A further contribution on an 'epidemic skin disease' / by Thomas D. Savill.

A FURTHER CONTRIBUTION ON AN "EPIDEMIC SKIN DISEASE."

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New York

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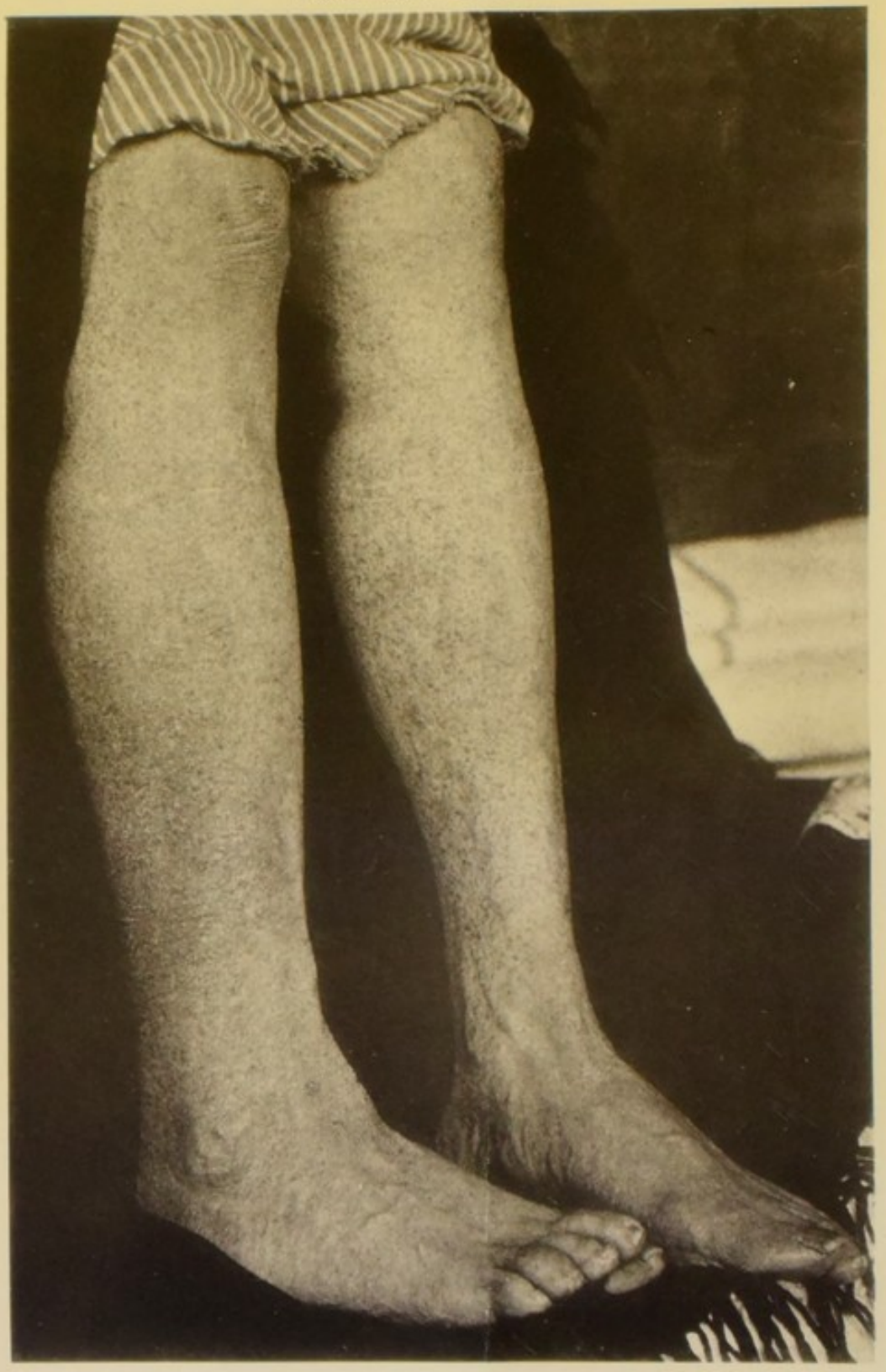

EPIDEMIC SKIN DISEASE.

To show the usual discrete papular commencement.

Journal of Cutaneous and Genito-Urinary Diseases. — New York, July and August, 1894.

Description to face the Illustration of Dr. Savill's Case of Epidemic Skin Disease.

The photograph is intended to show, on the inner surface of the *left* leg, the most usual form of the rash in its initial stage, viz., discrete slightly raised papules, which are often arranged in groups ; and which, in the course of a few days, become covered with branny scales, such as may be seen on the fibular aspect of the *right* leg (which is the one in accurate focus).

The patient was a woman named Jane Crick, aged 72, who was attacked, while in perfect health in the Paddington *Workhouse*, on July 7th, 1891. The eruption first appeared on the legs symmetrically, then on the arms, also symmetrically, then on the trunk, and finally on the head, all within a few days. She was transferred to the *Infirmary*, and the photograph was taken on July 16th. The papules, becoming confluent, gave rise to a general redness and thickening of the skin. The eruption assumed a purpuric condition on the legs, a feature not unfrequently observed in skin lesions of the aged. The rash was followed by the usual profuse exfoliation and by loss of hair and nails. There was slight exudation in the flexures of the limbs. The tongue was red and glazed ; the anorexia and prostration were extreme ; and there was transient albuminuria, and diarrhœa. In this case the temperature between July 14th and August 18th was almost continuously 99° F. From August 18th to 31st it was intermittent daily between 100° and about 101°. During September and October it was normal, or, more often sub-normal.

The case was a very severe one. The primary attack lasted eight or nine weeks, and was followed by two relapses ; but she completely recovered at the end of fifteen weeks. Stimulants were administered. An ointment of calamine and zinc was applied.

A FURTHER CONTRIBUTION ON AN "EPIDEMIC SKIN DISEASE." [1]

BY

THOMAS D. SAVILL, M.D.,

London.

INTRODUCTION.

