UNIVERSITY OF EDINB. M.D. THESIS
1893

EPIDEMIC DERMATITIS EXFOLIATIVA

GEOFFREY H. PRANCE M.B.C.M.
EDINB. 1891
Epidemic Dermatitis
Exfoliativa

A Thesis by

Geoffrey F. Prince
M.B. C.M.
Contents

I. Introductory Remarks
   1. Reason for selecting subject for thesis
   2. Other epidemics
   3. Results of any investigation of the epidemic
   4. Sir James' opinion as to rarity of disease
   5. Mortality in Greenock Epidemic
   6. Paddington Epidemic
   6. St. Pancras Epidemic

II. History of first case under my care
    8. Further report on above case

III. History of second case under my care
     11. Further report on above case

IV. Autopsy on second case

V. Nomenclature of Dermatitis Exfoliativa
   20. Dr. Bender views
      objection to the above

VI. Definition of Dermatitis Exfoliativa

VII. Histology of Normal Skin

VIII. Pathology of Dermatitis Exfoliativa

IX. Bacteriology of do, do
    31. Dr. Sailer's experiments
    31. Experimental inoculation of animals
    33. Summary of Dr. Puouselle's experiments
    35. Further conclusions

Page

1, 2, 3, 4, 5, 6, 8, 11, 15, 18, 20, 23, 24, 25, 26, 27, 29, 31, 31, 33, 35, 37
Contents continued

X
Characters of the specific organism

XI
Etiology of Dermatitis Exfoliativa

A
Predisporsing causes
  age
  sex
  previous illnesses
  my own theory as to etiology

B
Exciting Causes
  food soap water etc
  seasonal influence

XII
Symptoms and Physical Signs
  First stage
  Second stage
  Third stage

XIII
Subjective and other symptoms

XIV
Varieties

XV
Diagnosis

XVI
Differential Diagnosis
  from A Eczema
  B Pityriasis Rubra
  C. Pemphigus Foliaceus
  D. Lichen Ruber
  E Scarlet fever
  P Typhus claus
Contents continued

Course and Duration
Complications
Sequela
Prognosis
Treatment
Introductory Remarks.

During my term of office at Resident Medical Officer of the Cheltenham General Hospital, my attention was directed to a paper published in The British Medical Journal of November 5th, 1891, entitled "On an Epidemic Skin Disease" by Dr. Thomas Savell, the Medical Superintendent of the Paddington Workhouse Infirmary. Having read this paper, describing some cases of skin disease as being very typical of an epidemic which occurred in the institution under his care during the autumn of 1891 and having learned other facts of interest, I visited London and saw some of these cases, during which visit I collected and noted all the facts I could bearing on the disease. This visit and correspondence with Dr. Savell—to whose courteous and kind manner I owe a great deal in this matter—naturally interested me in the disease and my interest was
still further awakened by the occurrence of two severe cases in Chelsea in April and May 1892, both of which came into the Hospital, and were thus brought directly under my own care. I was fortunate enough to see both cases before they came into the Hospital, and my diagnosis that there were indeed true sporadic cases of the disease, described by Mr. Savell was confirmed by any senior medical officer, and also by a consultation of the entire medical staff of the Hospital. The fact that — so far as I can learn, before the publication of Mr. Savell's paper only one epidemic of this nature had been noticed, viz. that occurring as far back as the year 1888 in the Greenock Parochial asylum, but only reported so recently as January 1892 by Dr. J.A. Ether in the Journal of the St. Bartholomew's Archivio of Surgery — was of itself sufficient reason to
awaken any interest in this disease and to lead one, as far as possible, to carefully investigate every single case of this nature.

The publication of the Sacred Text brought to light other epidemics of the same nature but on a smaller scale:
1st That at St. Marylebone Infirmary, London— in the autumn of 1891, about 26 cases occurred.
2nd That at Lambeth Infirmary, London— in the autumn of 1891, about 25 cases occurred.
3rd That at Harrow Female Asylum, in the autumn of 1891, about 38 cases occurred.

Also many sporadic cases in various parts of England.

The result of any investigation has been to make one feel that many sporadic cases of this disease do occur, and especially that the milder and less severe types, have probably been classified under the somewhat comprehensive
Term of Segawa, and he more
formidable as Pseudori's Rubra.
I hope, however, to show that this
disease is very different from
either of the above.

By Saverei's paper was read before
the Medical Society of London, and
during the discussion which followed,
so eminent an authority as
Dr. Saverei, said —

"He had avoided wholly of his connection
"with provincial workhouses, to enquire
"of the medical officers of a
"hundred and twenty of these
"institutions, none of which
"contained less than a hundred less
"for the sick. It appeared that
"nothing of this kind had been
"noticed through his course of
"information ranging from Cornwall
"to Berwick on Tweed. This was
"confirmed by his personal observation,
"a slight exception was a workhouse
"in the West of which there had
"been an unusual amount of
"general eczema and more or less "
"cases of Bedouin's Putea."
"It should be remembered that the "
"number of patients comprised in these "
"returns was not less than ten "
"thousand to twenty thousand and the "
"returns had impressed him with "
"no great variety of Sepsis and "
"dermatitis."

As a final and last reason for "
the selection of this subject, let one "
advance a very cogent one, namely, "
the high mortality which attends "
it. In support of which statement "
I give the following register and "
it will be seen that this disease "
is alarmingly fatal."

1st. In the Greenock Asylum Epidemic "
130 patients were exposed to this "
disease. Thirty seven of these "
edoubtedly suffered (28.4%) "
and five deaths are directly "
attributed to its effect. Four "
more had no eruption upon "
them at the time of death, but "
exceeding there to avoid possible error we are confronted with the high death rate of 13.7 per cent.

3rd in the Paddington Epidemic

During the four autumn months in which it was prevalent 846 patients were exposed to the disease. Of these, 163 undoubtedly suffered (19.2%) and 21 deaths were directly attributed to its effects.

