

The Early Diagnosis of Small Pox

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The Early Diagnosis of Small Pox

To prevent the spread of Small Pox we must have recourse to vaccination and revaccination combined with the Isolation of every case of Variola at the earliest possible moment. As vaccination is not universal the vaccinated state of a community is unreliable and Isolation therefore becomes of the first importance. To be of service Isolation must be prompt & this depends upon Early Diagnosis. It is well known that the majority of cases of Variola sent to the Isolation Hospitals are fairly well developed before they arrive there - owing to deferred & uncertain diagnosis. This is not to be wondered at considering the very few opportunities medical men have of seeing cases of Small Pox & further the many different types of cases which occur during the same epidemic. Men of great experience in the study & practice of Small Pox readily admit that apart from Epidemic times they may easily fail to diagnose a mild case of Variola. No difficulty presents itself in a typical case of Variola Vera but in Malignant cases on the one hand and mild cases on the other it is at times most difficult & almost impossible to say with any degree of certainty that one is dealing with a case of Small Pox. Delayed diagnosis, wrong diagnosis & cases missed altogether account largely for the present spread of the disease in London. To the deferred diagnosis & ^{delayed} removal of a case of *Purpura Variolosa* I owe an outbreak _{of the disease} in the City Road Workhouse London at which I am Resident Medical Officer. It does seem strange that a disease

in antiquity almost co-existent with the human race should give so much trouble to the physician of today so much trouble to recognize it but still more strange does it appear to me that the disease which gave birth to the theory of 'Contagium vivum' should defy all bacteriological methods of discovery. I am much tempted to take a rapid run through the various stages of the ancient + modern history of this disease but it is foreign to the object of my thesis.

The ambition of every medical man who is brought face to face with Small Pox whose infection is so subtle, is to be able to recognize it at the earliest possible moment to check its spread by early isolation. Medical men who have never seen a case of Small Pox have an idea that a patient suffering from true Variola must present a ghastly picture - in which the head + face is covered with typical papule + vesicle + the general condition one of great prostration. In pre-vaccination days I believe Variola Vera + Variola Confluenta were the rule + Varioloid or Variolosis the exception.

I propose to give an account of all the cases of Small Pox which have come under my notice in this Workhouse + to draw attention to some facts observed by myself which Text Books do not sufficiently emphasize or ^{do} not mention at all.

It is not my object ~~to~~ to give an elaborate description of the typical disease + its various anomalies but to give briefly the exact facts as observed by me from the time my attention was drawn to them to the time of their removal by the Metropolitan Asylum Board Ambulance.

There are so many excellent works on the subject which give most minute + in most respects most accurate descriptions of the disease in all its transitional grades but one is apt

To get lost in the wealth of detail to find oneself anything but clear on the cardinal points necessary to arrive at an early diagnosis -

With this brief introduction I will give the cases as they came under my notice -

On Nov. 4th 1901 William Doody H.I. walked into in to the Receiving Ward having been admitted on a Receiving Officers order. I happened to be in the Ward at the time & noticed that he had some spots on his forehead and he himself appeared ill. I had never seen a case of Small Pox before but the man being apparently ill & the spots being on his forehead aroused my suspicion & I had him immediately isolated & examined him more carefully. He had been ill for 2 or 3 days & said his chief pain was in the back of the head: no complaint of sickness: Temp. 101.2: Pulse quick irreg. & full: Although he was able to walk he was very unsteady:

Eruption chiefly on forehead: few smaller spots on anterior surface of forearms: one in right palm: crust around both wrists: crust on back & on upper & lower end of legs: no papule on sole of foot: the papule on forehead were large & indurated & some were vesicular. There were two whitish papule on the mucous membrane of each cheek:

He was sent away to Hospital Ship as a case of Small Pox same date -

II A few hours afterwards George Day H.I. from the same Common Lodging House as case No 1 was admitted absolutely covered all over with small pointed vesicle. There did not appear to be any part of the body more affected than the other & they all appeared to be of a uniform vesicular character & compared with the other case I had

Just examined I was struck with the fact that these ⁴

spots were smaller than those noticed in No 1.

The patient had no Temp + did not feel particularly ill - complained of no pain anywhere - He seemed annoyed at the fuss made over this innocent rash.

