

ARTICLE II.—*Observations on Tubercular and Anæsthetic Leprosy, as they occur in Jamaica.* By ALEXANDER FIDDES, L.R.C.S., Edinburgh.

(Read to the Medico-Chirurgical Society 18th March 1857.)

LEPROSY occurs so rarely in Great Britain in the present day, that few British practitioners have had an opportunity of seeing an instance of it; nevertheless, it deserves the attention of the pathologist and medical inquirer, as much as any other disease whose exciting cause is also matter of conjecture only. The prevalence of leprosy in various countries of Continental Europe, in England, and in Scotland during the middle ages, its incurability, and the obscurity which hangs over the causes of its production, invest the subject with a peculiar interest,—an interest heightened by the fact, that the malady prevails still in different parts of the Old and New World; and although it has long ceased to be a scourge to the inhabitants of the British Islands, it has not disappeared altogether, for occasional instances of it are still to be observed in persons who are natives of this country, and who have never lived away from it.

In March 1855, a leper from the Hebrides was admitted into the Royal Infirmary of Edinburgh, and was exhibited afterwards to the Medico-Chirurgical Society; and during the last few years, other incidental cases of the indigenous disease have been noticed in the medical press. Moreover, if the views of Erasmus Wilson be correct, that different kinds of *Morphæa*, and the *Alopecia Areata* (*Ophiasis*) which occurs on the face and on other parts of the body, are really vestiges or relicts of leprosy, the lingering remains of this formidable disease becomes still more apparent. Hence it seems not unreasonable to suppose, that in the same manner as the scourge declined spontaneously in the sixteenth and seventeenth centuries, so it may resume its activity at a future time, should the external causes which favour its development ever regain their ancient ascendancy.

The characteristic symptoms of the disease are very vividly and accurately described in the writings of some of the old authors, and in more recent times a very good account of it has been given by Dr Copland in his systematic work; but the essays of Professor Simpson, published in the *Edinburgh Medical and Surgical Journal* of 1841-2, and those by Erasmus Wilson in the *Lancet* of 1856, contain the most comprehensive history of the disease which has appeared in our language. The latter writer remarks, that very few examples of the malady have come within his immediate observation; but he has availed himself of a treatise on the subject by Drs Danielsen and Boëck, the commissioners appointed by the Norwegian Government to investigate the disease in the leper hospital at Bergen, and upon the basis of their report he has written a very able and elaborate description of the disease. Professor Simpson had shown previously that the leprosy of the present day, as seen in

the West and East Indies, in South America, Canada, Norway, and other parts of the world, is identical in character with that which prevailed so extensively in Europe and in the British Islands during the middle ages; and although it is very probable that in those days various other kinds of skin diseases were sent into the lazarus-houses, there can be no doubt of the identity between the leprosy of those periods and the disease of the present time.

The symptoms by which the leprous contamination is manifested, as well as the course and progress which the disease pursues, have been described at so much length by Mr Wilson, as to leave little occasion for a further elucidation of the subject in detail. I will limit my remarks, therefore, to the consideration of some special points in the disease; and they are given as a fragment, rather than as an attempt at a full history of the morbid phenomena. I shall speak of the disease as I myself have observed it, and make my remarks with deference to the talent and ability which have been engaged in the prosecution of this inquiry.

In Jamaica, leprosy is endemic, and has been so, it appears, from the earliest colonization of the island. I think that the disease is on the increase, and other practitioners of the country concur with me in that opinion; but I am unable to furnish such a statistical proof of the fact as I could guarantee to be strictly accurate.

I will examine, *seriatim*, some of the subjects bearing on this affection.

CAUSES.

What are the exciting causes of leprosy, or what are the external circumstances concerned in its production?

In endeavouring to answer this, it may be admitted at once, that the primary cause or causes are hidden and unknown; various and opposite circumstances have been assigned, but none of them seem worthy of reliance. Improper food, particularly too rigid an adherence to a fish diet, personal or domestic disregard of cleanliness, and various other breaches of the organic laws, have been specified as causes, but they are not satisfactory. Neither can the disease be ascribed to any particular local or climatic agency; for it existed formerly, and does so still, in places that are diverse in latitude and in climate, as well as in elevation and distance from the sea. It appears, also, to attack persons living under every variety of external circumstances,—seizing at one time the rustic negro, who lives chiefly on roots, fruits, and vegetables; and at another, selecting a victim from the upper walks of life, who had lived on richer and more nutritious fare, and had been surrounded with the comforts of civilized life. Nor does any particular condition of the patient's constitution, prior to the eruption of the disease, account for its selecting some individuals as its subjects in preference to others.

Cachexia, which is so common a forerunner of *tuberculosis*, and of various other aplastic depositions, is not an essential or even a

common antecedent of leprosy; although it, in common with those diseases, consists essentially in having morbid matter in the blood, and in the effusion of it on the solid textures.

In short, the cause of leprosy is not ascertained, and is likely to remain so, until additional light be shed on the obscurity which now envelopes its origin, along with that of many other blood diseases.

SEX.

Leprosy attacks females in a smaller proportion than males, and the former do not suffer from its effects to the same degree as the latter. The difference in the severity with which the sexes suffer is most remarkable, at, or about the time of puberty. When the disease appears in a male at this epoch of life, it invariably arrests the physiological changes which should ensue. The stature and size of the body continues stationary, the voice remains boyish, the beard does not appear, and the penis and testes undergo no farther development. But with females attacked at the same period of life, I have remarked, not unfrequently, that the growth of the body, and the evolution of the generative organs, have not been so arrested. Such is not always the case, for some leprosy girls remain withered and stunted in growth, showing no development of the mammae, or any indication of the ovarian function; still, this sex has an advantage over the other, not only in warding off the infection, but also in resisting the morbid actions which follow the reception of the poison.

AGE.

I have not seen leprosy appear earlier than the fourth year of age, and I have known it deferred as late as the sixtieth year and upwards; but the period between the fifth and fortieth years is that in which the greater number of cases begin. The disease scarcely occurs before the former age, and seldom after the latter. When its eruption is deferred until late in life, the textural changes which attend it are more quickly hurried on than where the malady has appeared at an earlier period.

COMPARATIVE SUSCEPTIBILITY OF DIFFERENT RACES.

As the disease occurs in Kingston, Jamaica, the different races composing the population are not attacked in similar proportion. The population of the city is in round numbers 30,000; comprising 16,000 negroes, 10,000 people of colour, 2500 whites (including Saxons, Celts, and Spaniards), and 1500 Jews. The ratio in which these races suffer from leprosy is nearly 1 per cent. in the Hebrew race, about two in every thousand in the dark races, and so much less is the liability in the remaining division (white European), that I know of five cases only to have occurred among them during fifteen years' practice in the city; of these cases, three were natives, one was born in St Domingo, and the fifth an Englishman, but for twelve years a resident in the island before his seizure.