Seven more had the eruption upon them at the time of death.

Again excluding these latent cases we have in this epidemic also as in the last a high death rate of 12.8 per cent.

3rd at St. Marylebone 193 cases occurred, of these 10 were fatal a death rate of 5 percent.

I have said that this very fact in a cogent reason for selecting this subject - a disease which only recently has had attention directed to it and which promises a higher
death rate than the prevalent scourge
of small pox is well worthy
of every investigation, and has
appeared to me a suitable subject
for a Thesi.

I have chosen to illustrate this
Thesis with various photographs which
are my own work, only one
original one having been amplified
by copies which I was able to
obtain from his
original beautiful photographs.
I fear however that they have
suffered somewhat at my hands,
and have lost, by reduction, some
of their original beauty.

It will be found that I treat,
not only of the two fatal cases
which came under my care, but
compare them with others occurring
in the principal asylums,
and in order that this may be done
satisfactorily, I shall now give a
short clinical history of them.
A short clinical history of two cases of dermatitis exsudativa which occurred in the Cheltenham General Hospital during April and May 1892 under my care.

Edith G. aged 26, housewife resident at 3 Old Cottages Cheltenham was admitted to the Cheltenham General Hospital on April 28th 1892.

Complaint of "a skin eruption" covering the leg which is very irritable.

Duration of illness fourteen days.

History

Father was killed in an accident.
Mother still living. She had a very comfortable home and good plain food. She had always been healthy up to the time of her marriage. Two years ago, since that event has never
The story continued:

been quite well, for she had a severe attack of influenza which caused a miscarriage. Her first child was born two months ago, had a severe labour and lost a quantity of blood, had only been out once since her confinement & "felt too weak to walk." The skin complaint began fourteen days ago with slight redness and irritation of skin on the outer aspect of the right calf. Small blisters appeared and the skin came off in flakes. On the fifth day it extended slowly down to the foot and then the other leg became affected.

She is an intensely nervous woman of rather better class than most Hospital patients, cries from the pain which is burning and intensely irritating, on character says "two legs feel on fire" and she has had no sleep for some days. Temperature 100.4. The skin on the legs from the upper
part of thighs, downwards to the
toes, back and front, is bright
red in colour, the skin is peeling
from the feet, leaving a red oozing
surface, eight of the toes are
affected with onychia, the redness
jades away into the skin of the
abdomen, at the level of femoral
ligaments, and at this level a
few papular rash was apparent;
milk thickly set, slightly raised, and
the skin felt "stotty" and indurated
The same rash was found upon
the sufferer breast of the chest and
under the breasts, one arm is also
slightly affected. Patient is
evidently in acute pain, has perfectly
quiet in one position, no very
exhausted and weak.

Alimentary System:

Mouth very dry and parched.

Has no appetite, and great difficulty
in swallowing, coughs much from
thirst. Bowels constipated and have
been so for some days.
Hematopoietic System

Two Bubos can be felt in each groin.

Circulatory System

Pulse weak and rapid, easily
compressible rate 92

Respiratory System

Slight cough, but auscultation
pericardium gave negative results.

Integumentary System

Sec (under skin on arm) to go

Urinary System

Urine, acid normal in quantity and
quality

Further Reports

May 1st. Patient has had some
sleep, less irritation. The
treatment has evidently done good.

This was a dusting powder of
Pulv. Lini acidi. Pulv. Amylaci
and Pulv. acidi Baraci was

The drug powdered over the parts after
first applying a weak lotion of
Liquor carbonis detergens. The parts
were then as far as possible bandaged
in loco. The lacerels opened
with great ability.

May 3rd. Very much desquamation and some of the lower moles have been shed. The temperature fluctuates from 99° to 100°.

May 8th. The eruption has spread considerably. This morning the face is covered, considerable oedema; and the eyes are almost closed. Appearance of face very like erysipelas at first glance. Urine shows faint trace of albumen.

May 10th. The papular eruption on the forehead is now peculiar. A thin white discharge is flowing from the eyes and nose. The tongue is also affected and is red and glairy. The eyes were washed with boric ointment and Bitraglycride applied to the face giving great relief. Have for some days past noticed a peculiar offensive odour in the privy and we believe occupies.

May 12th. The face is peeling.
and the dry epidermis and hair on
the front part of the scalp are loose
giving the appearance of a wig.
The tongue is cracked and dry;
sores are on the teeth. Some diarrhoea
refuses stimulants, as tongue is
too sore.

May 18th. The patient is
deresquamating from arms, chest,
face, neck, upper part of back.
and the legs from the thighs
downwards. The skin came off the
palmar of the right hand in a complete
part today. More diarrhoea, had
eight motions in 24 hours, has
vomited twice. Trembling of the limbs
very marked, increased soreness of
the whole skin. The mucus felt was
e changed ice and stomachic sedatives
given, also as frequent enemata.
Temperature at 10 P.M. 108°

May 23rd. Condition now is very
pitiable, diarrhoea and vomiting
are uncontrollable. Nausea of
scales are daily removed from the
bed. The weakness is excruciating and for the past two days he has been wandering in mind at times.
Pulse weak and irregular, about 174. Choungas and white of egg did a little good. Temperature fairly level remains at, on a few pounds above or below, 99. May 26th. Much weaker diarrhea continues and averages 8 motions in 24 hours, astrigent enemata and ombret suppositories are not retained. Patient could raise his arms and lie moaning and in delirium. The legs are twitching.

May 27th. Patient at 6 a.m. sank into torpor, could not be roused, pupils constantly twitching. Temperature 98°.

10 a.m. Patient suddenly dies.

2 P.M. All efforts to restore were unavailing and at 3 P.M. the patient died. The temperature had an hour before death been 96.8. The duration of the
Distance in this case was about 130
weeks.

