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Observations on Some Rare Diseases of the Skin

J. F. Payne M.D.

RARE DISEASES OF THE SKIN.

BY THE SAME AUTHOR.

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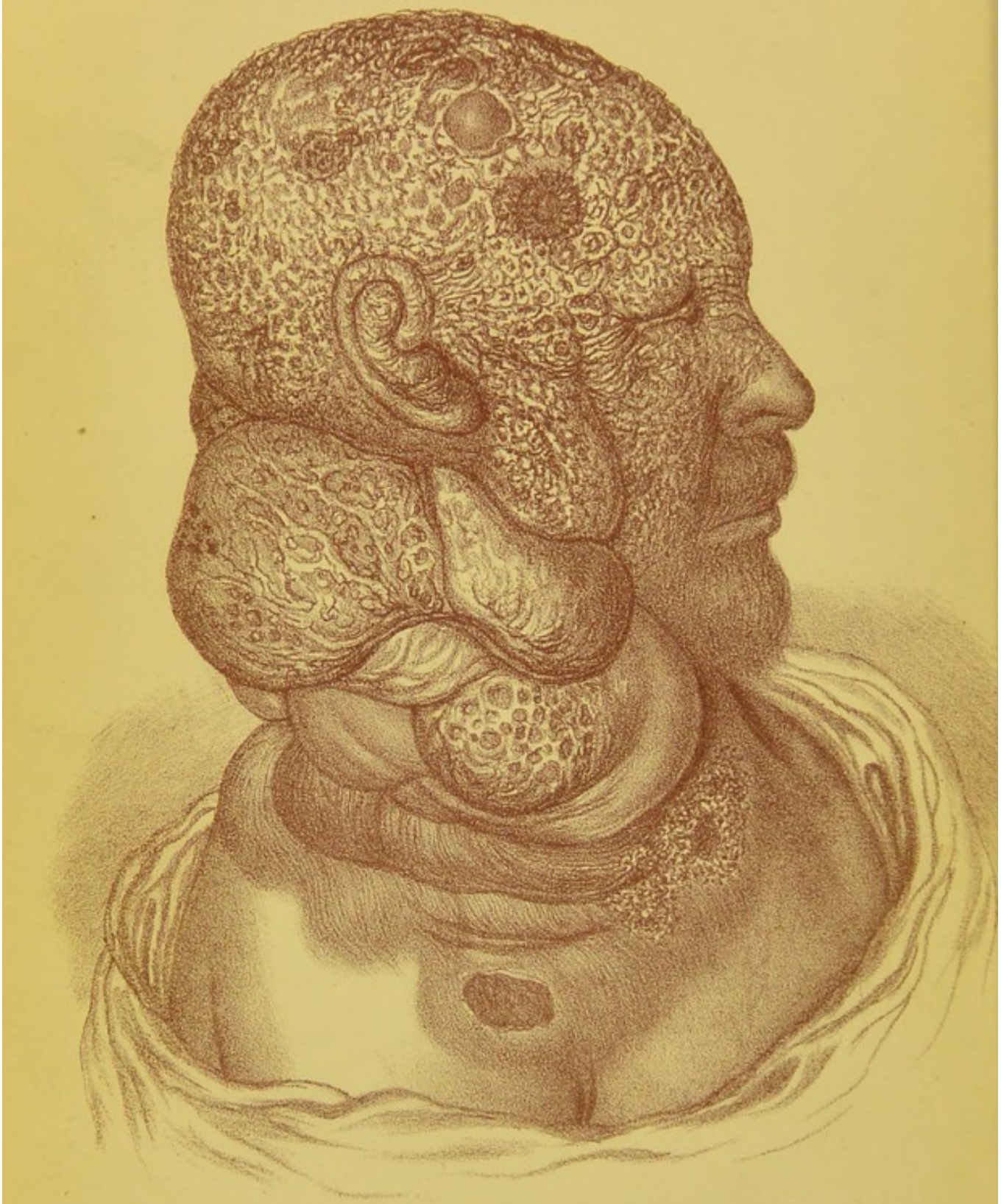
Plate I.



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OBSERVATIONS

ON SOME

RARE DISEASES OF THE SKIN.

I. GRANULOMA FUNGOIDES. II. ERYTHRASMA.
III. A NODOSE CONDITION OF THE HAIR.
IV. PRURITUS HIEMALIS.

BY

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BLACKFRIARS.

WITH FOUR PLATES.

LONDON:
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1889.

PREFACE.

THE papers here collected have already been published but are now reprinted, with, for the most part, considerable additions; the first three from the 38th volume of the 'Transactions' of the Pathological Society of London, the last from the 'British Medical Journal.'

The annual volumes published by our great medical societies, especially those of the Pathological, are probably not much consulted by those engaged in special departments of medicine, and they are little read in other countries. I have thought, therefore, that the republication of the present observations in a separate form might bring the rare affections here described more definitely before that section of the medical public which is particularly interested in such subjects.

By the kind permission of the Council of the Pathological Society I have been enabled to reproduce the four plates illustrating the papers published in their Transactions, and some additional figures have been inserted.

78, WIMPOLE STREET, LONDON;
March 12*th*, 1889.

CONTENTS.

CHAPTER I.

GRANULOMA FUNGOIDES.

Introduction.

This remarkable disease was first observed by Alibert in 1832, who figured it in his great collection of plates of skin diseases, and gave it the name of mycosis fongoïde. His description was founded on a single case, which he believed to be an instance of the disease called frambœsia or yaws, described by Bontius from Amboyna and known in many parts of the world. It was also confounded with molluscum, and, to some extent, with syphilis. Disentangled from these confusions, Alibert's account remains a distinct one and even tolerably complete. He notices the commencement as a superficial scaly eruption, the production of multiple tumours, and death from general marasmus without organic disease. The disease was afterwards studied by Bazin (1862), Köbner (1864), Gillot (1869), and more recently by many other observers.

The numerous observations which have been published make it now possible to give a general history of this disease; one interesting not only as an affection of the skin but with reference to general pathology.

In all cases the first observed symptom consists in an eruption of red patches on the skin, having the appearance either of erythema or of eczema. Hence the diagnosis in this stage is difficult or impossible. One of the cases reported at Vienna was found to have been diagnosed and treated by Hebra several years before as eczema. These patches are either flat or raised, not necessarily scaly but

sometimes quite smooth, as if the elevation were caused by swelling of the deeper layers of the skin. They are very variable in size and irregular in distribution, having no typical arrangement. The colour is at first of a rather dark red, later on it becomes more brownish or buff coloured. There is often a good deal of itching in this stage as well as later.

The surface may become covered with scales, which are renewed as they are shed off. Sometimes the patches take on the characters of eczema with continuous serous discharge and formation of crusts. More generally the epidermis remains entire, or there may be an excoriated surface looking more like a superficial ulcer than eczema. On the basis of these patches, whether the epidermis be excoriated or entire, tumours begin to arise, which are at first covered with skin but soon ulcerate, exposing a smooth moist surface, which being often bright red led Alibert to compare the lumps to tomatoes. In other cases, however, the tumours are pale, as shown in Plate II. They vary in size from that of a pea to that of a large apple. The tumours very rarely appear till the red patches have existed for some months or years. Vidal and Le Brocq describe a variety of the disease in which tumours form without any previous eczema and remain confined to one or two parts of the body, not becoming generalised. The rapidity of their growth is very variable; after a certain time they generally begin to break down and ulcerate, and may be thus completely removed. It is also stated, and I can to some extent confirm the statement, that tumours may be absorbed and removed without ulceration. If at the same time new tumours are being formed there may be a sort of transference of the disease from one part of the skin to another.

No organs except the skin are at all constantly affected, but in some cases there has been concurrent enlargement of the lymphatic glands. This complication is, however, so far from common that it can hardly be regarded as having an important bearing upon the pathology of the disease.

The course of the malady appears to be almost invariably pro-

gressive and fatal. I have found records of two cases only in which cure or recovery took place; one recorded by Köbner, which was apparently cured by arsenic ('Monatshefte für Dermatologie,' 1887, p. 27), and another by Geber (same journal, 1886, p. 501).

Bazin, in 1862, recorded a case which was successfully treated but, as was thought, only temporarily cured. The drug given was bichloride of mercury. Blanc saw one arrested though not cured by arsenic.

No predisposing cause has been traced for the disease. It has been observed in both sexes; perhaps predominantly in men. The patients have generally been elderly or at least adult, and have mostly suffered from no other disease except that septicæmic conditions have often accelerated the end.

Equally little is known respecting its immediate cause, and the researches of the last few years have not thrown any light on this obscure question. If the disease be, as Ranvier suggested and the French school generally hold, a form of "lymphadénie," we cannot expect to know more of its causation than we know of the causation of the more ordinary forms of lymphadenoma. If, again, it be a "sarcomatosis" the causes of the production of sarcoma are as yet equally inscrutable.

I have given in the text further on reasons why I find it difficult to accept either of these views, but it may be right to mention that in a case described by Blanc the lymphadenoma theory was to some extent supported. The blood was found to contain an excess of white corpuscles; there was great enlargement of the lymph-glands, and the histological structure of the tumours, as described by Schmidt, was thought to show that they were in some way or other related to the lymphatic system.

But any such implication of the lymphatic system is often wanting, as in the present case. Kaposi, on the other hand, still holds to the sarcoma theory, one strong objection to which is that sarcomatous growths are not known to subside spontaneously as is often the case with these.

If this also be rejected we fall back upon the explanation adopted in the following paper, viz. that the disease is a specific one and that its manifestations, the tumours, are a species of granular tumour or granuloma; in other words, a species of inflammatory tissue-growth, like tubercle, syphilis, leprosy, rhinoscleroma, &c. But if so the search for a cause becomes very important, since in most of the diseases just mentioned a specific living cause has been found, and if the search has not yet been successful in the case of syphilis the pursuit is at least very hot. Hence it is not surprising that further attempts beside those mentioned in the text have been made to find a specific bacterium in the disease. Up to the present time, however, all such attempts have been entirely unsuccessful. Purely negative results have been obtained by Köbner and Kaposi. The latter also introduced a small piece from one of the tumours under the skin of a dog, who carried it for eight weeks without any harm. In another case observed in London, which I do not quote further because it is not yet published, no bacteria were detected by examination or by cultivation experiments. Geber found micrococci which he did not regard as pathogenic. De Amicis describes cocci stained by a special method, of the pathogenic character of which no proof is given. Kühne, of Wiesbaden, detected no bacteria in pieces removed during life but found cocci as well as a large bacillus in post-mortem specimens, but regarded neither as being the cause of the disease. The fact appears to be that where there are ulcerated surfaces exposed to the air micro-organisms of various kinds can gain access to the tissues but have nothing to do with the disease. It is still possible that a specific and pathogenic micro-organism may be found, but possibly, it seems to me, the cause may be rather, as I have suggested, something of a soluble or diffusible kind and not living. There is no evidence of contagion, and, indeed, the disease is so extremely rare in all countries as to make it very improbable it should be kept alive by communication from one person to another. I would further suggest that if the virus be of this kind it may be something conveyed by food, as in the

case of pellagra, though in other respects the two diseases are not much alike. There are, however, some objections to this as to every other theory of its causation.