There being no law to enforce the separation or seclusion of the infected, I have been unable to determine the total number of lepers in the island, or even in the city, with the strict accuracy which is obtainable where a system of isolation is enforced by Government interference; but I believe my observations to be sufficiently extensive and accurate to show a near approximation to the truth, as regards the city; and it appears that the Hebrew population suffer most, the dark races less, and the Europeans, with their descendants, least of all. The latter class have a comparative immunity; but this may be owing, in some measure, to their being less exposed to the climatic influence of the island than the other divisions of the population. Nearly all the Jewish residents, as well as the black and coloured inhabitants, are natives of the island, or have lived long in it, whereas most of the other class have either been born and reared in Europe, or are descended directly from an ancestry that were so. The Jewish race were liable to leprosy as far back as the time of the Hebrew legislator, and it is remarkable that they should be still peculiarly subject to it. This probably arises from an inherited influence, co-operating with external or endemic causes; for this division of mankind is superior to almost all others in their sanitary condition generally. They have obtained this superiority from their dietetic and hygienic observances, as well as from some of their peculiar rites, which, as Dr Copland justly remarks, "have tended, amidst numerous countervailing influences and persecutions, to perpetuate an enduring and healthy race." It is probable that different races of men have not only their peculiar mental and physical endowments, but possess likewise a special liability to certain diseases, or a comparative exemption from others. Be this as it may, the disproportion in which the above-mentioned races are attacked by leprosy is curious, and it would be interesting to know if the fact be universal in other countries where the disease prevails.

HEREDITARY TRANSMISSION.

Nearly all observers, professional and non-professional, have noticed the influence of hereditary transmission, and it is found that a large proportion of the sick admit a leprous ancestry, or a consanguinity with persons so affected; but in other cases, no such source of contamination can be traced, and the disease may arise evidently in other ways. It is very remarkable that the power of hereditary transmission operates with greater intensity in the second generation than in the first, and it is very common to see the grand-children of lepers attacked with the disease, while the intermediate parent remains free. It has been also ascertained that the second and fourth generations, conjointly, are affected to a greater degree than the first and third; and that the influence of morbid transmission is greater on the maternal than on the paternal side. These peculiarities in the propagation of leprosy appear to occur in obedience to a natural law which is not well understood, although its operation is sometimes seen

in the case of family likenesses, or in abnormal or morbid conditions of the body, where the person resembles a remote ancestor, and not the parent from which he has immediately sprung. It is probable that the laws which regulate deformation and morbid action are as exact and positive as those of healthy organization, although they are not so well ascertained. But howsoever this may be, there is no doubt that leprosy is handed down to posterity in a direct, or in a collateral line, in the way mentioned; and it possesses the quality of transmission in a greater degree than perhaps any other disease. Thus, in 145 cases of the tubercular form, in the hospital of Bergen, 127 had received it in this way; and in 68 cases of joint leprosy, 57 acknowledged their descent from an infected lineage. In my own practice I have not met with so great a proportion, but have found that the disease, in many cases, could be attributed only to spontaneous or endemic origin. Nevertheless, its frequent hereditary transmission is important, and should not be forgotten in endeavouring to carry out sanitary improvements. It is from a knowledge of this fact, that some physicians, ancient and modern, have advised emasculation as the surest mode of preventing the spread of the disease; but, as the power of morbid conveyance is greater on the maternal than on the paternal side, it is evident that this harsh measure could only have a partial effect in abating the evil, although there can be little doubt that, if the chastity of both sexes were rigidly enforced, the disease would be brought in time within narrower limits. It is probable that the ancient Jewish priests, who must have known this disease well, pronounced those affected with it unclean, and enjoined their separation from the public, not so much from a fear of contagion, as with a view to prevent the propagation of the complaint by sexual communication.

I have never seen that the offspring of lepers show any signs of the disease at their birth, nor any other peculiarity, for some years at least afterwards. In a case where a child was born, after the father had been three years affected, a period of seven years has now elapsed, and the child still appears as healthy as the others which were born previous to the father's seizure. In another case, a woman with confirmed leprosy became pregnant, and having nearly completed the term of gestation, she required my services for uterine hæmorrhage, from the placenta being placed partially over the os uteri. The child was born alive, was well developed, and to all appearance healthy. It was difficult to procure a person who would undertake to nurse it, and the mother suckled it for several weeks without any apparent ill effect to the child.

SEXUAL INSTINCT.

It is remarkable how much the condition of the sexual power in leprosy has been debated and dwelt upon by medical writers; some maintaining that the generative functions are entirely abolished;

others, that they are morbidly increased. It having been observed that the poison arrests the evolution of the genital organs in the young, it was natural enough to suppose that it would have a corresponding effect in suppressing their functions in adults; but it is indisputable, that the sexual instinct is not abolished in many cases, and that lepers, male and female, may be adequate to the propagation of the species, is equally true; indeed the well-known fact of the disease being often hereditary is a proof of this. It is not so easy to account for the allegation, that leprosy has a special effect in inflaming sexual desire. This supposition is irreconcilable with reason and my own observation; but if such a symptom ever does occur, it must be in cases of anæsthetic leprosy, in which the cerebro-spinal nervous system is specially affected, and where the irritation of particular portions of nervous matter might induce corresponding phenomena in the genital organs.

CONTAGION.

The opinion that leprosy may be communicated by contact, has been entertained by many from the time of the Hebrew Theocracy to the present day, and it is possible that this notion, maintained so long and diffused so generally, was not formed without some foundation; but whatever may have been the case in former times, it is certain that leprosy has now no contagious properties, and it ought to be excluded from the category of diseases that are propagated in that way. Were it possible to communicate the disease in this manner, it would be by inoculation with the secretion of the ulcers on the cutaneous or mucous surfaces; but I am not aware of this having ever happened accidentally, or that it has been effected purposely. The rigid seclusion from society to which lepers were subjected in former times, and the careful manner in which they are still avoided, arise in great measure from the popular belief in contagion. But this erroneous opinion should be discouraged, as being unjust to the unfortunate sufferers, and tending to deprive them of the sympathy and assistance which they might otherwise obtain. The propriety of separating lepers from society, under certain circumstances, rests on other and more valid grounds.

DURATION.

The duration of the leper's life is influenced much by the external conditions in which he may be placed. If he be a person of the upper walks of society, and every attention can be obtained, life, though depressed by mental and bodily suffering, is usually prolonged through a number of years. The poor, being less favourably situated, are liable to be treated with indifference and neglect; and the numerous ailments which attend on the diseased bring life generally to a speedier close. There is a remarkable difference between the tubercular and the anæsthetic forms of the disease, as regards their duration and their respective powers of shortening life.

The average duration of the tubercular disease is nine years and a half, according to the report of the Norwegian Commissioners. Thus, of 88 patients who died in the Bergen Hospital, one between 40 and 50 years of age lived two years, another, between 20 and 30 years of age, lived 22 years, and 54 out of the 88, or nearly two-thirds, died between the periods of six and eleven years.