Second Case
George J. Farmer was married and
living at — one mile from
his Cheltenham Hospital was
admitted to that institution on
May 9th, 1894, aged 67.
Complaint: "a breaking out
in skin of a week's duration."" 

History. He always had good food
and a comfortable home and surroundings.
He never had a week in bed.
1820 or 1821 ago, when he was
attacked by influenza. Since then
he has never been well. He became
an outpatient here three weeks
ago, when he complained of symptoms
pointing to stones in the bladder. He
entered was at his second visit
examined with negative results, he
was also sounded for stone but
some discovered. Has since had influenze with constant pain in his back and feels too weak to do his work, attended eight days ago for his third visit as an out patient, and then albumen was discovered in his urine. This condition was far from satisfactory and he was then urged to enter the Hospital as an in patient, but refused three days after his visit to the Hospital was sick had pain in back and head. The skin eruption began three days after his attack of sickness, a patch "as red as a lobster" came on his neck which he attributed to milking a cow affected with "cow pox" some days previously. The red patch spread and one eye became closed. The eruption came out also upon his chest and back, it was very "itchy," he coued tear himself to pieces. He had slight diarrhoea.
Stall on admission

A well made, muscular man, the skin of the face is red, cracked and peeling, the eyes are partially closed, the skin of the face and neck are thickened and feel indurated.

With the exception of a few vesicles to be found at the lower part of the back, standing out in marked contrast to the cream skin, nearly covered the whole body, with a popular eruption, slightly raised, and on an erythematosus base. Temperature on admission 99.4.

Alimentary System

Uppers are dry and cracked, he can hardly articulate, in very feeble has vomited since admission. Bowels are loose and here in flatulence.

Circulatory System

Marked tachycardia systolic murmur heart enlarged, and a live beat correspondingly misplaced, pulse fairly normal considering cardiac.
Lesion,

Respiratory System normal

Integumentary System

as described under state admission
(Page 17)

Urinary System

Waste and contains albumen
specific gravity 1018

Summary of daily notes at end of second week:

This case has been dry throughout.

The moisture exudes, desquamation
very large in quantity, and the
flakes are large in size. The
conjunctiva became affected, and
soon after admission, and the
edema of the face was so great
that the patient was blind for
some days. The tongue cracked
and even bled, as did also the
skin over the right shin bone.
The thirst has been excessive, but
the diarrhea has been kept down
to an average of three actions
per day by astringents. The fallen
enough time and stimulants freely.
The treatment was very much as reported in the last case.
End of third week. Report yesterday diarrhoea and skin very
sore and patient in consequence weaker. The whole body has now
escharolised, not once, but many
times, on the right arm, however
the redness has disappeared and the
skin looks very like dry parchment,
patient is almost powerless and
suffers greatly. The dress being
touched as much as a peritonitis
patient would. Glycerine of coal
seems to have given him patient
most relief. The temperature has
mean reached 100° since admission

End of fourth week.
The diarrhoea is worse, have
tried everything to stop it with
no effect. No fevers though no
unusual

a first crop of the eruption came.
out on his arm, jerking and
In the arm and legs were noticed first, this week.

End of fifth week

Slight sore continues. The muscles are streaked with blood, and shred of white material, very like flax. Of scraped skin. Kid leather. Tendons are very marked, and the respiration is slow and laboured. Temperature 98°.

Sixth week.

On Tuesday the tenth day in this week, the patient became conscious and died at 8 p.m.

The temperature falling before death to 97°.

The duration of the disease in this case was about seven weeks.

A Postmortem Examination was connected to this case, and an extract from my notes simply these facts which seem to be of great upon the Pathology, and
are therefore of interest.
The oesophagus and stomach were
deeply congested. The mucous
membrane of the stomach was
thickened, usually and soft, and
congested in patches.
The small intestine on
opening its upper part. The mucous
membrane was seen to be
slightly congested and fifteen
small ulcerous ulcers were found
some in the Gordon of the
valves communicating.
From the lower part a white
catarrhal cast was removed.
The large intestine gave no marked
appearances.
The kidneys were small and
contracted; few capsules were
adherent.
The heart showed disease of
the internal valve.
The brain and Spinal cord
were examined. The meninges
of the brain were found to
be slightly adherent that I hardly
think that this was a pathological
condition induced by the disease.

I removed a portion of the skin
nearer its depth and a description
of its appearance can be found
under the heading Pathology (page 39).
I also removed some of the scales
for bacteriological research.
Also portions of 1. The Spleen
2. The Liver
3. The right kidney
4. The Spleen
for the purpose of making microscopi
csections.
Dermatitis Exfoliativa

Its Nomenclature.

There are few skin diseases which are not—speaking in a broad sense—of the nature of a dermatitis, and in such exemplifying the classical canons of that pathological condition—an inflammation of the derma—Redness, Swelling, Heat, and Pain. Here, regarding eczema as a common dermatitis described under this heading, such varied forms of skin disease as Erysipelas, Intertrigo, Impetigo, and even scabs. Thus it will be seen that the term "dermatitis" is a large one, and one may with advantage divide it into two, according to a natural method of:

1. Superficial Inflammation
2. Deep Inflammation

ie a Superficial and Deep Dermatitis, and I regard the disease I am discussing to be a Superficial Dermatitis. Its name indicates that it is a Superficial inflammation leading...
to certain results, namely, exfoliation.

He alludes to a paper in his book upon skin diseases page 345 (Ed. 3d)
say,

"Writers have from time to time"

"described under the appellation, Religiosa"

"Pustular and Dermatitic Exfoliation,"

"cases characterized by minute redness of"

"the skin, sometimes acute and at others"

"without a degree of thickening, and"

"more or less continuos desquamation"n

"in the form of flakes or brown-like"

"dust." He then points out that

a paper published in the British Medical

Journal of July 19th, 1879, by Dr. Bascom

Transformed chapters on this subject

into order.

Dr. Bascom considers that there are

four classes of dermatitis exfoliativa:

1. That class superimposed upon Eczema.

2. " " " " Psoriasis.