The Buccal Mucous Membrane had 2 or 3 whitish papules - The palms of the hands & the soles of the feet also had several deeply seated indurated papules -

All who came in contact with these cases were re-vaccinated & the rooms + furniture disinfected -

No contact case followed + I felt pleased with myself that I had so readily diagnosed these cases + already began to think I knew something of Small Pox -

III

On the 18th December 1901 Margaret Kemp 39 was admitted on a Medical Officer's certificate as suffering from Sumbago. When I saw her she complained of loss of blood per Vaginum & expressed herself as losing a lot like her mother did at her age: of which she died: She was excited + her face was flushed, she said she had been drinking; her pulse was full quick bounding: Temp. 100: She was very uneasy + had a feeling that something was going to happen: her mind was quite clear: She was told to keep quiet + rest was given: She was reported as having had a good night: In the morning (19th Dec) she said she felt better + the haemorrhage was less: She appeared more composed but face still flushed. Temp. 101 - No sign of rash or spots of any kind noticed - I saw her again in the evening when she complained of pain in her side + this I thought was due to a slight pleurisy which also in my opinion accounted for the slight rise of temperature - During the night she was very restless + got in and out of bed several times but was quite clear mentally - At

6 OC next morning I was called to see her found her dead - I was there almost at the moment of death & noticed numerous haemorrhagic spots on her chest: this led me to think of the possibility of Small Pox but with my little experience & usual idea of papules & vesicles I had no ground to which to make a diagnosis - Almost immediately after death the whole of the epidermis stripped off: the hair of her head came off on the slightest touch -

I made a Post Mortem Examination & was much struck with the case with which the epidermis stripped off - there was a distinct bright scarlet blush in each groin which did not extend higher up than the Pubis & appeared to be limited to the region of Scarpa's triangle on each side: there was also a similar blush in the axillary region: Over the arm & slightly over the thigh there were several haemorrhagic spots: No haemorrhage on face or forehead:

Head = On removing the scalp the hair came out in handfuls. Up to this stage I thought that death must have been due to some virulent poison -

Brain = was almost semi fluid in consistence - it could not be taken out whole. No haemorrhage -

Throat = Recent pleurisy on Right side - 6 oz of blood in Right pleural cavity - Lung likewise abnormal except engorged with blood -

Left pleural cavity contains 16 oz of this darkish red coloured fluid -

Heart = Pale & flabby - No fluid in pericardium -

Abdomen = Some (small quantity) of this blood in the cavity of the abdomen. The Liver, Spleen & Kidneys show no haemorrhage but were pale & flabby:

Uterus - The Uterine involution was not in the condition found during menstruation. The bleeding appeared to have come through the fallopian tubes or ovaries - Not from the ~~body of~~ the Uterine involution of the body of the Uterus.

IV

A case occurred at the Shore ditch Infirmary a few weeks ago in which this haemorrhagic diathesis shone itself in a peculiar manner. A man who had been in the ward some time suffering from suppurating glands in the groin & who was making good progress towards recovery was taken suddenly ill with rigor temp. 103; pains in the back & a peculiar constant oozing of blood ~~from~~ from the diseased glands in the groin; this bleeding was constant until the man's death about 12 hours after the onset. It was noticed that he had some petechial spots on his abdomen before death. This case was not diagnosed until after the post mortem & then only after the M.O. & who had seen my case was called in. The epidermic structures did not show of & similarly there were evidences of internal haemorrhage. No contact case follows this one as all who came in contact were reassured.

V

In the St. George Infirmary a similar case was missed altogether although there was a post mortem examination made & not until the very patient in the ward, where the patient had been, developed small spots did it occur to the doctor what the nature of the case was.

On the 1st Jan'y 1902. (12 days after the death of Mrs Kemp) Robert Crisp 63, who assisted to carry the body of Mrs Kemp to the mortuary, came to me complaining of a peculiar rash on his legs + arms but feeling at all well. I immediately isolated him + examined him carefully: He had a Temp. 101: pain in the back + this he must have had a day or two as he had a belladonna plaster on which he had from the attendant. The rash was macules on the arm + legs, only two of a measles character - rose red macules - ~~and~~

In the evening of the same day I noticed one or two papules on the forehead + sent him away as a case of Small Pox.

N.B. These papules were observed the evening of the same day + which he first complained + the measles rash was still on his arm + legs. The Mr man who assisted to carry the body down + who assisted at the Post mortem has not been re-examined but was not.