IN November, 1891,[2] I ventured to draw attention to a form of skin disease which under certain circumstances is contagious, and was at that time epidemic; and the constant presence of a microbe was demonstrated by Dr. J. R. Russell [3] and myself.[4] I defined the disease as a contagious malady in which the main lesion is an inflammatory condition of the skin, sometimes attended by the formation of vesicles; always resulting in desquamation of the cuticle; usually accompanied by a certain amount of constitutional disturbance, though without pyrexia, and running a more or less definite course of seven or eight weeks. One hundred and sixty-three such cases occurred in patients under my care, which arose in the Paddington Infirmary during the Summer and Autumn of 1891.

It had certain very marked resemblances to eczema, for which disease I, in common with others, at first mistook the malady; but afterward it was evident that it did not always correspond to eczema, even apart from its character of epidemicity.

[1] Presented to the Eleventh International Medical Congress, in Rome, March 31, 1894. With the Exhibition of Photographs, Colored Sketches, Microscopic Specimens and Flakes of Epidermis.

[2] *British Medical Journal*, December, 1891, and January, 1892; Medical Society's Transactions, 1892, *British Journal of Dermatology*, February and March, 1892; and a monograph obtainable from the author or from Messrs. H. K. Lewis, Gower Street, London.

[3] *British Journal of Dermatology*, April, 1892.

[4] *British Medical Journal*, January 9, 1892.

An admirable description of the chief features of the disease is given by Dr. Byron Bramwell, in his "Atlas of Clinical Medicine," (1893, volume II., part III., page 121), which contains also two beautiful colored illustrations of patients suffering from the malady.

The disease is, so far as I am aware, the only skin malady up to the present time which has been connected with epidemic causes. In 1891 the disease broke out in six institutions in London (giving 424 cases), and many isolated cases occurred in the medical practices of my friends. The importance and severity of the outbreak in that year may, in some degree, be estimated by the fact that 12.8 per cent. of the 163 cases under my care died. The entire body was covered with the eruption in one-half of these cases.

During the past three years I have, when opportunity offered, devoted myself to a study of the malady. I propose in this paper to embody the material collected during that time. On the whole, there is not much modification to be made in the description of the disease given in 1891.[1]

It will appear from the facts about to be mentioned—first, that the epidemic of 1891 was an unusually severe one, both as regards the type and the number of the cases; second, that cases of the malady may arise sporadically, and sometimes in a very mild form; third, that it is not a rare disease; and, finally, that the name "General Exfoliative Epidemic Dermatitis," besides being cumbersome, is not altogether appropriate.

Further light is still needed on the pathology and nosology of the disorder in question and it is with this end in view that I submit the following facts to the criticism of the medical profession.

[1] It may be well to reproduce here the history of a fairly typical, though *very severe*, case, lest the original account of the disease should not be readily accessible to the reader.

D——, æt. 63, was admitted to the Paddington Infirmary on March 13, 1891, with pain, swelling, and other symptoms pointing to rheumatic inflammation of some of the joints and fasciæ of the right arm and leg. By the end of June he was quite well, getting up and about every day. His discharge from the infirmary was in contemplation, when (on July 4th) he complained to the nurse of considerable "irritation" of his skin, especially on the arm. There was nothing to be seen at the time, but the next day a fine papular rash was observed on the front of the right forearm and upper arm. The rash came out as a thickly set papular one with some general congestion and thickening of the skin. By the sixth day (July 10th), the eruption had spread to the face and head. Next day fresh independent patches of the disease were observed on the palms, the left elbow back and front, and also on front of the legs, a point still more distant from the place first attacked. Meantime the parts originally attacked underwent improvement. It was never vesicular, but the

Since 1891 four outbreaks have come to my knowledge, and we will first examine these, subsequently passing to a consideration of the sporadic cases.

Section I.—The leading features of the disease—Exfoliation and definite duration—Outbreaks since 1891.

(A) Cases in the Paddington Infirmary, 1892.—The 163 cases on which I based my observations in 1891 all occurred among the patients and staff at the Paddington Infirmary and the adjacent Workhouse. In the Spring of 1892 these buildings were very thoroughly distempered and cleansed; nevertheless, I had under my care 12 fresh cases which arose in the Infirmary, and two admitted from the outside, in the Summer and Autumn of that year. Five of them had been previously attacked in 1891. This gave an attack rate of approximately 2

epidermis was soon universally shed as small dry scales, or in larger flakes from the hands and feet.

The eruption took a turn for the better about the tenth day, and it was thought to be getting well; but about the fourteenth day there was a severe general exacerbation. The eruption was now symmetrical and noted (July 17th) as "very burning and irritating, and preventing sleep. Back covered almost uniformly with papular eruption which is going on to furfuraceous desquamation. Arms and legs covered with spots of same, also hands up to fingers' ends, back and front. Face and most of scalp (both bald and hairy parts), uniformly reddened and thickened (not papular) and desquamating in small scales. Ears worst part of all, and weeping."

The only place where vesicles were observed in this case was behind the ears; elsewhere the vesicular stage, if it existed at all, escaped notice. By the twenty-first day nearly the whole of the body and limbs were affected, and presented the appearance of *a crimson surface formed of inflamed and swollen skin, gradually being denuded of its epidermis, which separated in scales and flakes of various sizes; and presenting here and there, especially in the flexures of the joints, cracks through which a scanty moisture exuded;* but otherwise, and for the most part the inflamed skin was dry, and it felt hot. The conjunctivæ were inflamed and discharged a sero-purulent fluid, and a sickening odor was given off from the skin.

Matters remained in this pitiable state for several days. The skin was raw and acutely tender to the touch, so that the patient dare not relieve the intolerable itching and burning from which he suffered, and the mere contact of the bed-clothing was painful. About the twenty-fifth day of the eruption the swelling began to abate, but the redness and desquamation still continued for some weeks longer. On August 12th the following note was made: "Eyelids much thickened, eyes red and watering. Whole surface of body reddened and scaling in moderate-sized scales." Mr. Jonathan Hutchinson saw the patient about this time, in the sixth week of the disease, and expressed the opinion that it would be "difficult to distinguish the case at that stage from one of pityriasis rubra;" the universal desquamative dermatitis was exactly such as occurred in that disease.

