Thesis
upon a series of eighteen successive cases
of
Post-Scarlatinal - Diphtheria

by
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M.R.C.S. (Eng.) L.R.C.P. ( Lond.)
I here discuss the subject of Bubonic-plethorism - give some observations on a series of eighteen cases which have come under my notice during the past six months, while holding the appointment of Assistant Medical Officer to the Fountain Queen Hospital under the administration of the Metropolitan Asylums Board. These cases are perhaps of some further interest as they have arisen in a hospital given over solely to the admission of Scarlet Fever, other fevers complicating the course of this being isolated as they arise. This form of plethorism has generally been looked upon as entirely a hospital disease, with popular suspicion that the chief cause was faulty administration. There is no doubt it does arise in cases treated at home by the agents published by unexpected discovery of plethorism when the condition was sought for, owing to the mildness of some attacks. The actual state of affairs is so liable to be overlooked, some observations will be made on the mode of origin spread which are perhaps the points which have attracted most attention of late. The more commonly read Medical Text Books however make little note.
of the subject, and from perusal of what may be termed the standard article on the subject in the System of Medicine edited by Dr. Clifford Allbutt written even a few years back. It will be seen on comparing this with results now obtained that the complication has undergone a great change for the better especially with regard to a diminished mortality.

What is desired to be conveyed by the term post Scarlet febrile diphtheria is the development of diphtheria as a complication during the convalescent period of an attack of Scarlet Fever. In the following case noted the date of onset is far enough removed to leave any doubt as to a co-existence of onset of the two diseases.

I will now give a brief clinical abstract of the cases under consideration, many of the points being entered into more fully later.

Case 1. A.H. M. Male Age 4½ yrs.  
Admitted Augt. 27th 02  
Previous illness- Measles  
The attack commenced with headache accompanied by some shivering the day before. Before admission they had been vomiting. The rash was first noticed on the third week. Local examination showed
enlargement inflammatory nature of both tonsils & fauces, also a yellow spotted exudation on the former. The cervical glands were a little enlarged, the tongue was slightly coated with white fur through which the papillae were prominent. Temp was 100°F pulse 110 per min. regular. Heart sounds were normal.
The urine contained no albumin.

After Barley water was given for three hours & the tonsils moved by Alba Glycerol 6%.

Next day the Temp was 100°F. The exudation had disappeared from the tonsils only some
infection remaining. The tongue had almost peeled except on the first third.

Aug 29. Only slight injection of tonsils presence, the
whole symptoms all disappearing. But increased
some thin brow flatten Milk pudding being added
Sept 4th All symptoms untended. No cheese cure yet
visible. Fish did allow.

Sept 13th Conspicuous mottled by Enlargement abdomens
of the left cervical glands. Tonsils blanches were
normal. A clear serum discharge issued from
both nostrils. The temperature was 100°F on
looking into anterior nares some hyperemia was
seen of the mucosa. Membrane covering the inner surface
also that of the Infrac Nuchal Bones adjacent Septum
Nasi. A swab was placed in contact with the
mucosa, Membrane in Blood serum tube incubated
for culture in incubator.
Sept. 14 Nasal discharge. The sneeze in character and increased in quantity, has produced some redness in the upper lips. No membrane formation seen in nasal cavity, the rhinitis appearing the same.

On examination the culture taken showed Mycobacterium bacilli. The case was isolated.

Sept. 18: Slight Rhinitis with little nasal discharge. Desquamation of the hands is proceeding.

Sept. 20: Rhinitis remittent discharge diminished.

Cervical glands are still enlarged but under hot fomentations the swelling has diminished.

The pain disappeared. There had been no vomiting & no seda was present but the urine was cloudy in appearance to me the evening before it was normal.

Culb. pneumonia 12 yrs. followed by Mumps. Sulphat.

The bowels well moved. Milk diet was resumed.

Sept. 22: Acute nephritis still present urine showing much albumin. Albumin in blood. The total quantity, presence has been good throughout.

Rhinorhena intermittent being thin, warm.

Sept. 24: Nephritis now lab. album & slight yellow albumin in urine. No blood. Blood butter while pudding again allowed three days previous.


Nasal discharge. Fish followed in two days by ordinary diet when patient got up.
Case 1. M.R. Female. 10 yrs. 4 mo.
Admitted Sept. 12th 1902.

Previous Illness: Measles.

History of Present Attack: No prior symptoms complained of.

On Admission. пункт поверхностный препансиен на чеке.

Throat. Very slight injection of tonsils & fauces.

The cervical glands were just palpated. Temp 101 F.

Sept 14. Rash has faded, all symptoms disappeared.

Was a very mild attack. Died Nov. 12th.


Sept 25th. Decapitation of third allowed up next meal.

Convalescent continued was taking full diet.
On Oct. 20th a Relapse of Scarlet fever set in.

The throat was emaciated, and tonsils were enlarged, covered by a yellow exudation. The face was markedly injected. The tongue was furrowed with enlargement of the papillae. Each appearance next day on chest, back, and arms. An active glands re-enlarged.

The relapse ran a typical course. The desquamation was observed taking place on Nov. 3rd. Nov. 10th, the child got up, convalescence proceeded uncomplicated by renal failure.

Dec. 5th. The morning temperature was 100.2°F. A thin mucous purulent discharge was observed from the nostrils. Injection of the conjunctiva; membrane and no membrane was seen. Throat was normal. A culture from the discharge showed Diphteria. Bacilli. The case went into isolation. Treatment—by syringing and application of ointment as in case 1.


Dec. 15th. Rhinitis with a little crustation just within the Narco. The discharge is very slight. No signs of paralysis.

Dec. 25th. Rhinorrhea very slight intermittent. Two days later, patient getting up; passing through a third uninterupted stage of convalescence. The nose was free from Bacilli.
admitted to home on Jan. 15.

Case 3 G.H.

Admitted Dec. 7th '02

During absence in the

history of present attack Dec. 5th. Rich noticed on Check

exam the following day complained of sore throat

the tonsils were swollen hypertrophic.

The tongue was slightly furred commencing to

peel. The cervical glands on both sides were

enlarged.

Dec. 8th slight injection of throat the tongue had pealed. Temp.

was 99°F. was a mild angular attack

the cervical glands gradually resolved. Commenced

degenerating on the 14th. Dec. was allowed up on

Oct 27th.

Nov. 18th. Complained of sore throat, which appeared a

little injected. Tongue was slightly furred

temp was 103°F. The lungs and heart were normal

there was no albumin in the urine.

Nov. 19. Tonsils more distinctly injected, a few spots

of yellowish exudation were seen on the tonsil

the tongue was furred

Nov. 20. The ulterior exudation had increased a little

temp 101°F. A cool was applied to the

exudation for cultureing.

Nov. 21. There was a whitish Pustule on the Right Throat

with discrete Whitish spots on the back one.
PATIENT'S NAME  L. C. W. (Case 4)  AGE 64

CLINICAL CHART.

DIAGNOSIS.

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Case 4.

Admitted Oct 11th 12.

Present illness. Not

History of these attacks. Oct 8th. Admitted. Oct 8th. Felt attack

Oct 11th. Rash appeared on chest. Throat

in Admissio. Face injected. Tongue inflamed around
by yellow exudate. Tongue was furia. Clinical

glads at both ends of jaw were enlarged.


Oct 26th.

Dec 5h.

Dec 7th.

Sacred Disregard

Dec 21st.

Dec 25th.

Dec 29th.

Jan 2nd.

Jan 3rd.

Jan 10th.

Nov 1st.

Nov 20th.

Nov 24th.

Nov 30th.

Nov 5th.
Nov. 10. Pulse 76 per minute. Still a little irregular. The knee jerks are present but the reaction is sluggish. Tranquil Albumin in urine again.

Nov. 17. Pulse 72 per minute equable regular. Teg. Sleeken omitted.

The 4th allowed up, no further symptoms occurred, and patient discharged after throat tested for bacilli with negative result on Dec. 15th.

Case 5. C.O. V. Female. Act 7 yrs.
Admitted Oct. 17, 92.

Present Illness: Measles, whooping cough, chickenpox.

History of recent attack: headache, sore throat, tick on chest.

Appeared morning of admission:

Temperature 101.2. Pulse 126 per minute. Ticonderga.

Yellow punctation on surface. Three small superficial tongue punctures. A little adenitis at angle of jaw.

Rash on chest, trunk, arms.

Act 21st. Resolution separated from pustules, and pustules.

Adenitis remains. Temperature 101. Adenitis marked on right side of neck.


Nov. 30th. Traces of albumin which showed for two days on emerging urine. Temp. normal.

Nov. 5th. No albumin. Allowed up.
Dec. 8 Temp. at 10 pm. 102°F. The examining throat small white distinct patches pain on both tonsils a swab was taken from exudation to take inoculated for culture. A direct examination from some mucus remaining on the swab has attempted to isolate it but no Staphylococci found. The child was isolated injected with 3000 Units of Antitoxin. Throat was sprayed with Chlorine Lotion for 1 hr.

Dec. 9 Temp. 99°F Tonsillar exudate disappeared. The culture inoculated also showed Staphylococci Bacilli.

Dec. 10 Tonsils & Tonsils appear normal.

Dec. 17 On the evening an Acuteผล Antitoxin took appeared on tonsils 1 hr. later, it gradually faded in two days being accompanied by no other symptoms.

Dec. 21 All signs of convalescence continuing. Throat was tested culture free from Beville on Jan 1st. Returned home on Jan 8th.

Case 6 J. M. Female. Age 7 yrs.
Admitted Oct 29


On Admission Tonsils much swollen injected with patches of yellow exudate. Tongue smooth. Clinical Admitte Temp. 100°F.

This gave a trace of albumin.


Nov. 4: Enlargement of glands. Considerable pain felt in throat on left side. Tonsil of albumin again appeared.

Nov. 5: Attack of headache on right side. Under treatment gradually subsided.

Nov. 10: Temp. 100.8°F. Deaf in right ear. Tonsils with excudation & recurrence of albuminous exudate. Culture from throat gave no bacilli.

Nov. 14: Superficial ulceration remaining as result of tonsillitis. Temp. normal.


Nasal cavity swabbed with boric lotion. Throat shows no signs of inflammation, although tonsils appear to be hypertrophied. Throat membrane visible anywhere.

Nov. 26: Rhinorrhea. Throat & nose occurs morning & night. See 3rd zone yellow infiltration around Ant. Nares, with discharge upper lip shows excoration. In spite of application of Bovine Ventum.

Dec. 22nd: Rhinorrhea ceased. Child got up.


It became recommenced a week later & persisted till Jan 4, when that was shown.

Jan. 14: Left list. Media commenced but was proved to
In Cataract with thin secret discharge, with syncope. This disappeared on Jan 28th. There were no other regular attacks. Was discharged on Feb 7th.

**Case 7**

**Final Act 4 yrs.**

Admitted Oct 31st 92.

Pulvinar illinoi whooping cough.

History of burst attack. Sneezing, Rash, Headache.