Of 24 deaths from anæsthetic leprosy, in the same institution, two patients, between 40 and 60 years of age, had suffered from the disease for five and six years, and one who had it from infancy, for 31 years. In 12 of the 24 cases, the duration of the disease was 20 years and upwards.¹

Now, as the average duration of the malady, in both its forms, has been deduced from a collection of patients of all ages, and as the mean term of ordinary human life ranges from thirty to forty years, we perceive that one form of this disease exerts a comparatively feeble influence in abbreviating the life of those who are the subjects of it, and that both kinds of it have a protracted duration. This is owing, apparently, to the morbid depositions being confined for a lengthy period to the surface membranes of the body in the tubercular disease, while they are often for a space of many years localized in the extremities in the joint leprosy. The stage or period of the disease in which they begin to be laid down in the internal organs, does not seem to be well ascertained; but, judging from cases that have been under my own observation, these do not occur until after the accomplishment of extensive textural changes in the skin and upper division of the gastro-pulmonary mucous membrane. Moreover, the deposition affects the tunic and surface of the several internal organs more than their parenchymatous structure. Thus it does not invade the proper tissue of the lungs, although it is effused abundantly in their internal lining, and also in their serous envelope; and this peculiarity appears to hold good with the abdominal viscera also, until a very late stage of the disease. Again, in the closed membranes, the morbid deposition has not so great a tendency to soften and disintegrate the surrounding textures as some other kinds of morbid formations, and obviously it does not possess the property of increasing itself by cell-growth.

MODE OF DEATH.

In the most advanced stage of tubercular leprosy there are morbid depositions in nearly all the thoracic and abdominal viscera, while in the joint disease the central portions of the nervous system are similarly invaded; it is evident, therefore, that in either form the symptoms which immediately precede dissolution must vary, according to the extent of the several organic alterations. It also appears that climatic agencies, though they do not modify the specific morbid action, yet they modify the organic lesions which

¹ *Vide* Erasmus Wilson, *Lancet*, January 1856.

occur in the course of it. Thus, in northern latitudes, lepers are subject to catarrh, pleurisy, and pneumonia, and die frequently from apnœa; while in tropical countries they are nearly exempt from such affections, but are prone to disorders of the intestinal canal, which is the weak point in the inhabitants generally. Hence it is, that in nearly all the fatal cases which I have seen, the death has been by diarrhœa and exhaustion. The looseness, in some cases, depends chiefly on tubercular ulceration in portions of the enteric mucous membrane, and sometimes on a morbid state of the glandular and secreting organs of the abdomen. When the kidneys are much invaded by the leprosy deposition, which they not unfrequently are, an albuminous state of the urine is superinduced, giving rise to farther blood poisoning, and to various functional and organic derangements, such as are witnessed in Bright's disease; but the passive discharges from the intestinal canal tend to lessen the dropsical effusions in the shut cavities and areolar tissue, and they prevent likewise the accumulation of urea, or its poisonous products, on the brain; and hence it is, probably, that, even with such complications, the patient dies usually in possession of his senses. In some fatal cases, the inspection does not reveal sufficient organic mischief to account for the result. In such cases, it is probable that death ensues from blood poisoning and vital depression.

PATHOLOGY.

Leprosy depends, apparently, on a blood poison, and the material substance by which we recognise its presence is an exudation of a whitish or yellowish-white colour, viscid and coherent, and composed principally of albumen. The exudation has the property of being absorbed and eliminated, for a considerable time after it has been separated from the blood, and in the course of the disease it is observed that portions of it are often removed; but fresh formations of specific matter in the blood lead to other depositions, and in this way the characteristic phenomena of the disease are perpetuated.

In the tubercular variety, which is the more common of the two, the morbid element is effused primarily in the tissue of the skin, in the upper division of the gastro-pulmonary mucous membrane, and perhaps in portions of the spinal system of nerves; and, as the disease advances, there are secondary depositions in the several compound organs of the thorax and abdomen.

In anæsthetic leprosy, the morbid effusion is at first confined and limited to the nerve branches which supply the extremities, and it afterwards affects the more central portions of the cerebro-spinal system.

The poisons which give rise to these two species or varieties of leprosy, although analogous both in their material manifestations and in their effects on the constitution, are perhaps not absolutely identical; but, if they be so, it only shows that the vital powers may so control and modify the morbid depositions, as to constitute

distinct and independent morbid forms; for the tubercular disease is not a farther development of the anæsthetic or *vice versa*, but each has its own character, and they may be said to be distinct species of the same genus. Some writers have described them as being sometimes associated and co-existent, and that either form may precede or succeed the other; and in some instances this is the case to a certain extent, but I myself have never met with an example of their mutual convertibility.

In some cases there have been, evidently, a tendency to this; but neither the interchange nor the fusion were ever complete. Thus, in some cases of anæsthetic leprosy, patches of discoloration supervene on different parts of the integument, and sometimes, but very rarely, may proceed the length of forming a few small and isolated elevations on the surface; but this class of symptoms do not proceed farther in this form of the disease, nor are the surface membranes disorganized as they are in the tubercular variety; the eyelashes and eyebrows do not fall out, the septum of the nose and turbinated bones are not removed, the uvula and glottis are not destroyed, and the face does not become occupied and deformed by tubercular swellings.

As regards the tubercular variety, in some patients stiffness and numbness of the feet and hands is an early and prominent symptom, and may be the first to induce them to apply for medical advice; but in these instances this morbid condition of the extremities is merely a part of the general affection of the surface membranes. The nerve-papillæ of the fingers suffer, in common with the other textures which enter into the composition of the cutis, giving rise to a benumbed feeling; but this is very different from the absolute insensibility which occurs in joint leprosy; and although, in these tubercular cases, the softening of the depositions may destroy the integrity of portions of the skin, producing superficial ulcers on the toes and fingers, which lead to still farther stiffness and numbness of these members, yet it does not effect that peculiar wasting and mutilation of the parts, which is an essential and never-failing concomitant of anæsthetic leprosy. I am aware that tubercular patients may sometimes be found who have lost one or more joints in the toes or fingers; but such loss is accidental, and occurs from inattention to cleanliness, or from some other source of external irritation, just as happens occasionally with ordinary abrasions or sores situated on these parts of the body. Independently of the difference between tubercular and anæsthetic leprosy, in their attendant phenomena, and in their average duration, there is another point of dissimilarity which is not less remarkable.

In the tubercular form of disease, the morbid action, when once induced, is very seldom removed, but implicates the organism more and more; and when it has advanced to a certain stage, the patient's case is all but hopeless, in the present state of knowledge. But in anæsthetic leprosy, it is remarked, not unfrequently, that the disease

expends itself when the patient may live through the ordinary term of life, showing no trace of the disease which he had suffered, except the mutilation of the extremities, and the leprous expression of the countenance. In short, in all cases of leprosy that have come within my observation, the distinctive characters of each variety have been maintained. Each form pursues its course as it commenced; and when any symptoms of the other supervene in the progress of the disease, they do not advance as to become a prominent feature in the case.

TUBERCULAR LEPROSY.