3. " " " " Phthisis.

4. Cases of Primary Exfoliativa Dermatitis.

He also considers that the latter

case may be explained as being
due to
1. Ingestion of certain drugs.
2. Cases of Leishmaniasis or Rubra, which have become universal.

Dr. Pearson makes it clear however that he in this paper is meaning no title General Explication Hermaphrodit as a synonym for Pelagriasis Rubra and that I think his classification open to some objection.

First: No later authors have agreed with Severgie and Lecheni not regarding Pelagriasis Rubra as any form of Eozema.

Second: We know of no any case where Eozema has become universal and has remained so without losing its characteristic features or great danger to health.

Third: Penquin and Lechen are carefully distinguished from Pelagriasis Rubra as most of the text books from Sbebra, to the present day.

There are no doubt many diseases
of the skin which begin with a dermatitis and end with an
exfoliation, but a consideration of my Evidence has led me
to believe that these cases alone, are worthy of the name
"Dermatetic Exfoliation" and that they are perfectly and decidedly separate, from Pityriasis Rubra. Also that while the Pustular classification
can possibly be accepted for cases of Pityriasis Rubra, yet it is with the Pustular class in
cases of Primary Exfoliative Dermatitis
that we are alone concerned.

I may give the following as
A Definition of the Disease
A contagious Malady in which the morbid
lesion is a dermatitis, sometimes attended
by serous exudation always resulting
in desquamation of the entire, usually
accompanied by some amount of
constitutional disturbance, and running
a more or less definite course of
seven to eight weeks.
Histology of the Normal Skin.

I will briefly introduce, and only for the purpose of future reference when I discuss the Pathology of the disease. It is conveniently divided into two layers: 1. The Epidermis or outer 2. The Cuticle or Cutis Vera.

The photograph (copied from Rawlinson) shows the various layers of the Epidermis, and I describe them from without inwards.

Fig. I.

First the Stratum Corneum, which is the most external layer of flattened cells.
and its deeper layer of swollen horny cells.

2. The Stratum Lucidum of Deb.
3. The Stratum Granulosum

containing the remarkable substance 
Eclidum.

4. The Reti Membranae with its
three varieties of cells, by a
multifid column of the deepest layers
of which the growth of the epidermis
takes place.

II. The Cutis Keratin Corium

It is composed of dense connective
tissue, becoming more and more
open in texture as its deeper
part. From certain prolongations
projected into the epidermis, known
as the Papilles, these contain
coiled capillary vessels, and in
certain parts of the body the
tactile corpuscles.
Pathology of
Dermatitis Exfoliativa

I have stood at the Post Mortem
reception, upon many cases, I removed a portion
of the skin for microscopical
purpose. I divided this portion
into two, hardened one portion in
Mercuric chloride and cut sections from
it with a small freemason (Catholic)
microtome. I employed haematoxylin
stains and had the best results
from a double acridine stain.

As the sections usually agree in
showing that the lesion is essentially
a dermatitis as well be seen from
the following description of one section.
The Superficial cells of the epidermis
were above and separating, at the
level of the true skin, all the
cells of the Rete Durum (see page
27) were enlarged and swollen.
Especially the deepest layer of the
columnar cells.

The following points were noticed.
in the Cutis Vera.

The Glands were swollen and
enlarged, their blood vessels were
dilated, and numerous leucocytes
were lying packed tightly away
in the tissues round these glands.
The Connective Tissues forming its
lower part was opened up and
reticulated, the normal vessel
channels were enlarged - and there
appeared to be a large increase
in the amount of connective tissue.

The effects produced were simply
more common to every inflammation.

The Vasomotor Paralysis
Dilatation of arterioles Capillaries
Stagnation of the blood stream
Dipositis of leucocytes
Escudation of the Plasma as Liquor
Sanguinei.

I also took sections from a
portion of the small bowel. One
to show the small ulcérations.
I have mentioned (page 21.)
but beyond the appearances of
ordinary ulceration I observed nothing, it seemed however that they were certainly shallow ulcers and of such a nature that some absorption from the gut might have taken place.

As a subheading of the Pathology of the disease I pass to the Bacteriology. This has been conducted by independent observers and researches have achieved an organism in all the fluids and more important tissues of the body living and dead. J. Russell in April 1892 published a paper in The British Journal of Dermatology on this subject, and I propose to afterwards give a summary of the more important points he brings out in it. At the present time I confine myself to a brief description of some of these conducted by Dr. J. Savell.
in Professor Kleine Laboratory, with which I have been able to follow
exercise. The excision was carefully
washed away from the patient who
suffered from the 'scurvy' variety
of the disease. Antiseptic lotion
was applied to the skin and a
sterilized capillary tube attached to
the wound, the front excision. It
was then hermetically sealed.

Secondly, the same antiseptic
precaution, a covers glass was
attached with the front excision;
dried, oven dried, and stained
with aniline solution.

This slurred quantity of cocci
Third, from the capillary
tube, gelatin plate, streak,
and stab, cultures were made
and placed for comparison in
hot and cold chambers.

On the second day the cold chamber
plate cultures showed uniformly
scattered minute white grains
while cultures were made from there.
and on the eighth day, gave appearance very similar to Staphylococcus Pyogenes Albus, but differing from a known check cultivation of this, in some very important particulars (see page 38.)

Other experiments with cultivation taken from an unbroken rabbit's gave exactly similar results and growths.

**Bacteriological Experiment showing disease can be communicated to animals from a subculture as described above.** Professor Kleini inoculated a rabbit ran.

The animal on the second day appeared in its usual health with no irritation at the site of inoculation. 3rd day. Rabbit ran red and painful, with small serous and pustular exanthem, other parts of the body were covered with small scurfy scales.

