on which a coloured man, a leper, was employed in butchering and other work about the house. The farmer's daughter, about ten years of age, developed symptoms 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 the daughter a young woman came to assist for some time and she also is now a confirmed leper. There 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. It 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 Plates, 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 lepers and leper children and the two who became affected used to associate with these lepers 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 knew of a case in which he was convinced that the disease had been contracted through contagion and indeed many of the District Surgeons who were communicated with, answered to the same effect.

He considers as very dangerous the fact of a white leper woman following the occupation of a Tailoress though he can point to no instance of communication of the disease by her as yet.

The Hon. Dr. ^{Lygon} Atherstone, M. L. C. the oldest, and one of the best informed medical men in the Colony, is more fully convinced than ever of the contagious nature of this disease and knows 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 leprosy family. Both were now suffering from it.

He points to the danger of allowing a woman and two children, all leprosy, 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 Revd. Canon Baker of Kalk Bay points to cases in his own experience. A. B. was affected with tuberculated leprosy, his youngest child died of it and then his widow after him. A married sister of A. B. in advanced life manifested symptoms and died of the disease. It is at least highly probable that the wife was infected by her husband.

In a house at Kalk Bay resided C. D. and his wife. A girl from a leprosy family often visited the house. C. D. became

affected and then his wife; both then left the neighbourhood and subsequently died. To the same house came a family of which a daughter aged twenty five was attacked by the disease and afterwards two of her Brothers. In their case at any rate there was no appearance whatever of hereditary tendency.

Both these cases were of the tubercular form.

F. G. suffered for many years from the mixed form. In the same house a niece of eight years old became affected, 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 leprosy in his neighbourhood & that one at least of those who wore articles of her clothing were supposed thereby to have contracted the disease.

A patient now on Robben Island was the first of his family who was a leper and he only became so after

marrying into a leprous family.

After that 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 having developed 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 six 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 bears with like accounts

from other parts of the world, I have alluded to some and shall not quote others, but in conclusion I shall briefly notice the recent and only recorded instance of successful experimental inoculation.

Unsuccessful attempts there have, from time to time, been, and as 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 morbidic germs, we do not now draw the positive conclusions from the experiments which the experimenters themselves naturally did.

The results however are certainly remarkable.

Dr Leloir of Lille, ^(Original p. 234.) quoted by Archdeacon Wright, ^{sees how} "the venerable" inoculated himself and that repeatedly with blood and pus and even inserted particles taken from a nodule of a tuberculous loper, 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.

Profeter inoculated himself, seven men and two women, and also Dr. Cagnina and six others, all being of the age of twenty five and upwards, and in no case did leprosy result.

We can only suppose that the body was in those cases capable of resisting and overcoming the vitality of the bacilli. The conditions favorable to their spore formation did not occur, - and these ^{conditions} we know 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 leper 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 influence 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 Keam 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 leprous matter. This was done by Dr. Arming on the 30th September 1884. (Note, the letter from the Board of Health, Honolulu, gives the date of inoculation as November 5th 1885, but that given by Dr. Besnier quoting Arming is probably correct.) It had previously been ascertained that he had no leprous 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.

i.e. Hypnotism
 then still in 1890
 greatly labored
 but - now (1900)
 holding a very different
 position.
 I actually had an
 venture to allude
 more pointedly
 to it but I sh^d
 be judged heretofore
 H.H.

The result has been that he is found on the 20th April 1888 - an advanced case of tuberculated leprosy. The symptoms are detailed at length on p 64 of Mr. Wright's Book.

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

1. Of the condition in the meantime we have no account nor of the date when symptoms first showed themselves, but fourteen months after the inoculation Dr. Arning writes that the bacillus leprois still to be found in the scar. 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 hereditary taint and for "endemic causes" whatever they may be supposed to be; but we have here a man surrounded by pre-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 effectually 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 experiments will not often occur. It is with disgust (but not surprise) that we read that sentimentalist have even now blamed Dr. Arning 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 condition it can or can not 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 but 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 Almorá, that of the eighty-lepers, twenty eight, or thirty five per cent, had one or more leprous relations which gives a proportion of one hundred and forty times greater than the per centage 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 both parents were affected, and in two of these cases four and three Brothers respectively were also leprous.

In the twenty eight cases, seventeen had one or both parents leprosy; ten had brothers or sisters; five had sons, and six had other relations, mostly uncles.

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 ten cases, the father alone in three.

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

Of the fifty four cases I examined at Robber Island twenty knew of leprosy 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 coherence and very near relations are often really quite unknown. The observations of various men in different parts of the country supply however valuable information some of which I shall now collect.

Dr. Piccard knew of the son of a leper, who was born after his father, contracted the disease and who was also attacked, the father being dead before the disease showed itself.

Dr. Landsberg had seen a leprous child of four years old born of leprous parents who had the tuberculated form without ulceration.

At one time, before the present female leper wards were built it was found necessary 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 lepers were being born there.

In one case the mother had but little sign of the disease; she had suffered

from a large lebel 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 leprous.

Dr. Ebdon 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 leprous 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

Plague is believed
in India to be often
contracted by infection
from the ground
through the feet.
1900 H.H.

in a fearfully advanced stage of the disease. On each occasion she had a child and each child was a laborer. One died of the disease, the other lived till over seven, at any rate. The mother eventually died.

It was found that among the Fringoes 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. Cornil 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 detritus

accumulated in the tubercles of the testicle, spores are found, some free and others agglomerated in masses.

How 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 sexual power of Lepers is in very many cases not destroyed is sufficiently obvious from what has gone before. Loss of power is believed at Robben Island rarely to occur except in the last stages where general exhaustion would sufficiently account for it, but of the "libido inescapabilis" 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 repressed desire, was noticed.

A Hottentot woman was offended because before her admission 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 Hottentots and half breeds 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.

The 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 the 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 tissue of leprous growths in the skin, 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 Weisser

in 1849 established the same fact.

Hansen then published his discovery more widely, and since that time Cornil, Köbner, Nina Dr. Les. Thier and others, have by extended observations added much to our knowledge of the subject.

The new growth which is found causing the protrusion of a leprous tubercle, consists of what is known as "granulative 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 deposit, in certain localities, of new material consisting of rounded cells, with large and distinct nuclei, closely resembling leucocytes or white blood corpuscles. Among these are here and there larger ones called by Virchow "lepra cells" and supposed by him to be in some way peculiar to the disease. Peculiar they no doubt are, but in no way causative being indeed the direct result

of the prime factor in the case, the *Bacillus Lepre*, 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 crammed with bacilli 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 K. J. Case I 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 mouth, 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. (see finish)

They have been treated with Neelson's preparation of Ruchsin's, a stain which

remains 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 (Alum Carmin) shows more distinctly the arrangement of the cells and the other constituents of the skin itself.

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

The appearance presented by a section of leprosy skin prepared in the manner described shows at once the amount and distribution of the

Bacilli, the infiltration of leucocytes and the effect produced by these on the other layers of the dermis.