VII
On the same morning (1st Jan'y) Eliza Murphy 63 was taken suddenly ill - Temp 104: complained chiefly of headache - no marks backache - no chilliness - I saw her a few hours after onset + noticed two small red spots on her forehead + one on nasal muc. memb. I sent her to the Isolation Ward - I then discovered she had slept in the next bed to case No 3 - twelve days previously - I examined her in the evening for more spots + found one or two on wrists + one on upper limb's surface of leg - Next morning her temp was lower + she felt better + a few more small spots were found on the back - As

there were only few spots I did not see her any at -
- Once a my experience of Small Pox has been
that of numerous papules + suppressed Haemorrhagic.
Next day he felt us normal + a few more small
red papules developed + I sent her away to the
Small Pox Hospital - She felt quite well when
she went away on the 3rd day but I found on her
return that she developed a great many more
papules especially on the face.

11-13.

Although one or two papules - if looked carefully for -
can be found often within 24 hours of the onset the eruption
in its fulness may be delayed.

VIII

On the same date (1st Jan) John Saville 32 - a patient
in the Sick Ward suffering with an old Ulcer of leg +
anaemia was taken suddenly ill with vomiting, backache
headache + a temp 103: he was quite prostrate +
very sick. There was no history of contact + looked
it was not a case of Small Pox. Next morning he
was still very sick temperature of 101 in
Spigotium - Temp 104 + now I noticed 2 or 3
small red spots which gave a shotty feel to
the finger + similar spots on the wrist: only
one or 2 + one on the left palm + one over the
ball of big toe on outer side - I did not
examine his other members - Sent him away to
the Hospital where he died from the disease.

11-13.

Persistent sickness - Great prostration - appearance
of sufficient rash to aid diagnosis on 2nd day.

One of the nurses who assisted in the carrying out of No 3
belonged to the Civil Wars in which John Paralle was &
thus I believe the infection was carried.

IX

On Day 2nd Rachel Stanley 44 - was taken
suddenly ill with pain in back, throat - no sickness
Temp. 104. Examined carefully for spots. None found
on 2nd day: Temp. 104: On the 3rd day temp. normal
& the papules in forehead - one in palm - one in Buccal
mucous mem.: one on external surface of forearm -
three two on back.

Sent to Hospital on 4. Day.

XI. No papules observed till the 3rd day when only
a very few - they were small - hard - red - some gave
slight feeling when touched. Patient felt quite
well. Apart from history of contact I would
now have dreamt of Small Pox.

XII Mary Thomas 19 was taken suddenly ill with backache,
diarrhoea, headache. Temp. 103. On the 2nd day of illness
saw more than two vesicles in forehead & one on 2nd toe
back which quickly developed into four vesicles -
Sent to Hospital.

XIII The next case is same case with No. 3. The
membranes present for longer. Probably did not
get infected until the last day as she was
some distance from No. 3.

So far nothing was always noticed that
the spots were never superficial but always
gave a sense of being deeply imbedded
especially the spots in the palm heel.

On the 11th Jan. 1902 James Lake 47 walked in here with a measly rash all over him. He had walked all the way from Portsmouth to London & had slept out several nights. He appears tired till: Temp 101. Was covered with a dark coral red flush over both extremities & slightly on face. Complains of pain all over but did not localise back. Had been sick in the morning before admission. Did not diagnose the case but thought it wise to send him to the Isolation Ward. Next morning his Temp was 100.8 & he appeared if anything a little more comfortable but the rash was more pronounced & somewhat darker. My deputy examined him with me & although I noticed a few large flat elevations in the palm & apparently superficial we both came to the conclusion it was not smallpox because there were no papules to be seen but what it was we could not say. He had no vomiting & no marked backache but a general listlessness.

On the 13th his face became swollen. Conjunctivae injected. White puffy. Speech husky. Saliva trickles from mouth & this is stained with blood. He also began to give off a most offensive odour. His mind was quite clear. The rash was now purple & no longer thick & near there appeared some flat opaque elevations. They appeared to me very much the colour of a mulberry on the back of the neck. I still looked carefully for a papule but could not find one.

the odour in nose remains - The face in nose
swollen the in now almost inarticulate - Pulse very
feeble. Temp. 100 - The Epidermis stripped off in
the region of the shoulder. His mind remains quite
clear. No papules to be found.

He was removed to hospital on the 15th & died the
same day.

Note.

My deputy & I had made up our minds that this
was not a case of Small Pox because we saw no
papules. It was so different to anything I had
ever seen - I was most humble when I found out
I had been daily watching the development of a
case of Purpura Variolosa & did not recognize
it. I was consoled when I read an Immermann's
excellent monograph on small Pox that so
different from the ordinary type of Small Pox is
Purpura Variolosa that no one without an intimate
knowledge of the circumstances & especially without
an acquaintance with the prevalent epidemic
conditions would enumerate the cases of Purpura
on account of the clinical symptoms under Variola
so different from the normal does the picture
of this disease appear in most of its relations.
My one object was to find one typical papule
but there was not one to be found from the same
excellent work that Dr. Immermann that

The true Small Pox Southern does not usually occur
in Purpura Variolosa - At Edmonton the same
mental attitude existed towards a similar case.