On Admission: Injection of Two Tonsils. Tongue Peated.

LITTLE RED UNT. ACUTE TONSILLITIS: Temp. 98°F.


Throat normal since Nov 1st. Patient got up at

end of 3rd week

Nov 8th: Temp. 101°F at 10 pm. Complains of poor throat. Subsequent

patches of cyanosis are seen on both tonsils.

Post pharyngeal wall. Tongue is found. Very

little cervical adenitis,dou al taken, tube inoculated,

some of remaining pus examined - hemophili Bacilli.

Cold transferred for isolation. Antibiotic blood

was injected. Throat syncope with Crotaline Lotion

Dec 9th: Temp. 101.8°F. Pulse 136 per min. Marchers commence

to repair. Very little glandular enlargement. Culture also

Chrom. Bacilli.

Dec 10: Temp 100. Very little Membrane left, still disappered
completely next day when Temp. became normal
Dec. 18 No signs of Nephritis or paralysis. An Uninjured
Arthritic rash appears faded next day.
Dec. 22 Rhinitis with thin clear drainage, no catarrhal
started intermittently till Jan 4th; when patient
was found culture free of bacteria.
Discharged from Hospital Jan 15.

Case 8 Male, 46 yrs.
Admitted Nov. 3rd 02
Diagnosis: Rhinitis, Nasal
History: Frontal Attack Oct 31st complaining Nov 1st Headache
+ Eye Throat Nov 2nd Rash appeared on Face + Throat
Nov. 3rd On Admission Throat + Face injected Tongue
lightly furred Temp. 99.5
Nov. 10 Very mild attack Desquamative of chest
Nov 20 Got up.
Dec. 9th Slight Catarrhal Rhinitis which persisted
Dec. 23 Right Middle Media with Catarrhal discharge
Dec 29th Temp. normal. Rhinitis accompanied by Blood
stained discharge. No Membrane seen. Carb taken,
from culture Alkalithrin Blank grew next day
from Blood. Now Bryned with Rose Lotion.
Dec 30 Nasal discharge intermittently present.
Jan 5th Temp. 102.7 at 6 pm. Tongue normal. Rise
from Nose.
Jan 6 Temp 98 Tongue inverted Nasal Membrane Membrane very
hypersensitive with incrustation around Ant. Nares. The
discharge is thick even paracent. Antitoxin 6,000 Units
injected.

Jan 7: Temp 107. F. Rhinorrhoea less and so thick
right obstructive discharge.

Jan 13th: Examination of Ant. Nares a little thin. Rhinorrhoea
Start afreer normal in position, no dilatation. The first
sound is distinct. The Cardiac impulse is irregular
in time & force.

First regular Antitoxin therapy on Back & Upper limbs
which faded in two days.

Jan 16: General pallor of skin surface.

Heart sounds weak & irregular although no dilatation
is evident. Thy, Skyckmus ran it by March 28th.
given.

Jan 20: Colour improved. Cardiac sounds almost regular
the Jerti & Palade reflex normal
Annie glands left side an enlarged & temp
in the evening rose to 103. F.

Jan 21: Adenitis increased on side of neck painful. Tonsillectomy
applied. Rhinorrhoea less ceased. Obstructive
discharge continues. A second Antitoxin Rock
has appeared. Heart sounds quite strong regular.

Jan 23: Antitoxin Rock faded. Rhinorrhoea continues a
thin serum discharge of considerable quantity in
spite of treatment.

Jan 24: Set up, five days later was transferred to
To the Northern Convalescent Hospital to be observed still continued. Otherwise the patient was quite healthy.

Case 9  W.A.J. Female  Age 4 yrs.

Admitted Nov. 5th '02.

Previous Illness: Chickening

History of recent attack Nov. 5th: Drowning in a well.

Nov. 6th: Rash on chest. Enlargement submaxillary glands.

An admission tonsil inflamed with yellow exudation on periphery.

Fever injected Temp. 103°F.

Nov. 7: Rash still red. Superficial ulceration of tonsil.

Urine gives a trace of albumin.

Nov. 17: Tonsils still somewhat enlarged. Throat is clean.

Urged using of chest. Temp normal since Nov 11th.

Nov. 20: Tonsils enlarged but not inflamed. Urged use of chest.


uraric glands. Blood taken. Culture showed Pyogenic organisms & a few saccia which did not show feeding. Throat syringed with Chloric Solution.

No albumin in urine.

Dec 2nd: Temp 100°F. Tonsils still ulcerated.

Dec 4th: Temp 99°F. Much transudation present round tonsils.

Dec 8th: Temp normal. Throat is clean. Tonsils enlarged - appear hypertrophied.
Dec 12th Temp 99. Rhinitis with thin clear discharge &
towards evening became blood stained. Another culture
taken. No Membrane seen. Now irrigated with Buri’s Tonic.
Dec 13th Rhinorrhoea with clear discharge No Bacilli seen.
which were removed

Dec 24th Temp. fluctuated between 99° & 100° with Adenitis.
Today Rhinitis with increased discharge which is more prominent bloodstained. Temp. 102. Another
Culture taken which gave Staph. Aureus Bacilli.
Isolation carried out. 2000 units of Anthraxin injected
Dec 29th Rhinorrhoea much less severe in character.
Nasal cavity injected no traces of Membrane seen. etc.
Temp. 99° F. No Albinism in urine.

Jan 2nd & 3rd Nasal discharge less. Much secretion of
Mucus in nasal cavity.

Jan 13th Right Rhinorrhoea. No regular. Patient allowed up
Feb 2nd Release of Nares. No discharge. No Bacilli found.
Patient discharged on Feb 11th

Case 10 SP. Female. Aged 7 yrs.
Admitted Nov. 9th 02

Daniela Illness. Marked Whooping Cough
Meningeal Menench Attack Nov. 6th. See Report
Nov. 7th Headache. Vomiting. Rest on chest
On Admission Toric & Jaume tonics injected. Superficial
November 19th. Lymph glands enlarged. Tongue furred. Temp. 102.5

Nov. 17
Throat normal. Membrane of chest.

Nov. 26
Membrane of Pharynx.

Dec. 11

Dec. 12
Membrane of left Throat, a little on Right.

Dec. 13
Membrane disappeared. Throat Ueessen around Jaws.

Dec. 15
Temp. normal. Throat Clean.

Dec. 20

Dec. 26
Rale much improved, expectorate regular. No signs of Abscession.

Jan. 4
Uninterrupted recovery. No Bacilli seen in culture. Followed up, was discharged Jan. 18th.
## Patient's Name
**Case 11**

### Clinical Chart

#### Diagnosis

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#### Pulse

- November: 120, 120, 92
- December: 120, 112, 108

#### Respiration

- November: 12, 11, 10
- December: 12, 11, 10

#### Motions

- November: 2, 1
- December: 1, 1, 1

#### Day of Disease

- November: 1, 1, 1
- December: 1, 1, 1
Admitted Nov. 19. 52

Pulmonary Tuberculosis

History of recent attack Nov. 19. Sore throat, Ritch on check.

Admission: Injection of Jaro, Tonsils inflamed with suppuration, elevation of left. Tongue furred, slight elevation.
Temp. 104.6.

Nov. 20 Temp. normal. Throat almost clean except left tonsil.

Nov. 21 Throat quite clean. Tonsils still somewhat enlarged. Has been exceedingly mild attack. Examination of chest, clear.

Dec. 11 Allowed up. Drainage still proceeding.

Dec. 12 Rhinitis with mucopurulent nasal discharge.
Temp. normal. Cultures gave no Bacilli.

Dec. 15 Rhinorrhea continues. Same. Another culture taken which gave diphtheria Bacilli.

Dec. 16 Tonsils so sore axing.

Dec. 18 Rhinorrhea severe. Loss in quantity. Thyroid adenitis.

Dec. 20 Rhinorrhea about the same. A crop of thyreoidus papules appeared on Bhutto. Kept 1 th. high.


Jan. 19 Occasional appearance of rhinorrhea. Patient allowed up.

Jan. 20 Rhinitis quite gone. No signs of regular culture free from Bacilli. We discharged on Feb. 3rd.
Case 12  M.F.  Female  Age 7 yrs  
Admitted  Nov. 22 02
Deminum ill ease  Hooping Cough
History of sudden Attack  Nov. 20 Marking of Forehead 
Nov. 22 Rash on Cheek 
Examination  Injection of Forehead  Throat  Tongue  Funds
Temp. 100.  Pulse  120
Nov. 26 Throat normal. All febrile symptoms disappeared + 
converse procedure.

Dec. 8  At 10 am  Complained of Acute Throat  Temp. 103.7
which exudation is seen on both tonsils tonsure on
Post pharyngeal wall. A spark was taken. Case
isolation. Culture tube inoculated, tube was sent
directly examined  Staphylococci Bacilli found.
1000 units 8-hourly. Antibiotic injected  + throat gargled
with Chlorene solution four hourly.

Dec. 9  Temp 102.4  Exudation yellowish in colour  seems the
bacilli has not extended to pharynx attached  Antibiotic
1000 units injected. Culture also showed Bacilli
Dec. 10  small patch of exudation on left tonsill, the glands
on same side a enlarged.

Dec. 11  Exudation all disappeared, much remains about jaw.
Temp. 99.8
Dec. 15  Throat normal. Eight cultures 7-day side  No albumini
in urine  automatic
Dec. 18 First patchy  Varicella Rash chiefly on Arms legs
which faded next day
Dec. 22. Urinary calculus not suspected but passed.
in twenty four hours.
Dec. 29. No signs of peritonitis. Allowed up.
Jan. 4. Culture free from leukocystez cleithra.
Note of fever continued to December which caused
retention till Jan 5th 03.

Case 13 45 yrs. Male. Out 4 years
Admitted Dec 20th 02.

Present Illness. None.

History of Recent Attack.
Dec. 20. Rash; trunk; limbs.
An obstruction found. Improved gradually, circulatory
symptoms; injection, pulse 125. Pulse 128. Per rectum.

Steps very badly. Temp. 100.7. Pulse 126 per min. Local.
Signs much the same.
Dec. 24. Enlarged spleen; injection; innumerable spots;
Temp normal. Pulse regular. Cough now absent but
no physical signs in chest.

Jan. 5th. Occasional cough. A few dry rales heard at back
lower posteriorly. Temp. 99.

Jan. 9th. Reported that he was hoarse during night. Hoarseness;
still shows some bronchitis. Transferred to isolation ward.

Jan. 16th. Cough is more bothersome. Sputum is copious, some blood.
Respiration 32 per min. No dulness of lobe, but many rustle into heard over all areas posteriorly. The tonsils are still enlarged covered with much thickened mucous membrane. Temp 100

Jan 18th Temp 101 Throat much the same
Physical signs no dulness, breath sounds as before
Jan 20 Temp 102 Throat very dry Air about with much prominent discharge from larynx. Physical signs in chest the same. Whorps occasionally.