11th day. The above mentioned appearance.
had a little embolised and the animal appeared in good health
12th day Rabbit found dead on morning a post mortem revealed no wound appearances

Cultures were made from the rabbit's blood, and epidermal scales, with every aseptic precaution and gave no characteristic diplococcus

This brief account is sufficient to serve any purpose, to show that experiments have proved the constant presence, in the excudation, in the blood, and in the epidermal scales, of a distinct characteristic diplococcus

St Thomas Russell as I have before stated conducted independent researches in this matter and I gave (extracted from his papers in The British Journal of Dermatology April 92) a sketch
of the general plan of his research.

together with his conclusion.

1. The skin of patients suffering from

the disease was examined microscopically

for micro-organisms

2. Artificially nutrient media were

incubated with blood which was

withdrawn from the bodies of such

patients, during life in some cases

and after death in others

3. The under surface of flakes of

epithelium detached from the

bodies of patients, was also

employed for inoculating artificial

nutrient media

4. The broth culture was used to

incubate gelatine, from which

plate cultures were made, to

separate the colonies, and from

such colonies pure cultures were

made on gelatine, agar-agar, etc.

5. From such pure cultures cow

and various colouring agents used to
luring the anti-tas organisms into

6. Animals were inoculated with
    pure cultures of the organism.

7. Control experiment were made
    (a) sections of skin from patients
    who had and suffered were treated
    in the same way (stained etc.) as
    had been done with the sections
    of skin from patients suffering from
    the disease.

(b) Artificial cultures media were
    inoculated with the blood taken
    from the cavities of the heart
    of patients who had died of some
    other disease.

This result are as fallows

1. A diplococcus was invariably found
    in the skin especially numerous in
    the deeper layers.

2. A diplococcus identical with the
    above, was found in the blood
    taken from the heart of a patient
    dying from the disease.

3. A diplococcus identical with these
was obtained from the under surface of the epithelial scales.

4. Inoculation experiments in his hands failed to communicate the disease to animals.

5. Control experiments (after similar diplococci were found in the blood of patients dying from some other disease.

(3) The blood from a typical case of Pityriasis Rubra did not contain these diplococci.

The conclusions which he draws from these results are the following:

"The constancy with which this organism is found in connection with this epidemic skin disease; forbid any believing that its presence is merely accidental; at the same time as its specific effect on animals has only once been obtained, I am not in a position to affirm that it is the cause of the epidemic disorder which we are considering. Nevertheless, it seems..."
"Is one that here are ample grounds for suggesting that such an entiological relationship between the organism and the disease does exist."

Character and Differential Diagnosis of this Organism

It grows freely on all media such as agar-agar, Potato, Gelatine, (Plate and stab cultures) also in nutrient broths.

Take 2 – 3 days to mature in the hot chamber, and 5 to 6 in the cold chamber.

To an aerobic atmosphere.

Does not form a considerable time liquify Gelatine.

Its cultures have a blood white translucent appearance.

<table>
<thead>
<tr>
<th>Gelatine Culture from Scale 4 days old</th>
<th>For Comparison</th>
<th>Pure Sub Culture (gelatine) from Rabbit's Blood 27 days old</th>
</tr>
</thead>
</table>
The cultures do bear some resemblance to
some of the cultivations of Staphylococcus
Pyogenes album, but differ from it
in the following important particulars

1. Does not liquefy gelatine so
quickly.
2. Its segments are ellipsoidal or
rod-like as forming their in shape.
3. Is far whiter in appearance.
4. Is smaller.
5. Is slower to mature in both
hot and cold chambers.
6. Does not grow as high as
Staphylococcus Pyogenes album often
does.

Such of these experiments as I
was able (from any lack of
knowledge in such bacteriological
work) I to carry out at Cheltenham.
I attempted. I made eight
gelatine stab cultures. Three
of these I regarded as pure culture,
for they remained unliquefied. For
over one month and gave the characteristic growth. This however is not a satisfactory result; that only three tubes showed have, been pure was most disappointing.

On this and the following page I give photographs showing more of these cultivations, and append explanatory notes.

For Comparison

Showing identity of the two cultures though one is from the blood after death and the other from epidermal scales.
Gelatine Stab Culture from Blood
29 days old
still no liquification
Sand grain colonies, less and less plentiful as depth is reached
Large disc of growth on surface

Gelatine Stab Culture from Epithelium
29 days old
still no liquification
Sand grain colonies less and less plentiful as depth is reached
Large disc of growth on surface

Gelatine Sub-culture from plate culture of Epithelium
30 days old
still no liquification
Shows Sand grain and cloudy colonies
The Etiology

I will first discuss the etiology in connexion with the epidemics I have mentioned.

A Pre-disposing Cause.

1. Age. In each epidemic the disease was observed to mostly attack those of adult age, in fact as will be seen from the table I insert, those of advanced age.

In the Paddington epidemic the cases in children were traced.

In the Greenock epidemic children escaped entirely.

The following table shows the percentage of those attacked with the disease at various ages.

<table>
<thead>
<tr>
<th>AGE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9</td>
<td>1.71</td>
</tr>
<tr>
<td>10-19</td>
<td>4.16</td>
</tr>
<tr>
<td>20-29</td>
<td>7.01</td>
</tr>
<tr>
<td>30-39</td>
<td>6.52</td>
</tr>
<tr>
<td>40-49</td>
<td>17.24</td>
</tr>
<tr>
<td>50-59</td>
<td>25.50</td>
</tr>
<tr>
<td>60-69</td>
<td>38.38</td>
</tr>
<tr>
<td>70-79</td>
<td>34.17</td>
</tr>
<tr>
<td>80-89</td>
<td>26.31</td>
</tr>
</tbody>
</table>

From this table it will be noticed how comparatively speaking...
children and young adults escape.
At the age of forty how a larger percentage are attacked and how it is
essentially a disease of declining years.

2 Sect. 
Females seven less
liable to suffer for at Paddington
the percentage of women attacked is
14.4 of one 25.1
and at Wandwell amongst the percentage
smiles as low as 3 per cent.