About the seventh week the new skin gradually assumed a yellowish-brown color, and an appearance of being stretched and dry, like parchment. In the face this stretching gave rise to eversion of the eyelids. This stage lasted some time, and it was not until the eighth or ninth week that the skin reverted to its normal condition, though still somewhat scurfy.

During the whole time the patient suffered from extreme weakness and prostration; at one time he experienced a feeling as of "falling through the bed." The tongue, at first coated, afterward became raw and sore, like the skin. The loss of appetite was very marked, amounting to a loathing of food. He sometimes felt sick, though he never vomited, and he had no diarrhœa. The weakness lasted long (several weeks) after the dermal inflammation had abated, but return of the appetite was the direct sign of improvement,

per cent. as compared with 19 per cent. the year before Twelve of the cases in the Infirmary were males and two females. As in the previous epidemic the aged chiefly were attacked, though one man was only 30, another 38, and another 40. The eruption started on different parts of the body in different patients. One case, a woman (Fanny Moore), aged 38, had a fatal issue. The disease attacked her in March, 1892, while she was in the sick wards of the Workhouse, and after several relapses, and after a very chronic course, she died of asthenia on September 30th. She was the subject of very advanced cardio-vascular changes.

Mr. J. J. Clark, of St. Mary's Hospital, very kindly endeavored to cultivate the microbe from some blood which I obtained from the left ventricle, but was not successful. It was possible that too elaborate precautions were taken to sterilize my operations in obtaining the blood, and that some corrosive sublimate was allowed to get into the capillary collecting tubes. But I have before had great difficulty in obtaining the microbe from such chronic cases as this. The best for such investigations always seemed to be the more recent cases.

A marked instance of the contagiousness of the malady occurred in the case of Jeremiah W., aged 40, a man admitted on September 3, 1892, for a severe bruise of the leg. One may say, in passing, that the patients themselves were fully persuaded of the contagious nature of the disease, and this man was in great fear of catching it. He was up and well, when several other cases of the skin disease on inmates, on whom he sometimes tended, were active in the ward. On September 15th, *i. e.*, twelve days after admission, his skin began to itch, and on the 17th he developed the rash as an urticarial or blotchy one, at first on the scrotum and thighs, afterward spreading to

and it became as ravenous as in a patient recovering from typhoid fever. The temperature taken regularly throughout was very little if at all elevated, going up to 99 on some evenings. The urine, which had been normal on admission, presented a trace of albumin on several occasions. It first appeared in the fourth week of the disease (July 28th), and lasted continuously for six or seven weeks after recovery, to October 6th, when it disappeared. Concurrently with this there was anasarca of the legs.

The primary attack of the disease may be said to have lasted abont eight weeks altogether. The eruption was followed on two occasions by trivial localized relapses, viz., two weeks later (September 17th), on the arms and chest, and eight weeks later (October 23d), on the legs. Three weeks after the rash faded he had a slight attack of pleurisy.

The marked abatement of the eruption during the second week in this case is a feature worthy of attention. A similar abatement, followed by an exacerbation of redoubled violence has occurred at an early stage in many of the cases.

In th's patient the nails were shed, and the hair of the scalp came out, so that he became completely bald, and the eruption was followed by a chocolate-colored pigmentation uniformly spread over the whole body.

the legs, abdomen and chest. Creolin baths and ichthyol soap did him good, and he left of his own accord, with the rash still on him, on October 18th. Almost from the first the patches took on an eczematous character, with exudation; and a few days later resulted in dry, branny desquamation of the cuticle. The eruption throughout was in patches or maculæ, but little raised. The distribution was almost general, but chiefly over thighs and lower trunk. The temperature throughout was slightly below normal, and the only constitutional symptom was weakness.

William S., aged 66, being a typical acute case, may here be briefly referred to. A discrete papular rash on the arms, and a papular erythematous eruption on the legs appeared simultaneously on August 20th. In twenty-four hours it became general and assumed different types on different parts of the body. On the arms it remained dry and became scaly. On the legs and trunk there was much exudation and swelling of the skin, which cracked in places, and it terminated in exfoliation of the cuticle in large flakes.

The conjunctivæ were very much swollen and often painful. The temperature varied between 99° and 100° F. during the first few days; there was also thirst, loss of appetite and prostration. Urine normal. He improved at once with the first creolin bath, and continued to do so steadily. Soon after the advent, purpuric patches appeared on the legs. He suffered a good deal at first from the tension of the skin on the legs and thighs. The arms relapsed seventeen days after the commencement, but he made a good recovery in seven or eight weeks, though the skin still remained stretched and parchment-like in appearance.

Detailed notes of all the cases which occurred in the Paddington Infirmary during the year 1892 are preserved in the Clinical Records of the Infirmary, and a Table of the Cases, which need not be reproduced here, was made with columns for the following headings: 1, name; 2, age; 3, ward bed; 4, date of commencement of disease; 5, part first affected; 6, character of initial rash; 7, progress and extent of rash; 8, type (moist or dry); 9, character of desquamation; 10, other epidermal structures involved; 11, relapses; 12, subjective symptoms; 13, temperature; 14, tongue and intestinal symptoms; 15, anorexia or asthenia; 16, urine; 17, pulse and respiration; 18, other organs involved; 19, date of recovery or death; 20, mode of recovery or death; 21, duration of primary attack; 22, complications and sequelæ; 23, treatment and its effect; 24, remarks.

Summary of Paddington Cases, 1892.—The ages of the fourteen cases under my care in the Infirmary in 1892 were respectively 30, 38, 40, 42, 44, 50, 60, 60, 63, 66, 67, 70, 78 and 79. Two of them, as before mentioned, *were attacked in their own homes outside the Infirmary*, and of the remaining twelve three arose in the sick wards of the Workhouse and nine in different parts of the "New Paddington Infirmary."