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which the doctor could not diagnose. he called in
a brother practitioner & they both agreed it was
not small pox but what it was they could
not tell. They then called in the M. O. W.
he diagnosed it as Malignant Small Pox
but the woman died before removal &
from this case a very intense epidemic
resulted. In this town 20 cases followed all
directly due, in my opinion, to this case although
it was isolated. I believe the chief infection
was through the ^{bed} clothes ^{used by the patient} not being properly
fumigated.

XII

On the 25th Day George Phillips 39 was admitted from
his home complaining of feeling ill: he made no complaint
of any definite symptoms but was distinctly ill &
listless. He has a temp of 103: pulse quiet & full.
he said he felt queer the night before admission.
No sign of papule on face or trunk but on
close inspection I found one deep seated corneal
papule in the sole of the Right foot - none in the
left. & a few macule over both ankles & one or
two spots on wrist. I sent him to hospital
on the strength of these spots & other symptoms -
He died a week later.

Note:

Well within 36 hours this man showed a few
spots which might well have been overlooked.
There was no trace of a macule on forehead.

XIII

On the 25th Day Thomas Wallace 76. an inmate who assisted to fumigate the clothes of the Small Pox patients was taken suddenly ill with backache, headache, no sickness. Temp 102. No spots noticed. Next day in the early morning he was again examined & one spot was seen on the carpal eminence of right thumb & one on palmar surface of wrist & one on left malar eminence. He was in feeble health prior to the onset & he died a week later.

Note - A few papules were seen within 48 hours of the onset which were sufficiently typical in character & distribution to have patient sent away within 48 hours of onset. I omitted to examine his buccal mucous membrane.

XIV

On the 28th Benjamin Woodlans 58 was found in the Body of the House with his bald head covered with small pointed but pointed red papules - face quite a guilty feeling to the hand when passed over them - He tried to avoid detection was not going to complain - He admitted having felt ill a day or so before. Temp on this date was 102. Made no reference to pain in back but had been sick the day before.

There were no spots on any other part of the body. Sent away same evening.

Note - The onset in this case was not very severe although quite early he had very numerous spots on his head & later in the disease he develops a severe attack. These papules were small & sharp & hard - not very bright in colour - the wrist & ankles were clear.

14

On the same date (28th day) John Rottle 65 complained of being ill with headache: slight backache: no sickness: Temp. 102⁺
One papule red slightly indurated seen on forehead. Next day one on wrist suppe part of extension surface of forearm - one on Buccal Musc. memb.: one on outer surface of ankle. Sent away on the 29th.

Note - This patient was sent away well within the 4 & hours of onset. Even on the first day he had a typical early macule on forehead: His Buccal Musc. membrane also had one on left cheek:

XV

Same date Ernest Buxant 55 a patient suffering from a lesion of spinal cord was taken suddenly ill with rig. temp 103: Next day he had one papule in the left palm - deep seated & hard - one or two on wrist: one on outer surface of upper end of left leg: Backache. No sickness: Macule on Buccal musc. memb. Sent away on the 29th.

Note - This case was sent away within 4 & hours & had only a half dozen spots all told: In all these cases one or two are sufficiently typical to me with some experience to justify removal a small lot.

XVI

Henry Page 76 (on the same date 28th day) came to me in the morning complaining of being very queer - saying that he was all right the day before. I ordered him to have a report from under observation - He had a temp of 104 & general weakness. did not say much about pain in back or head: He had no spots in the morning but in the evening I noticed a couple of faint small red macule on extension surface of lower end of right forearm - Next morning there were one or two papules on forehead & one on ankle each side. He was sent

away on the 29th died in a week or so.

Note. Within 24 hours of onset this patient had one or two spots: within 48 hours a few more developed then sent away. Although so slight so early in the disease he had a severe attack from which he died: I did not examine his buccal mucous membrane.

XVII

On the 29th Joseph Baker 55 a patient in Swiss ward with Ulcer of leg was taken suddenly ill with backache + rigor + Temp 103. No sickness - no headache.