A Case of Granuloma fungoides.

[With Plates I, II, and III.]

These specimens were taken from a patient who was in the first place under the care of Mr. Merces, of Islington, was admitted into St. Thomas's Hospital November 17th, 1885, and through the kindness of Dr. Bristowe was placed under my charge in the hospital.

The following notes were taken chiefly by the house physician, Mr. R. M. Williams, and the clinical clerk, Mr. S. B. Cook:

John L—, aged 57, a tall and powerful man of robust appearance, with a remarkable affection of the skin. The surface presented a large number of red patches on almost every region of the body, the area thus covered predominating over the healthy skin. The distribution was not symmetrical, nor yet more on one side than the other. On the anterior aspect the face and neck were nearly covered, and the subclavicular region, but the greater part of the chest was free. There were large patches on the abdomen; the front of thighs and legs were nearly covered; there were patches on the dorsum of both feet; but the soles of the feet were less affected. Nearly the whole of the scalp was covered, and most of the hair was gone. On the posterior aspect the shoulders, scapulæ, and interscapular region were nearly covered, as were the nates and the upper part of the thighs. The legs below the knee were less affected behind than in front. Both arms were nearly covered on both aspects, as were the backs of the hands, but the palms were little affected. Several of the toe-nails were thickened and broken, some were quite destroyed. The toes were much swollen, and the inner surface excoriated. The finger-nails were not affected.

The colour of these patches varied from light vivid red to a dark brownish red; in the slighter degree of the affection the redness disappeared on pressure, and the condition resembled erythema. In the parts more severely affected the redness was permanent, while the epidermis was greatly thickened and exfoliating, so that the condition resembled psoriasis or scaly eczema. There were also a great deal of subcutaneous swelling, especially on some parts; this was very noticeable in the lower part of the legs, and in the groins, especially in the right, and in the face and neck. Both eyelids of the right eye were swollen and there was epiphora.

The most remarkable feature of the eruption was that on these patches of inflamed skin were developed in many parts of the body considerable tumours or tubercular masses of firm and elastic consistency, not fluctuating. These varied in size (when the patient was first seen) from ½ to 1½ inches in diameter, and were either flattened or approached the spherical shape, so that in the latter case they projected as seen in Plate II, which was taken soon after the patient's admission. These tumours were at an early stage covered with epidermis, but this was shed off, leaving a moist excoriated surface, giving rise to a little serous discharge, but not so copious and continuous as in eczema; in some cases greenish pus was discharged; in a few there was hæmorrhage; in others there was a sort of ulceration, so that part of the mass was destroyed, and in a few instances this process was carried so far that a shallow ulcer was formed, but the latter condition was rare. These tumours were tender, and in some cases painful, but pain was not a marked feature. The lumps were in some cases situated in the position of lymphatic glands, as in the neck, the right femoral triangle, and the axillæ. They were not, however, glandular tumours, and subsequent investigation showed that the lymphatic glands, though slightly swollen, were not notably affected.

Condition of other organs.—Lungs natural except evidence of slight emphysema, the cardiac dulness being diminished above, not extending above the fifth costal cartilage.

Heart-apex beating in normal position in fifth space.

On admission a systolic murmur at the apex was noted, but this was not permanent. Pulse 60, regular.

Liver normal in size. Spleen not enlarged. No evidence of abdominal disease. Urine natural. Tongue clean; appetite good; bowels regular. Temperature on admission 99·6°. No evidence of any disease of nervous system. No anæsthesia. Blood natural in appearance on microscopical examination. Pharynx and larynx examined by Dr. F. Semon and found natural. There was a fetid and peculiar smell exhaled from the body, which was thought by some persons to resemble the smell of leprosy.

History.—Patient was born in the country, and has always been a remarkably healthy and robust man. He does not recollect ever being laid up with illness. Has been thirty-three years a carman in the employment of the Great Northern Railway, and has never been out of England. No history of syphilis, and no affection of skin before present illness, and nothing pointing to any specific disease. His family were healthy; his mother lived to the age of eighty-one. Cause of the parents' death unknown. No history of skin disease in family. Patient has had seven children, of whom five are living and healthy, the eldest aged thirty-seven. Patient says that he was always a moderate drinker. His present illness began about three or four years ago, when he noticed red blotches on his skin, which were not in the first instance swollen or raised. They began on the feet, next appeared on the legs and arms, afterwards on the trunk, and lastly on the neck, face and head. About two years ago lumps or swellings began to form on the red patches, and in many instances went on to ulceration. There had been little pain except some smarting and pricking from the ulcers, and till lately his general health had not been affected.

Progress of the case.—During his stay in hospital the patient got steadily worse. It was, however, remarkable that there was undoubtedly an improvement in the condition of the feet and legs, while the disease progressed in the upper part, and more especially

in the head and neck, which only gradually assumed the terrible deformity represented in Plate I. Some of the lumps on the arms also got better while other new ones formed. The following are a few of the notes taken.

October 23rd.—The skin appears less swollen and not quite so dark in colour. Some of the ulcerated masses are healing rather rapidly.

November 9th.—Patient cannot open his right eye on account of the swelling. The skin of the head is much more scaly than before. After this the skin at the back of both ears became moist, and a hard mass began to form about the angle of the left jaw. The swelling of the face and scalp generally increased.

24th.—Patient had an attack of bronchitis, which lasted about a fortnight. During the first week of the attack the temperature rose considerably, varying from 100° to 102° or 103°, but after this it fell again, and did not again rise above 100° till just before the patient's death.

December 4th.—The general swelling of head is diminished. Some of the lumps on the groins, arms, and legs have discharged greenish pus, and are now better.

12th.—A large lump at the back of the head has been increasing for some days, and is now of hemispherical shape and about three inches across. There are smaller lumps above the scapulæ on both sides; and some others which form large folds on the right side of the neck in front and extend down to or a little below the clavicle.

A careful diagram taken about this time by Mr. Cook showed about fifty-seven tumours, large and small, on the body, varying in size from half an inch to two or three inches in diameter. About half of them showed no distinct softening or ulceration, but eighteen were wholly or partially excoriated, exuding a moist discharge and ulcerating, while eleven were converted into distinct flat ulcers.

17th.—Several of the sores on the patient's legs have got

smaller during the last week, while a few have nearly healed. There is suppuration from some of the masses on the thighs. (About the same time the head and face were getting much worse.)

There was no material change in the patient's condition for the next fortnight, but at the beginning of January, 1886, he got worse.

January 7th.—Patient is much worse since yesterday. He complains of feeling a numbness in his limbs, and is somewhat delirious. Temp. 100°.

11th.—Much worse; is getting rapidly emaciated, and has been delirious for some days, but still some of the sores are healing. Temp. 100°.

13th.—Temp. 100·8°; pulse 128; respiration very rapid and of a sighing character. Passes his evacuations unconsciously; no cardiac murmur; no abnormal lung sounds, but a little rhonchus. No sign of any organic disease.

14th.—Temperature rose from 101·8° in the morning to 106·4° at 10 p.m., and patient died in the night. There was no change in the condition of the skin in the last few days.

The *post-mortem* examination was made by Dr. Sharkey, who made the following report:

"Body of a very big but emaciated man. Almost the whole of the skin is altered in some way, that of the hands and feet being least so. Loosened crusts of epithelium are present in many parts, but very little ulceration is seen. There are ulcers, clean cut, about 1 to 1½ inches in diameter, on the inner aspect of the knees. Below the right jaw and all down the right side of the neck is a very large, ulcerating, new growth, the ulceration being confined to the position of most luxuriant growth below the jaw. On making a section of this it is seen to be of a pale pinkish colour of uniform translucent appearance, and of pretty firm consistence. It has all the appearance of a rather firm sarcoma. Here and there on other parts of the body are seen nodules of new growth developed in the skin. The skin which remains between them is mostly pigmented,

of a dull brown hue, and more or less rough and scaly; very few regions are seen to be healthy. On cutting into the parts observed, the affection is found to be confined to the skin and subcutaneous connective tissue, not invading the muscles and deep parts. All the internal organs were large, but careful examination failed to detect disease either in them or the nerves and muscles."

It may further be remarked that the lymphatic glands near the affected portions of skin, viz. the inguinal, femoral, axillary, cervical, &c., were not affected, except being perhaps slightly enlarged in a few instances, and on further microscopical examination were found normal.

The scaly psoriasis-like portions of skin were found to be considerably infiltrated, and showed a layer of whitish new growth in the deep portions of the skin, even where there was no tumour projecting externally.

The liver weighed 86½ oz., spleen 5 oz., kidneys 13 oz., brain 46¾ oz., heart 12 oz.

Diagnosis.—When the patient first came under observation his disease had considerable resemblance to leprosy, and was thus diagnosed by some who saw him. I was at first inclined to accept this diagnosis, but the further progress of the case made it quite clear that it could not be a case of leprosy. Moreover, there was not at any time any anæsthesia, nor any mutilation of limbs, nor chronic deformities. There was also much more inflammatory redness than is seen in leprosy, and the duration of the disease, though extending over four years, was not so long. When, however, it was suggested that the case was like those described as *granuloma fungoides* (or mycosis fongoïde of Alibert) a reference to the descriptions of that disease published in France and Germany clearly showed that the case came under that head. Though there was no organic disease discoverable except of the skin, there was evidently a general condition of cachexia, which, and not any special symptom, was the cause of death.

Treatment.—No local or general treatment produced any im-

provement in the patient's condition, nor did any make him worse. He had arsenic, quinine, and Gurjun oil (the latter in consequence of the suspicion of leprosy), and several ointments were used to the skin, as well as solution of chlorinated soda. At one time the external use of ointment of yellow oxide of mercury produced slight soreness of the gums, and it was discontinued. The patient had no antisyphilitic treatment, and I think it well particularly to note that, while in St. Thomas's Hospital at all events, he took no iodide or bromide of potassium. The fluctuations in his condition were evidently independent of the action of drugs.