On examination 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 bearing 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 disputed question of contagion it is well perhaps to pause at once and consider.

All 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 infectious germs do not lie near the surface,

They are separated from it by a dense & resistant 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 epidermis by a band of connective tissue in which few of the granular leucocytes are present and few bacilli.

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

Rounded 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 diameters turned upon the section shows the enormous multitude of the bacilli.

The field is crowded with them and we can see but little of the tissue itself in many places. The epidermis is now more distinctly seen to be free from them, but in 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 "leper cell" of Virchow, and now we see it the focus of action of the invading microbes.

In many places closely gathered bundles of the rod-shaped organisms suggest the natural inference that they were but lately enclosed, but have broken loose, while all about lie 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 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 septa which pass far down among the cellular tissue below.

This prolongation inwards 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 epithelioma. 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 spaces which some competent observers believe that they actually do.

The bacilli themselves are seen to be straight rods, pointed at the extremities.

A process, believed to be spore-formation, and indicated by a clear space in the middle of the rod is frequently observed.

The *Bacillus Lepre* resembles most the tubercle bacillus but is somewhat shorter and finer; (it is said to be from $.004$ to $.006$ of a millimeter in length and $.001$ thick.) It differs from it in that it can be stained with Methyl 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 Cornil 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 septicæmia but to be less delicate; they therefore come between it and the tubercle bacillus in size. Another account (Lancet July 30 1881) makes it resemble the Bacillus believed by some to be connected with ordinary malaria.

Leptous deposits have been found in many internal organs and representations of these are given in D+B's Atlas.

The same processes occur in the mucous membranes which we find 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 larynx in an Egyptian beggar is published by Dr. Mackern in the *Lancet* 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 gummata 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 readily 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 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 in cases of the Anæsthetic form of Leprosy. 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, Danielssen had described changes in the peripheral nerves going to supply the affected parts. The five branches were red and swollen, the morbid process appearing chiefly to affect the neurilemma. At a later

period they became brownish & finally were faded to a yellow, and completely atrophied. The same series of events was noticed in the nerve trunks at ~~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 & Carter found in addition that there were actually granulation cells infiltrated through the nerve fibre itself in its most intimate relations; and now the presence of bacilli 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 bacilli perish & nothing is to be made out but the increased amount of interstitial fibrous tissue which has replaced the proper structures.

Why the nerves in one case, and in another the skin, should be attacked

of Paralysis of the
Ulnar nerve as
an early symptom
see note p 15

we cannot tell; but it is worthy of remark that when the form is Anæsthetic 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 bullæ and subsequent ulcers being secondary to the nerve lesion and being the result of atrophic changes 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 bacillus 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 Lepros cell in its development from the leucocyte being always accompanied by the rod shaped organism which we can have no hesitation in referring to as "*Bacillus Leprosæ*".

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 Lepros 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 Helzer p 142; Living p 134; "The Lancet" for July 30 - 1881 p 184; "An Abstract of Lectures on Lepros" by J. S. Biderknap, Christiania 1886; "Medical & Surgical Memoirs" by Joseph Jones of Louisiana Vol. II New Orleans 1887 & Ummos' "Dermatologische Studien" Hamburg & Leipzig 1886. -

The Treatment of Leprosy.

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 (~~way~~), and the course adopted was one aimed both at the contagious and hereditary transmission of the disease.

The rules of the Grasside 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 therof and for terrifying the said leppers - that there be one gibbet sett up at the gavel of the said hospital;"

While in ~~the~~ still older times more drastic measures were employd, for it is recorded by Hector Boëce that before the Reign of Malcolm Canmore one of

the "auld manneris" was that "He that
 "was trublit with the falling evil, or fallin
 "daft or wad or hawing sic infirmite as
 "succedis his heritage fra the fader to the
 "son was geldit, that his wifekit blude
 "suld spreid na farther."

"The women that was fallin
 "Lizzer or had any other infection of
 "blude, was banist fra the company
 "of men and gif she couavit barne
 "under sic infirmite, baith she and hir
 "barne wad buryit quik"!

These and many more facts of
 the greatest interest are given by Sir
 James Simpson in his Archaeological
 Essay on Leprosy and Lazer Hospitals in
 Scotland and England.

Treatment of the same 'heroin'
 kind and on a scale large enough, if we
 can believe the account, actually to
 stamp out the disease has been once
 at any rate employed in China. I
 learn from my fellow Graduate, already
 quoted, that in the District of Hui-an,
 Fokien Province, in the S.E. of China

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 County. Whether it had there assumed a more virulent type or whether the conditions for its transmission were unusually favourable we cannot tell, but the facts were so obvious that a Mandarin or high official of the District determined to take steps for its repression. 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 wretchedness 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 potato! 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 Euthanasia 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 North American Indians and some of the Tribes in South

America who have kept aloof from strangers are to this day free from the disease while its increase in the Sandwich Islands when once introduced by the Chinese has been alarmingly rapid.

So strong was the belief in the incurable nature of this malady in the Sixteenth Century that to profess or attempt to cure it amounted to a positive proof of the practice of Witchcraft, and a charge was actually brought against an unfortunate woman Christian Livingston in Edinburgh in 1594 of practising the forbidden art she having "affirmed that she could heal Leprosy" "quell the most expert men in medicine" "were not able to do". Her method was harmless in itself for "she took a roid" "cock, slew it, baked a bannock with the" "blude of it and gaf the same to the" "Lepser to eat." No doubt it was the principle on which she acted and her intention which condemned her.

The celebrated Michael Scott, Philosopher and Wizard, of Fife writes "It ought" "to be known that the blood of dogs

"and of infants two years old and under,
 "when diffused through a bath of heated
 "water dispels the Leprosy without a doubt"
 -translated by Simpson from his "De Secretis
 Nature". That this terrible super-
 stition 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 Per-
 nambrico, Brazil, published in the Papers last
 year. He says that terror had prevailed
 there during the last fortnight (i.e. 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 Leprosy, 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 a panic
 existed and the Public Schools were nearly
 deserted.

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. Jno
Wecker and enlarged by Dr. R. Read 1660.

Among the "Secrets in Physic and
Surgery" he quotes from "Cardan Mizaldus",
"Roscellus", "Mr Rogers", and others

"For an Elephantiasis. — Some that have
"had the Leprosie have been cured by
"frequent eating of Frogs in Lakes, the
"heat of their blood being abated and the
"burnt melancholy being corrected. This you
"must understand ~~that~~ of Frogs that leap and
"not of those that creep or go slowly
"for they are venomous".

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

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

A villainous mixture of things
animal, vegetable and mineral is also
described at length, and lastly "Some

"say that Leprous persons washed in a
 "bath wherein a dead carcass (i.e. Corpse)
 "is washed are cured by it. But we know
 "not concerning what Leprosie they speak
 "for one is a kind of Scab another is
 "called Elephantiasis; Likewise it is not
 "observed whether that happens always or
 "perhaps sometimes by chance; ^{In which he evinces a very commendable caution.} Then
 "To make a man Leprous." "The blood
 "of a Leprous person is taken in which
 "Wheat stands long soaking and thus
 "be given to hens or pigeons to fat them
 "and so the Leprosie is taken". This as
 a means by which the disease could be
 communicated might possibly attract our
 attention could we credit these writers
 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 vaunted remedies had been tried

though without marked effect.

