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Scarlet Fever

Experience of 300 Cases.

James Craig M.B. Ch.
Rastwood.

Nottingham.

April 28th 1883.



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.. Works Consulted -

Ziemssen's Cyclopaedia of Practice of Medicine
Watson's & L. Practice of Physic
Copland's Dictionary of Medicine
Bristow's Medicine
Trousseau's Clinical Medicine
Graves' Clinical Lectures
Niemeyer's System of Medicine
Acker's Practice of Medicine



My experience of Scarlet Fever. extends over the last six years, which have been spent in general practice in a colliery district amongst a population, who from want of education and ignorance of sanitary matters are most unwilling that their domestic comforts, & general happiness should be disturbed by putting into force isolation, or other measures necessary to limit the spread of the disease.

The 300 cases that have come under my notice, during that time have not all occurred in different houses, sometimes as many as 4 & 5 in the same house, partly from a wilful disregard of all preventive measures, and partly from an inability to appreciate the old maxim that "prevention is better than cure".

History

My experience of the disease extends over the last six years, which have been spent in general practice in a village district amongst a population, who from want of education and ignorance of sanitary matters are most unwilling that their domestic comforts & general happiness should be disturbed by putting into force isolation or other measures necessary to limit the spread of the disease.

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History.

Scarlet fever was confounded with measles as late as the sixteenth century, even about the beginning of the seventeenth century, Sennert refers to Scarlatina as another form of measles, and it was Sydenham who from observations made during the epidemics which occurred in London from 1661 - 1675 established the disease as a distinct, and definite fever, and laid a sound foundation of our positive knowledge of the disease, which observations of the eighteenth, and nineteenth century have confirmed, extended, and on many points elucidated, and improved.

To trace down from remote ages, a mere record of the early history of the disease, would be unprofitable; it is instructive however to know that the same uncertainty as to its origin & mode of extension, has marked its character in every age. Whatever its original source, or

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however limited it may formerly have been in area, it now occurs in general throughout the whole world, and everywhere forms a chief factor in mortality statistics. It occurs in most parts sporadically but frequently breaks out into epidemics of greater or less severity. According to the statistics of Farr the annual mortality from this disease in England and Wales from 1845-1855 comprised $\frac{1}{25}$ & sometimes $\frac{1}{20}$ of the entire death rate.

Theory of the action of the poison.

Scarlet fever is an idiopathic eruptive fever caused by the introduction into the system of some morbid poison, very probably of the nature of some micro-organism. The mode of action of this poison in producing its effects on the economy is a point of deep interest, and one attended with more or less speculation.

Some believe that the poison on entering the blood exerts some specific influence on that fluid, setting up a fermentation of the blood, resulting in acid products, but most incline to the view that the morbid poison is introduced into the system in the form of some micro-organism, and in the blood or some other suitable nidus, ^{it} multiplies and develops in the system, and acts upon the nervous system, more especially the sympathetic, and vagus, leading to interference with tissue changes, causing an increase of them, also to interference with the circulatory system, causing an increased action of the heart and increase of temperature. The poison is known to act specifically upon the mucous membrane of the throat and skin causing inflammation of the throat also inflammation of the skin (dermatitis).

. Coincident with the disturbance of the circulatory and nervous systems

an increased accumulation of waste material takes place from a diminished action of the eliminating organs, which irritates the central nervous system, also other serous membranes.

When the capacity for the action of the poison on the constitution is exhausted either from some change in the poison or the constitution - the morbid process is arrested, and the accumulated waste products are eliminated, and gradually a healthy action and condition of body is restored -

In the great majority of cases I have always found more or less difficulty in arriving at an accurate conclusion as to the period of incubation, or latent interval of the poison, from the fact that in the first place, the source of the contagion is not always an easy matter to determine and in the second place

Clinical Features

First Stage or Period

Period of Incubation

When the capacity

for the action of the poison on the constitution is exhausted either from some change in the poison or the constitution - the overall process is arrested, and the accumulated waste products are eliminated, and gradually a healthy action and conditions of body

Clinical features - may be resolved
under 5 stages or periods.

1st the period of incubation, or the period while the poison is lying dormant in the system, or if it causes any changes they do not disturb the system in any way - This period varies considerably -

Niemeyer says 7-9 days.

Murchison only a few hours

others say, from 12-14 days.

Sir Tho. Watson on the 2nd day.

Cullen on the 4th day.

Grainger Stewart says, usually 4-8 hours rarely exceeding 7 days.

In the great majority of cases I have always found more or less difficulty in arriving at an accurate conclusion as to the period of incubation, or latent interval of the poison, from the fact that in the first place; the source of the contagion is not always an easy matter to determine, and in the second place

the first time of exposure to the poison is often surrounded with more or less doubt & uncertainty. By far the most trustworthy information is to be obtained from tracing ^{cases} to a common contagion, and at the same time being certain of it being the first time of possible exposure to that contagion.