Jan 21th Temp 102 Respiration 40 Pulse 128 per minute
Imperfect expectoration from one Right Lobe. Chest sounds labial, breath sounds increased—Broncho-Pneumonia

Jan 22 Physical signs in chest same. Throat still very dry. Much swelling of tonsils which show one or two patches of exudation. Cervical glands still enlarged together with Pock on knees & elbows.

Jan 24th Temp 102 Pulse 168 per minute lungs, throat & chest much the same.

Jan 25th Congested up a small piece of membrane which was removed for culturing. Tonsils & faucial very thick & much mucous about. Nasal discharge no less. Albuminuria.

Jan 26 Upleusuria Bacteriæ were seen in the culture & looking back it is very probable Upleusuria commenced about Jan 22. The signs in the throat being mistaken for Septic Infection a culture was made. 12,000 Units of & Infusion were injected
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<td>97°</td>
<td>37°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>96°</td>
<td>36°</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PULSE</th>
<th>RESP.</th>
<th>MOTIONS</th>
<th>DAY OF DISEASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>44</td>
<td>M. A.</td>
<td>E. 1</td>
</tr>
<tr>
<td>110</td>
<td>110</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>98</td>
<td>98</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>80</td>
<td>80</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>90</td>
<td>44</td>
<td>36</td>
<td>2</td>
</tr>
</tbody>
</table>
Jan 26 (con) Little or no improvement of note at Night Area. The
breath sounds are medium pitched bronchial in character
Many moist rales are heard all over the chest.
A patch of tenderness which is yellowish remains on the
left Inflated There is much cyanosis around fingers. Urine
show a trace albumin. Rhinorrhea continues

Jan 27 No membrane seen in throat but much yellow, dry
mucous around Trachea. Temp 102. Pulse 160. Per minute volume
trachea poor but regular. Anti toxin 12000 units injected

Jan 28 Tonsil still enlarged covered with yellow mucous
No membrane seen. Trachea with mucopurulent discharge.

Feb 1st No improvement Notes at Night Area. Many moist
rattles at lower port遂ly. Temp 100
Body fluids emaciated, arms very weak
Vomiting from Antiacid rash on Back which faded in
Three days

Feb 11 All signs of bronchitis, trachea pneumonia disappear.
Voice is Nasal. Knee jerks present but sluggish
Pulse 86 per min volume fair but irregular in time. Force
Cardiac area heart normal in position. Fed by urea
11 pm. Returned three times. Fed by Buehler tonomato
Last next day

Feb 13 Returned once after second tonomato feed, no feed
by mouth for next three days

Feb 16 Again fed by urea three days later by mouth
Feb 22 No other signs of pneumonia appeared. Patient steadily
improved although very thin remained still.
Patient's Name: J.J., Case 14
Age: 5 yr

**Clinical Chart**

**Diagnosis:**

<table>
<thead>
<tr>
<th>MONTH</th>
<th>December</th>
<th>January</th>
<th>January</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY</td>
<td>29</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>F°</td>
<td>MEMEMEME</td>
<td>MEMEME</td>
<td>MEMEME</td>
</tr>
<tr>
<td>C°</td>
<td>107°</td>
<td>106°</td>
<td>105°</td>
</tr>
<tr>
<td>Pulse</td>
<td>120</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td>Resp.</td>
<td>108</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>M. E.</td>
<td>1/1</td>
<td>1/1</td>
<td>1/1</td>
</tr>
<tr>
<td>Day of Disease</td>
<td>1/1</td>
<td>1/1</td>
<td>1/1</td>
</tr>
</tbody>
</table>

Note: The chart shows temperature and pulse measurements over time.
Mar 15 Set up, was just able to pull himself up a little with assistance.
Mar 23 Walks about unassisted.
Mar 21 Quit convulsion for last week, having no sequelae was discharged to-day.

Case 14 F. T. Male Act 5 yrs.
Admitted Dec. 27, 19—.
Reason: Illness Measles + Paralysis

History of disease attack—no pulmonary symptoms noticed at home.

In admission tonsils & faucial glands enlarged, ulcerated, yellow papules. Pneumonia lymph nodes, right throat, glottis.

Temp 97.2. Pulse 124.

Jan 2 Admitted of right side of neck, which is reddened, very tender on pressure. Swelling applied.

Jan 6. Admission extended to right normal.

Jan 13 tonsils enlarged with patch of yellow exudation on right side. No pain on swallowing. Temp 101. Sore throat and bacilli found.

Jan 15 yellowish patch, erosion superficial ulcer of right tonsil, Temp 100. No albumin in urine. Another swab examined with negative results. Blood sediment and blood picture normal.

Jan 17 Temp 100.4. Erythema superficial ulceration right tonsil. No bacilli present in a third culture examined.

Jan 19 Temp normal. Ulcerous patches appeared last night on back.
especially over loins, pubes, region of hymen, of breasts. A red flush is noticed on drawing nail lightly along back. Some induration remains on trunk.

Ape of Heart normal; one sternal heart.


Feb 18: Pulse 80 regular. Knee jerks as before. ThroatWire normal & left hospital this day.

Re-admitted Feb 25th.

It was stated that two days after getting home what appeared as a "cold in the nose" commenced. The throat became sore. This became more painful as patient was taken as an outpatient to a general hospital, where on hearing he had lately been discharged after
CLINICAL CHART.

DIAGNOSIS.

MONTH | DAY | Temperature | Pulse | Resp. | Motions | DAY OF DISEASE
-----------------------------------------------
January | 17 | 102° | 132 | 16 | 2 | 5
18 | 102° | 134 | 18 | 1 | 6
19 | 103° | 136 | 18 | 2 | 7
20 | 103° | 138 | 18 | 1 | 8
21 | 104° | 140 | 18 | 1 | 9
22 | 105° | 142 | 18 | 1 | 10
February | 10 | 101° | 132 | 16 | 2 | 11
11 | 102° | 134 | 18 | 1 | 12
12 | 103° | 136 | 18 | 1 | 13
13 | 104° | 138 | 18 | 1 | 14
14 | 105° | 138 | 18 | 1 | 15
15 | 106° | 140 | 18 | 1 | 16
16 | 107° | 142 | 18 | 1 | 17
17 | 108° | 144 | 18 | 1 | 18

PATIENT'S NAME: [Redacted]  AGE: 6 yr.
Readly fever, it was advised he should return here. Sick on re-admission Feb 25th

Some yellowish incrustation can just within left turbet + a small superficial ulcer visible on but inner half of nasal septum. T榉cts normal. Culture was taken from both throats. Mere nasal leucorrhoea of first thing this morning. None at present. Culture from nose showed height. Bacilli; none from throat. No albumin in urine. Heart & Pulse normal. Nerve gets stiff about but no weakness of legs.

Mar 1st No nasal discharge appeared since Feb 26. Ulcer on septum very small & just visible. Culture taken no bacilli found. Alburned up Mar 7th


Mar 24th Discharged. Knee joints not affected, but not the slightest sign of weakness of any muscle of legs.

Case 15. M. F. Male Aged 6 yrs

Admitted Jan 17th

Disease illus. Morbilli, Pertussis, Malaria

History of recent attack Malaria, from March Jan 13. Rash on Tunks Thinks Jan 16

On admission fever & Irving injected slight enlargement of cervical glands. Temp normal.
## CLINICAL CHART

### Diagnosis

<table>
<thead>
<tr>
<th>MONTH</th>
<th>Jan</th>
<th>Feb</th>
<th>Feb</th>
<th>Feb</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY</td>
<td>30</td>
<td>31</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Temperature (°F)**

<table>
<thead>
<tr>
<th>F°</th>
<th>107</th>
<th>106</th>
<th>105</th>
<th>104</th>
<th>103</th>
<th>102</th>
<th>101</th>
<th>100</th>
<th>99</th>
<th>98</th>
<th>97</th>
</tr>
</thead>
</table>

**Pulse**

- 116 / 118 / 110 / 104 / 98 / 96 / 100 / 98 / 96

**Resp**

- 96 / 98 / 96

**Movements**

- 2 / 1 / 1 / 1

**Day of Disease**

- 1 / 1 / 1

Feb 3 rd. Rash recurred. Chills followed up.
Feb 18 th. Temp. 101.4 F. Nothing seen in throat. Cervical glands both sides enlarged.
Feb 15 th. Still much injection of right tonsil with white pus. Sputum thicker and adhering especially to back pharynx well. Another culture gave high Bercilli.
Feb 27 th. Allowed up. No sequel.
Mar 10 th. Throat culture free four days ago.
Patient discharged.

Case 16 C. L. Male, Age 4 years.
Admitted Jan 30, 03.

No previous illness.


Jan 30 th. Throat almost normal. Rash almost faded. Temp 99

Very mild attack.
### CLINICAL CHART

**DIAGNOSIS**

<table>
<thead>
<tr>
<th>MONTH</th>
<th>February</th>
<th>February</th>
<th>March</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>F°</td>
<td>107</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>96°</td>
<td>96</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>PULSE</td>
<td>94</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>RESPONSE</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>MOTIONS</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>DAY OF DISEASE</td>
<td>5/4</td>
<td>1/4</td>
<td>1/4</td>
</tr>
</tbody>
</table>

**PATIENT'S NAME:** H. M. Case 17

**AGE:** 5 yrs
edema at both angles of jaws. Culture taken.
Uterus & Tissues hyperemic oedematous with shiny looking
tenesmic tumor. Bacilli is detected. Adenoma remains
Case isolated 4,000 units of anti toxin injected.
Feb. 21st. Wound practically clean. No Albumin in urine.
Temp. normal.
Mar. 1st. Uterus in arising high. Weak which lasted on third
day.
Mar. 6th. Allowed up. No regular. child eventually discharged
on Mar. 16 being free of Bacilli.