When a person is seized with tubercular leprosy, the earliest symptom which presents itself to the observer is one or more discoloured spots on the skin. These vary in size, from that of a sixpence to a diameter of several inches: they are generally circular in shape, and of a dull red or copper colour in the white skin; in the negro and dark races, they present a brownish hue, from imperfect formation of the pigment on which the natural colour depends. Their situation may be any part of the body. They are described as appearing first on the face and hands, where they are doubtless most likely to attract notice, but I have seen them on the more central parts of the body before their appearance elsewhere; and as the face and hands spots are probably always associated with others on the body or limbs, I am not disposed to regard any one part of the surface as the special seat of the earliest eruption, although, in the progress of the disease, the face and hands are more invaded by the morbid depositions than any other portion of the integument. In the case of an Englishman who had resided in the island twelve years, and in whom the disease broke out in the early part of 1856, three specific spots appeared simultaneously,—on the centre of the forehead, on the front of the left leg, and on the fourth toe of the corresponding foot. The sensibility of the patches was much blunted, and the patient had a feeling of weakness and numbness in the whole left inferior extremity; and here I may remark, that although the exanthematous eruption is the first symptom which attracts attention, and declares the nature of the malady, it does not follow that it is also the first link in the chain or procession of morbid derangement that occurs from the presence of the blood poison. It seems probable, though I am not aware that there have been any microscopic observations to prove it, that morbid matter is effused upon the nerve texture as a primary step in the process of its deposition from the blood—that it invades the terminal or peripheral filaments of certain cranial and spinal branches, or affects certain portions of their trunks. The feeling of weakness and numbness, and of formication, in different parts of the body, and the obscure pains, like those of slight rheumatism, of which lepers often complain on their first application for medical advice, tend to support this view.

It is also remarkable, that although the facial and bronchial mu-

cous membranes are subjected to constant irritation by the presence of morbid deposition in their texture, yet lachrymation, or sneezing, or cough, are not troublesome, nor have I ever observed that the affection of the glottis induces attacks of stridulous or spasmodic breathing, as might be supposed; it appears that the several nerves which supply different portions of this membrane with special sensation, are organically affected at a period contemporaneous with, if not prior to, the occurrence of structural changes in the membranes themselves.

In the case of a man who has been under my care, and who has been the subject of anæsthetic leprosy about eight years, the symptoms began with wasting and insensibility of the right upper extremity. Two years after his seizure, an extensive eruption of discoloured spots appeared on the trunk of the body, and very soon afterwards he was attacked with anæsthesia of the right symmetrical half of the body as high as the neck. His motive powers were little impaired thereby, and he could walk well on a level road, but while ascending or descending a stair, he experienced inconvenience from having no reflex sensation communicated from the foot. After nearly eight months' continuance of this anæsthetic condition, sensibility returned, except in the hand originally affected. He has been under my observation for several years since, and the exanthematous stains are stationary. They are slightly deficient in sensation, are dry and rough, and have assumed a darker hue, but there is no disposition to the formation of tubercles. The health is good otherwise, and the physiognomy unchanged. The hand originally affected continues numb, and has become more wasted and contracted. Vesicular eruptions also appear from time to time on its surface, and latterly the other hand has assumed the same morbid disposition.

This case is interesting as showing a morbid attempt to engraft one variety of the disease upon the other. It was abortive, as has always happened in all similar cases that have occurred to me. The widely diffused, but temporary anæsthesia that supervened, is also remarkable; and the limitation of it by the mesial line of the body is interesting in a physiological point of view. The insensibility of the surface depended probably on albuminous effusion within the vertebral canal, which influenced the posterior or sentient roots of the spinal nerves; and we must suppose an absorption of the morbid deposition, to explain the return of sensation. If this patient's life be not cut short by some intercurrent disease, it is likely that he may endure his affliction many years, and perhaps be ultimately relieved of it.

I recur to the consideration of the specific eruption. Different patients show a wide variety in the course and progress of the spots, as well as in the morbid associations which attend or follow them. They are sometimes transient or evanescent; but in that case, are followed by others that take their place, or appear in

other parts of the skin. Much more commonly, they are permanent from their first appearance, and after remaining without change for an indefinite period, they pass through various phases or alterations. For some time, they have a shining or glistening appearance from distension of the areolo-fibrous tissue of the dermis by albuminous exudation, and, from the same cause, they show an obliteration of the linear marks of the skin. Sometimes, and on the face particularly, they have the livid colour of cyanosis. They are dry and rough from deficiency of the sudoriferous and sabaceous secretions, and their sensibility is blunted, but seldom altogether lost. They afterwards become darker in colour, and acquire a bronzed hue; and their epidermic covering, which is imperfectly formed, separates frequently in fine attenuated scales. The morbid deposition on which these characteristics of the spot depend, may be ultimately absorbed, leaving the skin attenuated and shrunk, but still capable of carrying on its functions in an imperfect degree; or the texture of the part may be entirely disorganized, in which case the spot is left depressed, of a whitish colour, and void of sensibility. In the face, the morbid effusion is seldom absorbed, but generally increases by farther deposition until the discoloured spot is transformed into a diffused prominence; and when that is farther increased by the addition of more deposition, the part assumes the form of a tubercle or tumour of a considerable hardness and solidity. In some cases, the rash, after appearing slightly, remains without change or farther evolution for an indefinite period, which may extend over several years. The patient, during this time, may have tolerably good health, but he is more than usually liable to vomiting and biliary derangement, as well as to slight febrile attacks, which are apt to be attributed to malarial influence. During these attacks, the rash assumes a more vivid and distinct appearance, and dispels all doubt, if any existed, as to the nature of the patient's complaint. These repetitions of febrile disturbance are, doubtless, efforts of nature to expel poisonous matter from the system; and it is sometimes observed that, immediately after them, more or less of the diseased element has been deposited on the surface membranes, as additional discoloured spots or small tubercles. The insidious manner in which the disease sometimes makes its appearance, and the occasionally slow and chronic progress of the specific eruption, are matters to be borne in mind, not only with reference to the medical treatment of the patient himself, but also for the guidance of those who may be connected with him.

In such circumstances, the individual, perhaps unaware of the grave character of his impending disease, might desire to form a marriage connection, or to effect an insurance on his life; and then upon the medical adviser would devolve the delicate duty of standing between two parties, so that no misfortune might accrue in the one case, or loss in the other.

In the case of a young man who was under my observation about

three years, a few discoloured spots were not sufficient to impress the patient or his friends with the seriousness of their indication. They were not very distinct or well-marked, but were unequivocal to an experienced eye; they were seated on the back, nates, and thighs, and on the dorsal surface of two or three fingers, producing in the latter situation an appearance like very slight chill-blains. The health was unimpaired; the face was free from spots, and the physiognomy was unaltered. The patient was not told that leprosy was threatening, lest the knowledge might have operated prejudicially upon him; but it was afterwards matter of regret that such information had not been communicated, for he married eventually without my knowledge, and soon afterwards the disease declared itself in a more decided manner.

When the morbid matter of leprosy is effused in the tissue of the skin, it first produces derangement of the innervation, and of the secretory actions of the part, and ultimately effects a partial or complete disorganization of the texture. Thus the exanthematous spot is impaired in sensibility; it is discoloured, and its cuticular covering is imperfectly formed, from interrupted secretion of the surface layer of the dermis; it feels dry and rough, from diminution of the sudoriferous and sebaceous exudations; and its hair falls off, from destruction of the hair bulbs. The spot is transformed subsequently into a persistent elevation, from accumulation and solidification of the deposition; or it is left depressed, of a bluish-white colour, and destitute of sensibility, if the adventitious matter is removed by absorption or by ulceration. In the mucous membrane, the morbid depositions produce similar effects. Thus, in the beginning of the disease, the voice is hoarse and nasal, from swelling and perverted secretion of the membrane which lines the fauces and trachea and nasal cavities; and as the complaint progresses, the membrane is disorganized; it softens and ulcerates in the seat of the deposits, and in this way the cartilages and bones of the nasal cavities, and the uvula, epiglottis, and glottis are destroyed, partially or completely.