Cultivation experiments.—During life attempts were made to cultivate micro-organisms from the tissues in the Bacteriological Laboratory of St. Thomas's Hospital by Mr. Ballance, whose report was to this effect.

The surface of a scaly dark brown patch on the right arm was carefully sterilised, and then seized with a sterilised pile-clamp. From an incision $\frac{1}{8}$ inch long and $\frac{1}{4}$ inch deep made into the included portion with a sterile knife serum exuded. This was transferred by a sterile platinum wire into blood-serum tubes, and on to cover-glasses. The former was kept for weeks in an incubator at 37° C., and no growth whatever appeared. The latter were stained in various ways, and no bacilli or micrococci could be found. These processes were repeated on several occasions.

Histological examination.—Portions of the tumour removed during life, and also various parts obtained after death, viz. the large tumour of the neck, a flat scaly patch on the abdomen, lymphatic glands, liver, and spleen were examined. I have to thank Mr. H. C. Bristowe for making preparations of the *post-mortem* specimens. I will first speak of the portions excised during life. They consisted of a piece cut out of the tumour of the arm represented in Pl. II, and of a smaller less advanced portion near. They were placed at once in absolute alcohol. In both of these the structure was essentially that which is called granulation tissue. A large number of round cells were contained in a connective-tissue

stroma, in which were also traceable large formative or fibro-plastic cells (plasma cells).

The greater number of the cells were roundish lymphatic corpuscles, and contained two or three irregular nuclei. These occupied in some parts large tracts, which appeared at first sight to consist of little else. In other parts the cells were larger, oval, longish, spindle-shaped, or epithelioid, and evidently corresponded to the epithelioid or fibro-plastic cells of granulation tissue. In parts this structure formed a transition to true fibrous connective tissue. The blood-vessels were large, their walls formed of distinct and often large cells, as seen in Plate III, fig. 2.

The other tumour, and also those removed after death, showed the same structure.

The appearance of sections made from a flat scaly patch on the abdomen, removed after death, is represented on Pl. III, fig. 1.

Although generally corresponding to the above description, there were certain differences corresponding to the earlier stage of development in these specimens. There was a larger proportion of lymphoid corpuscles and less of formed connective tissue. The round-celled infiltration formed a flat horizontal layer in the corium, recognisable with the naked eye. The epidermis was thickened, but not notably altered.

From all these observations there could be little doubt that the structure was essentially that of a granulation tumour, or, in other words, a chronic inflammatory growth. Since, however, two other explanations have been given of the structure, viz. that it is a sarcoma (Port, Kaposi), and that it is a lymphadenoma (Ranvier), I may state shortly why I feel unable to accept either of these denominations. The naked-eye appearance and consistence of the larger tumours had undoubtedly a great resemblance to sarcoma, but the cells and arrangement were different. In typical sarcoma we have cells more definite in form than leucocytes, usually with large nuclei, and one or more brilliant nucleoli, these cells composing the tumour, and often showing a transition to some higher

tissue. If in some sarcomata the cells are hardly distinguishable from leucocytes such tumours are better described as lymphomata. In this case the cells did not constitute the tumour; they showed no higher development than leucocytes, except in those parts where there were epithelioid cells, and the usual type of inflammatory connective tissue. The structure also passed by insensible transitions into a mere cellular infiltration, and showed no transition to any specialised form of connective tissue. It appears to me, therefore, misleading to call such a structure sarcoma.

The resemblance to lymphadenoma was, in the newer growths, considerable at first sight, since these parts showed little more than a dense infiltration with lymphoid cells; but on pencilling out sections to remove the cells, according to the well-known method of displaying lymphatic structures, I was unable to obtain the decisive evidence of such a structure as is described by Professor Ranvier. In the first place there was greater difficulty in removing the cells than is usually the case in lymphatic structures, and when the stroma was displayed it did not appear to have any special features which would make it, in MM. Cornil and Ranvier's words, absolutely similar to that of lymphatic glands and lymphadenic new growths.

In the earlier stages the reticulum appeared to be natural tissue of the part; in the later stage it was connective-tissue stroma of a more complicated kind than is found in lymphatic glands. The resemblance to lymph-gland structure was not closer than is the case with all granulation tumours.

Concluding that the tissue is a granuloma, or chronic inflammatory growth, we have, then, to ask, What is the irritant which keeps up the inflammation? Is it a micro-organism of some kind, such as has been shown to exist in most, and is possibly to be found in all, growths of this class? Or is there, perhaps, some ferment or unorganised irritant which may play the same part?

It seems reasonable to suppose that there must be some persistent irritant, and the hypothesis of a micro-organism is both plausible

and attractive. Specimens from this disease have been several times examined for micro-organisms; and though all investigators have failed to find bacilli, there are two instances in which micrococci have been found by two different observers.

The first of these cases was described by the late Professor Auspitz, of Vienna. The histological examination was made by his assistant, Dr. Hochsinger, and cultivations of micrococci, followed by inoculation experiments, were conducted by Dr. Schiff ('Vierteljahresschrift für Dermatologie,' xii, p. 123, 1885).

The second case was examined by Professor Rindfleisch ('Deutsche Mediz. Wochenschrift,' April 9th, 1885, p. 233), and another account of the same case was given by Hammer ('Mittheilungen aus der Medizinischen klinik zu Würzburg,' ii, p. 3, 1886), which, as regards the microscopical results, confirms that of Rindfleisch.

The results obtained by Hochsinger and Rindfleisch are, however, so different as to be almost contradictory.

Hochsinger examined pieces cut out during life from a new growth on the head, and also scales from old patches on the body; all the specimens being immersed at once in absolute alcohol (a point to which I desire to draw particular attention). Fine sections were then made and coloured, for the purpose of detecting micro-organisms by Gram's method, with gentian violet and iodine. By this method Hochsinger found the sections stained in a manner which he describes as showing "diffuse bacterial infiltration" of the tissue. Masses, stripes, and streaks of intense blue colour were seen with a low power, which with an oil-immersion lens resolved themselves into masses of micrococci arranged in heaps, chains pairs, &c. They sometimes followed the lines of the connective tissue and were sometimes enclosed in cells. Similar appearances were seen in the epidermic scales removed from other parts.

Cultivations taken from the same places by Dr. Schiff gave an orange-yellow coccus-mass in the form of staphylococcus. A portion of this inoculated into the skin of a young cat caused

infiltration with desquamation, and prevented the growth of hair. The scales of the cat's skin showed appearances similar to those of the original specimens. This staphylococcus is accordingly regarded by Hochsinger and Schiff as the cause of the disease.

Professor Rindfleisch's results were entirely different. His specimens were obtained *post mortem* (twelve to thirty-six hours after death) ; and fine sections from them were stained by Gram's method. No bacilli were seen in any part. No cocci were seen in the tissues outside the blood-vessels, but on the other hand, *within* these vessels, especially in the capillaries of the papillary layer, cutis, and subcutaneous tissue, were found abundant colonies of a streptococcus, which Rindfleisch regards as the cause of the disease, describing it as a parasite which remains within the vessels and settles down on the inner surface of the cutaneous capillaries, where it produces the lesions characteristic of the disease. The same cocci were found in the capillaries of some small nodules scattered through the lungs, and microscopically in the liver.

It is very difficult to reconcile these two accounts. Hochsinger says nothing whatever about cocci *within* the vessels. On the other hand, Rindfleisch found none *without*, and it is inconceivable that so accomplished an histologist, using the same methods as Hochsinger, should have failed to find the very remarkable phenomena described by the latter, had they been present in his specimen. We must conclude, therefore, that the cocci described by Hochsinger were certainly wanting in Rindfleisch's case.

Supposing, as seems clear, that the disease was the same in the two instances, the only difference which remains is that Hochsinger's specimens were obtained from the living body and at once placed in absolute alcohol, while Rindfleisch's were removed some hours after death. It should also be mentioned that in Rindfleisch's case the high temperature and other symptoms preceding death seemed to suggest at least that a septicæmic (or pyæmic)

process was superadded to the chronic disease, and was the immediate cause of death.

Hammer, in his account of the same case, gives a history which accords very well with the case here recorded. His histological results are nearly the same as those of Rindfleisch's, only that he found streptococci in capillaries of internal organs (lung, kidney) as well as in the skin, and very abundantly in the blood-vessels of an inguinal lymph-gland.

Before criticising these discrepancies, I will describe the result of my own examination for micro-organisms.

The portion of tumour removed during life was hardened in absolute alcohol, and fine sections were cut by Dr. Acland in the laboratory of St. Thomas's Hospital. I then subjected the sections to the action of various aniline dyes. Methylene blue, methyl violet, gentian violet, fuchsine, used directly gave no evidence of micro-organisms. Gram's method was applied in the following way:—Sections taken out of alcohol were immersed for twenty-four hours in a methyl-violet solution in aniline water, and then placed for a few minutes in Gram's iodine solution. This, followed by the action of alcohol and oil of cloves, removed partially or entirely the intense blue coloration. The amount of decoloration is a matter of degree. It is possible to make the preparation quite colourless, or to leave the cells and nuclei tinted, or to obtain an intermediate degree of coloration. The sections were mounted either in this state or after counter-staining with eosine. In preparations from which the colour was almost discharged there were visible an enormous number of specks or granules, which seen with a low power gave an appearance much like that described by Hochsinger. Blue granular masses, forming an irregular infiltration, were scattered over the section, but most abundantly in the deeper parts of the corium.

At first sight it might seem as if the dye were merely precipitated in the tissues, but on examination with a very high power (Reichert's $\frac{1}{15}$th oil immersion with Abbe's condenser) these

masses became resolved into collections of free granules. These appeared in some instances as if they were free in the tissues or embedded in fibres, but on more careful inspection all appeared to be contained in cells, chiefly in the large plasma cells or epithelioid cells of the embryonic connective tissue, but some in lymphoid cells (see Pl. III, fig. 2). These granules were for the most part spherical, and to a great extent uniform in size (more regular and uniform than they appear in the figure). But there were also minute specks hardly discernible. The capillaries and other blood-vessels contained none, nor anything at all suggestive of similarly coloured bacteria. Detached scales of epidermis contained similar granules. The general aspect of the tissues closely resembled that of an infiltration with micrococci; but I regard the granules as not being micrococci for the following reasons:

1. The size was not uniform. 2. Some were clearly of irregular shape, not spherical. 3. Gram's method shows similar granules in other tissues, if removed fresh and at once placed in alcohol. I have seen similar appearances in fragments of lupus; and also in scales from inflammatory skin affections, *e. g.* lichen planus. Ehrlich's "Mastzellen" contain similar granules, which are especially distinguished by becoming intensely stained with aniline dyes.