Next morning I noticed a well developed papule on his forehead; one on extensor surface of upper part of forearm + one or two on the extensor surface of wrist: one on back in the interscapular space. One in the palm - one on right buccal mucous membrane. Temp 100.

Sent away on the same day. 30th July.

Note. Within 30 hours this man shows sufficient papule with initial symptoms to justify an early diagnosis of Small Pox - No sickness. No headache. He has since returned + shown numerous marks all over body.

XVIII

On the same date (29th July) John Caswell 78 in Body of Horse was taken suddenly ill with milder headache + rigor. Temp 103 - No sickness. Only very slight backache: One papule on forehead: one on interior surface of thumb: one on interior surface of upper end of forearm: then mucous memb. of mouth. Seen next day. He was sent away on the 30th.

XVI. Only three or four papules were noticed overall but sufficient now that we are aware of the possibility. It being small one to make a pretty certain diagnosis:

XIX

Same date 29th Jan. Harriet Farwood 67 working in the Laundry was taken suddenly ill with backache + headache + sickness. Temp 104 - Next morning one or two papules were seen on wrist some on the extensor surface of right hand. one on back. one on malar space of mouth. None on forehead.

Note that gives a case of sudden illness with little or no fever during the day - a few papules develop during the night - are sufficient to make a diagnosis of smallpox.

XX

Same date (29th Jan) John Stedden 71 from Body of Horse with backache, no headache, no sickness one papule red surrounded when first seen - Temp 101; also one papule on left breast malar space. Next morning developed one in palm + two or three on extensor surface of forearm: two on back: none on sides of feet. one or two on extensor surface of legs:

Sent away on the 30th.

Note. In this case a papule was seen on forehead a few hours after onset:

XXI

On same date (29th Jan) John Fielding 66 from Body of Horse was taken suddenly ill with pain in the back + head. Temp 103.4: no sickness: He had a Scarlet rash on face + body generally - looks much like Scarlet fever. No throat. No tongue. No papules: Next day (morning) one or two papules on forehead + one on inner surface of knee. one on instep: None on palms or soles.

This is the sense in which this Scarlet prothrombal rash appears: It faded the next morning & the papule in early stage of development appears:

XXII

Saw date Walter Disher 18 from Body of House suffering with Scabies complains of not feeling well - No distinct symptoms of backache but general malaise - His hand swells more even with the Scabies rash. I saw him next day when he was found to be suffering from small ones being covered with small sharp pointed papules all over the body - most marked on face & forehead & wrists & this mixed with that of Scabies. did not feel very ill this time. no 99.4.
Sent away on the 30th

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The eruption of Scabies in this case put me off my guard at first particularly as his initial symptoms were slight. I believe if I had looked carefully the night preceding I could have discovered some typical small pox papules.

XXIII

John Rutenauer 72 on the 30th day. complains of feeling very ill. was very paralytic: did not care to be spoken to. Backache no sickness: Temp. 103: Had a distinct papule on forehead no papules seen elsewhere. did not examine his buccal mucous membrane: was kept under observation till next morning - he then had one - his papule on wrist & one in palm: one on his extensive surface of leg. Temp 102. was sent away on the 31st day.

176. Saw quite fresh ones toward his eyes a few hours after the onset but could not see how many more papules would develop in 24 hours.

The man since returned looking very fit but marked

Superficially all over: He wrote a letter while at Fox Farm in which he stated that he was quite sure he was sent away not of pure spite because he wouldn't be vaccinated.

XXIV

On the 30th Jan Mary Keegan 41 from the brig in was three months after delivery was taken suddenly ill with rather severe rigor followed by temp 104: pain in back & sickness. No spots. Was immediately removed to Isolation Ward. Next morning felt better but no spots. Temp 102. In the evening she had one or two papules on exterior surface of forearm & one in palm: then two on back.

Was sent away 31st Jan.

Note This woman did not have many spots all through but she remained very febrile for some time after her return from Fox Farm.

XXV

On same date (30th Jan) Frank Edwards 37 from Body of Home was taken suddenly ill with pain in back & head - no sickness. Temp. 104: No papules visible.

Next morning he had papules all over the body - no part more thickly covered than another.

Sent away 31st Jan.

Note This case differs from the others in development as abundant crop of papules within 48 hours of onset of fever.

XXVI

On the 31st John Baker 46 from her low. Suffering from spinal disease complains of pain in abdomen - no backache - no weakness. Temp. 103: No papule. Next day had severe headache + had one or two papules on the prominence of right thumb: then extensive surface of thumb: but on three on back + one or two on extensive surface of leg: None on forehead:

Note: Still absence of backache. + papule on forehead: She has since returned + shows that the face + forehead were the seat of former eruption earlier.