As to the date of commencement, two started in January, two in March, two in May, two in June, one in August, three in September, one in October and one in November. The eruption began on different parts of the body, but mostly on the lower extremities, and generally commenced as a discrete papular rash, grouped into constellations. One case was urticarial and one erythematous.

In about one-half of the cases the total skin area was affected. About half of the cases were of the dry, and half of the moist type. All the attacks were less severe than the year before, and only one patient died, a woman of 78, who was the subject of advanced cardio-vascular disease. Two of the cases in whom the rash was extensive had, at first, a slight elevation of temperature; the others had no constitutional symptoms if we except weakness and loss of appetite.

(B) Cases in the Paddington Infirmary, 1893.—In 1893 Dr. T. E. Hillier succeeded me as Medical Superintendent at the Paddington Infirmary, and six cases occurred in the patients under his care, an approximate attack rate of 0.6 per cent. as compared with 2 per cent. in 1892 and 19 per cent. in 1891.

Thanks to the courtesy of Dr. Hillier, I had an opportunity of seeing and identifying some of these cases. The following particulars were taken from the notes kindly supplied to me by Dr. E. H. Snell, the Medical Officer, who further informed me that there were one or two others in the sick wards of the adjacent Workhouse of which he was unable to supply notes.

The ages of these six cases were respectively 59, 65, 66, 73, 74 and 93. All of them were in the New Infirmary when first attacked with the disease. Two arose in June, one in July, two in August, one in September. In two, the eruption started simultaneously on the hands and feet, one on the arms, one on the neck and arms, one on the legs, and one on the face.

In all it began as a papular rash. There was a large extent of surface involved in all, but none were quite universal.

Two cases had more or less exudation ; the other four were of the dry, desquamative type. In all other respects they conformed to the moderately severe type of the disease. All complained of anorexia and of weakness. The temperature in four of the cases was subnormal, and in none was it elevated. All six had traces of albumin in the urine, one woman, aged 73, having previously suffered from renal disease. In no instance did the disease prove fatal. One of the six had had the skin disease in 1891 and again in 1892, and one of them had had a slight attack in 1892 ; all the rest were attacked for the first time in 1893.

(C) Cases in the Fulham Union Infirmary, 1893.—By the courtesy of Dr. William Steer, the Medical Superintendent of that Infirmary, I am able to give particulars of three fatal cases of the disease that were under his care, aged respectively 56, 58, and 74. One arose in July and two in October, 1893.

William J., aged 58, was attacked in July with a general erythema, going on to an "eczematous" exudation, the epidermis separating in thin flakes. His temperature at first went up to 101.5°, but was subsequently normal. He had diarrhœa, loss of appetite, and intense weakness. The urine contained some albumin. He became delirious, and at the end of thirty days he died in a state of coma, in spite of the free administration of stimulants. A lotion of 1 in 4,000 perchloride of mercury was applied to the skin.

James W., 74, had, on October 7th, a papular rash. It first appeared on the trunk, and then spread over the whole body. It was followed by slight exudation and by profuse exfoliation of the cuticle. His temperature gradually rose, reaching 101° F. on the 12th. It remained high for a few days, and then fell to normal on the 22d. Delirium supervened, and, passing into a comatose condition, he died on October 31st.

Robert F. McK., aged 56, was attacked on October 19th with "eczematous" patches all over the body. At first there was a good deal of exudation, but it soon became dry. There was profuse exfoliation. There was slight elevation of temperature, until the 23d, when it became normal and kept down until three days before death. Bronchitis then supervened, and the temperature rose to 100.5°. He finally became very drowsy, and died comatose on November 3d.

In all these cases the skin lesion was very severe. There was marked asthenia, and anorexia, the conjunctiva being also attacked. In all three patients the temperature was somewhat

elevated at some period of the disease, and they all had albumin in the urine.

Dr. Steer believes that these were the only cases which arose in his Infirmary during the year 1893.

(D) Outbreak in the Bethnal Green Workhouse, 1893.—By the courtesy of Dr. John Knox, the Medical Officer of the Workhouse, I had several opportunities of seeing these cases, and he has been kind enough to supply me with the leading facts of the outbreak, as follows:

Eighty-six cases arose in the different wards (45 male, 41 female), between May 4 and June 10, 1893. Before and after these dates there were no cases; so it may be observed that the outbreak was severe in point of number of cases during the short time (five and a half weeks) that it lasted. The approximate number of persons exposed to contagion during that time was 836 (454 male and 382 female). Thus the attack rate was 4 per cent. Out of the 86 cases 5 died of the complaint (3 males, 2 females), giving a case mortality of 5.8. The most common starting points were the wrists and forearms. The eruption became universal in about one-fourth of the cases. The temperature was a little elevated in most of those cases where the skin was universally involved. The most marked constitutional symptoms were anorexia, vomiting and diarrhœa. The immediate cause of the fatal issue was bronchitis (1 case), asthenia (2 cases) and coma (2 cases). Most of those attacked were middle-aged or elderly persons, but there was one young subject, a girl, aged 14, who had the disease mildly. The average duration of attack was about two months. No internal treatment had any apparent effect, but soothing external applications relieved the irritation.

There is no doubt whatever that these cases corresponded precisely with the disease described by me in 1891, but the *average type of case was undoubtedly considerably milder*. The average duration was about the same, but only one-fourth of the patients, as compared with one-half of mine, had a universal distribution of the rash. The attack rate was only 10 per cent., as compared with 19 per cent. The case mortality was only 6, as compared with 13 per cent. Thus, it will be seen that the proportion of cases with a general eruption, the proportion attacked, and the proportion of deaths, were practically half the similar figures in the series of cases under my care in 1891. It follows, therefore, that the Bethnal Green epidemic of 1893 was only half as severe as the Paddington epidemic of 1891.

