REMARKS ON SOME FACTS ILLUSTRATING THE EARLY STAGES OF LEPROSY.

By JONATHAN HUTCHINSON, F.R.S., LL.D.,
President of the Royal College of Surgeons.

IN the search after the cause of leprosy the study of its earliest stages becomes of much importance. Is it possible, by observation of its initial lesion (if it has an initial lesion) to infer anything as to the means by which the bacillus gains entrance to the body? All our popular notions of the disease are derived from examples or representations of its latest stages. I know but very few portraits or photographs which even profess to show the earliest symptoms, and none which show it well. In the living subject it is difficult of diagnosis, and would never be suspected excepting by skilled observers. When I was in Norway I remember well being struck by seeing in the leper hospitals children who appeared to me to be perfectly well. On asking to be shown the means by which identification was arrived at, little brown scaly patches on the limbs were pointed out, which were anæsthetic in their centres. Sometimes a child had only a single patch of this kind. At that time—it is more than fifteen years ago—endeavours were being made in the United States to prevent the ingress of Norwegian lepers, and all immigrants from Norway were inspected before they were allowed to land. "But," said my Bergen friend, "they only recognise bad forms, and those but seldom go over; they don't know such cases as these."

The lesions of leprosy chiefly concern the skin and the nerve trunks. We may, I think, take it as certain, for all observers agree in this, that the disease usually begins in the skin, and from the skin passes as an ascending neuritis up the nerve trunks. It is of great importance to know, however, whether this is invariable, and whether there are any cases in which it begins in nerve trunks and produces skin phenomena subsequently. If there are any such they are admittedly rare. It is next of much interest to ask whether the early phenomena of leprosy are such as to suggest local or general infection. Do they occur symmetrically or singly, and if single and local, is there ever any reason to believe that the poison has been implanted on the surface? Is there ever any primary lesion in the sense that a chancre is the primary lesion of syphilis? The cases which I have to record have been observed with especial reference to these questions. They contain, also, some valuable information as to the rate of progress and duration of the different stages. By demonstrating the occurrence of the different symptoms, brown patches, erythema, tubercles, anæsthesia and nerve lesions, all in the same patient, they also sufficiently confute the notion that there are various forms of leprosy. All cases are, if you observe them long enough—that is in all their stages—of the mixed form. Leprosy is invariably one and the same malady.

Case of Leprosy in which slightly marked Diffuse Erythema was the First Symptom.—A case of leprosy which was brought to me by Dr. A., of Jamaica, differed from most that I have seen in the exceedingly ill-marked and superficial character of the erythema. It was, indeed, so ill-marked that Dr. Anderson, himself well experienced in the disease, had felt some little doubt as to the diagnosis. The patient was of dark complexion, inheriting, in fact, a slight admixture of dark blood. It was impossible to define the areas which had become more dusky in consequence of the disease. They were very large, and involved almost the whole surface of the extremities and neck; possibly also the trunk, but I had no opportunity of examining it. The face was not affected, at least not in any material degree. The skin was not thickened, but had simply become browner than natural. In one or two places a slightly scaly condition, like an ill-margined psoriasis patch, had been produced, but these were very few. This condition was attended by a diminution of sensibility in all the extremities. She had put her feet into hot water,

and scalded one of them so that it blistered, not being able to estimate the temperature properly. The pulps of all her fingers had wasted, leaving them tapered, or almost pointed. This condition was more observable in some fingers than in others. Around the roots of the nails little vesicles and pustules had formed repeatedly. She could, however, use her fingers tolerably well, and there was no obvious wasting of muscles (I did not test them by electricity). There was no special numbness of the ulnar nerve region in either hand, but the middle finger was in one hand decidedly more numb than the rest. I have no doubt that the numbness was due to the state of the skin, and not to any disease of the nerve trunks. On some parts of the neck there were similar areas of white, looking exactly like those of leucoderma. These patches were almost, but not completely, anæsthetic. I might have said that in the middle finger mentioned a pin could be thrust deeply without her feeling it at all. The white patches mentioned on the neck were so inconspicuous that they would not have been noticed unless specially looked for.

Our patient was aged 25. She was stout, and had the appearance of good health. She had been born in Jamaica, but there was no hereditary history of leprosy. She had been accustomed to eat fish, both salt and fresh, moderately. Dr. A., of K., who came with her, told me that in his practice leprosy was especially common in the Jews, and that they eat fish much more freely than the Christians.