XXVII

On the same date 31st day Emily Kidd 72 a full old lady was taken suddenly ill + fell out of bed - she was dizzy: complains of feeling very ill: backache: no weakness. Temp 103 in the evening. She fell out of bed in the morning. had no limbs at that time. Next morning she was ~~so~~ literally covered all over the body with small red tubercles. Temp 99: She appears very ill + prostrate:

Note: sudden appearance of eruption on the face. She has since returned feeling more the same for her age.

XXVIII

On the same date 31st day Sarah Anest 67 a worker in the laundry was taken suddenly ill with backache + headache. no weakness Temp 100 - next day she develops one spot on palm + two 3 on extensive surface of both forearms. None on forehead: one on buccal mucous membrane. Sent away 1st day.

Note: She has since returned having suffered neither blindness + lost the use of one of her eyes.

On the 1st Feb. Martha Greenwood 44 from Laundry
Complains of sudden illness Temp. 104: backache +
in the inner side of the right leg at level of knee
There was one small hard red papule: & an indication
of macule on buccal mucosa membrane: She was
isolated the next morning she appeared a little better
but the only eruption seen were 3 small macules
on the buccal surface of the right forearm -
Later in the evening she developed a few more
on her wrist & one or two on her leg at ankle.

Cent away on the 3rd Feb.

Note: In morning struck with the finding of
one typical papule on the leg only a few
hours after the onset. Although the papule
appeared very slowly up to the 7th day they
then became very numerous.

XXX

Unknown date 1st Feb. Hannah Parsons 74 is sick.
Was complain of being ill. No definite symptoms
apart from General malaise. Temp 102.

One typical papule ^{on the nose} well developed showing central umbilication
with light area next to the red area. - on 2 very
atypical red spots on cheek -

Note: She was sent away on the evening of the 1st on
the General malaise. She has since returned
showing that the eruption was extensive but not
severe.

XXXI

On the 2nd Feb. Thomas Murphy 60 working
in the Tailors shop was seen accidentally by me
when I noticed a papule eruption on the
face & forehead - but he has since varioloid -

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He had not compliance to anyone - He had a lumb of
107. I am immediately sent away.

Note This man must have had very slight initial
Symptoms or else fear of being sent away made
him conceal the fact from me - In getting at
the correct symptoms this has to be taken into
account. In my later cases I never put a
leading question but allow them to state
their case.

XXXII

On the same date 2nd Jan. Fred R. Williams 69
from Bodey House in Litch suddenly ill with headache,
dizziness, no fever. Over two papules on
chest, none on forehead: one on nasal
membrane: one on wrist, several on back.

Note This concludes the case which occurred in the house
some three weeks to months within the building.

A few other cases have since been admitted but
no contact can be followed.

XXXIII

On the 5th of Feb. Martha Greenwood 27 was sent in by
a medical man - a case of Catarrh & Rheumatism -
I saw her a few hours after admission noticed
that she was listless & more or less prostrated. She
gave me history of having felt ill for a day or
two, she had no backache, no headache: I
examined her for spots, & found about 6 on
the back, two or two on the wrist & three or four
on the legs: none on the forehead.

Sent away same evening.

Note This was a case which might have been diagnosed
correctly if the doctor had taken the trouble to look for spots.

On the 28 Feb. John Wood 63 an outflow messenger came in the night previous (27.) appeared to be drunk + was ordered before me next morning to be punished by being sent to the able bodied house in the county. I did not examine him carefully but being accustomed to the habit of looking at people face & head for spots I noticed a great many faint small darkish red spots on his bald head - He told me he did not feel ill but a few hours after I saw him again the then had all these spots mutually developed on his head & several on his wrist & ankle. Temp. 101.

No but any sore throat.

Note This is the only case which came under my notice where there was marked delirium & unsteady gait.

XXXXV

On the 29 March Geo Bolton 27 was admitted feeling ill that felt as for 3 days - He has a temp 102.2. No headache. No tenderness but general malaise. No spots anywhere except a measles rash at the level of the umbilicus extending down each side to Scarpa's triangle; it was a brown dust color with numerous small dark brownish spots. The man had been barked before in a this & improved well after a few very small red tubercles appeared on the face. He was sent away immediately.

Note This was a typical case of prodromal measles rash in a tubercular pyramidal form. He also had m. tubercle (small) on bronchial mucous membrane.