Flemming has described similar granules in the cells of newly-formed connective tissue, and Martinotti ('Monatshefte für Dermatologie,' April, 1866, p. 190) has pointed out this very fallacy in the determination of cocci in syphilitic products. Hueppe also gives a warning on this point ('Methoden der Bakterien Forschung,' 3rd edit., p. 98). My belief is that these appearances will be still more commonly found if inflammatory products in a fresh state or in absolute alcohol are stained by aniline dyes, and that this source of error has probably been under-estimated.

On examination by the same methods of the *post-mortem* specimens above mentioned, no such appearances were obtained, nor were any micro-organisms detected. The granules appear then

to be easily affected by *post-mortem* changes, so as either to become decomposed, or to become incapable of absorbing the dye. Since this is probably a question of degree, it would not, however, be surprising if some tissues should, under certain circumstances, give the same reaction soon after death. The granules are probably drops or spherules of some material which has important relations to the vital properties of the cell, and appear to me to belong to the protoplasm, not to the nucleus.

These results make it impossible to suppose that the above-described granules can be micrococci, which would certainly not be destroyed at the time of *post-mortem* examination, and I must conclude that no micro-organisms were discoverable in this case.

The conclusion was confirmed by several independent investigations. My assistant, Dr. Acland, a highly skilled histologist, was unable to detect any micro-organisms in sections made by him. Mr. Watson Cheyne kindly went over my preparations and came to the same conclusion. He had previously examined the tissues for lepra bacilli with a negative result. Finally, I sent specimens removed *intra-vitam* and *post-mortem* to Professor Dreschfeld, of Manchester, who was good enough to make sections and stain them with various dyes, but informed me that he could detect no micro-organisms whatever, either in the vessels or the tissues. I have taken these great, and some may think, extreme precautions to test my conclusions, in consequence of the very positive statements of the German pathologists.

Taking these results in connection with the negative results of the cultivation experiments made by Mr. Ballance, I must conclude that there was, at least in this case, no evidence of the bacterial origin of the disease. Since this conclusion would seem to be in contradiction to the statements of Rindfleisch and of Hochsinger, I may be allowed to make some brief conclusions upon their results. In Professor Rindfleisch's case there can be no question of the accuracy of his observations; but it is not proved that the micrococcus found by him existed during the whole course of the disease,

and was its cause. It may have been connected with the septicæmic condition which preceded death in his patient. Further observations are required to show that it even existed in the blood during life.

With respect to Dr. Hochsinger's observations, it would be presumptuous, without having seen his preparations, to say that the round bodies observed by him were not cocci; but I may be permitted to remark that he does not appear to have been alive to the source of fallacy arising from the presence of protoplasmic granules capable of being stained by Gram's method, since he speaks of that method as necessarily producing an isolated staining of bacteria, Further, though he describes the so-called cocci as of uniform size and shape, his figures, even those drawn under the highest powers, exhibit considerable variation in this respect, while the general distribution and diffuse powdering, "diffuse Bestaübung," seem to differ from what we generally see when micrococci are present in tissues.

The cultivation experiments undoubtedly showed that there was a coccus present in the skin and epidermic scales. But the cultivated coccus seem to bear a close resemblance to the *Staphylococcus pyogenes aureus* of Rosenbach, which is certainly very commonly present on the human skin. I have repeatedly found this, or a closely-allied form, come up in cultivations of parasites from the surface of the body. If it was this or any similar coccus, it is not surprising that it should have produced the inflammation and other changes described as having been produced in the skin of a cat which was inoculated with it. As, however, the Vienna patient is apparently still under observation, there will be abundant opportunity for refuting these objections if they are not well grounded.

It is possible that bacteria may yet be found in this disease, and that it may be shown to be caused by them, but in the meantime it would be premature to assume that this is so merely because we cannot find any other cause. It does not follow that all granulomata or chronic inflammatory growths must be produced by the irritation of a living organism. It is quite possible that a fluid or

soluble ferment formed in the body may be the irritant. Indeed, with respect to the disease now spoken of, it is very notable that there is a certain similarity between it and the tuberous form of bromide of potassium eruption; so much so that a careful inquiry was made into the possibility of any such infection. It was quite clear that in our case no such cause was at work, and the skin affection differed from bromide rash in being more chronic and more severe, and in forming much more conspicuous tumours. Histologically, the bromide tubercles show a more acute form of inflammation. Moreover, this tubercular bromide eruption has, I believe, been observed only in children or young subjects. Nevertheless, the analogy should not, I think, be forgotten in speculating on the ætiology of this disease.

Literature.—This disease, though not unknown to English dermatologists, having received from Erasmus Wilson the name of eczema tuberculatum, and from Tilbury Fox that of fibroma fungoides, has not often been observed in this country, and I believe no detailed and illustrated account of any case has yet been published. A considerable number of cases have been recorded altogether in Germany and France, and a few in America. I add a few references, but a more complete list up to 1882 may be found in Neisser's article contained in Ziemssen's 'Handbuch der Hautkrankheiten,' vol. i, p. 720 ('Handbuch der Pathologie,' vol. xiv, part 1).

Alibert, 'Clinique de l'hôpital St. Louis,' Paris, 1833, plate 50.
Bazin, 'Leçons sur les affections cutanées artificielles, &c.,' Paris, 1862.
Port, 'Deutsches Archiv für klin. Med.,' xii, p. 434, 1874.
Hans Hebra, 'Vierteljahrschrift für Dermatologie,' 1875, p. 75.
Geber, 'Deutsches Archiv für klin. Med.,' xxi, p. 290, plates 9 and 10, 1878.
Virchow, 'Krankhafte Geschwülste,' ii, p. 538.
Cornil and Ranvier, 'Histologie Pathologique,' ii, p. 862, 2nd edition.
Vidal, 'Transactions Internat. Med. Congress,' 1881, iii, p. 175.
Hillairet, ibid., p. 176.
Vidal et Le Brocq, 'France Médicale,' 1885, ii, quoted in Hallopeau, 'Revue des Sciences Médicales,' 1885, p. 747.
[*Beigel,* "A Case of Lepra," 'Trans. Path. Soc.,' xx, p. 409. This was probably a case of this disease.]
Mannino, 'Annales de Dermatologie,' 1883, vol. iv, 2nd series, p. 473.

Fabre, 'Gazette Médicale de Paris,' 1884, Nos. 35 and 36.
Tilbury Fox, 'Skin Diseases,' 3rd ed., p. 354.
Tilden, 'Boston Medical and Surgical Journal,' October 22nd, 1885.
Köbner, 'Klinische und experimentelle mittheilungen aus der Dermatologie,' Erlangen, 1864 (not seen).
Gillot, 'Étude sur une affection de la peau—mycosis fongoide (Lymphadénie cutanée),' Paris, 1869 (not seen).
Dühring, Archives of Dermatology,' vol. v, p. 1, 1879 ("Inflammatory Fungoid Neoplasm").
Geber, 'Monatshefte für Dermatologie,' 1886, p. 501.
Köbner, 'Deutsche med. Wochenschrift,' 1886, Nos. 39, 40.
Havas, 'Orvosi Hetilap,' 1883, No. 13 ('Monatshefte,' 1887, p. 663).
De Amicis, 'Monatshefte,' 1887, p. 1049.
Kühne, 'Monatshefte,' 1887, p. 1097, and 'Ergänzungsheft,' iii, p. 33.
Kaposi, 'Wiener med. Wochenschrift,' 1887, Nos. 19—22; 'Monatshefte,' 1888, p. 543.
Blanc, 'Journal of Cutaneous and Venereal Diseases,' New York, 1888, pp. 256 and 281.
Nevins Hyde, 'Edinburgh Medical Journal,' vol. xxix, p. 592, Jan., 1884.
Bazin, article in 'Dictionnaire Encyclopédique de Médecine,' 2ème série, tome xi.
Edwards, 'Trans. Pathol. Soc.,' vol. xxxvii, p. 468 ("Round-celled Sarcoma" said by Crocker to have been this disease).*

May 4th, 1886.

Postscript to original paper.—Since this paper was completed and sent to the press two important papers on the subject have come under my notice. Hochsinger and Schiff, in the September number of the 'Vierteljahrschrift f. Dermatologie,' give a further account of their case above referred to, including the *post-mortem* examination. They maintain their theory of the origin of the disease from micrococci, and confirm it by new cultivation experiments, though, if I understand them rightly, they had great difficulty in finding the supposed micrococci in specimens removed after death.

* In the above list I have abstained from quoting any papers which I have not myself consulted, except where this is stated. In respect to Beigel's case of "Lepra," I believe that was one of the present disease, which Beigel is sometimes quoted as having named *Papilloma area-elevatum*. But the latter name was applied by him to an entirely different affection, occurring in a child subject to fits; which was, I have no doubt, the tubercular form of bromide of potassium eruption. True, this drug is not mentioned, but the context makes it extremely probable that it was administered ('Path. Trans.,' xx, 414).

Professor Köbner, of Berlin, in 'Fortschritte der Medizin' (September 1st, 1886) takes an entirely opposite view. He has independently arrived at the same conclusions as mine (the most important of which were announced to the Society on May 4th), especially as follows:—(1) There are no micro-organisms to be found in the tissues or blood in this disease; (2) the supposed cocci of Hochsinger are granules of Mastzellen; (3) the micrococci described by Rindfleisch are those found in Septicæmia; (4) Hochsinger and Schiff's cultivated micrococcus was probably *Staphylococcus pyogenes aureus*. The remarkable accordance between his views and mine induces me to make this explanation. *September* 21*st*, 1886.

CHAPTER II.

A CASE OF ERYTHRASMA.

[With Plate IV, figs. 1 and 2.]

The disease or condition thus called by many Continental dermatologists is not generally recognised in this country, and abroad its specific distinction and causation have been in the last few years the occasion of a great deal of controversy. Without pretending to give any general account of the subject, or to criticise the numerous memoirs which have lately appeared, I will only submit to the Society specimens of what seems to be a peculiar form of vegetable parasite, and relate the particulars of the case from which the specimens were derived. They will be sufficient to raise, if not to decide, two questions: first, whether erythrasma is a disease, or at least a condition, deserving a distinct name? and secondly, whether the parasite in question has anything to do with its causation?