The teeth do not suffer; receiving their nutritive supply from the maxillary bones, they escape the morbid influence, for the leprosy deposit does not invade the osseous tissue. The destruction of the palate bones, and those situated in the nasal cavities, might appear an exception to this law; but these bones lose their vitality through the dissolution of the mucous membrane which envelopes them, and which is essential to their nutrition.

In the cutaneous surface of the body, the force of the morbid deposit falls chiefly on the face, and it is there that it assumes, most distinctly, the solidity and bulk of a tubercular swelling. Tubercles occur on the hands and on other parts of the integument, but these do not acquire so great a size and consistence.

The facial tubercles form in the chin and lips, in the *alæ nasi*, eyelids, and eyebrows, in the cheeks, and in the external ears, and

cause necessarily a horrible deformation of the countenance. A tubercle, when isolated and circumscribed, is seldom larger than an olive, and they do not attain generally even that size, but occasionally they increase to a bulk equal to that of a pigeon's egg. They are hard and solid, and are embedded in the tissue of the corium, with an attenuated and fine layer of the dermis as their external covering. I have sometimes excised them from the living face without pain, and with scarcely any effusion of blood; yet it seems probable that they acquire sometimes a feeble organization, and undergo, in some measure, the processes of waste and repair, their nutrition being maintained by successive supplies of albuminous matter from the blood. When leprosy has reached this stage, the patient's case may be regarded as hopeless. Portions of the tubercles may be removed occasionally by softening and ulceration, but this has no effect in lessening their general accumulation, and the deformity which they occasion remains through life.

However, in some rare cases, nature has proved adequate to expel the disease, and to remove the tubercles at the same time. In one such case, which was under my own care, and the history of which I subjoin, the cure was accomplished through the intervention of an inflammatory condition of the whole integument of the body—a condition which resulted in a great increase of the natural plastic or cuticle-forming secretion of the dermis.

CASE.

E. P., age 32, of white race, and a native of the island, was in my employment as dispenser of medicines. In the spring of the year, a disposition to leprosy was shown by the eruption of discoloured spots on various parts of the body, and by a dull and heavy appearance of the eyes, which is pathognomonic of the disease. The nature of his complaint becoming apparent to the public, he was obliged to leave my service. In eight or nine months thereafter, the face was occupied by tubercular swellings, the voice was coarse and nasal, and the hands and feet were benumbed, turgid, and bloated, from morbid infiltration of their integumentary covering. The hair of the face dropt out, and the countenance began to assume the aspect of the *Vultus Leonis*.

An ulcer formed in the centre of the sole of both feet, which led down to the metatarsal bones, by an opening that admitted the little finger; the orifices discharged a foul, viscous, greenish-yellow secretion, and their edges were hard and very painful. These prevented his walking or standing with comfort, and he became bedridden. Although his case appeared hopeless, I called to see him from time to time; and after he had been in this deplorable condition for rather more than half a year, a new symptom arose. The skin of the entire body became painful, red, and hot, and there were some slight indications of sympathetic disturbance generally. The integument bore the appearance of a general erysipelas, and the weight of the body

was disagreeable and painful to the parts pressed upon in lying. He desired to be bled, and about twelve ounces were taken from the arm. The blood had a loose clot, and had not the appearances which are supposed to indicate inflammatory action. The vascular excitement of the surface lasted a fortnight, when it began to subside; and with its declension, there was extensive epidermic desquamation, and this was so profuse and universal, that nearly the entire body received a new cuticular covering. The exuviation, in some places, was in large and successive laminæ, and there was evidently a great increase in the natural secretion of the dermic surface. During this process, the tubercular elevations disappeared from the face, and from every other part of the surface, the skin being left with slight scars and cicatrices, tender in some places, and rather insensible in others. The deep sinuous ulcers on the bottom of the feet granulated and cicatrized, and the voice regained in great measure its natural tone. The beard, eyelashes, and eyebrows were not restored, so that he retained the morbid peculiarity of his expression, which was increased by the dry and bleached-like condition of the face, from want of the unctuous exudation of the sebaceous follicles; but he was relieved of the disease, and was able soon afterwards to undertake the duties of a government situation, which he held for some years, and during that time there was no tendency to a relapse. He left the island eventually, so that I am unable to trace his history farther. In this case, there can be no doubt that the morbid depositions were dissolved, and the poison eliminated by means of a congestive inflammation of the dermis; and the case seems to suggest that portion of the body as the emunctory, to which remedial efforts should be directed.

In the microscopic examinations of the blood that have been made in the early stages of leprosy, I am not aware that any peculiarity has been observed in the constitution of this fluid; but in the advanced period of the disease, the condition of leucocythæmia or white-cell blood, as described by Professor Bennett, is very common, and is, perhaps, a universal occurrence; but as such patients are affected, more or less, by organic and glandular disease, this peculiar state of the blood is probably rather a consequence of the disease than an early agent in its development.

ANÆSTHETIC LEPROSY.

I shall now speak of anæsthetic or joint leprosy; and, in doing so, will describe it, for convenience, as it affects the hands, the symptoms of it in the feet being similar.

The earliest symptoms by which we recognise this form of the disease are, firstly, pains which shoot in the course of the nerves of the limb; secondly, atrophy of the extremity; thirdly, anæsthesia in its integumentary covering; and fourthly, a succession of bullæ, or large vesicular eruptions, on the distal parts of the member. The anæsthesia is the symptom which first attracts the patient's attention,

or rather, which causes him to seek medical advice. It may involve the whole surface of the hand; but in the beginning of the disease, it is seldom diffused so extensively, but exists in patches or portions of greater or less extent. It may be confined to one or two fingers, or it may involve likewise a corresponding portion of the hand, or it may be as a circumscribed patch on either surface of the hand or forearm. As the disease progresses, a peculiar change occurs in the position of the fingers, by which the two distal phalanges are flexed permanently towards the palm, while the proximal phalanges are maintained in the position of extension. With this, there is wasting of the muscles, and of the adipose and fibrous tissues, causing an attenuated condition of the whole extremity. Writers on the disease mention atrophy of the proper muscles of the thumb as a pathognomonic symptom; but this group of muscles is not affected alone, but those of the whole extremity, from the shoulder downwards, share in the atrophic condition, and this commences from an early stage of the disease, and before disuse of the limb could be instrumental in inducing it. The change of position in the fingers, by which they are partly flexed, and partly extended at the same time, has been attributed, rather vaguely, to a loss of balance in the muscular powers of the limb; but evidently this symptom does not depend on any group of muscles being overpowered by their antagonists, for in that case all the joints of the finger would assume a uniform inclination. It seems rather to arise from the morbid deposition being in contact with the several nerve branches of the limb, and producing in them an amount of irritation sufficient to cause some degree of permanent contractility in all the muscles that receive their nerve supply from an affected source.