In reviewing the history of the outbreak of Small Pox in this House as set forth in the foregoing cases my chief object is to draw attention to those facts which I found of most service in enabling me to arrive at an Early Diagnosis - earlier than the description usually given in Text Books leads me to expect.

In order to give a sense of completeness to my treatment of the subject I may be allowed to make some observations on the origin of the outbreak.

At the outset I wish to state that not one of the patients who contracted Small Pox had been re-vaccinated but all had been vaccinated in childhood.

It is generally recognized that Small Pox is infectious by means of a volatile contagium in every stage of the disease - without exception - but that the different stages show quantitative difference in this respect: that the volatile contagium develops its infective power mostly from the exanthem. (Immune)

The two cases admitted with well marked eruption were in the House about 6 hours & although a few men not protected by recent revaccination were in the same ward for some time no case of infection followed.

Mr Kemp - Case no 3 - was in the House 44 hours before she died & the three women who became

infected had been exposed to infection the whole time; two of them had slept on either side for two nights while the one who seemed to have had a prolonged incubation slept some distance away from her.

The nurse who assisted to lay out the body of Mr Kemp had not been recently re-vaccinated & although she did not contract the disease she carried the infection to a susceptible patient in the Sick Ward.

The man Crisp who carried the dead body of Mr Kemp to the mortuary & afterwards assisted at the Post Mortem appears by the incubation period to have become infected from the first contact & not at the Post Mortem. With the exception of Saville all the cases were mild. These cases prove clearly that apart from any eruption the virus is given off & that although the source of infection may be the most malignant cases the infected may develop the mildest type of the disease.

Notwithstanding the fact that James Blake was immediately isolated & visited only by one during the four days he remained in the Home 21 cases of Small Pox out of 1400 inmates followed in the following order:-

Blake was here from the 11th Jany to the 15th.

On the	25 th Jany.	1 case
"	28 th "	4 cases
"	29 th "	6 "
"	30 th "	3 "
"	31 st "	3 "
"	1 st Feb.	2 "
"	2 nd "	2 "

The only part of the stowage which escaped was the square block at the top of which James Blake was isolated.

I am of opinion that the contaminated bed clothes were imperfectly fumigated: that the source of infection was the same in all cases because no other case of Small Pox followed from infection by the cases that occurred in the stowage: that the clothes stained with the blood of the haemorrhagic case was the channel of communication & this will explain the different dates of infection & its general distribution because the clothes would be used at different times in different parts of the stowage.

I am convinced that a certain time exposure is necessary for a person to become infected unless specially susceptible: that it is a quantitative difference rather than a qualitative:

A cumulative dose rather than a greater virulence of the virus.

I attribute the successful + early suppression of the outbreak to the removal at the earliest stage of development of the disease.

It is not clear that Small Pox is infectious during the incubation period but certainly during the initial stage + therefore the shorter the time a case is allowed to remain the less the chance of the immediate surroundings becoming infected + this because only a small quantity of the poison has been given off which does not appear to be of sufficient power to produce the disease except in very susceptible individuals. The incubation period in those cases where the date of contact could be fixed definitely was 12 days.

The great feature of Small Pox is the constant presence of a fixed + limited initial stage of peculiar characteristics even more certainly than the small Pox "in them". (Tommerman)

In all the cases which I have enumerated the Onset was Sudden: the old men + women invariably expressed themselves as not being able to make it out as they were as well as ever "yesterday" but to day so ill - the mildest had sometimes a more severe initial stage than others which

ultimately proved the severer attack of the developed disease:

The temperature was taken in every instance a few hours after the patient made the complaint of being ill & almost invariably the temp was 103 - 104 & remained so usually for 2 days & would gradually fall on the 3rd, In those cases which were delayed here for 3 days the temp was normal & the patient had a sense of being quite well.

I have had in this State cases with very similar symptoms including pain in the back but the temperature did not run this three day course: it either was normal the next day or continued beyond the three days. To any one inexperienced in the practice of Small Pox these symptoms of sudden illness rapid rise of temp. intense pain in the back combined with headache & perhaps sickness would lead him to diagnose Influenza & indeed to my own knowledge very many cases have been diagnosed as such during this present epidemic so that while I strongly believe that in every case of Variola however mild there is this constant & limited initial stage I maintain that the great

diagnostic feature is the presence of the small Pox eruption & at a stage of the disease earlier than the Text Books usually state.