In 1883, Dr. H. Eladen stated that he had then three patients under treatment to whom he was giving Tincture of Blue Gum (*Eucalyptus Globulus*) internally and that he was very pleased with the results so far, also that Dr. Stevenson of Rondebosch 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 cases of which I have notes, I shall be able to point to two at least in which the disease in its anæsthetic form has been permanently arrested; - for very many years at any rate. In Case II there was no history of any treatment or apparent cause for the arrest, and in the case of the man whose one hand only is affected I heard no particulars.

Dr. Aflerstone relates a remarkable case of cure in a Kaffir boy named

"Babirian" on whom he had "tried every thing without effect". His was of the Anæsthetic form of the disease and confined to the fingers and hands which were ulcerated and quite insensitive, and the finger joints deeply affected. Babirian went to Kaffirland was treated by a Native Doctor and came back in a few months perfectly cured. The Kaffir Doctor collected herbs and boiled them and made the leper 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 pot, having no feeling in the hands. This was many years ago and there has been no return.

Another instance is alluded to in 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 given by Helora, and some additional ones are mentioned by Living and by

What? so local?

In the Pacific islands
(is it?) cures are asserted
to follow a treatment
of "roasting" the patients
before a great fire
pamphlet by
Dr. Ph. Abraham
NY 1910

Robson Roose ("Leprosy and its Prevention" 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 anemia and increasing the ulceration, while the last was found by the Norwegian Physicians Danielsen + Boeck to cause the disease to assume an acute form. The Bromides have the same effect. Most other Mineral drugs are at least useless.

There 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 Gynocardiae) Gurgum oil or Balsam. Cashew nut (Anacardium) Goa Powder (Chrysoarolium) Hydrocotyle Asiatica and Carbolic acid.

Chaulmoogra oil has been used in doses of six to twelve minims and upwards thrice 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

that this has often much improved 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.

Vandyke 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 minim doses in capsules three times a day by general inunction. He expressed himself as most sensible of the benefit derived from it and Dr. Larder the Medical Superintendent writes me "When the case came under my notice three years ago there was extensive ulceration of the hands, feet, face, ears, head and scalp, and there was hardly any hair present. He has been treated almost continuously with *Olum Glycocardiacum* and by inunction. He has markedly improved in general health; his hair has grown and he cannot live with any comfort without the oil."

Gurgim balsam is used as an emulsion, with equal parts of lime water, in doses of one to four drachms twice a day or oftener and also as a liniment. The Norwegian 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 cures have been effected there by the use of this oil. The Lepers were Convicts 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 packcase and that every symptom of leprosy had disappeared. Alluded to by Sir Henry de Villiers, Chief Justice of Cape Colony.

The Castoreo Nut has been given in various ways; its oil used as an external application and by Beaufort combined with small doses of Mercury.

Dr. Living ("Leprosy" p 114) 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 Chrysophanic acid have been specially recommended ^{by Dr} Kuma in the Journal of Practical Dermatology for July 1885 (Monatshefte für Pract. Dermatologie). He states that the external application of the drug combined with the internal use of a preparation called Ammonium Sulphuretum solium will cure cases of incipient tuberculous leprosy. His reports of two cases are certainly very encouraging. In Dr. Biderkapi's hands this treatment has perhaps done some good in one case but has completely failed in several others " (Robson Rose, "Leprosy" p 78)

Hydrocotyle Asiatica has been used in doses of the dried powder one to two grs : per diem in divided doses. Its

record is even less satisfactory than the last.: According to Dr Hardy, a Dr Leprieu 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. (Robson Ross p 79)

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

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

(Indian Medical Gazette Vol VI p 114)

Dr Laurie (Ind. Med. Gaz. Sept. 1878) obtained satisfactory results in some cases of the Anæsthetic form by nerve stretching.

Electricity has proved of some use in paralytic conditions and has been of benefit for anaesthesia. Used by Danielssen & Boeck. *Hebra*. p 193.

Donovan's solution was used at the Cape in past years & evidently reduced the tuberculous masses but no sooner was the drug left off than the disease progressed more rapidly than before.

The inoculation of Syphilis, erysipelas and a "gendarme" microbe by Danielssen & Boeck, Campana, & Cornil respectively, have proved worse than useless, indeed 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 when conditions are certainly favorable to it, and placed in some healthy cool climate to retard, 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, vine and tonics, especially quinine. Liveing advises five to ten grain doses and I do not find that it has been used in larger ones. Probably like many other drugs it has been fairly tried and found wanting and no particular mention is made of it. Possibly also its 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 micro-organism 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 life longer and more

comfortable; from being cachectic make him almost robust ("Diseases of India", Norman Chevers) but while that relentless microbe lurks in his tissues ready on the least failure of its nutrition to start into active spore formation and rapidly perpetuate its species, we cannot flatter ourselves that we are effecting a cure.

So long as it remains there it will exercise its functions and produce its effects, and till we have found means of ousting it, we can do little more than amuse 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 Kuzuna and Humansdorp in 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 complained of, or brought to my notice.

The one case I discovered was of the Anæsthetic 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 attributed 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 distinctly anæsthetic, 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 points were stumpy, the nails curving 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 a spade 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 Anæsthetic form. Short portions only of the proximal 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 meadow 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 Leger 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 mainland 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 4 females were European, the remainder being natives. Of this number I photographed 56, either singly or in groups and shall now

in Nov. 1900
550
Jamaica Chaplain's report
in Church Times.

proceed to give notes and remarks
on the cases illustrated by the Photo-
graphs. —

Case I.

Plates 1, 2, 3, 4, 9, 11.

Kaspar Jantze - aged 28 -
A "Bastard Hottentot"; or half-breed between
Hottentot and Malagasy, from Riversdale
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 an off-coloured Wardeman (Case IV).

The age of a native must al-
ways 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 hoarse though not weak or husky. The air passages are sometimes affected by cold and he then suffers from some dyspnoea.

The eye is remarkably bright and indeed ulceration of the cornea so common in some parts of the world and occurring 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 sulci between them, the marked "leontiasis" of the forehead the hugely 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 points of the fingers are unaffected, giving them a somewhat tapering form (vide Plate IV.) (at the end)

This man averred that he had no anæsthesia 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 this except in the roughest manner.

Kaspar Jantze can give no history of leprosy in his family. —

He had five brothers and two sisters all well.

When he left Riversdale he was the father of a child there, one year old, and neither child nor mother shewed 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 osen through a river 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.

Plates 5, 8, 9.

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 tribe drove him away and would have dispatched him with the assegai 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 appears to have been for some time stationary, while before that it made rapid progress.

Anæsthesia, to the extent at any rate of dullness 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 toes, but perfectly free at the present time from ulceration.