A gentleman, aged 40, consulted me in October, 1885, for an affection of the skin which he had noticed for ten years. It was a brown scaly patch, situated on the left side of the scrotum, and the inner surface of the left thigh, but not extending further than the contact of the scrotum and thigh. There was also a smaller patch under the root of the penis, on two opposing surfaces. The colour was dark brown, perhaps darker generally than tinea versicolor. It was very noticeable that the hairs were quite unaffected. The outer part was somewhat darker, but there was not a marked difference between the margin and the centre, all the area being covered. There was some itching, and the patch was said to be sometimes

red and sore, but not usually so. It was made worse by riding (my patient was a hunting man), and appeared to vary from time to time independently of this.

The situation might have suggested eczema marginatum, but it is evident, from the description given above, that the characters were not those of that disease. In colour and appearance the eruption was much like tinea versicolor, and suggested that microscopical examination would reveal the parasite of that disease, which, however, was not the case. No *Microsporon furfur* was seen, and a hasty examination in liquor potassæ of scales scraped from the surface did not show any parasite at all. But a more careful examination of scales, from which the fat was extracted by ether, and which were afterwards stained with a methyl-violet solution, showed the structure, doubtless a vegetable parasite, represented in figs. 1 and 2, Pl. IV, beside scattered micrococci and a few bacilli.

As I saw the patient only once, and had only a small amount of material, I could not try any further experiments, but the stained specimens, after washing with spirit, were dried and mounted in Canada balsam.

There can be no doubt that this is what has been described by German writers as erythrasma. As a standard German authority, I quote Weyl and Geber, in 'Ziemmsen's Handbook,' who gave the following definition:—"Erythrasma forms a large dry surface covered with branny scales, of a red-brown, often coppery, colour (like an Indian's skin), the margin of which is often surrounded in a ring by the elevated epidermis. The scales can only be removed like fine flour. In them are found rather short, narrow, very pale, slightly curved threads; also some longer threads, sometimes consisting of two or three segments."

The above quotation is, I think, enough to identify our object as that which has been called erythrasma, and the parasite as that called *Microsporon minutissimum*.

The parasite now shown consists of a series of jointed threads, the segments being of very unequal length, and also variable in

thickness. In some cases they run out into blind extremities, which are slightly swollen. These threads interlace a good deal, and are situated between the epidermic scales. Sometimes they run along the edge, so as to mark out the division between two contiguous scales, lying side by side. There is no true branching.

Some of the threads are beaded with deeply-stained spots. These have considerable resemblance to spores; but I hesitate to call them so, because spots similarly stained are seen at the sides of the threads, sometimes bordering them for some distance, and thus not resembling spores in shape. Some doubtful groups of granules might be considered as gonidia or external spores; but it is so difficult to distinguish them from the groups of micrococci frequently found on the skin that I doubt whether there are any true gonidia, at all events in the specimen now shown. This parasite is doubtless the same as that originally described by Burchardt as the cause of the disease called by Bärensprung erythrasma, and has received the name of *Microsporon minutissimum*. It has till lately been always regarded as a fungus analogous to those of tinea tonsurans and tinea (pityriasis) versicolor. Recently Professor Bizzozero, of Milan, has expressed the opinion that it is the leptothrix form of a bacillus, and states that he has found this or a similar form in other situations; for instance, between the toes, and has cultivated it from there.

Balzer ('Annales de Dermatologie,' second series, vol. iv, p. 681, 1883) gives a figure of the parasite, and regards it as closely allied to *Microsporon furfur*, though somewhat inconsistently, or perhaps by a momentary lapsus, he refers it to the class of Schizomycetes.

Weyl and Geber ('Ziemmsen's Handbuch der Pathologie,' &c., xiv, 2, p. 344) think that the parasite is more like the Schizomycetes (bacteria) in its development.

It is hardly necessary to refer to the numerous papers which have appeared on the Continent within the last two years, since they represent for the most part one or other of the two views above mentioned.

So far as my own experience goes I have had, since these specimens were shown to the Society, the opportunity of seeing three other cases, and obtaining more satisfactory specimens and better drawings. I have also obtained for comparison epidermic scales from other situations, such as between the toes, and also from the inguinal region, of healthy men in one or two instances. I cannot say that I have ever found precisely the same thing as in erythrasma.

From masses between the toes I have found a bacillus, in one instance growing into leptothrix threads, but very different in appearance from what is here described.

In one instance, a dark brown patch on the groin of a man showed the well-known *Microsporon furfur*, but not the *Microsporon minutissimum*.

On the other hand, in two cases of erythrasma I have found rather abundantly a fungus quite different from that here figured, namely, one closely resembling saccharomyces (whether identical with it I cannot say), composed of oval or roundish germinating cells. The threads of *Microsporon minutissimum* were, however, also present, and distinguished by their much smaller dimensions as well as by their shape.

Whether there is any connection between these forms I do not know, but it is well known to botanists that saccharomyces is often associated with a form of mucor, and it was at one time supposed that they were genetically related. So far as any one without special botanical knowledge can form an opinion, the *Microsp. minutissimum* seems to me a good deal like a mucor in its mycelial stage without sporangia. But on the botanical relation of the fungus I express no positive judgment, only contending that it is not a leptothrix, though I was at first disposed to agree with Bizzozero in thus regarding it.[1] There are also in the scales of the erythrasma patches numerous micrococci and some bacilli.

Cultivations of two cases of erythrasma have yielded a fungus

[1] Bizzozero, 'Virchow's Archiv,' vol. 98, p. 441, 1884.

resembling saccharomyces, besides micrococci. A cultivation from a mass between the toes did not give this, but some bacteria, apparently of the putrefactive kinds.

The description of these specimens, which do not belong to this case, must, however, be reserved for another occasion.

If we conclude, as I think we may, that a peculiar vegetable parasite inhabits the skin in the locality and under the conditions described, there remains the further question, how far, if at all, the parasite is the cause of the diseased condition, and whether the disease is one which deserves a distinct name.

Some have contended that erythrasma is merely a form of eczema intertrigo, in which the parasite is an accidental concomitant. In reply to this is to be observed that there is not necessarily any eczema or inflammation of any kind. A little inflammation may occur from time to time, as it occurs in ringworm, but this is no essential part of the morbid condition. One case which I have seen since the meeting of the Society is strong evidence of this, since it was that of a member of our profession. This gentleman, who was led to mention his case to me by reading a report of that now described, had had a patch, precisely similar and in the same situation for several years, which showed the microsporon parasite in large quantity as well as the saccharomyces form. He is specially experienced in skin diseases, and having had this brown patch under observation for several years is confident that it has never presented the characters of eczema. This appears to me almost decisive, and taken in connection with other facts, authorises the conclusion that the condition of the skin called erythrasma may arise without any inflammation.

It then remains to consider whether the condition is caused by the presence of any parasite, or if not, what it is caused by. The facts of the case are that two contiguous portions of skin exhibit a brown colour, slight desquamation, and a moderate degree of hyperæmia, and that in these portions of skin are found one or more species of vegetable parasite. Now, mere contact is not

enough to cause these changes; for either it produces no change at all, or else, as in the case of intertrigo, a slight inflammation.

It would appear rather that the heat and moisture form favorable conditions for the growth of vegetable parasites, which are hence abundantly found there; and that these parasites, one or more species, cause, as in the case of tinea versicolor, the brown coloration of the skin. I cannot see what forbids this supposition. It is true we have no positive proof from inoculation that these phenomena are set up in the first place by the parasite; but for obvious reasons neither accidental or intentional inoculation is likely very often to occur, and it is clear that only certain parts of the body supply the requisite conditions of warmth and moisture. But even when, as in the axillæ, between the toes, &c., these conditions are found without the parasite, erythrasma with its brown colour, does not result. It is also quite certain that this condition is something different from the brown pigmentation resulting from chronic hyperæmia or friction; so that, on the whole, we must infer that it is a parasitic coloration.

The botanical relations of the parasites, however, require further investigation before we can say precisely which is the active species among those present.

In conclusion, it may be useful to describe shortly the method of investigating epidermic scales for fungi or other micro-organisms. It is in great part due to Professor Bizzozero.

1. Soak the scales in ether to dissolve out fat. In many cases half an hour or even a quarter will be enough, but Bizzozero recommends twenty-four hours' immersion.

2. Add to the scales on a cover-glass or slide, a few drops of 50 per cent. acetic acid, and break up larger epidermic masses with needles.

3. Allow the acid to evaporate spontaneously, or warm very gently.

The specimen is now ready for staining. An alkaline methylene blue solution (Löffler's strength, *i. e.* concentrated alcoholic solution methylene blue 30 parts, one per-cent. solution potassium

hydrate 1 part, distilled water 100 parts) is perhaps the best general reagent, and colours most fungi as well as bacteria. But a better differentiated stain is produced by Gram's method. Add first a few drops of gentian or methyl-violet solution in aniline water to specimen on the slide or cover-glass, and allow it to act from five to thirty minutes according to circumstances. Wash with absolute alcohol, then add Gram's iodine solution, or float the cover-glass upon it for from one to five minutes, wash again with alcohol, and the parasite alone will be left coloured. If desired, a watery solution of eosine may be used as a contrast stain, since it dyes the epidermis easily, but for the parasite (notwithstanding M. Balzer's recommendation) it is an extremely bad stain, hardly affecting it. The preparation when washed and dried may then be mounted in the usual way.

The erythrasma parasite, like others, may be shown by merely soaking the scales in liquor potassæ, but much less clearly than by the above method. To be well seen it requires a power of 600 or 700 diameters. *May* 18*th*, 1885.

Appendix to Case of Erythrasma.

Since observing the case above described I have met with seven others more or less similar and will give short notes of each.

Case 2.—Dr. X—, æt. 40. Brown patch on one side of the scrotum and corresponding surface of thigh for some years. "Microsporon" of Burchardt in abundance (Plate IV, figs. 7 and 9) and also saccharomyces (fig. 8). It was not regularly treated, and whether cured or not I cannot say. This case is briefly alluded to in the original paper.

Case 3.—Alfred B—, æt. 48, Hospital for Diseases of Skin, June 17th, 1886. Brown, scaly, irritable patch under scrotum and adjacent surface of perinæum for two or three years. Doubtful threads

of microsporon; no other parasite. Treated with ointment of zinc and carbolic acid it improved and patient ceased to attend.