Case 17. H. H. Male. Act 5 years.
Admitted Feb. 8th.
Diagnosis: Uterine Mass.
History of recent attack Feb. 2nd. Vomited. No rash noticed.
at home.
Feb. 11th. Trace of Albumin in urine yesterday, which is
much increased to day. No Blood. Temp. normal.
Feb. 13th. 6 p.m. Last night Temp. 103. No urine passed till the
morning. When about 3/4 of dark smoky looking urin.
Passed Albumin about 1/2 in the last tube also Blood present.
Feb 13 (cont) Temp. 101. Pulse only increased a little 112 per minute.
No sedima of face. Hepa above appear on upper lip.
Feb 15 Acute nephritis still present with Cloud Albumin & a
trace of Blood too continued till Mar 3rd. Temp.
normal
Mar 4th Increase of both Blood albumin in Urine. Total
quantity of urine passed has been good throughout.
No sedema present.
Mar 7th Acute Nephritis continues. Joints enlarged enflamed
on left with a patch of yellow condition appear.
No glandular enlargement. No sedema. Temp. 99.3 F
Culture taken, Phillips's Ream was used & no growth.
Mar 8th Temp. 100.2 F. All joints left side joints much the
same. Good meat of urine taken given.
Mar 10th Temp. normal, very little sedema seen. Temp. normal
Urine Blood of albumin & trace of Blood. Face is
very pale. Th
Mar 16th Fever normal. Trace of albumin in urine no Blood.
No Signs of Parous.
Mar 29th Trace of Albumin in urine. Face pale & a little
puffy under eyes. Carthia up in 4 1/2 space. Left
liver at 8 th space. Liver (left). Reduplicatio of 21st sound
at middle line. Pulse 114 per minute regular. reium
a little increased.
Apr 6th Heart & Pulse normal. No Albumin for two days.
Allowed up. Meals normal sediment free of Blood.
Apr 15th Discharged. Having no further regular
Case 18  H.C. Male  Admit. 5 yr old  
Admitted Dec. 24, 02  

No previous illness  

History of recent attacks Dec. 26. Headache, vomiting  
Dec. 27. Sour throat, rash on chest above  

On admission: tonsils, pharynx injected. Enlargement of cervical  
glands. Temp. 101.2. Pulse 130 per minute  

Dec. 28. Temp. 100.2. Headache on tonsils. Admiter increased  
Dec. 30. Parapneumonic alar in tonsils. Much glandular enlargement  
which is being injected  

Jan. 2nd. Throat almost normal. Glandular swelling diminishing  
Temp. 99.2. Ibuprofen 400 mg. of Nase  

Jan. 26. Complained of pain in left ear last night. Temp. 100.8  
next day a thin yellow discharge appeared  

Feb. 11th. Left otitis media continues intermittently. Temp normal.  

Allowed up  

Feb. 12th. Temp. 101.4. Tonsils enlarged. Complained of  

Yellowish patch 5 cm. on right tonsils. Enlarged  
gland. Swollen. No albumin in urine. Cultures  
taken. Throat swabbed with Bacto Acetate Base  


Patient voided, good unit of albumin injected  

Feb. 15th. Temp. 97.2. Rash from tonsil discharge appeared  

Went clean. No albumin in urine  

Feb. 20. Rash on chest, arm, back, which  

Disappeared in 2 to 3 days. Intermittent slight left otitis media  

Feb. 24. A few red papules appear on buttocks and faded  

next day. Left Whitechapel for E. Absent.
Mar 9 15 Got up. No complications or regular fever.
Mar 10 Discharged quite convalescent.
Acute Paresis—Causas are very much the same as those of independent paresis.

Sex. The female sex are more liable to be attacked by the paresitic paresis than the male from statistics taken from the Asylum Board Reports have given.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Number</th>
<th>Males</th>
<th>Females</th>
<th>Twins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1899</td>
<td>692</td>
<td>382</td>
<td>310</td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td>405</td>
<td>207</td>
<td>198</td>
<td></td>
</tr>
<tr>
<td>1901</td>
<td>380</td>
<td>227</td>
<td>153</td>
<td></td>
</tr>
</tbody>
</table>

Age. It is a disease of childhood being very common under the age of fifteen years especially between the ages of five to eleven years. Two groups of figures are given of the years in which the age incidence was estimated, they are taken from the same source.

<table>
<thead>
<tr>
<th>Year</th>
<th>1899</th>
<th>1900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1 yr</td>
<td>2 cases</td>
<td>4 cases</td>
</tr>
<tr>
<td>1 - 2 yrs</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>2 - 3 yrs</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td>3 - 4 yrs</td>
<td>8/7</td>
<td>5 8</td>
</tr>
<tr>
<td>4 - 5 yrs</td>
<td>105</td>
<td>64</td>
</tr>
<tr>
<td>5 - 10 yrs</td>
<td>336</td>
<td>171</td>
</tr>
<tr>
<td>10 - 15 yrs</td>
<td>87</td>
<td>49</td>
</tr>
<tr>
<td>15 - 20 yrs</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Over 20 yrs</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>
Out of 117 cases of Red Severe Necrotic, treated in the Hospital during the last three years, only one was over the age of twelve years.

Period of Year. The incidence follows the increase in number of Scarlet Fever Nilphthemia at the latter part of the year during November and December, falling with the appearance of the New Year. 81 of the 117 cases occurred in these two months leaving 77 which were distributed over the other ten.

Atmospheric Conditions. The moisture laden air of early winter & springtime from badly drained surface soil, may produce superficial nasal catarrh no predisposing to infection, but are now no longer held responsible as being the direct cause of the disease. The patients remain under cover when the weather is at all inclement, the air being dried & kept at a suitable temperature by the fires that Ripple in the Hospital. Around the Hospital the surfcice water is quickly got rid of by covering the slope with cement or bricks so that all runs away quickly. Therefore while more must be said as to either of these entering very far into the etiology of the cases under discussion.

Ineffective Sanitation. None of the outbreaks in the Hospital have been traced to defects in drainage or refuse. If suspicion has been raised on applying tests they have been found intact.
Swelling when investigating this point in connection with the Metropolitan Asylums Board Hospitals in 1893 reported that: “Post Scarletina Diphtheria has prevailed in little degree in hospitals with ventilated unventilated sink pipes; in hospitals with automatic flushing apparatus, & in hospitals without such appliances. The common factor of drainage defect can be pointed out as explaining the long continued yearly recurrence of the condition of post scarletina diphtheria.”

Undrowning or defective ventilation: May be an indirect cause especially in convalescent wards, where a temporary increase in the number of beds brings more patients into contact with one another & a source of infection be present more cases are likely to arise from it. In this hospital no overcrowding has occurred at any time, during the last winter at least one ward has been empty. A plentiful supply of fresh air is maintained by ventilators hoppers over the windows as inlet, the air being drawn out by forks inserted leading through the roof.

The treatment of Scarletina Diphtheria in the same hospital but in separate wards: As the result of a continued order against Scarletina patients developing Diphtheria—this being considered the chief cause. It was agreed by the Asylums Board.
to use certain hospitals for the exclusive treatment of scarlet fever, watch the results.

'Senior' in his investigation in 1893 believed that there was a connection between the reception of both diseases. The evidence I first scarlatinal diphtheria is said—'that there had been a marked increase of the complication as the acute hospital and diphtheria was received, although it had undoubtedly reacted to a minor extent as some of them before diphtheria was admitted.' But... that at the Northern Convalescent Hospital it had existed before & after the reception of diphtheria convalescents, that its prevalence had apparently been insignificantly affected thereby.' The results of the 'one side' treatment cannot be very gratifying to the holders of the theory for it has neither stunted nor the complication nor produced any marked diminution in the cases reported. of the acute hospital. The North Eastern was given over to the entire treatment of scarlatina for a period of five years, 1896 till 1900. In 1905 both diseases were again taken in. The experiment was further transferred to the - the Fountain Hospital which as before stated continue only to admit scarlatina.

As to Convalescent Hospitals from 1896 to 1898. To that of Gore Farm only scarlatinal convalescents were sent
while the Northern Hospital received cases recovering from both diseases, the following table of the results obtained have been made up from the reports. Unfortunately the numbers for year 1902 at the North Eastern Hospital are not published yet so that only four years results of the double disease treatment can be given.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Cases of Scarletina</th>
<th>% of Cases of Both Scarletina and Diphtheria</th>
<th>Percentage</th>
<th>Disease Admitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1893</td>
<td>3037</td>
<td>11</td>
<td>.34%</td>
<td>Both</td>
</tr>
<tr>
<td>1894</td>
<td>2339</td>
<td>15</td>
<td>.64%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1895</td>
<td>2418</td>
<td>37</td>
<td>1.44%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1896</td>
<td>3082</td>
<td>34</td>
<td>1.17%</td>
<td>Scarletina alone</td>
</tr>
<tr>
<td>1897</td>
<td>2524</td>
<td>29</td>
<td>1.17%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1898</td>
<td>2277</td>
<td>42</td>
<td>1.84%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1899</td>
<td>2555</td>
<td>12</td>
<td>4.4%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1900</td>
<td>2222</td>
<td>43</td>
<td>1.94%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1901</td>
<td>3094</td>
<td>20</td>
<td>6.6%</td>
<td>Both</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Cases of Scarletina</th>
<th>% of Cases of Both Scarletina and Diphtheria</th>
<th>Percentage</th>
<th>Disease Admitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1899</td>
<td>1320</td>
<td>53</td>
<td>4.7%</td>
<td>Both</td>
</tr>
<tr>
<td>1900</td>
<td>1076</td>
<td>33</td>
<td>3.14%</td>
<td>&quot;</td>
</tr>
<tr>
<td>1901</td>
<td>2245</td>
<td>47</td>
<td>2.7%</td>
<td>Scarletina alone</td>
</tr>
<tr>
<td>1902</td>
<td>2438</td>
<td>75</td>
<td>3.27%</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

By looking at the figures in the above table it will be seen that at the North Eastern Hospital
The one disease treatment resulted in no diminution of the
number of cases of the complications—in fact rather an
increase. The results of the years 1900-1901, when
compared are rather startling, for on return to
the old order of things, although about one thousand
more cases of scarletina were admitted, less than half
the number of post-scarletinal diphtheria cases were
reported.

Here at the Fountain Hospital in the last two years
the numbers still remain high, but the case for
antiseptic is a little lower than formerly, though
nothing very marked.

The two Convalescent Hospitals, to which patients suffering
from Rhinorrhea Utterhelle were sent if not relieved
after two to half month stay in an Acute Hospital,
present interesting statistics for comparison over the
three years 1896 to 1898 inclusive:

<table>
<thead>
<tr>
<th>Convalescent Hospital</th>
<th>Total No. of Patients</th>
<th>No. of Cases Scarletina</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gore Farm (Scarletina only)</td>
<td>9,598</td>
<td>442</td>
<td>4.60</td>
</tr>
<tr>
<td>Northern (Scarletina &amp; Diphtheria)</td>
<td>13,169</td>
<td>656</td>
<td>4.98</td>
</tr>
</tbody>
</table>

The results of these two hospitals are to all intents
purposes equal.

So far as the above figures are able to show the
treatment of Scarletina in a separate hospital has not
prevented the incidence of Diphtheria nor has it diminished.
The occurrence as it should have done, had it been
the sole cause.

In the hospital where the two diseases are treated
all reasonable precautions to prevent spread of one
infection to the other. They are treated in separate
wards at one end; the buildings are disconnected
each from the other and each bed has an allowance
of about 150 square feet. The convalescents from the
two diseases are not allowed to mix, each having
their own recreation ground. Nurses are not taken
off duty in one set of wards placed in the
others without changing their clothes and undergoing disinfection.
So that even when only the one side is used
there is no intermixing of the patients at any time.

Infected food: None of the methods have been tried
to contaminated food supply such as the milk.
The cases too generally arise later when the
patients are taking an increased diet care not
fed chiefly on milk diet.