The face shows no signs of disease and the general health is good.

Case III.

Plate 6.

Christian Coetzee - aged 22 -
an "Africander" or coloured man of mixed blood.

A case of pure Anæsthetic leprosy.

This lad's face is a good evidence of the distinctness of the two forms, for it will be easily seen how perfectly unaffected it is. The complexion was clear and the expression intelligent.

He has suffered from the disease for six or seven years and its progress has been slow. At present it appears

to be arrested and he acts as ward:
man having considerable use of his
hands; the Anaesthesia being less than
usual; sensibility is normal over the
corpus 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 mutil:
ation 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

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has no greater foundation than this.

In the last case, as in many others no trace of nails 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 entire. 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 mortification and spontaneous amputation occurred. —

He has never lived with lepers though there were many in the districts 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 six months old respectively, they and their mother were well.

Case IV.

Plates 7, 8, 9.

Paulus Martin - aged 49 -
An "Africaner" (i.e. His mother was a Boer woman, his father a "Bastard Malagasy" - i.e. of Malagasy father and

Slave mother.)

His case is of the pure Anæsthetic 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 five months, after which his hands were contracted.

When again able to work the fingers were apt to get injured and in consequence they suppurated and bone 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 died, at the ages of twenty years of "black fever", nine years of inflammation of lungs, two years eight

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 affected and he has now at any rate no anaesthesia 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 recollection as to anaesthesia of the hands is not to be trusted.

In Case III the feet were not anaesthetic though mutilated and here a still milder form of the disease is seen. - The appearance of the hands too is very characteristic and I think unmistakably indicates the cause.

The left hand is most deformed. The fingers are shortened to the middle of the second phalanx, and contracted and distorted nails remain on all but one.

The thumb and little finger are both strongly contracted though but little atrophied. There is pretty free movement at the metacarpo-phalangeal 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 would 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 peglike. The thumb, first and second fingers are strongly contracted.

Their condition is clearly shown in Plate 7.

Case V.

Plates 8, 14.

Tom Boer, age 14.
A Bastard Hottentot from Stutterheim near King William's Town.

A case of pure anaesthetic form

of two years standing.

When first attacked he felt some giddiness in the head and a pain in his legs and knees. 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 have 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 points some-
: what tapered, 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 trunc-
: cated finger instead of being ~~on its~~ ^{being} on its dorsal surface. The other fingers of the right hand are unaffected, of the left but slightly so.

This lad present 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 shewed.

Case VII.

Plates 8, 9.

William Moses or "Moos"
aged 35. Bastard Hottentot (Father white,
Mother Hottentot) from Mahiesburg district,
Saldanha 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 tuberculated
cases a certain amount of anaesthesia

in the forehead.

It feels somewhat 'numb'

All the fingers are more or less shortened and much contracted, the thumbs, as usual, least so. The first finger of the left hand remains straight but is much shortened. The fingers have frequently been ulcerated.

The feet have suffered much also, and two toes are now wanting to the left foot.

The hands below the wrists and the feet below the ankles are anæsthetic.

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

Plates 8, 9, 14.

Michael Montgomery - 14 -

A Half breed of English father and Boer

Mother.

A case of pure tuberculated form.

The general thickening of the features is fairly well seen here. The hands 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 patients themselves 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 XXXIII. g.v).

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

Case VIII.

Plate 8.

Rudolph Le Roex.
12½ - Boer, from Calabar, 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 eyebrows is perceptible but there is not with it the discoloration 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 meted 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 mis-taken 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.

Plate 9.

John Gillean - Aged 26 (?)
A Hottentot 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 pains in the arms and legs which also feel weak.

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

He can give no history of disease 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 &c. speaks of his appetite and general health as good.

Case X.

Plates 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

Plates 8, 9.

Jacobus van Wyk - 23.

Hottentot from the Paarl, 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 lamed him; for a month 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 eyes. 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 -
Mozambiqueer 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 flatness 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

Plate 9.

Johannes Adams - 30 -
Hottentot from Piquetberg.

A very well marked tuberculated case of over six years standing, in which the thickened forehead and sunken and upturned nose present a singularly ugly and bat-like appearance.

He states that first the forehead felt numb and that a knob appeared on it and after that the nose gradually sank in.

His voice is now reduced to a whisper the uvula 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 husky 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 sores on the feet.

Case XIV.

Plates 9. 10.

Andreas 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 excoriated and oozing; there are many small nodules about the cheeks and chin. The nose is swelled 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.

Marthinus Solomon - aged 12 (?)

Bastard Hottentot.

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 contracted 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 leper and that her face and hands were swelled and she had a sore under the foot, but that the hands and feet were not contracted so that it must have been of the tuberculated 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, on account of his grotesque appearance and movements.

Case XVI.

Plates 8 & 9. 16.

Kevido (= Cupido!) Peters
- aged 19. A mixed Hottentot and
Mozambique from Klapmuts in the
Paarl.

Pure tuberculated case of three years
standing.

The face is swelled 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.

Plate 7.

Haw Toga - aged 40.
A Brugia Kaffir coming from Beaufort West having left Kaffirland at 15 or 16.

Is a Tuberculated case of two years standing.

The face is here swelled and the features enlarged while the surface is pitted or scarred by numerous small deep cicatrices the result of ulceration in tubercles on the skin which are now entirely healed. They are quite un-
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.Plate 18.

William Reutz - aged exactly 78. A European, his father a Dane, and his mother a German, born at Graaff Reinet - 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 fissured a condition which I have learned to associate with constitutional syphilis, and I have no doubt that at some former time this man had 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 forefinger 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 thickened 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 him from judging. It is probable however that the low state of vitality caused them to cicatrize 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 viz. 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 both 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 twins at four years. His wife had also had two miscarriages.

I elicited these facts in reference

to my suspicion of the existence of syphilis which they perhaps to a certain extent confirm.

One son still lives and is healthy. —

Case XIX.

Plates 8, 14.

Franz Jacobs. 38 -
Off coloured Dutch (his father having had some coloured blood) from Mal:
:msbury 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 hands is symmetrical; the thumb and fore:
:finger of each being untouched while the other fingers are all somewhat con:
:tracted, but there has been no ulceration nor any apparent absorption at the joints and they are in conse:
:quence 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 knee.

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, negatives the statement lately made by Mr. 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 had many cases of each form unaltered, though of many years duration and in this a typical and equally divided case neither form has supervened on the other but 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 laid

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.

Plate II.

Samuel Adams - over 40 -
Father a Malagasy - Mother "Boucoo"
(of Borneo) - 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 Piquetberg and has
noticed symptoms for the last year
and a half.

He is affected with the tuberculated form 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 swelled 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 man's nose though destitute of bridge has not fallen in from disease, it is merely the shape natural to his race 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 idea.

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.

Plate 11.

Abram Jantjes - aged 53 -
Calls himself a "Bastard Africaner"
a term it may be remarked of very

various application, his father 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 body and "pinpoints" 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 Anæsthetic 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.

Plate 18.