Section II.—Although the disease is undoubtedly, under some conditions, contagious [1] *and epidemic, it nevertheless not infrequently occurs sporadically. Conditions under which the disease becomes epidemic.*

Sporadic Cases.—In the preceding section I have only made reference to the *epidemics* that have arisen since what might be called the Great Epidemic Year of 1891. But it is of the highest importance that note should be taken of the fact that the disease may occur sporadically, both as regards locality and the absence of pre-existing sources of infection.

In 1891 [2] I referred to the fact that one out of the 163 patients at the Paddington Infirmary was brought in with the skin infection already upon him, but I have nowhere as yet given the history of that case.

W. B., aged 61, was residing in the western district of London, one-fourth of a mile or more distant from the Infirmary, when he developed the eruption, about June 18th, behind the ears. He was admitted to the Infirmary on June 20, 1891. In the course of a few days the eruption attacked the arms, the legs, the head, and afterward became universal. At first there was a good deal of exudation, but this was soon replaced by the characteristic desquamation of cuticle. He got better in seven or eight weeks, but the disease was followed by a relapse, complicated with severe conjunctivitis. He was well again at the end of thirteen weeks. Afterward his hair came out and he became nearly bald. The temperature in this case was, on several occasions, a little above normal (99° or 100° F.) but he did not suffer from weakness, vomiting or diarrhœa.

This patient lived, it will be observed, a considerable distance from the Infirmary, and I made at the time exhaustive inquiries into any possible source of contagion, but without success. It seems a clear instance of sporadic origin.

In the early part of 1892 I received information of many sporadic cases, which were communicated to me by the kindness of my medical friends.[3] One of these cases, under the care of Dr. William Cock, is narrated in the *British Medical Journal* of January 9, 1892 (p. 68). Another case was shown by Mr. Turner at the Harveian Society on January 17, 1892.

Two of the 14 patients under treatment for the disease in

[1] Monograph, p. 31.
[2] Loc. cit., p. 6.
[3] Monograph, p. 64.

the Paddington Infirmary in 1892 had first developed the rash while at their own homes, before coming to the Infirmary. Both of these cases had previously had the affection in 1891.

Reference is also made to a sporadic case under the care of Dr. Evans, in the *British Medical Journal* of January 9, 1892 (p. 56).

In the Autumn of 1892 I saw a lad, Charles P., aged 10 years, residing in the western part of London, a patient of Dr. Thorsly Jones, with whom I saw the case in consultation. He had been attacked by an eruption three weeks before. It had started in groups of red "pimples" on the thighs, first on the right, then on the left, with more or less symmetry. The skin a day or two later became "flaky," and the eruption spread to the other limbs and to certain places on the trunk; finally nearly all the body, excepting the back, became involved. The doctor informed me that the temperature had been up, during the first two days, to nearly 100°, but had been normal ever since. In the early stage the child had been sleepy and heavy, and suffered from loss of appetite, but he had not taken to bed. Since then the general health had been good. He had been up and about all the time, but did not go to school.

When I saw him there were still a few pimples dying away from the front of the thighs, and the skin was a little thickened in that situation. There was a scurfiness and desquamation of the skin everywhere, and the epidermis of the hands and feet was hard, parchment-like, and coming off in large flakes.

Careful inquiry failed to elicit the existence of any skin disease among his numerous brothers and sisters, friends of the family, playmates or schoolfellows. In this case the disease lasted altogether for about five weeks.

A day or two before I saw him, that is, about three weeks after the commencement of his illness a little brother aged five had had a slight feeling of malaise, accompanied by a precisely similar eruption around the chin.

In November of 1892 I was consulted by a young woman aged 30 years, for boils. She gave me a clear history of having been attacked while in Paris about three months before with a red eruption, followed by very copious desquamation. When I saw her the skin showed precisely the scurfy appearance which occurs during recovery from the epidemic skin disease which I have described. Some of the cases in 1891 were followed by boils.

Conditions under which the disease becomes epidemic.—It would seem, from a study of all the cases that I have been able to see or find recorded, now nearly six hundred in number, that the disease is only contagious or epidemic under certain conditions. The three chief conditions upon which its contagiousness depends appear to be:

1. A predisposition in those exposed to the contagion by reason of advanced life, or of debilitated health: this has been dealt with fully elsewhere.

2. A collection of patients suffering from the disease in one place engendering, it would seem, a concentration of the poison. It certainly seemed to spread very rapidly under these conditions; and,

3. Certain obscure seasonal and meteorological conditions. Nearly all the known cases have arisen between May and November, during the Summer and Autumn months, and there is a marked tendency toward the spread of the disease at these times. This much is certain.

It is a fact of some importance that in 1891 there were 163 cases in the Paddington Infirmary and Workhouse, in 1892 14 cases, and in 1893 6 cases; and it might be thought that certain meteorological conditions of the first-named year had some causal relationship to the epidemic. But it should also be remembered that 86 cases arose within a very short time in the Bethnal Green Workhouse in the last-named year (1893), when there were so few at Paddington.

As regards other conditions necessary no very precise information is yet attainable. In view of the fact that the disease at Paddington in 1891 spread from ward to ward with great rapidity the distance necessary for infection need not, apparently, be very short; but, on the other hand, the free communication between these wards by means of doctors and nurses, for no isolation was attempted, would negative the value of this observation. But, again, the rapidity with which the disease spread in the Bethnal Green Workhouse, where 86 persons were attacked in different parts of the building in the short space of five and a half weeks, and where isolation was in some measure enforced, would tend to show that this malady may be spread through some distance.

Section III.—The cases originally described in 1891 *were selected chiefly on account of their severity. But many of the original series, and most of those subsequently seen, have been of a much milder, sometimes even of a trivial, type; this is especially true of the young.*

There was a marked variation in the severity of the cases in 1891, and had they not all occurred at the same time, and in a perfect gradation series, it would undoubtedly have been difficult to class them all as one disease. But these facts, combined with the constant presence of exfoliation and definite duration, enabled one with certainty to declare the identity of the disease.