3 Previous Illnesses

Under the
heading of age 1

Here shown how this is a disease of the
old, it is also a disease of the
inform; except when debilitated from
from any cause in all cases among
the young and healthy are attacked,
its affection is comparatively slight.
In these and attendant have almost
exposed in each epidemic
at Paddington however thirteen healthy
people contracted the disease and of these,
seven, were in constant attendance upon
those suffering and were thus brought
daily into contact with it.
At Greenock Asylum some of the healthy staff were attacked but none of the inmates took the disease, here again the worst cases were amongst the sick and bed ridden inmates.

At Hanwell the outbreak was I understood to be parents of the asylum.

But at St. Marylebone Infirmary an epidemic, many of the nurses, officers and porters contracted the disease in a mild form only and thus appears to have been of a slight with severe complications and sequelae.

I was approach with some difficulty an idea which was known out by the Head of the Medical Superintendent of Hanwell Asylum.

In the journal following the Sarsen’s fever (vide British Medical Journal, December 5th 1887, page 1207) he narrated his experience in the epidemic occurring in his institution and stated that in his opinion this
disease was of neurotic origin and had probably some connection with influenza.

It will I think be generally allowed that for the last few years asthmatic diseases have been very prevalent. Some unknown climatic or other influence appears to be at work favouring their production.

Influenza cases have been reported which were followed by a shedding of the epidermis, and there is no doubt that the sequel of influenza are both varied and numerous.

Neurotic lesions appear to be the chief sequel, such as: (1) Herpes zoster, (2) Temporary paralysis of various nerves, and (3) Alopecia.

In my outpatient practice at the Infirmary I attended upwards of 300 cases of influenza and I was particularly struck with the number of cases of Herpes (Zoster + otherwise) which I had as a direct sequel to it.

So many and varied were these cases.
That I had the pleasure of reading a paper on Mr. and lindred subjects, before the Blackheath Medical Society. The evidence in favour of Dr. Richard's view is slight however. Some symptoms very like those of influenza were it as true complained of, by some of the patients a day or so before the rash appeared, such as pain in the back, loss of appetite, headache, sickness, and general neuralgic pain, in every case however without any elevation in temperature.

It will be noticed that the history of any two cases brings out the fact (pages 9-15) that both had had influenza and severely. But these are not sufficient reasons to base any argument upon. The evidence in favour of the disease being caused by a specific germ is too strong to be readily shaken. I do advance one theory as to the causation of a condition of ill-health, which may set up
I hereby declare that, the Thems.
forwarded herewith has been composed by myself.
that I was appointed Resident Medical Officer of the Chelsea and
General Hospital on September 5th 1891, which appointment I held
till March 30th 1893.
that since that date I have been
in attendance upon the Medical
and Surgical practice of the
Edinburgh Royal Infirmary, and
engaged in the practice of my profession.
and I further declare that I am of the age
of twenty seven years.
Dated May, 1893.

(Signed) Goughrey, M. B. F. R. C. S. E.
and afford a suitable entrance for the specific germ which I believe to cause this disease and it is thus in a way subservient to the germ theory.

We find new, abnormal, and irritating products, excreting in the blood in a great number of diseases for example:

1. In suppuration we find Phosphates and
   other kinds of bodies produced by the action of abnormal bile, gastric,
   and other secretions, upon the food and
   mucous in the gut.

2. In Diabetes, glycogen and allied
   substances

3. In Bright's Disease, urea and its
   compounds and derivatives

4. In recovery from exhausting fevers
   and other pyrexial conditions

Many irritant products.

These being excreted cutaneously must
give rise to great irritation in the
process and thus favour the incursion
of the many and varied germs which
are found in and upon the human
shri (or more often I do not think any complete investigation has ever been attempted)

We have seen that the skin disease I am discussing attacks principally the aged and infirm, precisely those in fact we whom we should expect to find faulty body chemistry going on, and in whom more strain would be placed on the great excretory the skin, by the faulty condition of the kidneys so usual after middle age.

4. Neither biathesis nor occupation appear to exert any influence.

**B Locating Causes**

1. The food
2. Soap
3. Water

4. Parasitic skin affection e.g. Scabies

All these have been enquired into in each epidemic and no result has been obtained. The food, soap etc were obtained from different contractors. The water supply was
beyond suspicion, and the Institution in London who had the most severe outbreaks obtained new results from different Companies.

These giving us clue what are the arguments have brought forward in favour of the idea that the disease is due to an avi-borne germs in short epidemic contagious.

In many diseases known to be caused by germs the influence of season is evidenced and felt to in this disease. We find that this disease came to Paddington in the summer and died away with the winter months, the wave reaching its highest pitch in Autumn (July and August), As shown below.

![Graph showing epidemic wave with peaks in July and August and troughs in May, June, and September]

- July
- August
- June
- September
- October
- May
- Number of Cases
We also found it at Greenock in the autumn of 88, and the cases at Hanwell, Lambeth, St. Marylebone, were almost simultaneous with that at Paddington.

I now summarise facts from which we can argue to contagious:

1. The definite course of the disease.

2. The constitutional disturbances attending it.

3. The similarity of all the cases.

4. The wave-like rise and fall number affected in each epidemic.

Bacteriological facts in support of this view are: (see figs. 2-7, page 41)

1. The specific germ has been found in the body-tissues, fluids - it has been cultivated and

2. The same disease communicated to a rabbit from whose blood and scales.

3. Similar cultivation have been made. (Fig. 3)
Facts observed from treatment which favour the view of contagion:

1. Germicides applied early had a marked effect in controlling the disease, e.g., Iodine.
2. Creosote (coal tar preparation).