Christian Jantjes - 22 -
son of the last case by a "Malagasy" mother.

This case if one of leprosy 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 waggon 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 brawny 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 strenuous constitution weakened and deprived of proper exercise by the accident, and not leprosy.

Case XXIII.

Plate 12.

Richard Cliddel -
over 56. A native of Gosport Hamp-
shire and formerly a Seaman of
the Navy.

Has suffered from Tuberculated Leprosy for the last seven years.

Though he can give no ^{distinct} account of how it was contracted, he admits having lived a wild and careless life for some years in the Colony, and ~~said~~ describes a severe gonorrhoea followed by a very obstinate gleet, the whole aggravated by his irregular 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 feet became affected. He says that a very small round hole 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 extending just about half way up the calf and ending in a line nearly six inches below the spot to which the anaesthesia extends. The toes however are not affected and he presents no other sign of anaesthetic form, his hands being perfectly free.

He at one time left the Island but finding it impossible to get 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 expresses himself most grateful.

He has a wife and two children now living; one child has died of fits

Dr. S. J. it is believed that the Palsy is transmitted by the feet.

and two others have been prematurely born.

Case XXIV.

Plates 12, 13.

Jau Verkeul - 28.
 "Africander". His father being an
 "Africander" 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 appearance due
 to the disease.

He is a case of perfectly pure
 tuberculated 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 Anæsthesia or even dulness of sensation in the face and presents no other symptoms.

He attributes the disease to a cold or chill which no doubt points to the rigor + slight 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 Malinesburg some twelve or fifteen years ago and died without showing any signs of leprosy.

This man was a labourer on the farm of Wijnkelder's Hoek, Malinesburg.

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

That this boy, 'Robert', was the first case on 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 Steyn, 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 laterculated 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 again the same form.

Case **XXV**.Plates 12, 14.

-Andreas Adonis - 29-

"Africauder", from Tulleagh, a pure Tuberculated 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 swelled.

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

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

The lining membrane of the nose is much swelled 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 leper here, and his father's sister also suffered from the disease. These cases like his own were of the tuberculated form.

Case XXVII.

Plates 12, 14.

Marthinus, 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 Anæsthetic 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 metacarpo-phalangeal joint though otherwise stiff and hooked.

He declares that there is no loss

of sensation, and certainly he can use those portions of fingers that remain to tie his boot laces, &c.

Of his feet the left is the worst, two shortened stumpy 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 XXVII.

Plate 12.

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 Chaplain, 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 there 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 patients 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 deprived of it.

Case XXVIII.

Plate 12.

John Shaw - 15 -

White "African" 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 Tuberculated 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 "puckered 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.

Case XXIX.

Plate 12.

Daniel Lamley - 18.
Irish.

Tuberculated case of four years standing, from Kimberley.

Has three Brothers and three Sisters all well and no other case in the family.

He is a very typical case of the more ordinary form of the disease, the features being much thickened without prominent tubercles. The hands also are thickened. His general health is good.

Case XXX.

Plate 12.

Audries Abram - 18.

Bastard Malay from Cape Town.

An Anæsthetic case of over six years standing in which both hands and feet have suffered severely.

The 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 Malays here is I believe not from the absence of leprosy among them but owing to the greater coherence and stability of the ^{Malay} community and their taking care themselves of any cases of the disease which occur.

Case XXXI.

Plate 12.

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 Anæsthetic form.

His fingers are all entirely gone, his toes are much shortened and contracted.

The disease has lasted for six 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.

Plates 15. 16.

Daniel Swartz - 35 -

"Bastard" of Boer father - Hottentot mother, the white blood predominating. Comes from Witwatersburg.

Anæsthetic form far advanced, but now apparently stationary.

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

This man was 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 information as to the commencement or progress of the disease.

He refused also to take off his boots. His toes 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.

Plate 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 tuberculated 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 shiny 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 venous or capillary engorgement visible in the same localities on J. S. Case ~~XXXIX~~.

I regret not having fuller notes on these 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 M. M. Case VII. qv. and though he has only been a few months on the Island it would

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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.

Christian August - 20 -
"Africauder" slightly off-coloured from Mal-
mesbury.

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

The forehead cheeks and chin are thickened and on them 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.

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He is otherwise unaffected and knows of no case in his family.

Case XXXV.

Plate 18.

Kerrin Calagan - 15.
Irish - from Calvina 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 poultice, 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.Plate 18.

Ephraim Titus - 20 -

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 puffy but he is otherwise unaffected and his general health is very good.

His father and mother are healthy.

Case XXXVII.Plate 19.

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 Africaner 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. M. Case II.

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

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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 lepers 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

Plates 20, 30.

Margaret Smith - 24 -
Hottentot half-breed, i.e. Scotch father and
Hottentot mother.

A mixed case of five 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 fauces have been much ulcerated and the uvula 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 nose and peculiar voice due to syphilis and the appearance of the lips though swelled by the leprosy support that view. I noted the case as distinctly syphilitic at the time.

I may here mention that the "Nodes" or tubercles etc. - so 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 haste.

The Female Asylum was at some distance and was reached by cart and the time at my disposal for taking either Photographs or Notes was extremely limited, while it was quite impossible to obtain rapid or intelligent answers from the unfortunate 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 frequently from ulceration, 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 latterly and the nails are ulcerated - there is but little shortening and none 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 bones 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-leprous, 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.Plate 20, 26.

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 matron
 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 chin, cheeks and
 eyebrows presents a somewhat shiny ap-
 pearance and is streaked with dull red
 lines being evidently dilated capillaries and
 small veins.

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These are below the surface, not prominent and form a kind of net work 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 &c are not enlarged. The tongue is clean and the lips show no trace whatever of mucous patch, fissure &c by which syphilis 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 he came to the Island, but of course the former is the more probable.

? More likely from same source
H.K.

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Case XL

Plate 21.

Mr. Baunister - 29 -
Boer from Malmesbury.

A mixed case of seven years standing.

The face here presents a very typical appearance of the change 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 dullness of sensation in the face. The throat is infiltrated and the voice very hoarse but there is no sign of ulceration in the fauces.

The tongue is of a dead white, and much fissured - the lips also are white on their mucous surface.

193.

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 finds the legs "jump" occasionally at night. She has no other symptoms and her appetite 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.

1914.

Case XLI.

Plates 20, 32.

Annje Kloster - upwards of 60.
Hottemet and slowe blood - from the Paarl.
Anasthetic type, 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, stumps of the fingers
only being left. There has also
been frequent ulceration of which the
scars remain.

The left hand began first with
pain, blebs or blisters, and ulceration,
the bone of the first finger came
away bodily, but the others simply
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.

195

Anaesthesia was marked in 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 knows of no case among her people. Her husband and five surviving children are healthy; six have died of fever, measles + fits.

Case XLII.

Plates 21. 31.

Maria Holmes - 10.

Africaner - just off-coloured.

Pure tuberculated 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 fauces have not

196.

suffered and the voice is not hoarse.