One of the cases in 1891 was that of a child, aged 4 (whose photograph is submitted herewith), who was in the infirmary for bronchitis, and who was attacked on August 10th with a few non-marginated red patches on his neck, and a day or two later on his chest, abdomen and axillæ. They were followed by slight desquamation, without any previous exudation or vesicular stage. This patient was well again in three weeks. He had not more than six patches, and none of these were much larger than a crown. He suffered no inconvenience whatever from the malady.

The cases just referred to, under the care of Dr. Evans and Dr. Thorsby Jones, may also be mentioned as slighter cases—cases such as would attend the out-patients' department at any hospital. And finally a good proportion of the cases that I saw at Bethnal Green Workhouse during the outbreak last year were of quite a trivial description; and the eruption, though tending to be symmetrical, was comparatively scanty, and was atttended with little or no inconvenience to the patient.

Section IV.—The disease is not a rare one, and is very liable, especially when mild, to be classed as an eczema or a psoriasis—Diagnosis.

In the preceding pages, and in various publications on the subject, reference has been made to upward of 500 cases which are known to have arisen in the years 1891, '92 and '93. In the face of these figures it is not possible to regard the disorder as rare, while in view of the high mortality during some years it must certainly be regarded as a serious one. Moreover, it seems highly probable that, if the disease were more widely known, many other epidemic and sporadic cases would have come to light.

For example, after the attention of medical men had been drawn to the malady in November, 1891, information was received by Mr. Jonathan Hutchinson of an outbreak, in all probability of a nature similar to the one in question, which had occurred in the Greenock Parochial Asylum five years before,[1] and Dr. F. A. Elkins, under whose care the patients were at the time, has since published particulars of that epidemic.[2] On that occasion about fifty patients exhibited the eruption and the other symptoms of the disease. Several of the attendants had slight attacks, as indeed did the Matron and Dr. Elkins himself. "The eruptions were by no means all of the same character, some being eczema, and others more like psoriasis," Dr. Elkins states.

Dr. Elkins states: The moist type seemed to be the commoner on this occasion; and the weakness, lassitude and torpidity present were very marked. The persons especially attacked were the old and feeble. About five per cent. died from the direct effects of the disease, excluding four other patients who, dying of other diseases, had the eruption upon them at death.

In March, 1893, Dr. Geoffrey Prance, of Edinburg, kindly sent me an account of two cases having all the features of the epidemic skin disease which had occurred some years before in the Cheltenham General Hospital, at a time when he was resident there.

I am informed that cases have also been published in other countries, and I trust that my medical confrères of other nations will accept my profound apologies for the fact that want of time and ignorance of their language have prevented my doing due justice to their publications.

Diagnosis—Initial Eruption.—According to the cases published in 1891, the eruption during the initial stage of the disease may present several different appearances: (1) A discrete papular rash; (2) An erythemato-papular rash; (3) A macular or blotchy rash; (4) A ringed eruption, resembling ringworm.

Each of the four varieties of initial rash occurs with by no means equal frequency. Out of the 163 original cases only 6 started as rings, and only 14 as maculæ. The great majority began either with discrete papules or a papular erythema. All my subsequent experience has confirmed me in the opinion that

[1] *Archives of Surgery*, January, 1892.

[2] *Medical Press and Circular*, April 5, 1893.

the former is by far the most frequent mode of commencement in slight and moderate cases, while the latter is the most frequent in the severe cases. I have, by the kindness of several gentlemen, seen cases occurring in their private practices. These, for the most part, have been sporadic; the patients have been younger, the disease much slighter than most of my infirmary cases, and the patients have suffered from little or no constitutional disturbance. In nearly all of these the initial rash consisted of small discrete papules collected into groups like constellations. In all, there was the subsequent exfoliation of the epidermis. But at first the rash consisted of groups of papules, and I have come to regard this kind of eruption as being the most frequent mode of commencement of the disease.

But among the infirmary cases of 1892 I met with one more kind of initial rash—a kind of scurfy erythema without papules. Thus a man named Michael Joy, aged thirty-eight, admitted to Paddington Infirmary during the first week of September, 1892, complained of an irritation or "itchiness" of the forehead and other parts. Nothing was visible for two or three days. Then a faint scurfy redness with little or no elevation above the surface appeared on his forehead, and on other parts in patches with fading margins. This erythematous blush soon spread to the rest of the body. Sometimes it was a little moist in the flexures, but generally dry. It was scurfy even at the outset, and resulted in a bran-like desquamation. The eruption did not yield to the use of creolin baths, but he improved rapidly on ichthyol and tar soap. The case was a mild one, and his skin was quite well in five or six weeks. There was no elevation of temperature at any time, the urine was normal, and he suffered no inconvenience beyond the itching of skin.

This scurfy erythema is not an infrequent occurrence. Several of the 1892 cases began in a similar manner. Thus the eruption may be manifested in no fewer than five different forms. As far as my own experience extends, they are, in order of frequency:

(1) Discrete papules, generally arranged in constellations.

(2) A congested or erythemato-papular rash (which usually indicates severity).

(3) A scurfy erythema, usually in patches (which generally heralds a mild attack).

(4) Raised maculæ becoming confluent, not unlike urticaria.

(5) Flat ringed papules spreading circumferentially into rings with pale depressed centers.

The disease is more amenable to treatment early, and as it is undoubtedly contagious, if only feebly so, it seems important to recognize it at the commencement if possible.

I have gradually come to regard all papular eruptions, especially if arranged in constellations, with suspicion, and to inquire minutely for possible sources of infection. It is important in such cases to watch for the desquamation or exfoliation which is sure to follow in a day or two, and later on to note the time when the eruption begins to fade.

It is interesting to observe with how large a number of differently named skin diseases this disease might be—and possibly may have—been confused in its early stage. It is, however, quite possible to differentiate it by its subsequent progress.

Diagnosis from Eczema.—This curious disorder, so protean in its earlier stages, presents certain points of resemblance with many other maladies. It is not possible, on the present occasion, to enter minutely into the differential diagnosis from all the infinite variety of diseases it is, at the outset, likely to simulate. But it is necessary to mention the points of distinction which subsequent experience has confirmed as differentiating it from eczema, the disease it most closely resembles, except in regard to certain features of epidemicity, exfoliation, and definite duration.