March 28th, 1887. She is about to return to Jamaica. It is four months since my previous notes. The dusky erythema has spread rather rapidly over her face and hands; it is attended by very little swelling. The hands are dusky brown, and dry all over, the condition being most marked in the fingers. Patches extend up the forearms, which have definite margins, but very little thickening. The middle finger of the right hand feels, she says, heavy and numb, otherwise no parts of the fingers are anæsthetic. The conditions are fairly symmetrical.

Erythema of the Extremities, possibly preceded by Patches, the Earliest Symptom: Almost Simultaneous Occurrence on all the Extremities: Possible Error in Patient's Observation: Interval of Several Years since Patient's Residence in Leprous District before the Beginning of the Disease.—The subject of the following narrative is at present under my observation, and has been so for the last six months. He had previously attended at several hospitals, with a diagnosis of peripheral neuritis. His case is at first sight an example of the disease beginning as a symmetrical and very diffuse erythema of all four extremities. Both his hands are dusky and slightly puffy. The duskeness varies in tint at different times, excepting in being a little dry, especially in the palms; the skin of these parts presents no alteration in structure. On tracing the erythema upwards it ends about a hand's breadth above each wrist by an irregular but tolerably definite line. Wherever the erythema is there the skin is definitely numb, but it is nowhere quite anæsthetic. On the fronts of both elbows there are groups of yellow-brown patches, about as large as half-crowns, not in the least raised, and not in the least scaly. There are similar patches on the backs of the forearms and backs of the elbows. All these patches are more or less anæsthetic in their centres, the anæsthesia appearing to vary with the duration of the patch and the degree of whiteness of the centre. On the lower extremities the conditions are somewhat different, for the erythema is here not diffuse, but the condition is one of dark brown patches, which are pigmented rather than congested, and between which the skin retains its natural condition. All these patches are anæsthetic in their centres. There are groups of patches on the fronts of the knees, exactly like those described on the elbows. On the trunk, with the exception of a very few indefinite brown stains, there are no marked changes, nor are there any on his head or face. Some who saw him fancied that there were stains on the forehead. The ulnar nerves are enlarged. His hands are numb and somewhat helpless. His own remark is, "I can use my fingers provided I can see them, but if I cannot see them I cannot do anything." His history is exceptional, for he had been at least ten years in England before he recognised the disease. He is a man of 44, with the appearance of good health, and strong. He was born in Germany, but served in the English army in Burmah, India, and Abyssinia from the age of 22 to 32. He returned from Bangalore in 1878, and has not since that date lived out of England. When abroad he had good health, with the exception of syphilis, both primary and secondary, possibly more than once. He first noticed symptoms of his present affection not more than a year ago, and he began

to suffer from numbness of his fingers and inability to write well. It was diagnosed as rheumatic gout, and he was sent to Bath. At this time he had a good deal of pricking pain in the hands.

Leprosy beginning as Dusky Patches on one Foot, and next Affecting the other: Subsequently Patches on the Face.—March 3rd, 1882. A peculiar feature in this case is that the disease began on the feet, and for some time did not affect other parts. He has now many patches on legs and feet of both limbs, looking exactly like very superficial non-ulcerating lupus. He has no manifestations of the disease in other parts, excepting on the face, where during the last eighteen months a few dusky patches have appeared. These have now so much subsided as to be scarcely seen, and they have not left much anaesthesia. One only is definitely numb. They are not quite symmetrically placed, but almost so. None are round, but rather in ovals, the margins being indefinite. They are not now in the least raised, but he says that they were so formerly.

Mr. H. is aged 21; he is probably of remote Indian descent (on his grandmother's side). He was born in Calcutta. He lived fourteen years in Calcutta, and there went to Mussurie (to school) a Hill station, and subsequently (aged 18) returned to Calcutta. He knows nothing of leprosy in the family before. He has two brothers and two sisters quite healthy. At Calcutta he ate fish, usually once a day when in season (that is during cold weather), "mango" and "Bakty." He says that these fish are eaten by everyone for breakfast; prawn currie was also much eaten. In September, 1879, he found that his right foot was numb, and that he could not move the toes. No discoloration was noticed till a month later. A feature of great interest in this case was the consequent wasting of a group of muscles in one leg. This was the leg on which the first patches had been observed (the right). In it the extensors of the leg were wasted, and the peronei to some extent. His right calf was wasted and measured only eleven inches in girth, whilst the other was fourteen. The wasting was quite conspicuous, and I had a drawing taken to show it. The history favoured the belief that the neuritis had travelled upwards from the patches on the skin.