She has no anaesthesia and has never suffered any pain; her general health is very good.

Case XLIII

Plates 22, 23.

Mrs Hart - 34 -

English, - born in Cape Town.

Tuberculated 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 shiny; 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 raised, 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.

197.

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 1882 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

198.

case of the course of a secondary vaccination 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 macula appearing on the vaccinated arm only I fear that no great importance can be attached, as the questions and her attention were particularly directed towards that arm, and others, ~~even~~ if they had been noticed, may have escaped mention. She at first denied knowledge of any cause 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 Mrs. B., Case IX, 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 her case the question was not raised and as I did not at the time remark the similarity of duration of the disease, I made no enquiries on the subject.

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

Case XLIV

Plates 20, 24, 25, 30.

Christina Franka - 21-
Half caste - Father German, Mother Malabar.

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 XXVIII.

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

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

Some two years previously she had suffered from Variola and its weakening and destructive action on the skin may possibly be due the present disseminated ulceration.

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

There is no Anæsthesia of the hands or arms.

She has suffered from great difficulty of breathing described as asthma for the last four months showing 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 other has died of phthisis, she knows of no other case of leprosy.

Case XLV

Plates 20. 30.

Sophia Lotz - 18.

Africaner, off-coloured only, straight hair - a pure tuberculated 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.

Quial August - 18 -

Africaner.

A very typical case of tuberculated form which has progressed very rapidly, since the present condition has

been attained in only a year and a half.

The hands are somewhat swelled and puffy, the whole of the right arm presents a certain hard and brawny appearance and the middle finger of the right hand is more swelled 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 leper.

Case XLVII

Plates 23, 26, 30.

Rachel du Toit - 13.

Africaander -

A pure tuberculated case which has in addition to the general thickening and enlargement 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 hands

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 smallpox 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 sixpence, a depressed ring surrounding a raised centre, or rather the circular centre seemed to be of the natural level of the skin and the fosse above to be the scar.

It is of course possible that at such a time, of general vaccination especially, lymph might unknowingly be taken from a child belonging to a leprosy family, but with the great uncertainty attaching to all statements of times and dates 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 however suspicious the 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 my examination.

Case XLVIIIPlate 26.

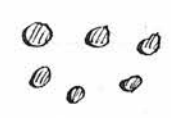
Susan Williams - 16.

African - dark coloured.

This girl was sent to the Asylum over two years ago at which time there is no doubt she must have exhibited some symptoms which were taken to be indications of a leprosy 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 ^{brown} cicatrices such as result from a pustular eruption in coloured people; they are scattered and not like the pocks of Variola. - The note I made of them indicates them



thus

She is aware of no dullness of sensibility or, in the fact, of any sort of symptom. Her health is good; she does

not appear to be in the least syphilitic and these marks are different from what I have seen in cases of previous eruptions of that disease.

These 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 retrogression 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

Plates 26. 27. 32.

Linkine Stoffels - 118.

Africaander.

Tuberculated form of three years standing.

The features here are not so much thickened but the corrugation 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 tuberosus swellings.

The first symptom noticed was burning and prickling pain. No other case 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 mother.

Case I.

Plats 26, 28, 30.

Sara August - 40 -
Bush woman.

Has suffered since the age of 15 and is now an advanced case of the Anesthetic 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 phalanges. The stumps remain

on the right hand, but in the left parts of the meta-carpals themselves have gone and a small round-ended stump only remains.

The white places here as in the case of G. P. Case II, I believe to be due to previous deep ulcerations and not to be of the nature of leucoderma, they had every appearance of being cicatricial tissue, the most extensive is a line which runs up the ulnar side of the right arm.

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

Since that time menstruation has become regular.

The disease appears to have been for some time ^{quite} stationary and no further ulceration has taken place; whether there has been any gradual absorption, ^{going on} it is of course more difficult to say. In many cases such a process does (~~and~~) take place and without

any ulceration or discharge of dead bone, the finger or arm becomes gradually shortened.

She knows of none of her people who have been similarly affected.

Case LI.

Plates 26, 29, 30.

Wilhelmina Du Toit - 24 -

Africander - very slightly coloured. Her father an "Africander" and Mother French.

This girl presents in her hands a typical example of the Anæsthetic form.

She is in addition hemiplegic and unable to stand and her head from some similar nervous affection is in constant motion.

Her intelligence appeared to be extremely limited.

She is the only one of her family so affected.

Case LII.

Plate 26.

Margaret Genessee - 24 -

Africander - Father Africander - Mother German.

A case of the mixed 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 leper.

The facts here are particularly remarkable inasmuch 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.

Plate 30.

Katharine Williams - 39.

Batter Clinise, - Mother Hottentot.

A very slight case of tuberculated form from which she has suffered for six months only.

There are distinct swellings on the cheeks and nose but what is most remarkable is the peculiar mottled condition of the forehead. White patches are to be seen on each side extending towards the middle. 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 scaly. They are not the result of sores 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.

Plates 30. 31.

Sara Paris - 50.

Bastard Hotteudot.

A typical case of the mixed form of leprosy in which the forehead and cheeks

show 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 bear witness to the severity of previous ulceration.

The disease has now been for sometime apparently stationary and though complaining at present of facial neuralgia her general health is good.

Cases

Cases of Leprosy at Madeira.

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

The place though much closed in, had a small garden and the rooms were all scrupulously clean and very cool.

I found there four female and one male patient.

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

One was of the tuberculated 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 Arabum which had lasted for fifteen years. It affected the left leg only which was of an enormous size from the knee downwards 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 ^{Case} 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 Syphilitic Psoriasis.

These Cases were all called "lepers" 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 pauper incurables, and cases, the Syphilitic at any rate, in which isolation was expedient. The size of the Asylum, and the small number of actual lepers makes this probable.

Cases of Leprosy in England.

In December last I saw a case of this disease at Warley in Essex which had been discovered and recognised by Mr. A. Wallis of Brentwood and notes of which he published in the British Medical Journal, October 26th 1889.

H. Otto, a German, a seafaring 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 on the forehead + 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 cases 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 these cases there appears to be some loss of sensibility.

He first noticed pain in the feet

of a shooting kind, the feet then swelled and became numb; ulcers formed, and after about two years he was treated at the German Hospital when 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. About 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 rather over two years ago, and in March 1889, he was last treated, when the left great toe was taken off.

It is about five years ago since he began to suffer from anything which attracted his attention, and at that time he had been for six years resident in England. At what time the prodromal symptoms, if any, first appeared, it is of course impossible to say, nor whether these were maculae, gradual

infiltration of the skin of the face, or, what is however most probable, slow and minute changes in the peripheral nerve endings 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 poverty or monotony of diet, and had 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 his 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 had 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 the 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 him. 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 fine, 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. Larder 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 Crocker 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 painful 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 healing by granulations and cicatrisc, 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 mixed; the fingers are not however shortened and the nails are perfect.

The voice is very hoarse and husky and the larynx itself is evidently

implicated 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 gently 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. Adcliffe 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 Barbadoes and lived three years there, and then three years by the seaside in Dominica.