Even in epidemic times one can't very well send a case to a small Pox Hospital on the initial symptoms of Rapid rise of temp. backache, headache & sickness but if one had been taught to expect some traces of the small Pox exanthem even at the onset & most certainly well within 48 hours a habit of careful inspection would have been developed & cases of Variola would be well on their way to the hospitals for this disease much earlier than is the case to day.

Taylor, Alchin, Peyer, Osler, Corlett, (1907) Immerman (1912) all make more or less the same general statement. viz: That the eruption generally appears about the end of the third day.

My experience although limited is sufficient to enable me to state definitely that the first traces of the small Pox eruption can be found, if looked for carefully, sometime within 24 hours of the onset almost invariably within 48 hours in mild cases of Variola but that the well marked eruption may not appear till the fourth day or later.

To make my meaning clear I will refer to one of my cases.

M^r Murphy was taken suddenly

ill during the early hours of the morning with temp 104. headache. When I saw her a few hours later I noticed one distinct papule on her forehead + none anywhere else - She was isolated + kept under observation: The same evening she had one or two faint small macule on back of hand - Next morning these were more papular: Temp 104 No more developed during the day:

Next morning temp was 99 + one or two papules were noticed on her back - She was sent to the Small Port Hospital where she developed a copious crop of papules all over her face the next day. I have examined her since her return + find she has superficial macules all over the body -

The Distribution of the rash is also not sufficiently clearly stated in many of the Text Books.

These first traces are by no means constant in their seat of selection but invariably select one or other or all of the following parts:-

Forehead, wrist, thenar prominences, anterior surface of thumb: Anterior surface of forearm: + always its upper or lower end: (rarely seen on the flexor surface at this stage.) Anterior surface of leg: also limited to its upper or lower end: Back: Soles of feet. Palm: Buccal Mucous membrane almost always -

The Character of the Rash at this early stage is not uniform - There will always be found one or two papules with indurated base giving a hard shell like feeling: but often there are several red macules. Small on face + forehead which only slowly become papular but at the same time there will generally be one typical papule on palm or side of foot or then on prominence which will if examined under a magnifying glass show a dark cavity like centre surrounded by a lighter yellowish ring probably due to refraction + outside that a faint areola.

Therefore if I am called to see a patient + she or he tells me that the onset of the attack has been sudden + that the symptoms are backache, headache, sickness with epigastric pain + I find the Temp. 102 to 104 I at once make a careful search for spots in the following order:-

Forehead + face: wrists: extensor surfaces upper + lower end of both forearms: Palms: Soles of feet: extensor surf. of leg. upper + lower ends: Outer surface of thigh + upper arm: Buccal mucous membrane + if I find one or two I examine them with a magnifying glass + if I see a dark

and distinct centre with a light refractive zone between it & pink areola I diagnose the case as one of Small Pox & this can be done within 48 hours of the onset always - often earlier.

During the week in which these Small Pox cases occurred four cases were under observation whose initial symptoms were identical with the other cases but no eruption appeared. I submit that these were instances of Variola sine Eranthemate. Of course it is impossible to tell with absolute certainty, as no case of infection can be traced to them but the same thing applies to the cases in which there was no doubt as to the diagnosis.

Three other cases occurred with history of contact 12 or 13 days previous to onset of illness but only developed one or two papules after the third day & then remained in the papular stage.

One man who had been exposed in the Tailors shop to infection from the Head Tailor was taken ill 12 days after: headache, backache & diarrhoea steep 101.

On the 4th day he had one papule on the scalp & one only & this

remained papular + eventually dried up + disappeared
 Another man with an equally definite history was
 ill for 3 days with a temp. of 103: No papules
 until the 4th day when he only had three on
 the border of an part which had been painted
 with Iodine: they remained papular +
 eventually disappears.

Another man who fumigated the clothes also
 came to me complaining of illness + showed
 me one papule on back of head. one on
 upper arm: one on buttock: these were small
 at first but became large hard + indurated.
 they remained papular + in time dried
 up.

I am strongly of opinion that these were
 cases ^{of smallpox} in which the eruption stops
 short at the papular stage.

In the case of Purpura Variolosa I wish again
 to emphasise the fact that the typical
 papule does not usually appear.

If I have succeeded in making it clear that an
 ordinary case of Variola - as seen in the majority
 of cases in the present epidemic in London - can
 be diagnosed with a fair degree of certainty well
 within 48 hours of its onset + so materially help in
 checking the spread of the disease by an early

demoral I shall feel that the outbreak in this
home was a blessing in disguise.

Thomas Evans Mrs. C. 1894.