I have endeavoured to prove the following facts as to the etiology of the disease:

1st. That it is dependent upon a specific germ.
2nd. That it is slightly contagious.
3rd. That it attacks more broken skin; and possibly that faulty body chemistry is the means of offering this germ admission and suitable soil for its growth.
Symptoms and Physical Signs

Local Characteristics of the Disease

In all diseases of the skin the symptoms, of unreality vary with the intensity of the disease, and the amount of surface involved. This disease is an exception to the rule and a consideration of the symptoms of these cases throws out many peculiarities.

There is a variation in the character of the initial rash or eruption, as regards the mode of onset, and in other ways which I hope to make clear under the heading I again state that these remarks are based not only upon the consideration of many cases, but upon others in the epidemics, and this statement of symptoms and physical signs may be regarded as being partly typical of the disease in question.

In most cases as in any other, the first symptom to attract attention
A slight variation of the back and the appearance of the initial papules rest on an erythematous base.

*Fig VIII*

![Image showing back with papules]

Shows initial rash with Purpuric Extravasation
Below and to right

The neck had the following character.

The skin was congested and erythematous had lost its natural pliancy and felt edematous and thickened, numerous small papules—slightly raised above the surface—could be seen, and felt very like small shot.

These papules gradually increased in size, came nearer to surface.
and on the base of each papule a small scale were observed.
In some cases these papules became vesicles and the contents at first clear, 
soon became cloudy and rupture took place. These formed the "ozone" variety of cases, or those with excoriation.
Another method of sharing was by small raised dry necrotic wheals and 
macules.
The diseased portion was often sharply defined and separated by a raised 
margin from the adjacent healthy skin.

Fig. 1

Patches of Dermatitis
Show swelling in contrast to healthy area
Intercrining
once often however the tumefaction and
swelling faded gradually away into the
surrounding skin.

This then may be called the first stage
the papulo erythematous stage. It lasts
from 3 to 10 days. In these
cases where blisters develop we may
say that there is a sub stage of the first
or the vesicular.

The rest of the first stage: commence
in successive groups on various portions
of the body and is often seen to
spread gradually up on down a
limb. In some cases therefore
we may see both the first and
second stages in the same patient.

In cases where the face is affected
the oedema and tumefaction is
severe. The conjunctiva become
injected and a purulent discharge
wells up from between the lids.

The desquamation also affects the
mucous membranes of the mouth
and nose. None obeying the law.
"I disease of the mucous membrane may spread to the skin and vice versa." And the general disturbance set up and the diarrhoea which may often be seen shows that another law is obeyed by that disease. It is that disease affecting a part of a mucous membrane is liable to spread to the whole.

I give photograph

with explanatory notes.

Shows

Oedema and

Tumidification affecting

Face and Hands

Fig X
Fig
Shows swelling of face and arms. Eversion of lower eyelid and purulent conjunctival discharge.

Fig XI
We now pass to the second stage i.e. that of Desquamation.
The cuticle assumed a "raw" red colour tinged with yellow in places. It cracks and begins to peel off, in flakes, scales, or large pieces such as a cart of the sole of the foot, palm of the hand (see figure XII) in some cases a copious exudation is formed and which oozes up from below through the cracks, in other cases here is
As described above, the cases group themselves into two varieties. (1) moist (2) dry. The dry type tends to prevail more amongst the old and amongst the middle aged, a fact which is well brought out by any other two cases.

Fig. XIII

Shows skin cast of hand.

The skin remains in this condition for a variable time—usually from five to six weeks—during which the epidermis may have been shed many times.
The itching and scales may be more abundant as in the past of any other cases (vide page 13) where hand fulls of scales were daily removed from the bed; indeed in this case I saw a quart china bowl filled with flakes which had accumulated in twenty-four hours. The difficulty of nursing such patients can be easily imagined and when the mouth and tongue are affected and these difficulties are added to by the patient refusing to take nourishment, and to sit upright from the pain such occurs. The exquisite tenderness of the skin renders each movement agony to the patient.

Stage of Desquamation well seen at feet.

Fig XIX
This stage in favourable cases rapidly passes into the 3rd Stage of Subsidence. This is a gradual process, the skin loses its red colour and becomes brown, dry and scaly; it thickens and indurates to the touch and feels hard very like old parchment. This is exfoliated and passes into a fairly normal state. Relapses however are common.

Subjective and other Symptoms

These again are dependent upon the severity of the skin lesion. Great prostration and weakness are noticed in all cases, also thirst. With regard to temperature in some uncomplicated cases it slightly rose usually on evening and of perhaps a degree. In both any cases the temperature fell before death to subnormal quite as in any other case of collapse. I have noticed the beginning of the chill and the exquisite tenderness of both ear, and
The tongue, and mucous membrane of
the mouth when it is affected
I regard as a most important
symptom no doubt, and diarrhoea
which was present in many and in
some severe cases, it shows as I think
that the whole intestine came to
more or less affected, and it,
combined with the pain and sleeplessness
contributes largely to a fatal result.
Treatment for it was in vain, but
should I meet with another case of this
kind I intend to try the effect of
Beriberi-Draft which I have used
in anterior fever with good results.
Albumen was found in the urine
in both my cases, and in a large
proportion of the epidemic cases.
Varieties, Diagnosis, and the Differential Diagnosis of Dermalitis Exfoliativa

Varieties
I have drawn attention to the fact that there are two varieties of this disease: 1. The moist 2. The dry.

The moist was found to affect the younger patients, the dry, the aged. This I think may be explained by the fact that in old age the skin loses its pliancy and the subcutaneous fat, atrophy.

The results however of both varieties are the same, both have the same symptoms (with the exception of the tenderness) and both end in desquamation of the cuticle.

Diagnosis and Differences

Diagnosis
Nothing is more noticeable in a consideration of these cases than the varying amount of skin lesions present.
In some cases it is a very transient complaint with a resemblance to localization, in others (as I have described) it covers the body.

The diagnosis therefore is least with difficulty and one is not surprised to find that the early and late cases of the Paddington epidemic were diagnosed as eczema.

What then are the points for distinguishing as to differentials between it and eczema.