The supposition is that he became infected there, for soon after returning to

224.

Barbadoes there was noticed an extensive eruption of red patches over his body.

On fading, 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 believed 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 hyperaesthetic. Complete Anesthesia was only found in the centre of the large patch on hip to which bromine 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 Chaulmoogra oil fifteen minims three times daily in the interval.

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 brown-coloured. The eyebrows were gone but the eyelashes still remained.

There was cloudy opalescence of both cornea the eyes having "often got inflamed".

The iris was congenitally deficient both at the lower and upper parts.

The margins of the alae nasi 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 downwards to the foot were similar smaller patches; on the dorsum of the foot a few, but none on the sole; the nails were normal. The left leg was not as much affected as the right.

He was put on Gurjini oil and doses increased to 30 m : 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 Chaul, moogra 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
 g.v. p. 114.

The commencement and course of the disease in this 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 ^{no doubt on} ~~great~~ differences in the constitutional vigour and in the circumstances of life and surroundings.

In this case a delicate child becomes 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 advanced

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 sporeformation. The spores themselves are far more capable of resisting destructive influences and should they be carried into other situations and there 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.

Case No.	Sex	Race	Age	Variety	Duration	Progress	Relatives	% Lepers.
1.	Male	Hottentot.	28	Tuberc ^{ul}	15 years	Progressing		
2.	"	Kaffir	30	Anaesth ^c	5 "	Stationary		
3.	"	Africaander	22	do	7 "	do		
4.	"	do	49	do	35 "	do <u>28 yrs</u>		
5.	"	Hottentot	17	do	2 "	Progressing		
6.	"	do	35	Mixed	7 "	do (slow)		
7.	"	Dutch	14	Tuberc ^{ul}	4 "	do (rapid?)	1. Half brother	
8.	"	do	12½	—	—	—	(not Lepros.)	
9.	"	Hottentot	26	Mixed	5 "	do (rapid?)	1. Son	
10.	"	do	6	Anaesth ^c	1 "	do (rapid?)	1. Father	
11.	"	do	23	Tuberc ^{ul} ?	3 "	do		
12.	"	Mozambique	18	Anaesth ^c	7 "	do		
13.	"	Hottentot	30	Tuberc ^{ul}	6 "	do	1. Son	
14.	"	do	9	do	2 "	do	1. Father	
15.	"	do	12 ³	Anaesth ^c	5 ⁹ "	do	1. Mother d.	
16.	"	do	19	Tuberc ^{ul}	3 "	do		
17.	"	Kaffir	40	do	2 "	do ?		
18.	"	German	48	Anaesth ^c	5 "	Stationary	2. Sons d. subsequent to Father	
19.	"	Dutch	38	Mixed	1½ "	Progressing		
20.	"	Malagasy	70	Tuberc ^{ul}	1½ "	Stationary		
21.	"	Africaander	53	Mixed.	8 "	Progressing	1. Son doubtful	
22.	"	do	22	Tuberc ^{ul}	? "	?	1. Father	
23.	"	English	56	do	7 "	Progressing		

Table of Cases - continued

Case No.	Sex	Race	Age	Variety	Duration	Progress	Relatives & lepro.
24.	Male	Africaner	28	Tuberc ^d	3 years	Progressing	(3) Master, his daughter ^d & fellow -servant ^d
25.	"	do	29	do	2 "	do (rapidly)	2. Brother ^d & Aunt ^d
26.	"	Kaffir	18	Anaesth ^e	3? "	do	
27.	"	Hottentot	20	do	12 "	Stationary	2. Mother ^d Brother ^d
28.	"	Africaner	15	Tuberc ^d	6 "	Progressing (rapidly)	1. Mother ^d
29.	"	Irish	18	do	4 "	do	
30.	"	Malay	18	Anaesth ^e	6 "	do (rapidly)	
31.	"	Hottentot	25	do	6 "	do	1. Father ^d
32.	"	do	35	do	17 "	Stationary	
33.	"	Africaner	18	Tuberc ^d	3 "	Progressing (slowly)	1. Half brother
34.	"	do	20	do	1 1/2 "	do	
35.	"	Irish	15	Anaesth ^e	7 "	do (rapidly)	1. Mother ^d
36.	"	Hottentot	20	Tuberc ^d	4 "	do (slowly)	
37.	"	Africaner	60?	Anaesth ^e	many "		
38.	Female	Hottentot	27	Mixed	5 years	Progressing	1. Son
39.	Male	Africaner	5	Tuberc ^d	6 months	Progressing	1. Mother
40.	Female	Dutch	29	Mixed	7 years	do	
41.	"	Hottentot	60	Anaesth ^e	4 "	do	
42.	"	Africaner	10	Tuberc ^d	2 "	do (rapidly)	
43.	"	English	34	do	7 "	do	
44.	"	German	21	do	4 "	do (rapidly)	
45.	"	Africaner	18	do	7 "	Stationary	1. Brother ^d

Table of Cases - continued

Case No.	Sex	Race	Age	Variety	Duration	Progress.	Relatives	f.° leprosy.
46	Female	Africaner	8	Tuberc. ^d	1 1/2 years	Prog. & rapid	1. Father	d.
47	"	do	13	do	6.° "	do		
48	"	do	16	-	- "	-		Not Leprosy
49	"	do	18	do	3 "	do		
50	"	Dutchman	40	Anæsthe.	25 "	Stationary		
51	"	Africaner	24	do	several "	Progressing		
52	"	do	24	Mixed	10 "	do slowly	2. Father	mother ^d
53	"	Hottentot	39	Tuberc. ^d	6 mos.	do		
54	"	do	50	Mixed	?	Stationary		

Cases 54 - Tuberculated 26, - Anæsthetic 18, - Mixed 8; Non leper 2.
 Males 38; Females 14; Europeans 6; Cape Dutch 3;
 Most of the remainder mixed bred.
 Relatives leprosy in 20 Cases - mother & 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 wards, it is not unnatural that they should have been supposed to be themselves leprosy.

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 leprosy.

On examination they are seen to be rather young mice and to have patches 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 leprosy tumor 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 morbid 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 leprosy tissue; but here and there, and in some situations pretty numerous, there are disposed cells somewhat similar to the lepra cells of Virchow, 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, inasmuch as we believe it to be the fact that old lepra cells do not stain so readily as fresh ones and these mice have been for years in spirit; and then these organisms are enclosed within phagocytes and we may suppose that these cells which have engorged them may have set up some change in their character. (A microsc. slide of this preparation will be found with the others.)

The probabilities are certainly some: what against the hypothesis of leprosy, and unless it can be believed that the bacillus may develop its effects far more rapidly in the mouse than in man, a somewhat serious objection 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

Leopards have from time to time been caught on Robber Island, and of one of them Dr. Wynne late Junior Surgeon, writes - "It presented the following appearance viz: the incurvated claws on the left forefoot, and nodular articulations; the right showed shortening of the limb with the claws incurvated 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 mouse 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 right limb 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 incurvated 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 grey; probably a very old mouse and died in about 48 hours after it reached me."