Unrecognized Dysphtheria in Scarletna Ward:

During the last five year much has been written
as to the presence of Dysphtheria Bactet in person. Otherwise perfectly healthy or
admitted to hospital as certified as Scarletna.
Cultures taken on arrival in the receiving room
proved Bactet to be present during the convalescence
from Scarlet Fever, Dysphtheria asserted itself in a
few while in none no complication arose.
Those who have had slight recurrent attacks of
Dysphtheria.
CocciUle which has produced Chronic Hyperplasia
with irregularity of the surfaces area especially
to harbour the diphtheria Bacillus.
Many such cases are admitted into Scarletinal
wards annually, as unless some further evidence
of diphtheria exists they cannot all be placed
in isolation rooms were sent to the ward for
observation, so that the admittance of one slight
case of diphtheria is the most likely cause of
an outbreak.

As to the frequency with which the two diseases
actually co-exist, the following were discovered at
isolated ward admission during these two years. The
prevalence is small.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases of Scarletina</th>
<th>CocciUle Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>10, 700</td>
<td>216</td>
<td>2.01%</td>
</tr>
<tr>
<td>1901</td>
<td>14, 143</td>
<td>164</td>
<td>1.14%</td>
</tr>
</tbody>
</table>

The presence of diphtheria Bacilli in Nasal discharges
of Scarletina cases complicated by Rhinitis Ulethi.
Many of these cases show no symptom of diphtheria it
is not until secretion is infused by the occurrence
of diphtheria in some other patient that these
nasal discharges are more carefully investigated.
In searching for the source of the nasal cultures
are made of these discharges many often what
seemed a simple Nasal catarrh on bacteriological exam-
ination turns out to be Nasal diphtheria. It is

To the end of recognition of these that many outbreaks

2 McDougall, D Neville. April 1901. 601
are treated.

Of the 18 cases given here seven presented nasal
discharge alone, no diphtheritic membrane was present
with bacteriological examination could not have been
recognized as infective

During The year 1902 there were 255 cases of
Scarlatina with Meconic discharges in the Hospital,
37 or 0.8 per cent on bacteriological examination
proved diphtheria Bacilli

Heaven in his paper gives 151 Case of Scarlet Fever
with Rhinorhea additional 53 these 57 gave the
diphtheria Bacilli on examination although no other
sign of the disease was present, 36 out of the 57 case-
had diphtheria Bacilli in the throat on admission.

Resistance of Diphtheria Bacilli in Diphtheria Convalescents:

Roper Pines Woodward examined 12,172 cases of diphtheria
convalescents after discharge from different Hospitals
found diphtheria Bacilli present in 4052 cases or 33.4%
he failed to find Bacilli on The first examination
in 607 cases. In 79 cases the Bacilli persisted for
100 days in two cases they were still found
at the end of 200 days. Such cases contracting
Scarlet Fever would be liable to a recurrence of
the disease, or even if they did not do so, would
be a source of infection to others.
Klebs' Bacteria in Healthy Children:

Klebs' Bacteria were found in 58 cases of 157 school children, 61 cases of 201 other healthy children, and in 92 of 247 cases of healthy adults. The incidence was increased to 18 percent.

Young relates these instances. After one child had been notified as having diphtheria, on examining the throats of other children who had associated with it, diphtheria bacilli were found in their throats although they were otherwise healthy.

An epidemic of diphtheria broke out amongst a milkman's customers three weeks after. Two of the children had been sent to hospital. Cultures from the throats of these healthy men who worked in the dairy gave diphtheria bacilli instead of the usual mild. No children showed any symptoms.

He also found diphtheria bacilli three months after in the throat of a child who had been treated with actinomycin and in a rapid recovery, the bacilli were prevalent to juvenile pigs.

Cuban back made culture from 75 patients attending care, nine throat out patients, 125 attending an ordinary medical patient.
Forty-one cases of Adenoids, 4 had Alveolar Rhinitis.

The others had slight nasal discharge. In 13 per cent of the cases the Rhinophia Bacillus was found in 52 per cent of the Hoffmann symptom reports two cases of Unilateral Nasal Discharge in healthy boys of 5-7 years respectively. They appeared at Hospital as outpatients and showed no other symptoms.

Having mentioned these sources of infection, the origin of the complication will be pointed out in those of the 18 cases quoted in which it was discovered. Cases 5 (L.B.N. & W.R.P.) so far as could be ascertained were injected by Case 2 (H.R.) who had a nasal discharge in which Bact. were found for which she was isolated two days previously. They all were in the same ward.

Case 9 (W.R.) arose 2 days after case 8 (G.H.Y.) They were from different wards, but about the same age and had been associated at play in the convalescent ward. Case 11 (W.R.) was most likely infected from case 10 (E.P.) They were in the same ward. Suspensio symptom appeared in Case 11 next day, but it was not proved a case of Rhinophia bacteriologically until four days after.

Case 16 (C.L.) showed symptom of Rhinophia on Feb. 19th while case 15 (J.D.S.) was isolated on Feb. 13th. They were from the same ward, but were not known to have been associated, case 16 being on bed.
while one 15 was getting up owing to for necrosis.
3 of six days he allowed for excitation (which co-

The rest of the eighteen cases occurred in a Diphtheria
fection once the Hospital it were not associated
in any way nor could the mode of infection
be elicited.

*Which Organisms is the origin of Pret Scrofulae—Diphtheria?*

In making examination from pseudo culture taken
from the case recorded, the classification of
organisms (as far as it was possible without circulating
juices) was that of "Baker & Beebe" which they
adopted in 1894.

Table 1. The Bacillus Phlegmosa (Klebs, Triererl) Active & Violent

2. The organism morphologically the same, but non-violent

3. The Pseudo Phlegmosa Bacillus of Hoffmann.

Any consistent pyogenic organisms were also noted.

Some of the cultures in particular agglutinates were
examined at once but the direct method was only
successful in a few cases culture preparation generally
being necessary.

"Mr. Ritchie say." We have frequently obtained the
Bacillus by means of culture, when the result
of microscopic examination of the same piece
of membrane was non-conclusive.

Stoic Cultures were also made of the cultures on solidified
blood serum tubes which were incubated at 37°C. +
afterwards.
A slender platinum needle was passed into the culture tube of a half film with the aid of a sharp and pointed on a cover slip or slide obtained from The Flame.
The method of staining chiefly relied upon was Nissl's which also differentiates the organisms of Classes 1, 2 from those of Hoffmann in Class 3.
Nissl's stain consists of two solutions. First the Acid Methylene Blue solution in which the cover slip is immersed for five or more seconds. Depending on the thickness of the film. On a large drop of the solution is placed on the slide. Subsequently the slum film till steam is just observed to rise. Rapidly wash in water. Then counter-stain in the second solution - Diemer Brown for five to ten seconds. Wash, dry, and mount. The first film of the heptacrin Bacterium is stained a faint brown colour. The granules or heads of a bluish colour.
Trüffer's Methylene Blue solution was also used in some cases, staining the film for two or three minutes washing, drying, mounting. Under Trüffer Bacterium stain deeply with the blue. Sometimes also shows the dark granules.

Methods of Differentiating the Three Classes of Organisms:

1. Effects of action on Glucose Broth - Hoffmann's Bacterium.
does not form acid when grown in this broth.
A pure culture of these organisms is required for
this test, as it is not practicable.

2. The inoculation of guinea-f pegs:

Hofmanni's Bacilli is non-pathogenic to guinea-
peg. Intracutaneous injection of the whole hippo of
Class I in a suitable dose produces death of the
animal in 36 hours. Injection of the non-virulent
Bacilli of Class II produce little or no reaction if
were found by Rink and Yersin by making cultures
at various stages after the elimination of the
disease to have gradually become attenuated.
This is the only absolute method by which the
three kinds of organisms may be diagnosed from one
another, but it may only be used by a skilled
pathologist in an experimental laboratory.

3. In growth on the Blood Agar by streak culture

The hippo-kobler Bacilli of Class I appear
as small circular discs of opaque whitish colour,
their centre being darker by a darker greyish
appearance when viewed by transmitted light than
the peripheral, the margins of which often show
single colonies partly or completely separated.

With Hofmanni's Bacilli of Class III, the colonies after a
time tend to become white, even opaque, than
those of the hippo-kobler Bacilli.

4. The inoculation of the liver of the guinea-pig is the only useful
practicable method at hand to differentiate Class I.
from Hoffmann in cl. III

When stained by the method 17, the epithelial bacilli appear of a faint brown colour, with which granules at each pole—occasionally with a third in the middle. If Hoffmann's bacilli be also present, they are shorter with usually a single unstained septum running across the centre, in some cases these may be more than one. More commonly it looks like two pyramids with the bases not quite in opposition. Hoffmann's bacilli does not show granules.

18. Notwithstanding the friends bacillus of Hoffmann morphologically differ entirely from it (the klebs, lefki) never shows any granules.

With preparations of the ferox bacillus, an individual here there resembles the epithelial bacillus, but the "majority do not react." "Certain virulent forms or strains bacilli such as the "fepi-thus in the mouth show double staining, but the threads are thicker & the granules large spherical."

Modification of Murer's staining process:

Should the film have first been examined stained by 'Hoffmann's methyl blue' it is doubtful whether the bacilli seen are klebs, Hoffmann's or Hoffmann's in further confirmation test may be applied in the following manner.

"Slightly raise the cover glass & place a piece of

fibre paper on one side, let acetic acid 5% solution

17. Trauer, J. Pathologie und Klinik, f. 346
under the slip at one side & it flows across the film to be taken up by the paper. A blue cloud appears when a clear field. "The "Wtto troffler Bacilli shoew up with stained polar bodies, the rest of the Bacillus being pale-blule."

"Hoffmann's Bacilli do not decolorise so early & about the middle of each half a good deal of blue remains." "Wtto troffler Bacilli change almost immediately."

So that Mere's stain may be relied upon to separate Hoffmann's Bacilli from the Wtto troffler group, but no such applicable test to separate these latter in point of virulence has been devised. If inoculation of animals cannot be performed the course of the disease or progress of the patient is all there is for guidance & as other factors then crop in, it is only approximate.

a list of the organisms found in the eighteen cases are as follows:

Case 1. (AMM) Deepithmem Bacilli. *Staphylococci*

2 (AM) " " " 

3 (ASR) " " " 

4 (LW) " " " *Staphylococci* 

5 (ESV) " " " 

6 (LM) Nov. 10th *Staphylococci* *Staphylococci*

Nov. 19 Deepith. Bacilli *Staphylococci* 

7 (AMP) Deepith. Bacilli almost pure & few Hoffmann's 

8 (ASM) " " with many *Staphylococci*
Case 9 (WAG) dec 1st. H. Hoffmanni, Bacilli + Staphylococci.

Case 10 (GP) Lymphothria, Bacilli pure.

Case 11 (G.E.) " " " very few Staphylococci.
" 12 (W.T.B.) Lymph. Bacilli in few Hoffmanni Bacilli.
" 13 (N.S.) " " Staphylococci + Staphylococci.
" 14 (F.T.) Jan. 15. + bottle with Staphylococci

" 15 (A.H) Lymphothria, Bacilli + Staphylococci.
" 16 (C.L) " " with Hoffmanni
" 17 (H.H) " " pure
" 18 (H.C) " " Staphylococci + Staphylococci.