Case 4.—Benjamin A—, St. Thomas's Hospital, September 1st, 1886. Scaly brown patch on scrotum and thigh of seven years' duration, also recent eczema of arm for some months. Numerous groups of bacilli growing out into threads, many of which had clubbed ends, also saccharomyces and micrococci.

Case 5.—Jacob C—, æt. 36, Hospital for Diseases of Skin, January 6th, 1886. Smooth brown patch on thigh and scrotum for four years, also impetigo of the scalp of three weeks' duration. The femoral patch showed groups of bacilli growing out into short threads, often with clubbed ends, as in Case 4; also saccharomyces and micrococci. It was treated with dilute citrine ointment and on January 27th appeared to be cured.

Case 6.—C. D—, a middle-aged man, at Hospital for Skin Diseases, April 19th, 1888. Characteristic scroto-femoral patch, showing on microscopical examination threads like "microsporon minutissimum" associated with larger irregular protoplasmic masses, deeply stained by reagents.

The two remaining cases were of a somewhat different character.

Case 7.—Thomas C—, æt. 42, Hospital for Diseases of Skin, November 17th, 1887. A reddish scaly patch, not distinctly brown, with a distinct slightly raised margin on thigh at point of contact with scrotum, producing much itching. Duration three months. Microscopical examination showed mycelium of trichophyton tonsurans, not abundant, also saccharomyces and numerous micrococci. Treated with dilute citrine ointment, on December 1st it was nearly well.

Case 8.—Dr. Y—, seen at home, February 20th, 1888. Brown, scaly, irritable patches on scrotum and thigh for six months.

Microscope showed abundant mycelium of trichophyton, numerous cells of saccharomyces, and doubtful threads like microsporon. It was treated with dilute citrine ointment combined with creasote, and, as I afterwards heard, rapidly improved.

It will be seen, on comparing the above notes, that in five out of eight cases the microsporon of Burchardt was distinctly and abundantly present. One case presented only doubtful appearances, while in two the ordinary parasite of ringworm was present; and they must therefore be regarded as cases of tinea circinata or one form of the eczema marginatum of Hebra. It is noticeable that these cases had lasted for a few months only, while those of the typical erythrasma were of several years' duration. The diagnosis, though generally clear enough, might sometimes be difficult. The cure did not appear to be difficult with ordinary parasiticide treatment.

Nature of the parasite.—From a comparison of the above-mentioned specimens it appears that more than one species of vegetable parasite is met with in brown scaly patches of the region referred to. At the same time the preponderating form in typical cases, and the only one peculiar to this disease is the so-called *Microsporon minutissimum* of Burchardt. It is possible that this is found only in chronic and inveterate cases, and that the morbid condition may have been set up in the first instance by some other parasite or by simple intertriginous inflammation.

This parasite I find to agree generally with previous descriptions but I have never been able to satisfy myself that it has any spores. It is unlike any other cutaneous epiphyte, but on the whole appears to me now, as I have stated elsewhere, to resemble a peculiar development or involution form of a bacillus more than anything else.*

The reasons for this opinion are, that the characteristic threads are often found in connection with short rods or bacilli, and that

* "Report of Department for Diseases of the Skin," 'St. Thomas's Hospital Reports,' vol. xvi, London, 1887.

the more aberrant forms of threads have a great resemblance to the so-called involution forms of other bacilli, especially of Koch's cholera spirillum and of Hauser's *Proteus mirabilis*.

The process appears to be that the bacilli grow out into threads, which may be regarded as a leptothrix form and so far justify the name given by Bizzozero.

The swollen or club-shaped extremities of the threads do not contain any spores but much resemble the involution form of the cholera spirillum, as will be seen on comparing figs. 1 and 2 on Plate IV with the woodcut annexed, making allowance for the fact

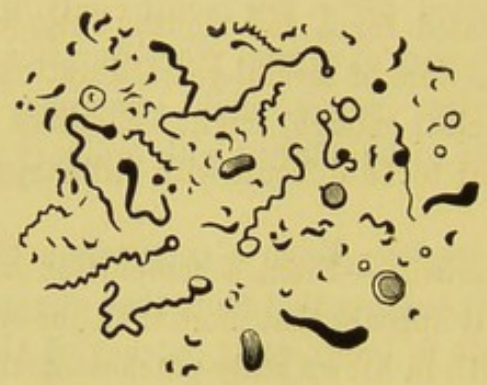

FIG. 1.—Involution forms of the cholera spirillum (von Ermengen).

that the corkscrew or spiral shape of the cholera organism is wanting in the bacillus of the skin.

The resemblance to the involution forms of proteus as figured in Flügge's book was still more striking* in some specimens.

Involution forms represent, I suppose, an arrest of growth, due either to deficient nutrition or merely to the organism passing into another stage. Now, by special methods of staining I have demonstrated appearances in the threads which look very much like a state of defective nutrition. When treated by Gram's method the purple colour of the methyl violet solution is removed from the greater part of the threads, remaining attached only to certain patches which are irregularly distributed. These portions, which

* Flügge, 'Die Mikro-organismen,' 1886, fig. 107 *b*, p. 309.

must represent a condition of the protoplasm different from that of the decolorised portions, are sometimes central, sometimes lateral, sometimes almost terminal, but in no case look like spores, nor are the uncoloured portions like spores (see Plate IV, figs. 7 and 9). But the latter would seem to be in a dying or atrophic state, especially as the same differentiation is produced by staining with other methods, though less distinctly.

If this organism be, as I suppose, an involution form, it has undoubtedly more resemblance to *Proteus mirabilis* than to any other described species. The general outline of the colonies is remarkably like the moving colonies figured by Hauser. Moreover, since the parts where the organism grows are from time to time, though not always, moistened with sweat, which contains albuminous putrescible substances, they furnish a habitat very suitable for the growth of saprogenic bacteria, such as proteus, while the supply of moisture, and thus of nutriment, being intermittent the organisms would be very likely to pass into the degenerative or involutionary forms.*

I have not been able to furnish decisive proof of the nature of the organism by cultivation. In two cases from which cultivations were taken a perplexing variety of organisms appeared, including moulds and micrococci, from which I did not succeed in isolating anything distinctive. This problem remains, therefore, for future investigation.

* Hauser, 'Die Fäulniss-Bacterien,' Leipzig, 1885, figs. 16 and 23.

CHAPTER III.

HAIRS SHOWING A REMARKABLE NODOSE CONDITION,

OR

"BEADED HAIRS."

[With Plate IV, figs. 3 to 6.]

The hairs shown and figured in Plate IV, figs. 3 to 6, were taken from two children, Ernest K—, 2 years, and Arthur K—, 1 year old, who were brought to me at the Hospital for Diseases of the Skin.

The elder child's head was covered with short, broken-off hairs, not more than a quarter of an inch long, so that the appearance closely resembled that of general ringworm, of which I need hardly say there was no trace. Some parts were nearly bald. The eyebrows were nearly gone, and some of the eyelashes had fallen out. The hairs present were very brittle, and thus difficult to remove in their full length, short though they were. It was evident that their fragility prevented their growing properly.

When examined the hairs presented the appearance figured. The history was that the child had had the ordinary infantile hair up to four months old, but that when this fell off the usual second growth of hair never came, or came only in this imperfect form. The child had been suckled up to four months old, and since then was fed from a bottle. His health was moderately good, but he was not strong, and had unmistakeable signs of rickets. His head used to sweat a great deal. He had not walked till more than a year and a half old.

The younger child was very nearly bald. There were only a few scattered hairs, which appeared broken off short, and were difficult to extract. The eyebrows and eyelashes were quite gone. The scalp was scaly with seborrhœa. The history in this case was the same as in the brother. There had been a very abundant crop of infantile hair, but when this fell off, in the fourth month, no second crop appeared. This child was also decidedly rickety. He could not walk, and had only two teeth. The hairs showed the same characters as in the other child.

There was nothing in the family history to throw any light on the cases. The parents were said to be healthy, and no other member of the family was known to have this or any other peculiarity of the hair. There was no sign or suspicion of syphilis.

The condition of the hairs does not require any long description, hence it is obvious enough from the figures. Most of the hairs show alternations of expanded and contracted portions, so as to have a beaded appearance. The narrow parts are wanting in pigment, and show imperfect formation of the hair. The raised or prominent portions contain pigment, and show the regular structure of the hair-shaft tolerably well, allowing for the peculiar shape. When fracture takes place, as it often does, it is invariably at one of the contracted portions, and never through a prominent or expanded part. From these facts it seems natural to conclude that the thin parts are abnormal and the thick parts normal, so that the peculiar shape arises rather from atrophy in the thin parts, not from hypertrophy in the thick parts. Looking at it genetically the condition might be produced by alternations of growth and failure of growth in the bulb, producing alternations of normal size (possibly slight hypertrophy) and of atrophy. This is confirmed by an examination of the few hairs which are not beaded. These are, thin, without pigment, and evidently atrophic. Moreover, the hair-bulbs, when, as is seldom the case, they can be seen, are evidently wasted, as is shown in the figure. The whole condition is

not properly a disease, but rather a failure of development which is almost congenital, and, indeed, may be due to a congenital defect in the bulbs, from which the second crop of hair was to be produced.

This condition has been described by Dr. Walter Smith and Dr. McCall Anderson, and has received the name of trichoclasia nodosa, but must be carefully distinguished from the condition called trichorrhexis (also trichoclasia) nodosa by Wilks, Beigel, and Pye-Smith, with which it has nothing whatever to do. In that condition the nodosities are few in number, and constitute a brittle point in the hair, so that fracture takes place through the nodosity ('Trans. Path. Soc.,' vol. xxx, p. 439, 1879).

When these children came under my notice, and when in the same year they were shown to the Dermatological Society, I knew no descriptions of similar cases but those of Drs. Anderson and Walter Smith ('Brit. Med. Journal,' 1879, vol. ii, p. 291, and 1880, vol. i, p. 654). The description and figures given by the latter writer agree very closely with these specimens, and his explanation is essentially the same. Dr. Thin described at the London Medical Congress, 1881, a case of varicose hairs, which seems like this, but which he did not regard as identical with Dr. Walter Smith's cases. More recently Dr. Lesser, of Leipzig, has written about ringed hairs ("Ringelhaare"), under which term he includes some cases similar to these, and some, it would seem, of the other condition originally called trichorrhexis nodosa. He further speaks of air being contained in the nodes of the hair, of which, in my specimen, there was not a trace ('Monatshefte f. Dermatologie,' 1885, p. 371).