He says also that "12 young pheasants turned loose near the labor wards fed about there" and no doubt like the mice obtained a ready supply of old poultry. "They

died off in about six or eight months. The legs became bowed, the claws incurved, the articulations enlarged, and they walked as if sore-footed."

"Several young turkeys now (1883) limp about showing the same symptoms as the pheasants, and an old turkey cock is affected with immis-
:takeable leprosy!!"

I fear however that these are even less good in evidence than the mice, for such diseases though curiously re-sembling the anæsthetic 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. (Wright-Leprosy p. 59)

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 "wash" or refuse food from the leper ward.

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

I have found however a statement on perhaps slightly better authority, that animals may suffer, for Dr. Bolton of Mauritius reports to the Roy. Coll. of Physicians (p 88 of Report) "Animals (Mammalia) are occasionally affected with Leprosy. A young ore brought up at the Leper Asylum died of the disease some time since. A report of the post mortem examination of this animal was made by Mr. Olivier Assistant Surgeon of Port Louis"

When we come to enquire as to the results of experiments in the inoculation of animals with leprosy tissue

we find that there has been at least some measure of success. " Although the large bacillus-holding cells quickly perish if introduced into the system of a rabbit they may, in dogs, lead to veritable leprosy new formations. A piece of freshly extirpated tubercle 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 formation contained no trace of the old histological elements which were apparently absorbed and replaced by new elements.

The migratory cells due to the inflammation 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". ("Lancet 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 six years ^{more} remaining apparently healthy, where, after all that time, the disease begins to make itself felt.

17 years
in one case
Dr. Ph. S. Abraham

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 culture experiments show 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 tinting readily and apparently spores. 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" (Lancet loc: cit.)

I had hoped to have had some kind of cultivation experiment to relate in this place and for that purpose I made great efforts to obtain some serum from the case in Essex. After some delay, I received one tube only and that

243.

containing a small plug of clotted
blood. It has been planted on
Gelatine 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 those 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. R. Falken in his "Geographical Distribution of Tropical Diseases," by one in "Geographie Medicale" by Léon Poincaré, Paris 1884, and by another by Professor Dreschfeld of Manchester - "after Lombard" in the Brit. Med. Jour. of March 1, 1890 (as that in Leloir's treatise "De la lèpre"). This though the most recent is not the fullest for I find some places free in it which are coloured in the French work ^{of Poincaré}. I have also consulted various lists in Hirsch and other books

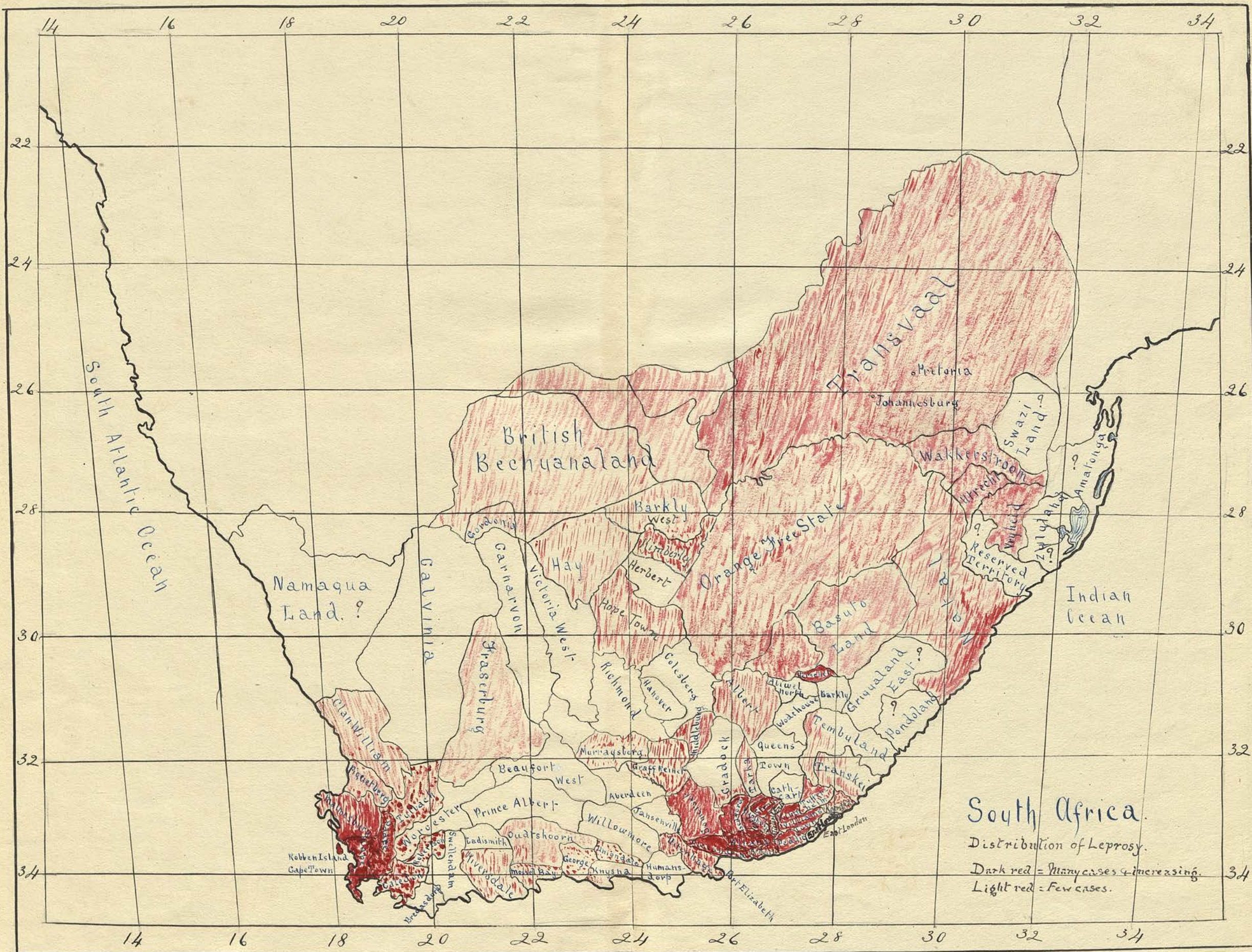
which I have already quoted.

The most remarkable immunity certainly is that of Patagonia and Tierra Del Fuego where in the southern parts at least a foul froth diet and the most uncivilized existence does not suffice to originate the disease. Another is the case of the Esquimaux who live in oily skins, close huts, and on a diet perhaps more utterly fishy than any in the world.

The great centres such as Brazil, 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 coloured an outline map of the Country according to the returns in the Report of the Government Commission, already often referred to; which gives information on the subject up to the middle of last year and thus will give us at any rate a minimum of the ~~occurrence~~ ^{prevalence} of Leprosy.

2.



South Africa.

Distribution of Leprosy.

Dark red = Many cases & increasing.

Light red = Few cases.

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