Cases 3, 4, 5, 7, 8, 9, 10, 12, 13 had well marked attacks of lymphothria due to the virulent form of the klebsi hogh bacillus. Clinically there were either local or general symptoms which required the injection of antitoxin.

Cases 1, 2, 6, 11, 14, 15 were very mild attacks. No membrane was formed locally in any of them, but in cases 2, 11, 15 there was a slight rise in temperature to 100.2° F, 101.2° F, 102° F respectively. In the others the temperature was normal.

This group of cases seem to have been due to the milder or almost non-virulent forms of the klebsi hogh bacillus. They would not have been recognized as lymphothria had not a bacteriological examination been made.

Hoffmanni's Bacilli appeared incidentally in two or three of the cases but were not always particularly...
searched for, more attention being paid to the presence or absence of the Staphylococcus Bacilli.

In case of diphtheria Bacilli was present in considerable numbers in the throat at the first examination, while nine days later Staphylococcus were found in the discharge from the nose.

The association of Diphtheria Bacilli with other organisms—

The diphtheria organism sometimes occurs alone. As in cases 7, 10, 117 already quoted, this may be due to endeavouring to take a swab from the most likely site so as to get as pure a culture as possible. Also in passing the platinum needle into the culture tube a diphtheria colony is selected if possible to prepare a film from Staphylococci or Streplococci do not appear in full number till 12 or 24 hours later than the period these cultures were examined as Streplococci when grown on the Blood Agar Medium also tend to look more like Staphylococci.

Pyogenic organisms are much more frequently seen along with the Diphtheria Bacilli and in some cases seem to act as precursor to the Bacilli. In some cases of diphtherial diphtheria, Muir-Maitland found Streplococci at the lower level of the trachea than the Diphtheria Bacilli, where the membrane was thinner and the appearance in these cases being as if Streplococci acted as excretes of the inflammation prepared the way for the Bacilli.
In the cases 6, 9 & 14 when suspension was first
formed only pyogenic organisms were found in
the first instance in the throat. Hypertonia &
Cataract of the nasal cavity followed by Rhinorrhoea
which eventually showed the Klebsiella Bacillus in
the discharge.

21 Wilhelm in his conclusion to a paper on
Parasitic Hephtheria Mnihovnica says that such
cases often begin as a simple nasal cataract from
such the Hephtheria Bacillus becomes engrafted.

The Conversion of one Class of organisms into the other
by a Process of degeneration:

The classification adopted is again given here:

Class I. The Bacillus of Hephtheria (Klebs-Loeffler) Virulent

II. The organism morphologically the same but Non-Virulent

III. The Endo Hephtheria Bacillus of Hoffmann

It has been found that after a time in patients
convalescent from Hephtheria the once Virulent Kleb-
Loeffler Bacilli become attenuated, either losing all
or the greater part of their virulence, and are then
placed in Class II. This cannot be proved by their
size as seen under the microscope but by the
reaction produced on Guinea pigs being slight or
altogether innoxious.

This attenuation may also be produced artificially.
Ronx & Pyroni found that when cultured Helio-Phlegm Bacilli were grown at an abnormally high temperature, namely 39.5°C in a free current of air, the virulence diminished so much that they became practically inoffensive.

As to the conversion of Classes I & II into Class III — the Phlegm Bacilli, much controversy & doubt existed. Some maintain the transition can take place while others regard it as a distinct separate organism. 22 Ronx & Pyroni found Pseudo-diphtheritic Bacilli corresponding in all characters with greatly attenuated diphtheritic Bacilli, & concluded they were really of the same nature.

Neustet & Knight find evidence that a true diphtheritic Bacillus may be modified so as to show the microscopic & cultural characters of the pseudo-diphtheritic type. This evidence being obtained both by successive examinations of the throat after actual diphtheritic & by modifying cultures artificially. Then it is claimed that these pseudo-baccilli were the result of artificial cultivating, that to instability completely separate the two groups of organisms so that they were taken from the throat of diphtheritic convalese & were present to commence with.

These authors also failed later to produce the same transformation from the purest possible cultures of Helio-Phlegm Bacilli.

74 Helio-Phlegm Bacilli in 1887 when describing the Pseudo-Bacilli.
Hoffmann in 1888 also considered it a distinct organism agreed with Ziteller.

In 1887 Ziteller found that "non-virulent Bacilli of Class II could have their virulence restored if inoculated into animals with streptococci; inoculation of the bacilli alone not being successful." Ziteller however had fallen very low, even the presence of the streptococci was insufficient to restore it.

The conversion of Class III - Hoffman Bacilli, into Class I according to Cobet and Phillips is very difficult to prove. Diptheria Bacilli may be easily mistaken by Hoffman Bacilli. The plate method is a somewhat imperfect method of differentiating microorganisms that failure to give the Glaser broth an acid reaction or being inoculated to guinea pigs does not prove the complete absence of Diptheria Bacilli. So the appearance of virulent Diptheria Bacilli from the plate-culture separate Hoffman Bacilli cannot be held conclusive, especially when the organisms were grown from the fauces originally. There is no absolute method of getting rid of the Weber-Barker bacilli.

Sibley in 1897 described the transformation of non-pathogenic pseudo bacilli into Weber-Barker bacilli.

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27. "Manual of Bacteriology" (1897), p. 381
by inoculating birds, which eventually acted on guinea pigs like the original virulent form, but the original source of the cultures were in many instances from cases of Bubonic or Sebacital Tuberculosis.

It must therefore be agreed that the relation of Hofmann's Bacilli to the Bubonic Bacilli is still debatable, considering such eminent authorities continue to disagree. The present methods of proof are not absolute.

From the clinical standpoint, cases in which Hofmann's Bacilli are found alone should be further observed, examined from time to time, in case Kulke's Bacilli have been missed. Though such cases should not be certified as suffering from Tuberculosis until the latter organism have been found.

To summarize briefly, the chief causes of Bubonic or Sebacital Tuberculosis seem to be (a) The introduction into wards of patients although showing no clinical signs of Tuberculosis have Van Heukelam Bacilli in their throats.

(b) Unrecognized cases of Tuberculosis with only Bacteriemia present no symptoms.

(c) In a less extent by members of the staff of transferred directly from without in a Tuberculous ward, especially those with Chronic Hypertrophy of the Tonsil.
Period of onset of Ophthalmia Neonatorum —

In the eighteen cases here given no case occurred before the 3rd week, and the greatest number appeared in the 4th, 5th, 6th, 7th, 8th, 12th weeks.

Week: 3rd 4th 5th 6th 7th 8th 12th
Cases: 4 3 3 1 2 4 1

Two deals with 408 cases of Ophthalmia Neonatorum, in which the greatest number came at the fourth week, the next greatest totals being the third and fifth respectively.

Is the absence of the complication in the first two weeks due to a lesser degree during the third week due to a protection conferred by the attack of scaldum? The two diseases can coexist from the beginning, it is well known, has been proved previously.

It is also generally considered that one disease rather predisposes to, than protects from another, by diminishing the power of resistance.

The cause of delay in onset till about the fourth week is more likely to be found in that the patient is not brought so intimately into contact with a source of infection, such as patient will nurse, discharge or tumors containing virulent bacilli. Scaldum patients are kept in bed till the end of the ward, such as is least by routine practice, so that by congregating together in the ward or at play one unrecognized case of ophthalmia would more easily spread infection. Two thirds of these eighteen cases
Symptoms and Physical Signs:

There is no symptom or physical sign by which a tularine (tularemia) differs from an independant attack of the disease; it might perhaps be characterized as more incisive.

Only five of the eighteen cases complained of any subjective symptoms. Three even from the fatal cases, it was only slight, only in one was marked enough to produce pain on swallowing. Another case occurred once the day before death.

The nasal cases produced no subjective phenomena. There may have been slight "stiffness" of the nose, when the discharge was very thick and profuse, though no real obstruction to nasal respiration occurred. The patient did not behave otherwise than with an ordinary nasal catarrh. Any slight tingling of the discharge with blood might excite the fear down to "no picking" on the part of the child, especially if some eczematous or incrustation of the nares were present to excite this habit.

Physical Signs:

Site of the lesion: All the cases mentioned here are non-haemorrhage being either facial or nasal.

Two of the primary facial cases later became also nasal, the first nasal region becoming infected to spreading forward toward the anterior nares. This possibly was influenced by the act of cleaning the nose, in none of the primary nasal did the face become infected.
At the time of laryngeal excision of the eighteen cases 11 were laryngeal, 5 nasal, 2 nasal and laryngeal.

The non-laryngeal forms were much more frequent than the laryngeal, which is fortunate as the latter type is both more severe and fatal.

In the following table the statistics are given:

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-laryngeal</th>
<th>Laryngeal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1899</td>
<td>608 Cases</td>
<td>54 Cases</td>
</tr>
<tr>
<td>1900</td>
<td>378 &quot;</td>
<td>27 &quot;</td>
</tr>
<tr>
<td>1901</td>
<td>340 &quot;</td>
<td>40 &quot;</td>
</tr>
</tbody>
</table>

The nasal cases did not present an excessive amount of exudation or membrane formation, nor did that which had formed tend to spread rapidly.

Two cases in which the nose was subsequently attacked only showed deep injection of the mucous membrane on which there was much discharge.

Two nasal cases had exudation on both sides of the nasal wall. When first seen the yellowish white in colour, patchy lining in no way similar marked dense covering. Prompt measures were always taken as soon as the diagnosis was assured, which with one exception, was fourteen hours at the most after physical signs of symptoms attracted attention. This no doubt modified the local manifestations. None of the nasal cases presented membrane.

In the nasal cases there was a yellowish white patchy exudation indistinguishable to the naked eye.
from follicularrawler. This is very different to the
following observation.

Mackenzie in commenting on two cases of Post-Scarletinal -

Uphthard said "the condition was very extensive -

consuming the side of the posterior wall of the pharynx,

tonsils, uvula these passages;" that the tecttachian-

like Middle Ear were more commonly involved than

in an independent attack of pharynx.

The first sign which attracted attention in the

cases was The Needle Discharge. It varied

in appearance - sometimes Clear Serous, more frequently

mucous purulent or the Bloodstained. A common mode of

occurrence was with thick mucous purulent discharge, which

was occasionally streaked with blood (in more or

less a distinct attack of epistaxis occur) remaining thus

for three or four days gradually becoming thinner

than in amount. A clear serous stage was reached,

which became intermittent & eventually ceased in

three, four, or five weeks.

the examining the interior of the nostril the Mucus-

membrane was slightly swollen, injected more moist.

The anterior parts of the inferior Middle Turbinate Bones

being similarly affected, but the inflammatory

process was more intense localized in some cases

to the first half inch or so of nasal cavity.

After a few days the hyperemia subsided a

separation of Blood or yellow pus might be seen.

The skin of the upper lip generally became involved.
by irritation of the discharge. Superficial ulceration just within the anterior meatus may take place, which is very aggravated by the child rubbing, picking, but if cutting the fingers with gloves or putting cardboard splints on the arms further irritation may be prevented.