1. The cases have a definite course of from 6 to 8 weeks.
2. The disease does not run away, but may attack children, but eczema in them is a very common disease.
3. The local and constitutional effects are much more severe in this disease than in eczema.
4. The eczematous always present in cases of eczema is absent or at any rate not visible in some of these cases.
5. This disease occurs in epidemic form.
The differentiation of symptoms of Pterygium Rubra.

1) Authorities agree in describing Pterygium Rubra as a chronic disease lasting for 10 years. This disease runs a definite course of 6-8 weeks.

2) Authorities state (e.g., Leveing) that Pterygium Rubra is common in children; we have seen this disease in our practice.

3) Authorities do not mention that Pterygium Rubra was occurring in the same form as it is contagious. There is evidence that this disease is both by Pterygium Rubra is described as "a very skin disease"; some of these cases are marked.

4) The exfoliation in Pterygium Rubra is described (as it usually) to be. fram-like and no mention is made of large pieces.

Pemphigus Foliaceus

The exfoliation in this disease is preceded by malleo which are never noticed in dermatitis Exfoliata.
D. Differential Diagnosis of Dermatitis Exfoliativa

from Lichen Ruber and Planeus.

Lichen Ruber is stated never to
occur upon the face.

II. Many of the points which I
have brought forward to distinguish
Dermatitis Exfoliativa from Eczema
and Typhoidus Rubra apply equally
to Planezquis Lichen.

6. Scarlet Fever is the only other disease
I know which can cause such numerous
exfoliations but this is distinguished by
the fact that the pyrexia in Dermatitis
Exfoliativa is slight and other symptoms
of Scarlet Fever tongue throat etc
are wanting.

7. Dermatitis cases attacking the face
ought to be mistaken for Eczema
but the absence of pyrexia is again
a distinguishing point.
Course and Duration

It is most difficult to definitely establish a period of incubation in any disease. There is one instructive case however in the Paddockton Epidemic which throws some light upon this subject. The patient was admitted to the Infirmary to undergo delirium tremens for a much more serious structure. He was perfectly healthy in all respects save this. Two days after admission he developed an eruption which broke out upon his forehead and he had a severe attack.

If from this one case anything can be argued incubation seems to be short.

In some cases, slight alanine was observed before the appearance of the initial rash.

As disease passes through the definite course I have described under

Symptoms and Physical Signs

(page 52) and in favourable cases.
Relapse was a common feature in all the epidemics, at Paddington from a total of a hundred and sixty-three cases, fifty-two had relapses. Counting in reverse to the end of the first attack in all cases, we find that the average duration of the disease is from seven to eight weeks.

Complications and Sequelae

The complications are not numerous. When the face was involved, rhinitis and conjunctivitis were common. Otitis media was observed in some cases. There are some complications of nervous origin and these are specially interesting to both Hebra and Hutchinson regard primary cases of erythema exudativum multiforme as dependent upon a nervous lesion. Hebra suspects the case contains...
nerve, Hutchinson's spinal cord itself. Such symptoms were observed as partial paralyses of various parts of the body, hyperesthesia, and towards the end, subcutaneous tendinum and yielding of the limbs and muscles.

**Sequela**

In the epidemic at St Mary-le-bow, these were very severe. Gangrene of the feet, hemangioma, and even insanity were recorded; the more usual sequels were crops of boils, carbuncles, alopecia shedding of the nails, and transverse grooving of these structures so often seen after acute diseases. Patches of fragilization and penicardium were also recorded.

On the following page I insert two photographs showing the sequels of the disease.
Fig XV

Shows Pigmentation, and Transverse grooving of the nails which followed the disease.

Fig XVI

Shows Alopecia which followed the disease.
Programs

The initial cases gave no indication of the severity of the attack. Many in whom the disease began as a very trivial affair experienced an acute exacerbation. We have seen that the prognosis depends largely upon the severity of the disease and upon the age and sex of the patient, also upon a high mortality adds to the disease, and thus the prognosis must be a grave one.

Unfavorable signs are great prostration, tremors, and twitching of the limbs and muscles, also profuse diarrhoea with blood streaked motions.

To these must of course be added the well known signs of collapse and lethargy which in these cases soon deepen into coma.
TREATMENT

TREATMENT was unsatisfactory.

GREENE'S applied early to a limited patch appeared to do good

painting with Iodine, colloidin

and mercurial preparations were

all resorted to.

Dr. Sauer reports favourably upon

the use of Ecololoin a coal tar

preparation prepared by Messrs. Fyfe's

They own experience was, that the

local application of bore glyceride

alloyed the intense irritation much

more anything else I used, a lotion

of Liqueur carbonic detersens, etc.

and good in this respect.

In my second case dilute Glycerol

of lead lotion gave marked relief

when kept constantly applied on

cut

The diet was restricted in any

case to fluid nourishment, and

meat jellies and extracts in our

case I tried for a time to allay

the distressing vomiting by feeding
exclusively by the rectum, but the diarrhoea prevented this being very satisfactorily carried out.

Stimulants were most certainly called for.

The congestion I found in the post-mortem examination in any case ascending throughout the gut, together with the irregularity I have described (page 30) seem to point to a process somewhat analogous to typhoid fever. I think indeed that these two diseases have much in common. There is some evidence that both are primarily a purely local disease and afterwards become, by the absorption of some germ, or other poisonous product into the blood, a general one. Relapses which are so common in certain epidemics of typhoid fever have been a great feature of this epidemic skin disease, and may this not point to a fresh absorption of...
the specific germs from the alimentary canal.
I have had such good results from the use of B. napthae in typical fever that I shall not hesitate to employ this drug should I meet with another case of dermatitis exfoliativa

There is no doubt that the disease is contagious, and we were fortunate in having both a male and female isolation ward in the Cheltenham Hospital in which to treat our patients. This enabled one to carry out the strictest antisepctic precautions and I attribute the fact that we had no spread of the disease to this.