Leprosy Case from South Africa: Erythema Patches, the First Stage.—June 15th, 1885. R. —, aged 50, married, ten children. He is a wine farmer, residing in South Africa, 160 miles from Cape Town. He has been three months at the Taiké Hospital, and three at a hydropathic institution. He states that Y., a fellow villager, began before him. He tells me that waggons travel inland with salt fish, and that the villagers buy a good deal. Sometimes they eat salt fish every day for a week, and then not for a month or more. He tells me that there is some leprosy at Wellington and some other places. He thinks that it is not common amongst the natives, and that it is indeed a new disease in South Africa. In him it was first noticed in November, 1883, as erythema patches. He is still, now two years later, in the erythema stage.

Leprosy commencing as an Erythema: Patches on the Legs.—In the following narrative I have unfortunately forgotten to note the dates. The patient was a young lady of English birth, who had lived in Jamaica. January 18th, 1876. The patches on the face are not accurately symmetrical, but on both sides freely present. Here they are ill-margined patches of erythema, without any difference between centre and margin. No degree of anaesthesia. On the legs the patches are much larger, dusky erythema at margins and paler in the middle; anaesthetic in latter. On the feet also the tendency to symmetry is very definite, but exact symmetry is not attained. Some of the patches get the start of the others. Very few and small patches on the body, one or two small ones on the waist, and several on the hips. They occur chiefly on the extremities.

February 2nd, 1880. Four years after the above notes, I heard that Miss B. had returned to Barbadoes, and that she had got rid of the red patches, and was in good health. I had prescribed arsenic, and as I invariably do, had prohibited fish.

Leprosy in Two Brothers of English Parentage, born in Jamaica: No Known Heredity: Erythema Patches on Limbs the First Symptom.—Master G. R., a tall thin lad of 15, was brought to me on May 26th, 1886. He had just come over from Jamaica, where he had been born; he was of English descent, but his mother, like himself, had been born in the island. It was not known that leprosy had ever before occurred in the family until his elder brother was attacked. This elder brother, five or six years older than G., had recently died of the disease after suffering from it severely for about three years. This lad was brought to me for

the purposes of diagnosis. He was as yet in perfectly good health, and had but little external indication of disease. On his cheeks and forehead, however, there were ill-defined dusky patches of erythema, attended by the slightest possible thickening of the parts; these looked exceedingly suspicious. I made him strip, and then found on the backs of both thighs a considerable number of erythematous blotches or patches. Many of these had white areas in their centre. The white condition often covered an area the size of a sixpence or a shilling, and where it was the skin was anaesthetic or nearly so. These erythematous patches were arranged with tolerable symmetry on the two limbs. They were ill-defined and quite without thickening.

I have seen this patient recently, that is, two years after the above notes, and find no material progress. He has taken arsenic continuously and abstained from all fish.

Leprosy in a Father and Child, both English: Commencement in the Father as an Isolated Patch on Shoulder.—May 4th, 1883. Mr. P., aged 48, born in England, of English parents. He has been twenty-seven years in India, having been engaged on the Ganges for six years, from 1856 to 1862; in Allahabad from 1862 to 1868, in Oude from 1868 to 1872, and Scinde from 1872 to 1879. He used to eat fish whenever he could get it, and prawns. A white patch was noticed first on the right shoulder; it was numb. The disease was not then recognised. In 1879 the general outbreak took place. It did not show itself on the face till 1880. It is now (May 4th, 1883) a very severe case. The whole surface is involved in dusky raised patches. The face is much disfigured, the voice husky, and the eyes congested. The ulnar nerves are enlarged. No part is quite anaesthetic, but all are numb. He can judge of heat fairly well. Cold does not suit him. His tongue is lumpy; a number of small roundish lumps are scattered over it, the whole surface being raised and partially bald. His gums are thickened, also the mucous membrane of the cheeks to a slight extent. He speaks of "welts" of thickened skin. The iodide of potassium took away some of these, but did him no other good. He has complained for five or six months of a cold feeling in the back, also of "pins and needles in some parts of the skin." For two or three years he has lost sexual desire and competency, mainly, he thinks, from numbness of the penis. One of his children, a boy of 9, returned to England, and there developed leprosy. He was seen by Sir J. Fyrrer and Mr. Balmanno Squire. He died of "heat apoplexy." No other child has suffered, nor has his wife. His wife was not partial to fish.

August 31st, 1883. He now complains of lack of energy. He can use his interossei well. He has numbness in fingers and heat in outer parts of feet, and is obliged to put the feet out of bed to cool them.

Dr. P. reported in April, 1884, that Mr. P. had had two severe attacks of iritis, and, latterly, sloughs at the bottom of the foot, which have healed. He has returned to India.