Eczema.	Epidemic Skin Disease.
1. Attacks all ages, and children are very liable.	1. Children almost exempt ; old people specially prone.
2. Gout is a marked predisposing cause.	2. Gout offers no predisposition.
3. Constitutional disturbance always moderate and never fatal.	3. Constitutional disturbance often severe, and may be fatal.
4. Dried crusts thrown off, but exfoliation of cuticle not a marked feature of the disease. Dermal thickening absent or moderate.	4. Epidermal exfoliation a constant feature. It may occur in some places without previous eruption. Dermal thickening generally present.
5. Exudation nearly always present.	5. Exudation may be slight, transient, or absent.
6. Course not definite.	6. Course fairly definite.
7. Not hitherto regarded as contagious or epidemic.	7. Undoubtedly contagious and epidemic under certain conditions.

Diagnosis from Pityriasis Rubra.—In its earlier stages the disorder under consideration is not liable to be confused

with the pityriasis rubra described by Hebra, Willan and Wilson. However, the skin, in severe cases of the dry type of the epidemic skin disease, if seen at a later stage, presents a very exact resemblance to the appearance of the skin in pityriasis. Nevertheless, in their course and progress the two diseases are fundamentally distinct. All the epidemic skin cases that were not fatal recovered their normal skin in a reasonable and fairly definite time, whereas pityriasis rubra has a very chronic course, and an indefinite duration.

Section V.—Bacteriological researches since made with the exudation have failed to isolate any absolutely distinctive microbe, chiefly on account of the contamination with staphylococci.

During the epidemic of 1891 I was able to make some experiments with the exudation obtained from several acute cases.[1] There was constantly present in these a microbe bearing some resemblance to staphylococcus albus, but, differing from it in always occurring as a diplococcus, in not liquefying gelatin, at any rate for many days, and in the shape, color and thickness of its cultures, which were thin and of a somewhat translucent, bluish-white tint. If staphylococcus albus was also present it could be separated by plate cultures. Dr. J. Risian Russell, by independent researches, detected the same organism in the blood and skin.

We were unable to make inquiry into the pathogenic properties of this microbe at that time, further than one experiment. A rabbit inoculated by Dr. Klein showed a scurfiness and redness of its ears, and died on the twelfth day, and subsequently Dr. Russell obtained from the blood the characteristic diplococcus and cultures.

In 1892 Mr. J. J. Clark was kind enough to investigate the blood taken from the left ventricle of the only fatal case in the Paddington Infirmary, but he was unable to obtain cultures of any sort. The case was that of a woman, aged 76, and the disease ran a very prolonged course, that is to say, was attended by a good many relapses; and she did not die for six months after she was first attacked. It is doubtful if the skin affection was the direct cause of death. It was not, therefore, a suitable case for investigation. It was from the more acute cases, in 1891, that my cultures were obtained. But my belief is that I

[1] *British Medical Journal*, January 9, 1892, and Monograph, page 33.

had inadvertantly allowed some corrosive sublimate to remain in the capillary tubes in the course of sterilization.

In 1893, by the courtesy of Dr. Knox, I collected some exudation from three of the Bethnal Green cases, which were at that time in a state of subsidence. Two of the cases only gave cultures of staphylococcus albus and aureus. But from the third a growth was obtained which contained, at least, two apparently distinct organisms, one of them being staphylococcus albus and the other resembled the diplococcus I sought. But I was wholly unable to separate them after carrying on a long series of cultures.

Histology.—In the severe and fatal cases there was an immense amount of highly vascular, newly formed, fibrous tissue in the derma, and other changes which have previously been illustrated and described. [1]

Dr. H. G. Piffard, of New York, who has been good enough to submit my microscopic sections to minute examination, points out that there is a "nuclear degeneration in the rete mucosum, causing an appearance which some have described as psorosperms," and he also observes "special activity in, and prominence of, the stratum granulosum."

He has been so good as to send me some beautiful photographs.

Section VI.—Treatment. The most efficacious form of treatment is the creolin bath. Not only does it procure relief for the sufferer from the severe irritation, but it treats the disease on rational and scientific principles. It has been successful alike both in recent and protracted cases, after many other remedies have failed. So efficacious has this bath been that in my opinion the epidemic of 1892 *was prevented by these means from exceeding the dimensions it did.*

The bath should consist of about fifteen gallons of comfortably warm water (about 95° F.) to which two and a half pints of a 1 per cent. solution of creolin is added. The patient takes a bath regularly once a day, in very bad cases twice a day, and stays in for about twenty minutes. It is best taken at night, and the patient is gently dried and put to bed. The earlier it is used in the disease the more efficacious it appears to be. A large number of cases have been treated in this way. The following cases, which have been under treatment in 1892 or '93, may be mentioned by way illustration.

[1] Monograph, p. 34.

William Tapping, aged 57, originally admitted for ulcer of the leg, had a severe attack of the dermatitis during the epidemic of 1891, but completely recovered. In May, 1892, when a few cases of the disease again arose, he was attacked for the second time, and again seriously. On both occasions it assumed the variety I have called "dermatitis sicca." At first he used a 1 per cent. ointment of creolin, made up with lanolin and water, which allayed the irritation, but the skin lesion steadily became worse and the whole body was soon involved. At the end of two weeks he was ordered a creolin bath each day and improvement set in at once. On June 3d the new skin was so sore from the exfoliation that the creolin ointment was substituted for the baths. He very soon grew worse and certain area, such as the back, which had quite recovered, now relapsed. Three weeks later he was again ordered a daily bath. He at once began to improve and in the course of two weeks was quite well. This was a case in which, on two occasions, marked improvement set in immediately the baths were given. Internal medication (mist Mag. Carb. c̄ Mag. Sulph.), and all surrounding conditions of the patient remained precisely the same all the while.

Henry Walker, aged 64, admitted originally for morbus coxæ occupied the next bed to William Tapping. His case resembled the latter in all the chief particulars. In his attack during 1892 the bath was suspended because of the pain in the hips caused by movement and he at once became worse. On resuming the baths he made a rapid and uninterrupted recovery.