The congenital predisposition to this anomaly, shown by its occurrence in two brothers, was still more marked in the remarkable series of family cases reported by Dr. McCall Anderson ('Lancet,' 1883, ii, p. 140).

May 18*th*, 1886.

CHAPTER IV.

ON FROST ITCH, OR PRURITUS HIEMALIS.

Many persons suffer from itching of the skin in cold weather, especially when the air is keen, dry, and frosty. They begin to scratch when they take off their clothes to go to bed, and some can foretell, by their sensations, a frosty night. Others suffer more from the irritation when they become warm, more particularly from the radiant heat of a fire, but only when the outside temperature is low. In short, change of temperature more than absolute cold is the exciting cause, and dryness of the air is also an important factor.

In most cases these inconveniences are transitory, and not severe enough to cause the sufferer to apply for medical advice; but sometimes the liability to irritation from this cause is so great that it constitutes a very troublesome affection, and may deserve a special name. As such it was first described by Dr. Dühring, of Philadelphia, in the 'Philadelphia Medical Times' for 1874, as "Pruritus hyemalis," and independently by Mr. Jonathan Hutchinson, in 1875, as "Winter Prurigo" ('Lectures on Clinical Surgery,' vol. i, part 1, 1878, p. 100; 'British Medical Journal,' 1875, ii, 773). Since then the affection seems to have received little attention, and hence the following account of some cases observed in the last two winters may be worth placing on record.

The one characteristic of this affection is intense itching, which lasts more or less through the winter, from November or December till March or April; varying to some extent with the severity of the weather. The only lesion of the skin is one which appears to

* Reprinted from the 'British Medical Journal,' May 7, 1887.

be secondary to the irritation, namely, small hard papules not passing into vesicles, on the outer aspects of the arms and legs, seldom on the trunk, and accompanied by signs of scratching. This eruption is rather the consequence of the disease than its cause, being set up by the scratching and rubbing to which the itching gives rise. It is essentially the same in most itching affections of the skin where there are not more distinct lesions, and may be called symptomatic prurigo, as distinguished from substantive prurigo (Hebra's disease), where the papules appear to be the starting-point of the irritation.

The affection is unconnected with any special state of health, and may recur every winter for many years. But in mild winters it may be quite absent; and possibly the mildness of the weather in several winters previous to 1885–86 is the reason why this affection has not been lately much noticed. The following case is one of the best marked.

Case 1.—Mr. C—, æt. 33, a London tradesman in good circumstances, came to me in January, 1886, during cold weather. He complained of the most intense itching, which tormented him both day and night, but especially when he was hot. It was torture to him to be near a fire, and he could not bear hot rooms, so that he never went out to any evening entertainments. Christmas Day was spent by this poor man, not in the society of his family, but alone in his bedroom, scratching himself. The condition was aggravated also after meals; and eating anything indigestible, such as pastry, brought on the irritation at once. At night the itching was sometimes very severe, so as to lead the patient to rub himself when in bed with a hair-glove, but sometimes, on the other hand, he slept pretty well. These symptoms had afflicted him for the past four years, but only in winter, always going away in March. The last winter (1884–85) he had suffered very little, but this was a mild season. He was a tall robust man, and enjoyed very good health, except for indigestion, of which he complained a good deal, and which he attributed to want of exercise. Very likely this had some

foundation, as for a man of his physical development his occupations were too sedentary.

The eruption consisted of hard papules, not vesicular, situated chiefly on the outer sides of the thighs and to a less extent on the inner sides, also on both aspects of the forearms, and a little on the upper arms, but none on the trunk or the face. There were also marks of scratching. The papules were sometimes red, sometimes pale; when scratched much they formed crusts.

Case 2.—John W—, æt. 25, an engine fitter, came to St. Thomas's Hospital February 10th, 1886. He complained of excessive itching in the skin of the body and limbs, which had lasted about eight weeks, so that its commencement would have been towards the middle of December, 1885. The itching was most severe on undressing, but also brought on by heat, especially when he was near a fire. He had been wearing a thick woollen under-vest, and thinking that might have caused the irritation, had left it off, and substituted a coloured cotton shirt, but found himself worse for the change. The only eruption on his body consisted of papules, distributed chiefly on the outer aspects of the arms, both above and below the elbow, with a few on the inner aspect. There were a few on the back, more on the front of the body, and nothing notable on the legs. There was no trace of scabies, nor of the presence of pediculi. The patient was in good health, and the only circumstance in his habits which seemed important was that he worked in a very hot workshop, heated by steam, and with gas burning, and had to pass from this direct into the open air. On March 3rd he was noted as being much better.

This winter I have also met with some cases.

Case 3.—A gentleman, æt. 62, came to me on January 7th, 1887. He had suffered from extreme irritation of the skin in the winter for six years more or less, but especially for three winters past. The irritation was always worse in cold weather, but, as usual,

brought out by changes of temperature. It was very troublesome at night; not generally increased by the heat of the fire, but worse on coming into a hot room out of the cold. It was also aggravated by eating pastry or other indigestible things. He dressed warmly, but a rough, thick, woollen vest made the irritation worse. In this case there had been no visible eruption till three weeks before I saw the patient, and this was evidently not the cause of the irritation, but, if at all connected with it, rather a consequence. The ordinary pruriginous papules caused by scratching I found only on a few places on the arms, but there was on the trunks and limbs an eruption which I will briefly notice, though its connection with the pruriginous symptoms was doubtful. It consisted of flat, slightly raised patches of angular shape, covered with scarcely perceptible scales. On the back, waist, and abdomen they were about an inch or three-quarters of an inch in diameter; on the arms and legs decidedly smaller. They came out in successive crops, which lasted two or three weeks, being at first of a dull red or pink colour, afterwards darker, and went away, leaving a brown macula. When I saw the patient a second time, the patches were almost all in the macular stage, only a few fresh ones appearing. Those on the lower leg were, as is usual in many other affections of this region, much darker, being of a tawny or almost a coffee colour. They did not appear to increase the irritation. I conclude, therefore, that this eruption was either identical with or closely resembled the pityriasis rosea of Gibert, and was independent of the pruriginous condition. The rather excessive pigmentation might be regarded as due to the advanced age of the patient. Many skin affections produce pigmentation in elderly people which do not do so in the young. The patient was dyspeptic, and had what appeared to be, or at least was thought to be, a decidedly gouty history. He improved in a marked degree under treatment, which consisted in giving a mixture containing sulphate of magnesia, with a very small dose of colchicum, and on the local application of glycerine. But in the sudden burst of cold weather which commenced in the first week of February, he

suffered a relapse, and was as bad as ever. As this gentleman is a member of our profession, his account of his symptoms may be received with implicit confidence.

Case 4.—Another case this year was that of a young man, æt. 20, who came to St. Thomas's Hospital on February 18th, 1887, complaining of irritation of the skin. He had been treated at another hospital for scabies, but, whether he ever had it or not, was certainly free from that disease when I saw him. His history was that the itching had begun in November, and troubled him to some extent through the whole winter, but had got better in January. Lately, however, since the return of cold weather in the first week of February, he had got so much worse that he was induced to come to the hospital. He stated that he had suffered precisely in the same way the winter before, the itching beginning to trouble him in November and subsiding in the spring. On examination, he showed the usual type of symptomatic prurigo; papules chiefly on the outer sides of the limbs, rather the result of scratching than the cause. On one arm a small impetiginous patch had been produced by scratching, but this was a transitory matter. There were no papules, or scarcely any, on the trunk. Nothing in his health threw any light upon the irritation.

Treatment.

The treatment of this troublesome affection is not very satisfactory. If the patient suffers from dyspepsia and debility, we naturally treat him for these symptoms, but with little effect as regards the itching. The only true indication seems to be to soothe and protect the skin as thoroughly as possible. Warm clothing is, of course, essential; but, since any woollen garments which are at all rough often irritate the skin, some soft, pure woollen must be found. It should be remembered that much of the so-called "merino" clothing is more than half cotton.

Next, some physical protector in the form of an oily or viscid lubricant should be applied to the skin. This, by soaking into the epidermis, makes it a much more perfect non-conductor of heat, and thus the peripheral nerves are shielded against changes of temperature. Glycerine is the favourite substance, and in Case 3 the patient thought nothing else did him any good; but patient No. 2 preferred vaseline. The glycerine may be used pure, or diluted with an equal part of water or camphor-water. Probably free inunction with olive-oil would be better still; but I have not been able to induce patients to give it a fair trial.

At first I used lotions containing lead, carbolic acid, and glycerine, but afterwards came to the conclusion that the last was the only useful part of the prescription. In certain cases, especially when the irritation is worst at night, small doses of chloral hydrate are very useful. In Case No. 2 I gave fifteen grains every night for a time, and believe that the benefit attributed to local remedies was chiefly due to this. For obvious reasons, it is a remedy not to be used hastily or continued too long; but the benefit is not confined to the night, as the nerves are permanently soothed.

Since the above paper was written I have met with some additional cases of "frost itch," and several members of our profession have confided to me, orally or by letter, that they are themselves sufferers from the affection which I have described. In the years 1887–88 I had a few cases sent to me which were, or were supposed to be, of the same kind, but some turned out to be due to some very different cause. It is noteworthy, however, that in the past winter, 1888–89, I have not seen or heard of any case; this winter having been, as we know, unusually mild.

I will, however, give a short account of one additional case which occurred in the years 1886–87, as it illustrates very clearly the dependence of the skin affection upon temperature.

Mary C—, æt. 56, married, came to the Hospital for Diseases of

the Skin December 2nd, 1886, complaining of irritation of the skin which had begun in October. She was a thin woman of somewhat cachectic appearance, in feeble health, but with no definite illness. She had suffered much from dyspepsia, but this had improved within the last three years, and she had never had any other malady except, as a child, some undefined affection of the skin. Her only other complaint was of frequent "cold shivers." On examining the skin no lesion was found except scratched bleeding papules, which were thickly scattered over the arms, forearms, thighs, and legs, especially on the calves, but not on the body or face. There was no sign of any external cause of irritation, such as pediculi, or of scabies. The urine was found on examination to be free from albumen and sugar.

On inquiry it appeared that the itching had begun in October, when the weather became cold, and was always worse in cold weather, but she had never suffered from it till the present year.