Long Continued Restriction of Leprosy Conditions to One Limb: Brown Patches the First Symptom.—The case of A. R., a Bengalee, affords a remarkable example of leprosy restricted to one extremity for a long period, and in this feature is very like that in the boy D., whom I have had under my care for many years, and who has recently died. D. in the first instance was under the treatment of several nerve specialists for paralysis of one ulnar nerve, and I believe that the diagnosis of leprosy was not suspected until I saw him, and this was at least two years after the nerve first became paralysed. He was then beginning to show patches in the skin of various parts, and diffuse general erythema, and finally, about ten years from the beginning, was the subject of the most hideous deformity from the development of tubercles on his face. His eyes, his mouth, and his larynx all suffered, and he finally sank from laryngeal disease. Our present patient, A. R., may possibly be only in the early stage of a disease of similar severity. For the present he has nothing whatever, excepting contractures and numbness of his right hand from disease of the nerves. His ulnar nerve has suffered the most, and there are distinct hollows between the metacarpal bones, but the median is affected also, and the musculo-spiral possibly to some degree. The extensor muscles are the only ones which he can use well. The hand is clawlike, and the fingers bend backwards at the carpo-metacarpal joints. There is general numbness of the whole hand, though most definite on the ulnar nerve regions. His history confirms the belief that the affection of nerve trunks in leprosy is usually secondary to disease of the skin which they supply, and probably travels upwards from the skin. He states that the first symptom was some brown patches on his hand. The same was, I

believe, the fact in the case of the boy D, whom I have mentioned above.

This patient subsequently told me that he was sure that he had had patches on his wrist in boyhood and some years before the weakness of his hand.

Leprosy beginning as Brown Patches on Thighs and Legs.—May 1883 A. —, aged 18, born in Colombo, and has lived there all his life. A year ago first noticed spots on his thighs. He has six brothers, and he is the youngest but two. All the others are healthy. They have lived alike. Fish was abundant and taken freely. He was himself very fond of fish. The disease began as brown patches on his thighs and legs about a year ago. The patches are now large on his thighs, buttocks, and upper extremities; not any on face, excepting a few on ears, and very few on the trunk. The patches are scarcely raised, but are simply dusky, with white areas in the middle. Where the skin has become white it is anæsthetic. The feet are somewhat affected, the left more especially, but the patches are ill-defined, the whole limb being dusky; on the instep of the left foot is some thickening. I detect no numbness. His left leg looks thinner than the other, and its calf measures half an inch less than the other, 12½ to 13 inches.

Leprosy beginning as a Single Patch on One Thigh, which preceded all other Symptoms by several Years.—A gentleman, named —, aged 27, was brought to me in November, 1880, by Dr. Hingston Fox. A papular eruption had quite recently shown itself on his body and limbs, but he had had, so he said, an anæsthetic patch on one thigh for several years. I saw him again in March, 1881. When, two years later still, I saw him for a third time, February, 1883, the conditions of leprosy were well developed. He was of mixed blood; had been born in India. He had suffered from syphilis and also from malaria. He had been fond of a fresh water fish which he knew as "rohu."

On March 31st, 1881, I saw him again, and made the following note: In right hand both ulnar and musculo-spiral nerve are defective, but neither of them quite paralysed; the ulnar is much enlarged. He is covered by an eruption in patches of various size arranged much like psoriasis on face, limbs and trunk; these patches often become confluent. In their centres, when it is receding, the skin is a little numb, but not absolutely anæsthetic; all are brown and desquamating; none are much thickened.

On February 28th, 1883, I made the following notes: It is a good example of loss of sensation in his extremities without loss of motion. He came with the palm of the right hand blistered all over from having taken hold of a hot iron handle, the heat of which he could not feel. He says that the whole of both hands is numb, and equally so in all parts, back and front, but thinks that the ring finger was the last to go. The failure, however, does not appear to have been in the region of any one nerve. The numbness, which involves the whole of the hand, wrist, and lower part of the forearm ends gradually at the elbow and a little above it, but sensation remains imperfect much higher. Here, as in the hand, we cannot distinguish any difference of skin in the distribution of particular nerves. He reports his feet in much the same condition as regards numbness, and on one there is a sore. There is little or no muscular wasting. He can use his hands for most purposes, though clumsily; he states that he could use them well until the last month or two. The skin of the hands at present is not much altered, and might easily escape observation; it is, however, abnormally dry and harsh, the palms especially so. There are no defects in the nutrition of the nails excepting a few transverse ridges. He has lost his toenails repeatedly. There is no wasting of the muscles of the leg, but it is to be understood that both legs and arms are thin. His ulnar nerves are enlarged to three times their natural thickness. On the trunk the erythema is still in the stage of large patches, which have not in many instances coalesced. These look much like huge urticaria wheals, but are of a yellowish-brown tint. They are spreading out their edges, and will probably in time cover the whole surface. On his face the erythema is diffuse and universal, but the patches show margins on his neck. On the trunk and face the erythematous areas are defective in sensation, but by no means devoid of it. On his face he thinks that the sensation is returning, but on other parts it appears to be greatest where the erythema has persisted longest, or disappeared. A sore under the left great toe passes down to the bone (*ulcus perforans*). He was born in the North-West Provinces of India, and lived there till 1880.