Having noticed the earliest essential symptoms of anæsthetic leprosy, I will next relate a case of it, which may be taken as a type or example of the disease in its commencement.

M. B., aged 26, applied to me in June 1856.—Is the mother of three children, the youngest having been born in August 1855. Has a healthy appearance, and has never suffered any previous illness. First perceived a weakness and numbness in the right fore-finger in August 1855, preventing the free use of the needle in sewing. In December, began to suffer pain in the wrist and hand, which continues. The pain shoots downwards to the extremity of the fingers. The hand is weak and deficient in prehensile power, but the fingers are supple and flexible when handled. The muscles of the palm are considerably wasted, giving the hand an attenuated and flattened appearance. There is complete anæsthesia of the dorsal surface of the hand and of the lower fourth of the forearm. On the palmar aspect the insensibility is incomplete, except in the fore-finger and thumb, which are entirely void of sensation. There is no intumescence or discoloration on any part of the limb, but on the back of the first phalanx of the thumb there is a bulla which occupies the whole length of the bone, and contains a turbid viscid serosity. Com-

plaints of a feeling of coldness from the elbow to the ends of the fingers. Has no numbness or anything abnormal in any other part of the body. The measurement of the arm, at the insertion of the deltoid, is $8\frac{1}{2}$ inches in circumference; in the sound arm it is 9 inches. Below the elbow-joint, the diseased arm is 8 inches; the sound arm $8\frac{3}{4}$ inches. The ulnar nerve, when examined where it lies between the internal tuberosity of the humerus and olecranon, is about triple its natural size; and the musculo-spiral nerve, which can be felt readily where it courses round the humerus, is thickened similarly.

The atrophy and anæsthesia in this disease arise from interruption of nervous supply, and the effusive matter of the bullæ may be viewed as a safety-valve of nature, by which portions of the morbid element are eliminated from time to time. The vesicular eruption is generally single, but forms successively, and rises quickly like an ordinary vesication. It contains a brownish or a greenish-yellow fluid, on the discharge of which the cuticle collapses, and, becoming thickened by additions of viscous exudation from the raw surface, it forms a crust over the abrasion. The vesications appear from time to time, until the portion of skin on which they are seated festers and ulcerates, and in this way the tissue of the cutis is destroyed. The skin of the finger being attacked in this manner, an opening is formed which leads down to the phalanx. The ulcerative action being now established, the bones, with the other constituent parts of the fingers, are destroyed by a very slow and gradual process, which advances upwards, and removes the several joints in succession, but seldom proceeds deeper than the metacarpo-phalangeal articulation, or the middle of the metacarpus. This mutilating process progresses so slowly, that it takes usually a great number of years for its completion, and it may be terminated only by the death of the patient; but sometimes the disease is expended, and a cure is effected, and then the ulcerated surfaces become firmly and completely healed.

At whatever point of the skeleton the disease be arrested, whether at a joint or in the middle of a bone, nature always furnishes an ample soft covering for the defence of the osseous surfaces; and so thoroughly is this accomplished, that leprous amputation will always bear comparison with the most finished performance of the surgeon. It is also remarkable that a trace or vestige of the nail formation often remains on the face of each phalangeal stump; and even when the disease has removed a portion of the metacarpal bones, the vestiges of these horny appendages are still observable in many cases. In these instances, the skin which forms the nail matrix is not entirely destroyed; a remnant is left which preserves its secreting action, and is drawn gradually backwards until it comes in contiguity with the second phalanx, or with the first, or with the end of the metacarpal bone; the transposition being effected by the shrinking of the intervening skin. The preservation of a portion of the nail follicle is demonstrative of the manner in which the mutilation of the hand is chiefly accomplished. The soft tissues are destroyed, partly by ulcerative and partly by inter-

stitial absorption, and the bones are removed partly by these processes and partly by necrosis; but interstitial absorption performs an important part in the mutilation.¹ We have seen already, that wasting of the muscles is an early and essential symptom, and the same cause which produces their atrophy, operates with like effect on all the other constituent tissues of the member; and hence it is, that in the course of the disease, and before ulceration has removed any portion of the surface textures, the entire hand is found to be lessened in bulk. The flexor tendons in the palm are prominently visible through the attenuated tissues that cover them, and the fingers are thin, conical, and shortened; they are also rigidly contracted, not by muscular action, as in the commencement of the disease, but from loss of substance and shrinking of the fibrous and other textures which enter into their formation. When the osseous texture of the finger has been exposed, small pieces of bone crumble away from time to time, or necrosed exfoliations of greater size may be separated, but it is rare that one of the phalanges is detached entire; I myself have not seen an instance of it.

The absorption of the soft parts proceeds *pari passu* with the destruction of the skeleton, but the former process does not overstep the latter, so that a sufficiency of soft parts is left to furnish a covering for the bones in the event of the morbid actions being arrested. In this form of leprosy, the primary seat of the morbid effusion is the spinal nerves which supply the extremities, and the disease may continue many years without the implication, or at least without the injury, of the more central portions of the nervous system; but after a long continuance of the local malady, and if the disease is not thrown off, the albuminous matter is effused within the vertebral canal and cranial cavity, and, invading the exterior of the organs therein contained, it produces a farther train of morbid phenomena,

¹ When the distal joint of a finger has been removed by sphacelus, or by the knife of a surgeon, there is no attempt made to reproduce the nail, for no other portion of the skin can secrete this appendage but that which originally received the vital endowment to do so. A few exceptions to this law have been recorded, but, in all these instances, we believe that a portion of the nail matrix had been left in the flap. Dr Keiller has pointed out to me an analogy between the leprous mutilation of the extremities, and certain congenital deficiencies, in which a portion of an imperfectly developed hand or foot is affixed to the central or to the upper part of the arm or leg—the intermediate portion of the limb being absent. Probably, many cases of what is termed spontaneous amputation of the limbs of the fœtus in utero, are not really amputations, but examples of arrestment of the development of the limbs at a particular point. The fleshy appendage which is attached to the end of the stump in such cases, and which often contains rudimentary fingers with the nails, is probably the original fetal hand or foot, and not a new formation or reproduction of the member.

In the *Cyclopædia of Anatomy and Physiology*, under the head Teratology, a case is figured and described, in which the hands are attached immediately to the shoulders and the feet to the hips. If such a transposition of the fully developed hands and feet can occur in the fœtus, we may infer that a similar occurrence may take place with these members in an early stage of their evolution.

which is evinced by more or less insensibility and atrophy of the surface tissues of the body generally, but of the face and extremities particularly.