Temperature:
The temperature at the onset was normal in four of the eighteen cases. It ranged from 100.4°F to 102°F in most of them, only in one did it rise to 103°F that due to concurrent Broncho pneumonia. The tendency to a lower temperature helps to distinguish it from Cellular Inflammation or Acute Perichondritis with edematous in there is a greater fever.

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31. Mersell also draws attention to a "curve" produced on the temperature chart observed by him in some cases. "In an early period of an attack of diphtheria especially, the pharyngeal or tonsillar with congestion inflammatory swelling a curve is described." "The temperature rises suddenly then falls remittantly to subnormal & recedes again when the membrane is visible.

The chart of case 4 is approximate to this type between the dates Oct 28th Nov 1st but the temperature did not become subnormal before rising again is only felt two degrees.

31. Mersell also remarks: "If the temperature subsides while the local signs remain stationary or get worse suspect diphtheria."
In cases in which antitoxin injections were given, the temperature became normal or almost so within forty-eight hours of the administration except in the one case with lung complications.

Enlargement of cervical glands: This occurred with the onset in nine cases. There had been in all noneplastic auricular affections which had almost disappeared. In none were the preauricular glands, nor did the skin become red or burning. After the first two or three days most of the swelling diminished, and resolution gradually proceeded.

The Pulse: There was increase in rate at time of onset which was not different to the appearance of any other pyrexia even in any way diagnostic. Irregularity appeared in one or two cases later, will be referred to with the regular.

Albuminuria: Two of the cases presented albumin in the urine early in the disease.

In case 4 (E. W.) it appeared as a trace next day and continued for the following two days.

It also appeared early in case 13 (H. S.) and helped to confirm suspicions as to the nature of the lachrymation in the throat, there was about 1/2 a deposit in the test after standing with the Nitric Acid Test. The all disappeared in two days.

Case 17 (G. D.) showed a trace of albumin during the 2nd week of the scarlatinal attack a week later acute nephritis supervened which continued over the course of the last scarlatinal nephritis.
Acute Nephritis. In case 17 (W.M.) referred to with the note of nephritis and the already existing renal inflammation was greatly exaggerated. But after two days resolution rapidly set in, leaving a week later all blood had disappeared, only a trace of albumin was visible.

Case 1 (W.E.W.) was the other in which blood and albumin were passed. The first day urine appeared only blood in urine was passed. This was the time there was no albuminuria. Nephritis then set in in the seventh day of nephritis, the blood gradually disappeared in a fortnight the albumin ceased four days later.

There were four cases with the only one which presented renal symptoms. None were severe. The total quantity of urine passed was good throughout, except in the day of onset in the one case.

Three among these cases had been injected with antitoxin, but in none could the administration be said to have produced the albuminuria or to have influenced it if already present. The cause of the nephritis was the nephritis of the food, which damaged the renal epithelium so it is injected.

Robbent in a paper read before the Pathological Society proved that the nephritis of the kidney was chiefly secreted by the kidneys. After injecting guinea pig's blood into the kidney, it was recovered in the urine.
Diagnosis: It is difficult especially in the early stages when symptoms are few and physical signs ambiguous. All cases complaining of sore throat or showing nasal discharge after the primary angina of scarlatina has subsided should be looked upon with suspicion, more so if the accompanying rise of temperature is slight. By taking a swab examining the resulting culture microscopically is the only method by which at least promptly diagnosis can be arrived at.

Often two or three examinations are required of culture before the case is looked upon as tonsillitis or scarletinal rhinitis.

Differential Diagnosis: Tonsillitis is both the commonest as well as the most difficult throat affection to eliminate. When inspected early, the yellow points of exudation may be seen; over the individual crypts these eventually fuse together. They remain on the tonsil but not invade the fauces, soft palate or uvula, as a rule there is a greater rise of temperature. If of Rheumatic origin, history of recurrent attacks of sore throat accompanied by pain in the limb joints with patches red rash may help. Then again such throat are often hypertrophied than irregular surfaces which foster lymphoid Bueli. Absence of these bacteriologically is the only way of arriving at the diagnosis.

Scarletina Difformis which occurs in ill nourished, hard fed infants. The patches may spread from the tongue...
to The Fauces or tonsils the raised pearl white spots which eventually coalesce might at first be mistaken for patches of epithelial membrane. They are easily detached above the Membrane Membrane intact.

Scarlatinal Rhinitis or Simple Catarrhal Rhinitis:

Such cases are almost impossible to diagnose without microscopical examination. They are not often due to the non invected from Bacillus when Diphtheria, though already influenza surfaces are very prone to increase them. Thin Membrane formation rarely takes place.

Scarlatinal Rhinitis (as called) In this there is nasal obstruction more commonly bilateral, sometimes unilateral, with discharge which later is bloodstained. When the membrane is separating there are distinct attacks of epistaxis. Examination of the nasal cavity shows whitish escharred membrane on the Septum floor of Nose bordered tympani
division which when removed produces bleeding.

Lambert tells us in his paper quoted 36 such cases.

33 men examined bacteriologically, Thelphusia Bacilli were found producing acid reaction on tetram. agar. 23 of the cultures were injected into guinea-pigs produced violent toxemia which could be neutralised by anti toxin. Such cases are evidently attacks of true nasal diphtheria although they do not always give rise to constitutional symptoms should be isolated directed to each.

Langston Inflammation:

33 during a scarlatinal attack, hoarseness or cough with
difficulty of breathing arise. The throat should be examined for signs of inflammation or membrane formation which fortunately are generally first present here. If now found a laryngoscopic examination should be made if the child is not too young; and on the slightest suspicion give a preliminary dose of antitoxin. In such case are much more severe than either pleural or neural attacks. A swab taken from the area around the epiglottis should be cultured. The result of this further progress of the case will show if another injection is required.

Post-Scarlatina-Merle: the most frequent complication might be difficult to distinguish during the prodromal stage if the larynx became unapproachable or there was marked laryngitis or cervical glandular enlargement. The presence of an early tracheotomy Rash which often precedes the true rash in this form complicates matters further. Toldowsk Rash should be looked for on the breasts mamma membrane; if found would clear the diagnosis. A real dark petechial semi-linear rash generally appears earlier then in an independent attack. First on the face, reaching the trunk two or three hours later can it disappear, a licheniform peeling is left, followed by desquamation would decide matters.

Recovery of Scarlet Fever: here the complaint of sore throat with rise of temperature would lead to a suspicion of laryngitis. Limiting of voice. Inspection of the larynx would show marked injection of the trachea, fauces or pharynx. Any evaporation on the fauces is more easily
tasted very often being a superficial cough which comes away leaving a shallow ulcer. The temperature of Scarletina is usually higher at the onset. The appearance of the Ankle and Throat in 24 to 36 hours should set any Ambit at rest.

Treatment:

The previous Scarletina attacks in all the cases were not at all severe, eight came under the classification of "Simple" or "Mild" Angina. Most of the throat was coated with Chilacol Lotion four hourly during the early period of the disease till the inflammation subsided. The patient free from Mucous. The fluids were opened by small doses of Codol followed by Magnesia Aluminae Mixture._decimal_thinks_mon經_barley Water, lemonade or Soda Water for the thirst. Milk and milk puddings boiled fish, ordinary diet being given a few days before getting up in the absence of complications in the throat. In the nurse well. None required stimulants.

Immediately 2nd Scarletina complicated was diagnosed the case was transferred to the isolation block where it was treated in a small ward alone or a slightly larger ward containing two other similar cases at the same. The child was placed in bed perfectly flat without a pillow lying to the previous higher mortality of this form of Scarletina, Antitoxin was injected at once in larger doses and under less indications than for an independent attacks.
Twelve of the eighteen cases were given Antitoxin.
All the fatal cases showing the slightest sign of exudation, white patches, or patch of membrane accompanied by rise of temperature were injected.
Only two of the Non-fatal cases received the treatment, having much discharge & some rise of temperature & increase in pulse rate.
Being conscious of the fact that the patient was just recovering from one infectious disease & therefore in a less fit condition to resist & excrete the toxins of another. 2300 units of diphtheria antitoxin were injected immediately. The diagnosis was made.
This dose was sufficient except in three cases where a larger or further injection was required.
Case 1 (L.D.) The temperature the night before had been 102.8F, there was considerable tonsillitis with enlargement of the cervical glands. That day when the exudation appeared although not extensive was fairly dense & adherent. The glands were more enlarged a trace of albumin was present in the urine & the breath was fetid. 1800 units were slowly injected were followed by a rapid subsidence of symptoms during the next thirty-five hours.
Case 12 (Mr. H.) The 2000 units were followed next day by a similar dose as the temperature was slightly higher & a small patch of membrane had also appeared on the posterior pharyngeal wall, spread downward to the larynx being feared.
Case 13 (H.F.) was already in isolation for whooping cough complicated by bronchitis. Bronchopneumonia with severe constitutional symptoms already existing. Aiding to the onset of diphtheria having been somewhat masked by these. The exact condition was not recognised till a piece of membrane was detached in a paroxysm of coughing. Albumen had appeared in the urine. The further infection had probably been present for two or three days. 12,000 units were given as there was no local or general improvement twelve hours after, another 12,000 units were given. Towards evening patient was taken better, restlessness became less, the patient slept most of the night. Next day much of the membrane had become detached from the throat.

Use of Antitoxin:

The indications for use are somewhat more urgent than in an independent attack from experience of the former high mortality. The earlier the injection is made the better, a smaller dose may be given as there is less toxin formed to be neutralised. 1000 Instructor each containing 3000 units were prescribed at the laboratory of the Royal College of Physicians. For the same signs symptoms at least double the primary dose should be given. In acute suppurative diphtheria as compared with an uncomplicated attack, 2000 units were given to cases treated the first day of the appearance of local signs, doubled or tripled according to the severity of the disease.
no delay in commencing treatment. Larger primary doses should be given if there is extensive formation of membrane; rapid formation or spread of membrane for fear the hæmorrhage become involved especially if these are accompanied by much cervical glandular enlargement. The effect of the first injection should then be noted, if the membrane does not show signs of shrinking but if spreading the temperature still keeps up the dose should be repeated in twelve hours. All the twelve cases injected showed marked improvement after the first injection except case 13 (H.G.) in which it was repeated. This improvement took place.

The following table gives an outline of the dosage and effect upon membrane temperature.