Leprosy beginning as Large Freckles on the Forehead.—Mr. R,

a gentleman aged 35, was brought to me by Dr. Cassidy in July, 1882. He had been born in India, but brought to England for education. He returned at the age of 18. At the time of his return he was in good health, and remained so for some years. The first symptom noticed was some large freckles in his forehead, and subsequently on his body. The disease was not diagnosed until 1875, when, in consequence of having got a thorn into his foot, he had to show his limbs to a surgeon. He had lived in various parts of Bengal. He used to eat all sorts of fish that he could get, and had it frequently. Prawns, he said, he ate but seldom, as he did not like them. He said that the rivers and ponds abounded with fish, and he asserted strongly that a "native will eat anything that he can afford to buy." "All castes eat fish; some will not eat fowls, but in none does religious prejudice interfere with eating fish." He had never seen a European who had leprosy, but he had heard that a friend of his died of it.

Leprosy beginning as Erythema.—I saw in St. George's Hospital, under the care of Dr. Cavafy, a case of leprosy which presented some features of interest. The patient was a young man of 25, who had lived in India for many years. In the main his case exactly resembled that of the boy D. He had had general erythema, leaving the skin in a flabby, discoloured condition. His ulnar nerve regions, though not anæsthetic, were dull in sensation. I was particularly interested in the state of his eyes, which were like those of the boy D., only in a more advanced condition. There was general vascularity of the conjunctiva and all round the ciliary region; that was in a state of puffy thickening, without the development of any papules or pustules. A slightly marked ring was noticed in the cornea, but nothing that deserved the name of arcus. As regards the question of fish as a cause, the man stated that he had not been specially fond of fish, but had eaten it to a moderate extent. He had also eaten prawns, but not more freely than others did.

Leprosy beginning as Erythema Patches on the Cheeks: Symmetrical Development and Rapid Multiplication.—Mrs. H., aged 30, was born in India. Her father was a native of North Ireland, her mother of European parentage, but born in India. She was born at Trichinopoly, and has lived at various places in India, but always near the sea. She has been married sixteen years, and has two children. She has enjoyed good health, and has never been the subject of any serious illness until the present ailment. She has been accustomed at most places to eat fish, but has avoided what she thought unwholesome. Her present illness began in June, 1874, when she was living at Calcutta. She was feeling in perfect health, with the exception of a severe cold, when she first noticed red patches on her cheeks. Soon afterwards she had others on her arms and legs. They gradually increased, and appeared over the whole body. Since the disease began she has had pain in her back and general feeling of weakness. The aching in her back prevents her from sitting long, and also from walking much. There has been no pain or irritation in the patches, but they easily become sore if she scratches them.

The eruption is now fairly symmetrical, but the patches on the two sides of the body are not by any means of equal size. On the cheeks this is especially conspicuous, for a large patch covers the left cheek which has no fellow on the right. On the arms, etc., the patches vary in size from shillings to crowns, or even to the palm of the hand. Most of them are flat, slightly elevated, and of dull, dusky purple tint; none are tuberculated. Her eyebrows are not affected, but on the lower eyelids on both sides indistinct patches of discoloration are just making their appearance. On the arms and legs some of the largest patches have become white in the middle, and wherever this whiteness occurs there is more or less of anæsthesia. The loss of sensation is not complete, but considerable. It cannot be appreciated when the patches remain dusky. The ulnar nerves are not enlarged, and there is no muscular paralysis.

(To be continued.)

TENURE OF OFFICE.—A special meeting of the governors of the Hastings Dispensary was held on February 12th to consider proposed amendments to certain rules, the chief being a proposition to alter the regulations as to the election of medical officers of the institution, a question having been raised as to whether by the existing rule these officials were appointed for life. By the alteration they would be elected for the term of three years. There was much opposition to the amendment proposed, it being contended that it was put forward with a view to dismissing one of the best men on the present medical staff. Eventually the motion to amend the rule was rejected by an overwhelming majority.