The morbid element of joint leprosy is a viscous glairy exudation of a yellowish-white colour, and not so opaque and granular as the matter of the tubercular variety. It is effused within the neurolemmal sheath, and occupies the meshes of the cellular membrane which surrounds and accompanies the several nerve fasciculi. Being confined within the common sheath, the deposition is injected minutely along the nerve branch, increasing the diameter of the tube, and interrupting the transmission of its electric current. The nerve then swells and increases in thickness, but without much change in its shape or form, and the deposition may be in sufficient quantity to enlarge it to the double or triple of its natural diameter. Thus, I have found the great nerve branches of the arm as large as the little finger, and this abnormal condition may be ascertained, sometimes during life, as applying to all the main branches; but the ulnar is that which, from its superficial and isolated position, is most readily examined in the living body. All the nerve branches of the limb are not invaded simultaneously by the morbid deposition, and the position and extent of the anæsthetic patches indicate the particular ramifications which are primarily involved. Thus, when the insensibility is limited to the ring and little fingers, and a corresponding division of the hand, the ulnar nerve is affected chiefly; and where the anæsthesia is circumscribed in the thumb or radial side of the hand, the musculo-spiral branch is the principal seat of the effusion. It is uncertain to what extent the nerve fibrils are organically injured by the morbid matter which invades them. In the more distal or extreme parts of the limb, and particularly on the surface, the minute filaments are doubtless destroyed; but when the larger branches or trunks are relieved of the adventitious matter by absorption, they recover their functions in a great degree; thus, I have seen in some cases of recovery, that there was not only a reduction of the nerves to their natural size, but also a restoration of sensibility in the mutilated extremity. At a late, but very indefinite period of joint leprosy, farther indications of constitutional suffering appear, or, in other words, evidence is afforded of the invasion of the cerebro-spinal axis by the morbid depositions. The skin of the legs and of the upper arms becomes dry and harsh, it loses its natural softness, and becomes partially or completely insensible. The integumentary covering of the trunk is not affected in so great a degree; but it is in the face that the morbid action is most strikingly displayed. The facial mucous membrane, in its whole extent, acquires a pale or dirty white colour, and the integument of the face becomes atrophied and shrunk, the adipose tissue subjacent is absorbed, and the muscles of expression are wasted, and lose their power of contractility, partially or completely. The lower eyelids are everted, partly by shrinking of the skin of the cheek, and partly by paralysis of the orbicular muscle. The under

lip is everted from the same cause, and the patient may so far lose command over the muscles concerned, as to be unable to blow a trumpet, or to distend the cheeks with air. The skin loses its sensibility, and the secretion of pigment is so much deranged, that, in the white race, the face has a tawny colour, and in the negro, a brown tint. The mucous membrane also becomes more or less insensible, and the *tunica conjunctiva* is dry, partly from diminution of its own secretion, and partly from interruption of the secreting action of the lachrymal gland. The motor muscles of the eyeball being in like manner affected, the rotatory movements of the globe are curtailed. This gives the eyes a fixed, heavy, dull expression, which forms one of the most striking points in the physiognomy of the leper.

The cornea also loses its transparency, and becomes more or less opaque; and sometimes, though very rarely, the whole visual apparatus is atrophied, and vision is lost. In both forms of leprosy, the cornea is liable to become nebulous; the opacity being caused in one case by perverted nutrition, and in the other by mechanical irritation, maintained by a thickened state of the palpebral conjunctiva. As these changes progress, the countenance acquires an emaciated and collapsed expression, with a loose fold depending from the cheeks, from paralysis of the *buccinator* and adjoining muscles. I have not seen this class of morbid changes go farther, and it is not always that they proceed to the degree just described; the hair on the face rarely falls out, the palate is not destroyed, the voice is not lost, and the nose does not fall in. The patient is dull and dejected, but the organic functions may be but little impaired; and he generally endures the disease a great number of years, or he may get relieved of it, and survive long after its disappearance, bearing no trace of former illness except the mutilation of the members, and the leprosy expression of the features, which is never lost. In the case of a negress, aged 55, a period of fifteen years has now elapsed since the cessation of the disease, and her health since then has continued good. Both feet have been removed through the metatarsus, and all the fingers and the thumb of both hands at the metacarpal joint; yet she is able to work, and earns a livelihood chiefly as a washerwoman.

In another case, where the destruction of the extremities has been equally extensive, the patient has reached the age of eighty, and preserves good health. I could not ascertain how many years have elapsed since the cessation of the disease in this case, but am led, from my inquiries, to believe that she has survived the affliction by nearly a half of her present age. The alteration of the features, and the loss of sensibility in the surface of the body and limbs, which occur in the advanced stage of this form of leprosy, are explained by the morbid condition of the cerebro-spinal axis. In fatal cases, it is found that an albuminous deposition has invaded the vertebral canal and the cranial cavity. In the former situation, it is effused in layers

or in masses, in the subarachnoid tissue, particularly in the cervical and lumbar regions, and occupies chiefly the posterior aspect of the chord; and this probably accounts for the fact, that the sensific power in leprosy is always much more impaired than the motive. In the cavity of the head, the deposition occupies the same relative position to the membranes, and is found chiefly at the base of the brain, in the form of layers or of isolated masses. Involving and compressing the several nerves as they leave the brain, the morbid effusion so far affects their integrity, as to produce enervation and atrophy in all the parts to which they are distributed; and as all the cerebral nerves, with the exception of the eighth pair, are ramified chiefly in the textures of the face, we perceive the reason why a transformation of the countenance appears in the advanced stage of anæsthetic leprosy. But the metamorphosis is very different from that which occurs in the other form of the disease; in the former, it is characterized by enervation and atrophy of the facial membranes; in the latter, by adventitious deposits and disintegration of these textures.

TREATMENT.

Several articles of the *Materia Medica*, mineral, vegetable, and animal, have been recommended by different writers as specific remedies in the treatment of leprosy, and it has been supposed that the efficacy of the internal remedies is increased by association with baths or lotions in which medicinal substances are dissolved. Arsenic, iodine, bromine, and cod-liver oil, are those which have been mentioned with most confidence; but in my hands they have all proved comparatively useless, and I have not met personally with any practitioner who could produce any good evidence of their utility. Arsenic, in particular, has been much extolled by some practitioners, who have viewed it almost in the light of a specific; but I am convinced, from experience, that it has no curative power, and it has probably received its unmerited reputation from the mistake which many have committed in confounding the disease in question with the scaly *lepra*, in which this medicine is a sovereign remedy. That disease, it is scarcely necessary to say, has no connection whatever with leprosy, except in the name; and it would be better to discard the term *lepra* altogether, and describe the disease as a *psoriasis*, of which it is a variety. The learned and illustrious author of the Medical Dictionary has already done so; and this change in nosology is very proper, for leprosy has no pathological connection with any other disease, but stands by itself, and is *sui generis* as much as *yellow fever* or *cholera pestilence*. Alibert, and other dermatologists, are in error in grouping this affection with diseases to which it has no relationship.

To return. From the great power of the iodide of potassium over pains situated in the fibrous tissue, this substance is oftentimes of considerable use in alleviating the neuralgic suffering which occurs

more particularly in joint leprosy; and from the ready manner in which this salt enters the circulation, and increases some of the secretions, it is a suitable medicine to employ in both forms of the disease. It may be given in a dose of one or two grains three times a day, and it acts most beneficially when it is largely diluted, and taken in quantities not greater than those now specified.