John Woodcock, aged 46, originally admitted for biliary colic and choroiditis, had also suffered very severely in 1891. He relapsed many times in spite of varied treatment by arsenic internally, zinc, calamine, creolin ointments, Unna's paint of oxide of zinc, etc., etc., and finally the disease was succeeded by a chronic dermatitis of both arms which lasted eight or nine months. He became much worse during the epidemic of 1892. He was then treated perseveringly by the creolin baths daily for six weeks and ultimately got quite well.

Creolin Ointment (½, 1 and 2 per cent., rubbed up with lanolin and water in almost equal parts) ranks next to creolin baths in efficacy, especially if used in quite an early stage. In one or two cases we had reason to believe, as I have mentioned elsewhere, that it checked the spread of the eruption. In those very severe "moist," cases where large tracts of skin pre-

sented a raw profusely exuding surface, it seemed to be more soothing and suitable than the baths, but it was astonishing, even in these, how well the baths were supported.

Ichthyol and tar soap was used to four of the cases at Paddington in 1892, and in three of them caused marked amelioration, and in two of these the creolin baths were tried at first with little benefit, but as soon as the ichthyol and tar soap was used they made rapid progress. Creolin soap was also used with advantage in one case.

Liquor carbonis detergens, one drachm to the pint, with or without calamine, was of some value in cases of a more chronic course, and in one case which occurred in the year 1892 (George Skinner, aged 65) the patient improved under it after many other remedies had failed.

Carbolic lotion (1 in 50 or 100) undoubtedly did harm in acute cases and in most of the cases of "Dermatitis Humida"; but applied quite early in the disease before the formation of vesicles, or in chronic dry cases, it was sometimes of value.

To allay the irritation from which they all suffered, *cold cream* (Ung. Galeni) was very efficacious especially for the dry cracked skin which occurred usually in the late stages of the disease.

Zinc and calamine ointment is a most valuable preparation for allaying the irritation, and on that account was very popular with the patients. We used it largely, and in certain cases it seemed to have a curative action, *e.g.*, in the case of Albert Dillon, aged 9, who had a slight attack in 1892, never having had it before. But here, as in some of the other cases where this remedy was used, there was not any distinct evidence that the disease would not have got well spontaneously. Zinc ointment of the British Pharmacopeia had a similarly beneficial effect of a sedative kind.

A lotion of calamine (20 grains to the ounce) with or without zinc oxide had a similarly sedative effect. It was also very popular with the patients, but many got worse under its use.

Oxide of zinc powder was a valuable application for the newly formed tender skin, when convalesence was established.

A pigment of zinc oxide prepared with gelatin (Unna) and painted on once or twice daily was tried in several cases, but without avail.

Lanolin, *vaseline* and a good many other things have been tried.

Corrosive sublimate lotion in any strength, invariably, in my experience, made the patients worse.

Section VII.—Nosology.—The name "General Exfoliative Epidemic Dermatitis," suggested by the author in 1892,[1] is an unfortunate one, because (*a*) the disease, although always exfoliated, has only sometimes a general distribution: only 25 per cent. at Bethnal Green. (*b*) It is only epidemic under certain conditions, *vide ante.* (c) Mild cases hardly amount to a dermatitis.

"Epidemic Skin Disease," the title first used,[2] has the merit of emphasizing the conditions under which the disease has attracted attention.

In its clinical features the disease under consideration belongs more to the eczematous than to any other group of skin diseases, although visible exudation may sometimes be absent. It might be said that the constant presence of exfoliation prevents it being so classified, and that it belongs to the exfoliative disorders. But, on the other hand, it may be urged, first, that pityriasis rubra, the most typical of exfoliative dermatites, which the Epidemic Skin Disease also somewhat resembles, has been regarded as an eczematous disease by some authorities. [3]

And secondly, the exudation, though apparently absent, could be detected on the under surface of the scales in some cases.[4] Dr. Colcott Fox, who saw many of the cases, also supports the view that the disease belongs to the eczematous class. Nevertheless it is differentiated from the eczema, as ordinarily met with, by the feature already referred to (page *ante*).

Conclusion.—In conclusion, it seems to me to be of the greatest importance both with a view to a recognition and study of this "Epidemic Skin Disease," and the prevention of outbreaks, such as those mentioned in the preceding pages, to bear in mind (1) that sporadic cases most certainly do occur, and (2) that the disease may present a very mild character, especially when it attacks the young.

The malady under consideration undoubtedly deserves more than passing attention. The multiform character of the rash, at least at the outset of the disease, is a feature of considerable interest to those who study skin maladies from a clinical stand-

[1] Monograph, p. 39.
[2] Monograph, p. 5.
[3] Living. Diagnosis of Skin Diseases, p. 98.
[4] Monograph, p. 22.

point; for the prime and essential cause of the different appearances presented by the skin was undoubtedly the same in all cases, yet the resulting conditions resemble many different skin affections hitherto described by different names.

To the pathological student it is of equal interest, not only by reason of the obscurity of its epidemic occurrence, but also by reason of the part--presuming our observations be correct —played by microbes in its origin and development.

The malady is, so far as I am aware, the only disease of the skin hitherto known to have arisen in outbreaks such as those at Paddington and at Marylebone in 1891, and at Bethnal Green in 1893. It is important in this connection to remember that the quality of contagiousness is often one of the last clinical features to be discovered in the history of a disease which is always more or less present (endemic) among a people. May it not be, therefore, that possibly eczema, psoriasis, pityriasis rubra and other endemic skin affections, which this Epidemic Skin Disease at one or other stage resembles, are in reality contagious maladies, albeit feebly so under ordinary conditions?

These and other questions of profound interest arise out of a study of this strange disorder, and it seemed to me that the most appropriate place to seek for guidance, advice and criticism in searching after the truth, under such circumstances, was at a concourse of scientific men of all nations, such as the one to which I have the honor, with great deference, to present this communication.