She was treated with carbolic zinc ointment to the skin and a tonic mixture containing iron internally. In a week there was some improvement, and in a fortnight the papules were quite gone and there was nothing to be seen on the skin, but the itching persisted. Continued treatment resulted in further alleviation, though not in cure, and the patient did not attend from January, 1887, till March 10th, when she described herself as much better. However, in a fortnight she returned with a decided relapse, evidently due to the low temperature, there having been an episode of severe wintry weather in the middle of March. She did not lose the itching till May, from which time till the autumn she was entirely free, but returned on October 20th, 1887, with a decided relapse. In November the patient got an attack of bronchitis, from which cause I imagine she ceased to attend and was lost sight of.

This case in its dependence upon external temperature and the absence of any other causes of cutaneous irritation, is a typical one of pruritus hiemalis.

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DESCRIPTION OF PLATE I (*Frontispiece*).

Granuloma Fungoides.

General view of the head and neck.

From a coloured drawing made by Mr. Burgess, about two months before the patient's death.

DESCRIPTION OF PLATE II.

Granuloma Fungoides.

The right arm showing red patches of skin, and also a solid tumour, from which a small portion was excised during life.

From a coloured drawing by Mr. Hurst, taken about three months before the patient's death.


Plate. II.
W. Hurst del.
E. Burgess ch.lith.

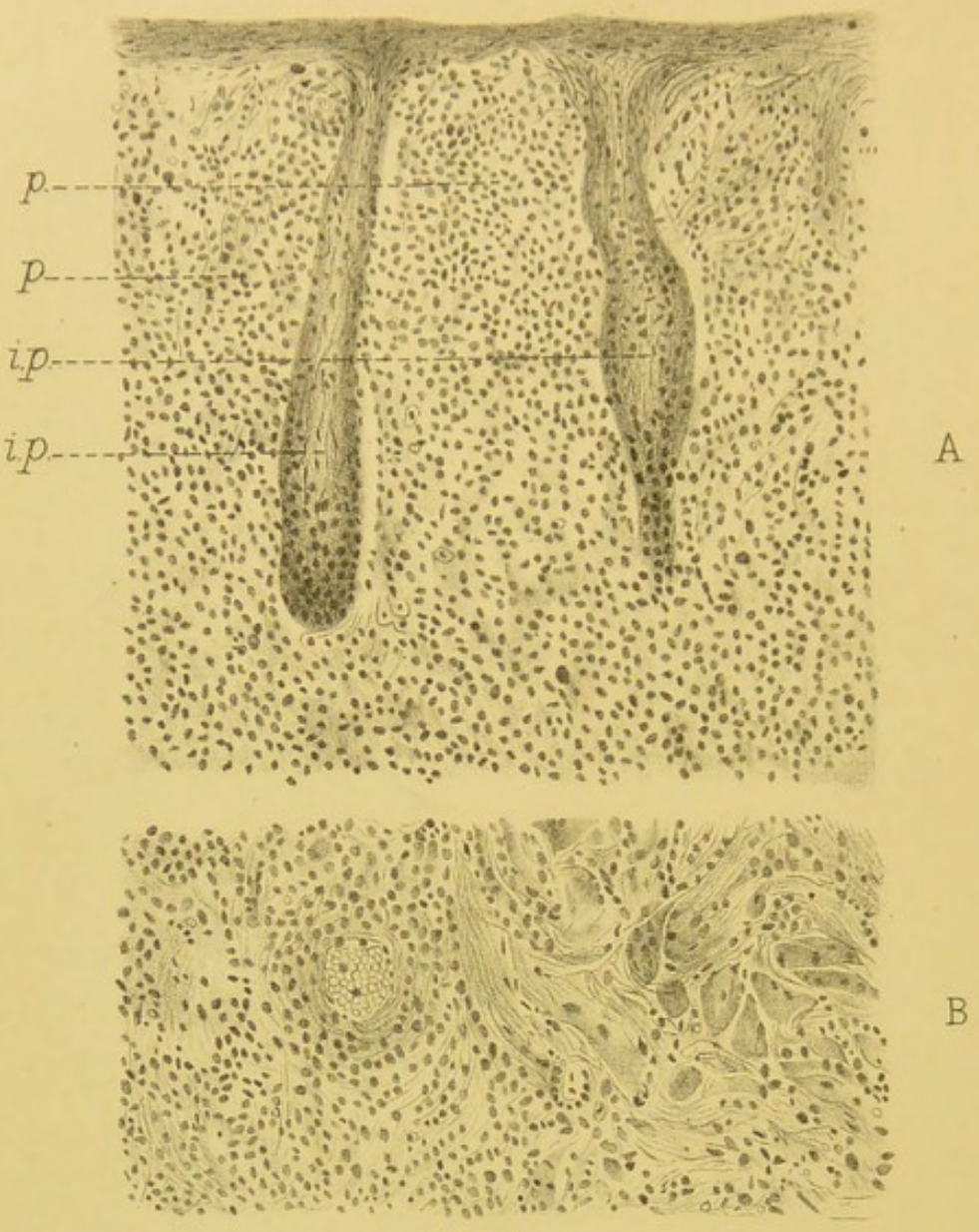

Fig. 1.

Fig. 2.

M H Lapidge, del. Danielsson & Co, lith.

DESCRIPTION OF PLATE III.

Histology of Granuloma Fungoides.

FIG. 1.—Section from a flat red scaly patch on the abdomen, removed after death. This represents the earliest stage of the disease present at the time of death.

A is the most superficial layer of skin. B the deepest portion of corium, next to the subcutaneous tissue; the intermediate parts being omitted.

A. Shows dense infiltration with leucocytes. The epidermis is well preserved and somewhat thickened.

i. p. Interpapillary processes of epidermis, considerably hypertrophied.

p. Papillæ, densely infiltrated with leucocytes and some larger cells. They appear enlarged, and their hypertrophy appears to be in proportion to that of the interpapillary processes.

B. Deep portion of corium, showing less dense cellular infiltration, but more connective tissue, and some blood-vessels with simple walls, apparently of new formation. About 250 diam.

FIG. 2.—Section of piece removed during life from the tumour figured in Plate II. It was stained with methyl violet, and decolorised by Gram's Iodine Solution. It shows a well-marked granulation tissue, consisting of vascular connective tissue, with a large number of leucocytes and some larger cells, containing granules stained, in the original, intensely purple. The nuclei were of a more reddish colour.

V. Blood-vessel filled with blood-corpuscles, but showing nothing which takes a purple stain.

l. c. Leucocytes or lymphoid cells.

g. c. Cells containing purple-stained granules, many of which much resemble micrococci, having a more uniform size and shape than shown in the drawing (plasma-cells).

e. c. Epithelioid cells.

Drawn with Reichert's $\frac{1}{16}$ oil immersion, ocular 4, = 950 diameters.

DESCRIPTION OF PLATE IV.

FIGS. 1, 2, 7, 8, and 9.—Illustrating case of Erythrasma. (Page 31.)

From drawings by H. C. Payne and M. H. Lapidge.

FIG. 1.—Threads of micro-parasite of erythrasma in epidermic scales, stained with methyl violet.

FIG. 2.—The same, showing the club-shaped and swollen free extremities of the threads. Drawn with Reichert's $\frac{1}{15}$ oil immersion, ocular 3, = 750 diameters.

FIG. 9.—The same, from Case No. 2, stained by Gram's method, showing irregular distribution of stained material (750 diam.).

FIG. 7.—Another portion of same more highly magnified (over 1000 diam.).

FIG. 8.—Cells of saccharomyces, some joined to make an imperfect or false mycelium stained with methyl violet (750 diam.).

FIGS. 3—6 illustrate specimens of Beaded Hairs, mounted in Canada balsam. (Page 42.)

FIG. 3.—A somewhat atrophic hair-bulb and short stump without pigment showing slight indentations.

FIG. 4.—Beaded hair, showing abundant black pigment in the swollen nodes, but none in the slender internodes.

FIG. 5.—The same, showing the manner in which the hairs break off.

FIG. 6.—Thin atrophic hair almost devoid of pigment, showing a lesser degree of beading. Magnified about 70 diameters.

From drawings by H. C. Payne.


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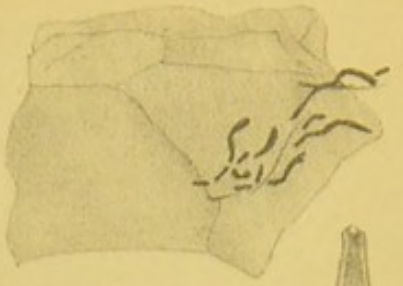
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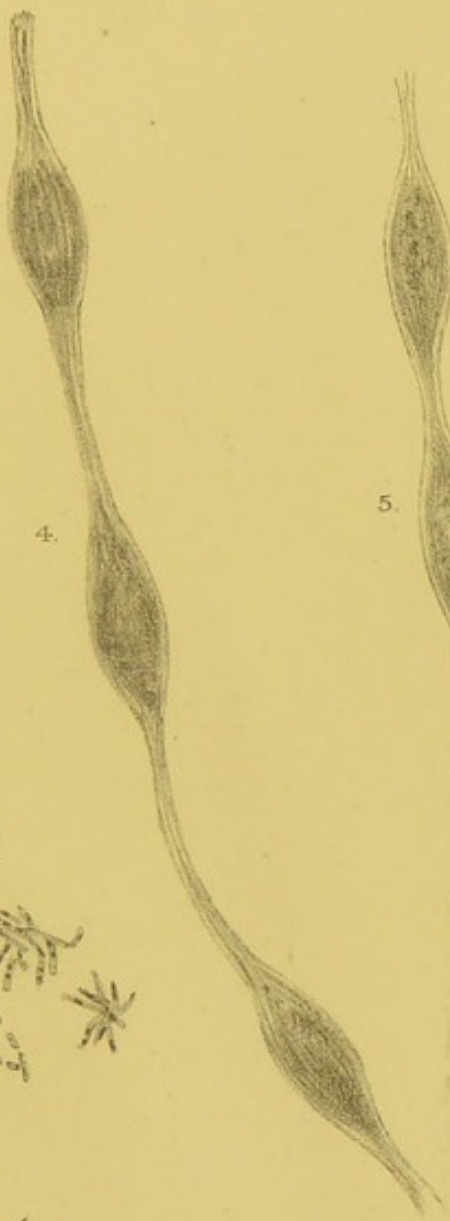
4.


5.


6.


9.


7.


8.

H.C.Payne & J.H.Lapidge

West, Newman & Co. lith.