The *lignum vitæ* (*guaiacum officinale*) produces an effect on the constitution very similar to that of the iodide of potassium, and the one may be given alternately with the other; and I may remark that a decoction of the leaves and twigs of this tree is far more powerful and efficacious than any preparation of the gum or of the wood, beside being much more agreeable to take. Neither the iodine nor the *guaiacum* possess any title to the rank of specific remedies, but they are both serviceable in lessening uneasy sensations, and in aiding the depuration of the blood. From the trials which I have made with the preparations of bromine, I consider this substance inferior to iodine as a therapeutic agent, and not so eligible in leprosy.

It was hoped that the cod-liver oil might prove beneficial in this disease, from its well-known effect in *tuberculosis*, the deposition in both cases being the result, apparently, of a *dyscrasia* of the blood; but the assimilation of the food, and the nutritive functions, are not interrupted in leprosy, as they are in *tuberculosis*, and there is no real resemblance between the two affections. In several patients where I have given this medicine a fair trial, no apparent benefit has accrued.

I have no experience of certain vegetable articles which have been recommended as specifics by practitioners stationed in different quarters of the world, and will only say, that although the medical press has noticed, from time to time, new and trustworthy remedies from the vegetable kingdom, it is evident that no such article has as yet been discovered; and I may be allowed to remark, that the confidence is surprising with which new remedies, and new therapeutic measures, are sometimes submitted to the profession. "There are two errors," says Dr Abercrombie, "which will probably be admitted to have been frequent in medical reasonings, and to have had no inconsiderable influence in retarding the progress of medical science; the one is, the construction of hypothetical theories, or the assumption of principles which are altogether gratuitous and imaginary; the other is, the deduction of general principles, or conclusions, from a limited number of facts. Doctrines of the former class may be considered as almost independent of observation; and those of the latter kind, though they have an apparent foundation of facts, are framed without due inquiry whether these facts are universal." Had the spirit of this remark been more generally recognised, we should have heard less of specifics for the cure of leprosy; for the question of its treatment is not to be settled by the recovery of one or more patients under the use of a certain medicine; this can be determined only by ascertaining whether a greater number of the sick recover by one

mode of treatment than by another, and what proportion are cured when the disease is left to nature alone. In leprosy, as with several other diseases, patients may get well under the most opposite methods of treatment, and sometimes without medical interference; and so long as the relative proportion of the recoveries is nearly alike, or not very different, it is vain to claim credit for a salutary result which is properly due to nature only.

I have found dietetic regulations as unsatisfactory as the employment of medicines; and whether the leper lived on a diet exclusively vegetable, or almost exclusively animal, it was the same as regards any decided influence on the disease. The substance which has appeared to me to exert most power as a remedial agent, is water applied to the whole surface of the body for an hour or more daily, and continued in this way for several months. I have seen this remedy have a decidedly good effect in a few cases where the disease was not far advanced. In some of these, the discoloured marks on the body and face, and the benumbed and swollen condition of the extremities, disappeared under its use. In other cases, I have been disappointed with it, perhaps from the patients' not practising it with sufficient perseverance. The changes in leprosy, whether beneficial or otherwise, are slow and gradual; and the leper is too apt to abandon the use of any remedy from which he does not observe a speedy improvement. Be this as it may, it seems rational to direct our remedial efforts to the skin, in the absence of any known antidote to the poison. It is there that the *materies morbi* is primarily determined in the tubercular form of the disease; and, doubtless, the extensive surface of the skin affords an emunctory by which morbid matter in the blood may be more readily and safely eliminated than can be effected through any other channel.

In confirmed cases, to which the old saying, "*Elephantiasis confirmata non curatur*," is still applicable, much palliative benefit is obtainable from morphia; administered at bed-time as an anodyne, it allays pain, procures sleep, and renders existence more tolerable. Some lepers have taken it in this way, uninterruptedly, for a long series of years. I have observed that some practitioners who have had to deal with this disease, practise blood-letting, general or topical, as a curative means; and lepers themselves often solicit it, in the hope of obtaining relief from their uneasy sensations. But as this operation can only remove as much poison as is contained in the blood extracted, it is evident that it can have no curative influence so long as the poison retains the power of multiplying itself in the blood.

The treatment of this disease lies still open for future inquiry; and, in the present state of knowledge, it seems best to employ an expectant treatment, and to rest satisfied with an endeavour to maintain the *vis vitæ*, and to promote the secretions, particularly those of the skin. It seems better to do so than to employ active medicines empirically, or to abstract from the body successive quantities of its

vital fluid, in the delusive expectation of eliminating the poison in that way. In joint leprosy, I have sometimes inserted one or two setons in the limb, thinking that they might act as depuratory outlets, by which leprous matter might escape. In some cases, the patients have thought that this measure diminished the heavy and benumbed sensation in the extremity, but I do not know that any further good resulted from their employment. In this form of the disease, it is proper to watch for the appearance of symptoms which are indicative of morbid depositions on the cerebro-spinal axis; and should they occur, a seton in the neck, and dry cupping in the cervical and lumbar regions of the spine, seem to be the most likely means of averting mischief.

PLATE I. FIG. 1.—Face of a man, aged 21, affected with tubercular leprosy nine years. Drawn from nature by Mr Parry, an accomplished native artist.

FIG. 2 represents the anæsthetic leprosy in its advanced stage. Copied from the plates of Drs Daniellsen and Boeck.

PLATE II. FIG. 1.—Representation of the hand in tubercular leprosy, taken from the patient sketched in Plate 1, Fig. 1.

FIG. 2.—Dorsal view of the hand in anæsthetic leprosy, where the disease has been arrested in the proximal phalanges.

FIG. 3.—Dorsal view of the hand in anæsthetic leprosy, where the disease has removed the textures up to the metacarpo-phalangeal joints.

FIG. 4.—Palmar view of the hand in anæsthetic leprosy, in which a portion of the metacarpus has been removed.

FIG. 5.—Foot in anæsthetic leprosy, where the disease has ceased after the destruction of the toes.

FIG. 6.—Foot in anæsthetic leprosy, where a portion of the metatarsus has been removed, the disease having left this patient about forty years ago.

ARTICLE III.—*Note¹ to the Lecture on Blood-letting, formerly published.* By THOMAS WATSON, M.D., Cantab., Consulting Physician to King's College Hospital, etc. etc.

THE principles laid down in the foregoing lecture have, even while these pages are passing through the press, been arraigned as unsound and fallacious by a physician whose eminence compels attention and respect to every deliberate expression of his opinions. When no less a person than the Professor of the Institutes of Medicine in the University of Edinburgh proclaims his belief that, with respect to internal inflammations, “the principles on which blood-letting and antiphlogistic remedies have hitherto been practised, are opposed to a sound pathology,” I, who, for one, still adhere, from conviction, to the same principles which I have formerly taught, can scarcely help taking upon

¹ This note was forwarded to Dr Bennett by Dr Watson, who wrote it when correcting the forthcoming new edition of his work on the “Practice of Physic,” and is, with the consent of the author, now published. Figures have been added to the paragraphs, with a view of preventing unnecessary repetition in the reply of Dr Bennett, which follows.