<table>
<thead>
<tr>
<th>Case</th>
<th>Initials</th>
<th>Dose of Antitoxin</th>
<th>Complete expulsion of Membrane</th>
<th>Temperature Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>E.M.</td>
<td>6,000 Units</td>
<td>2nd day</td>
<td>3rd day</td>
</tr>
<tr>
<td>4</td>
<td>L.G.</td>
<td>18,000</td>
<td>3rd</td>
<td>4th</td>
</tr>
<tr>
<td>5</td>
<td>E.N.</td>
<td>6,000</td>
<td>2nd</td>
<td>3rd</td>
</tr>
<tr>
<td>7</td>
<td>J.G.</td>
<td>6,000</td>
<td>3rd</td>
<td>3rd</td>
</tr>
<tr>
<td>8</td>
<td>M.W.</td>
<td>6,000</td>
<td>Nasal Case</td>
<td>4th</td>
</tr>
<tr>
<td>9</td>
<td>L.W.</td>
<td>6,000</td>
<td>Nasal Case</td>
<td>5th</td>
</tr>
<tr>
<td>10</td>
<td>L.P.</td>
<td>6,000</td>
<td>2nd day</td>
<td>4th</td>
</tr>
<tr>
<td>12</td>
<td>H.W.</td>
<td>6,000 Unit + 6,000 Unit</td>
<td>3rd</td>
<td>5th</td>
</tr>
<tr>
<td>13</td>
<td>H.G.</td>
<td>12,000 + 12,000</td>
<td>4th</td>
<td>3rd</td>
</tr>
<tr>
<td>16</td>
<td>C.L.</td>
<td>6,000 Units</td>
<td>3rd</td>
<td>3rd</td>
</tr>
<tr>
<td>17</td>
<td>H.W.</td>
<td>6,000</td>
<td>3rd</td>
<td>3rd</td>
</tr>
<tr>
<td>18</td>
<td>H.C.</td>
<td>6,000</td>
<td>3rd</td>
<td>3rd</td>
</tr>
</tbody>
</table>
the cases in which a primary injection sufficed, most of the membrane became detached by 24 hours, and only small particles remained. A reduction of two degrees of temperature also took place over the same period and was gradually manifested at the site given.

In case 13 (H.P.G.) the temperature fell from 103.6° to 101.2° by the 3rd day, the remaining pyrexia being due to incomplete resolution of the broncho-pneumonia.

Symptoms resulting from the use of diphtheria:

No increase of pyrexia, inflammation of joints, adhesion or hemorrhage at the site of injection occurred.

Some tenderness of abdominal wall where needle was introduced was generally complained of next day but this soon subsided.

Antitoxic Rashes appeared in eight cases at a period varying from five to fourteen days; they were all small, maculopapular, and of the Unicellular or Monoblastic type. The distribution was very irregular, appearing on the face, chest, trunk, or limbs, all fading in from one to three days.

<table>
<thead>
<tr>
<th>No.</th>
<th>Initial Type of Rash</th>
<th>Date of Appearance</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Unicellular</td>
<td>9th day</td>
<td>2 days</td>
</tr>
<tr>
<td>7</td>
<td>Unicellular</td>
<td>10th day</td>
<td>1 day</td>
</tr>
<tr>
<td>8</td>
<td>Monoblastic</td>
<td>5th day</td>
<td>3 days</td>
</tr>
<tr>
<td>10</td>
<td>Unicellular</td>
<td>14th day</td>
<td>2 weeks</td>
</tr>
<tr>
<td>12</td>
<td>Unicellular</td>
<td>16th day</td>
<td>3 days</td>
</tr>
<tr>
<td>13</td>
<td>Unicellular</td>
<td>18th day</td>
<td>3 days</td>
</tr>
<tr>
<td>16</td>
<td>Unicellular</td>
<td>19th day</td>
<td>3 days</td>
</tr>
</tbody>
</table>
Local Treatment:

The use also applied in most of the cases although the main reliance was placed upon the Antitoxin.

In cases where there was membrane, much swollen or accumulation of tenacious mucus with enlargement of cervical glands local applications were employed. In these latter conditions are chiefly due to the action of pyogenic organisms which are unaffected by the presence of the Antitoxin action.

Chlorine lotion was applied by a two ounce bell syringe with nineteen detachable atom, but the action is chiefly mechanical as the albuminous secretions combine with any chemical antiseptic introduced into the throat.

The solution used was prepared thus:

R hot sole. Chloric. per.

Ag. nitric. per. 0.001

Proportioned 0.0004 of available

Chlorine.

Formic acid lotion, almost a saturated solution, was used for the nasal cavity. This was often used as a preliminary for the throat until the patient became accustomed to the actual process of syringing so both the mechanical irritation and part of the Chlorine solution could not be tolerated to commence with.

Syringing thus a four hourly dose found quite sufficient enough to keep the throat clean.

The combined method of syringing after their introduction is the best as it makes the former also helps the throat.
clear under feeding. Fecal intestinal evaporation is prevented from the constant swallowing of defective food and water. If syringing is too disturbing, it carries an already weak patient more harm will result than good, and it should be given up but there is at present perhaps too great a tendency to trust absolutely to the antibiotic alone.

Where much inflammation is present, a local antibiotic ointment is applied after syringing.

Syringe: In the early stages till temperature became normal, this was given of milk 3 parts, albumen of eggs, barley or rice water 1 part. After a little milk or Benger's food was added. The quantity allowed was four to five ounces given three or four hourly according to the eye. Small quantities of albumin water, cream or new meat juices were given in some cases as adjuvants.

In cases only 13 (3/4) could not be fed by the mouth throughout. In this patient the voice tendency to regurgitation appeared as the end of the 3rd week after onset. All fluids were then thickened with Benger's food gelatin & meat parking, resorted to. Next day vomiting began.
continued occasionally for three or four days but was not very severe. Administration was maintained by the Rectum with Replenished Milk. Bay tea in 1 oz. once daily given four hours. Nasal then mouth feeding again as the patient recovered.

Along with the Palsy the weakness of the Limbs and trunk also showed itself as weakness of the suprascapular muscles. This latter was shown by anything projecting when first attempts were made to return to mouth feeding.

Students: Case 13. 12th. The only one in which there was need of the latter change, a great deal of the cardiac weakness being due to the Pneumonia already present. Bay tea, Brandy, Strychnine were used. Brandy 3/4 were required the third day after onset of the Pneumonia as the volume lessen. The pulse became very fast and had to be increased to 28 per hour. On 20th 50 the hourly were given for 48 hours, then reduced gradually.

On Jan 23rd 1/4 Strychnine Hydrochlorid. went were required once hourly. After two days later twice hourly went added to the mixture; this was given till Feb 6th. with only one a two omission. Post 30 till Feb 12th. When Strychnine was again required. This was again omitted in four days after Feb 25th had latter till March. Some Starch Flakes were taken during the convalescence.
there is nothing either clinically or bacteriologically, to
distinguish post scarlatinal diphtheria from the independent
disease, except in respect to its unduly high mortality."

"While the mortality in the series (of post scarlatinal) under
consideration was 58.3 per cent, -- that of the diphtheria
admissions, was only 30.4 per cent."

The eighteen cases in the series given all recovered, and
from the table of recent years it will be seen
that the mortality in Diphtheria is
now much below that of diphtheria alone.

<table>
<thead>
<tr>
<th></th>
<th>Year 1899</th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Death.</td>
<td>Mortality.</td>
</tr>
<tr>
<td>General Mean</td>
<td>10</td>
<td>15</td>
<td>2.41 per cent</td>
</tr>
<tr>
<td>Laryngitic</td>
<td>84</td>
<td>10</td>
<td>11.9</td>
</tr>
<tr>
<td>All cases</td>
<td>642</td>
<td>26</td>
<td>3.6</td>
</tr>
<tr>
<td>Independent diphtheria</td>
<td>8,673</td>
<td>1182</td>
<td>13.6</td>
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<table>
<thead>
<tr>
<th></th>
<th>Year 1900</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Death.</td>
<td>Mortality.</td>
</tr>
<tr>
<td>General Mean</td>
<td>10</td>
<td>15</td>
<td>2.11 per cent</td>
</tr>
<tr>
<td>Laryngitic</td>
<td>74</td>
<td>4</td>
<td>5.7</td>
</tr>
<tr>
<td>All cases</td>
<td>405</td>
<td>12</td>
<td>2.9</td>
</tr>
<tr>
<td>Independent diphtheria</td>
<td>7,873</td>
<td>488</td>
<td>12.5</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Year 1901</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Death.</td>
<td>Mortality.</td>
</tr>
<tr>
<td>General Mean</td>
<td>10</td>
<td>14</td>
<td>4.11 per cent</td>
</tr>
<tr>
<td>Laryngitic</td>
<td>25</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>All cases</td>
<td>380</td>
<td>23</td>
<td>6.05</td>
</tr>
<tr>
<td>Independent diphtheria</td>
<td>7,622</td>
<td>849</td>
<td>11.14</td>
</tr>
</tbody>
</table>
Prophylaxis:
The prophylactic measure of treating the two diseases in hospitals on separate sides at first seemed the most likely method of eradicating or greatly diminishing the frequency of the complication. As has been pointed out the results obtained at the North Eastern Hospital are far at this one have failed to realise expectations.

The incision manner in which the disease exists in Scarlet Fever patients takes the way it arises spreads in waves makes it difficult to deal with. It is only by regarding all slight attacks of sore throat and the presence of any mucous discharge with suspicion. Then examining each bacteriologically promptly isolating the cases that the disease may be controlled.

Inventory. The introduction of patients who have Diptheria Bacilli in their throats; a scheme was suggested by 34 Barcroft Wellhouse in 1899. They found that of patients admitted for Scarlet Fever at the London Fever Hospital the following numbers had in their throats on admission Bacilli resembling morphologically those of Diptheria:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Cases with Bacilli</th>
<th>Number of Diptheria Bacilli</th>
</tr>
</thead>
<tbody>
<tr>
<td>1896</td>
<td>634</td>
<td>3</td>
</tr>
<tr>
<td>1897</td>
<td>431</td>
<td>1</td>
</tr>
<tr>
<td>1898</td>
<td>325</td>
<td>0</td>
</tr>
</tbody>
</table>

To examine all admissions to produce culture entails a great amount of labour expense for very little result.
To separate each case is almost impossible with even a large number of isolation wards. To send all such cases into a separate ward would only subject those who had non-virulent bacilli to the infection of the few who had the virulent variety & would not prevent the disease. Therefore tell some simple method than the injection of guinea-pigs is introduced to differentiate these forms. Direct isolation on admission is not feasible.

As to introduction of the disease by members of the staff. No nurse or medical officer having typhoid bacilli should work in a diphtheria ward as it has been shown such throats especially harbor bacilli. Nurses should not be placed in charge of Scarlet fever wards immediately after working in diphtheria ones without first clearing their clothes by having their throats proved culture free of bacilli. overcrowding should never be permitted as it brings the cases more closely together & increases the number likely to be infected should one case arise. In all sick hospitals a maximum floor space should be provided with numerical bed capacity as low as is consistent with hospital construction & administration.

Sick hospitals should have separate recreation grounds & play grounds & on no account should Scarlet fever diphtheria convalescents intermingl. for the presence of bacilli in the apparently normal throat.
of the letter in three or four months is an accepted fact.

With the present means of diagnosis at hand, small numbers of Pre-Scarlatinal-NeckThroat are bound to arise in the wards, until some quicker & more applicable test than incubation of animals is discovered to differentiate the virulent from the non-virulent forms of the disease. Fortunately, the number of primarily introduced virulent cases are few & it is only by early recognition & treatment of these, that this once formidable complication can be limited & controlled.