Several cases have come under my notice which have proved to my satisfaction that the latent period varies from 42 - 48 hours -

Three brothers aged respectively 4.6 & 8 years, from a district in which there was no Scarlet fever, during school holidays visited a cousin, who 4 days previously had been covered with a scarlet fever rash, in 46 hours the youngest was seized with symptoms, & two hours later the eldest was also taken ill, now this was most valuable as the contagion was from the same source, & exposure took place at the

same time, the other brother re-
 -mained well for 8 weeks & then fell
 ill proving the individual predisposition
 to the disease -

looks like scarlet
 fever
 from the mother

Another clear case came
 under my notice a child $3\frac{1}{2}$ years old
 visited her aunt in a neighbouring
 village 4 miles distance, & while there
 was playing with a boy who had been
 covered with scarlet fever rash 10 days
 previously, the child returned home
 and in 48 hours afterwards was seized
 with symptoms of scarlet fever -

Again on
 account of an epidemic of scarlet fever pre-
 -vailing in a district 5 miles from
 here - the school of the district was
 closed for six weeks, as a good many
 of the children were laid up with
 the disease, at the end of six weeks
 the school was reopened without being
 cleaned, and disinfected, and the
 children were allowed to assemble in the

school for one day only, & within 5 days from that date, I was called to 12 of these children, all covered with a scarlet-fever rash, and in each case the rash appeared within 60 hours of their assembling at school. I might quote numerous other cases equally conclusive and trust-worthy, all pointing to the period of incubation to be from 48 - 60 hours but the great majority, 48 hours - I feel convinced that longer or shorter intervals must be exceptions, the long intervals being due to a retarded individual susceptibility and in which a fresh exposure to contagion was probable.

difficulty of swallowing, with redness of tonsils, and fauces, the tongue at the base often covered with yellow fur, sometimes red at edges, and tip, with prominent papillae, bowels constipated, sometimes diarrhoea, high colour urine, & at end of 24 hours, stage of eruption begins.

Second Stage or Period

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Second stage or period

- Period of invasion -

The duration of this stage is generally speaking 24 hours and during that time the features of the disease are characteristic - In a typical case, the invasion is more or less sudden, and marked by a loathing of food, often vomiting, increase of temperature, with symptoms of disturbance of nervous system, in form of chilliness, rigors, and sometimes convulsions, then follows heat of skin, flushing of face, suffusion of the eyes, acceleration of the pulse, languor, drowsiness, giddiness, thirst, headache, soreness of throat, difficulty of swallowing, with redness of tonsils, and fauces, the tongue at the base often covered with yellow fur, sometimes red at edges, and tip, with prominent papillae, bowels constipated, sometimes diarrhoea, high coloured urine, & at end of 24 hours, stage of eruption begins.

Third stage or Period?

Eruption

This stage is generally appearing 24 hours and during that time the features of the disease are characteristic - In a typical case, the invasion is more or less sudden and marked by a lowering of temperature, increase of temperature with symptoms of disturbance of nervous system, in form of chilliness, rigors, and sometimes convulsions, then follows heat of skin, flushing of face, suffusion of the eyes, acceleration of the pulse, languor, drowsiness, thirst, headache, soreness of throat, difficulty of swallowing, with redness of tonsils, and furred, the tongue at the base often covered with yellow fur, sometimes red at edges, and tip, with prominent papillae, lower convulsions, sometimes diarrhoea, but extreme at end of 24 hours, stage of eruption begins.

11
Third stage or period.

— Eruption —

This usually appears about the second day, but sometimes not until the 3rd or 4th day, detected first on the mucous membrane of the throat, and characterized by difficulty of swallowing.

It appears as a uniform diffused redness over the mucous membrane of the throat, sometimes it remains red with only a little excess of mucus on its surface, in other cases it goes on to tumefaction, in some a false membrane forms like diphtheria, in others ulceration and sloughing taking place slowly, or rapidly —

The eruption is next detected on the skin in the form of numerous closely aggregated reddish points or papillae with normal skin at first between them, after extending until the whole surface becomes uniformly red. There is more or less oedema & swelling of the skin from

Third stage or period -
Eruption -

The usually appears about the second day, but sometimes not until the 3rd or 4th day, detected first on the inner membrane of the throat, and character- ized by difficulty of swallowing. It appears as a uniform diffuse red- ness over the mucous membrane of the throat sometimes it remains red but only a little excess of mucus on its

Distribution of eruption

The eruption is most detected on the skin in the form of numerous closely aggregated reddish points or papillae with normal skin at first between them, after extending until the whole surface becomes uniformly red. There is more or less redness & swelling of the skin from

the eruption, in some a false membrane forms like diphtheria, in others ulceration and sloughing taking place slowly or rapidly -

the dermatitis present. These minute red papilliform points increase soon in size, & their colour becomes more brilliant and their margins gradually coalesce until the whole skin assumes a uniform scarlet hue, but yet on close inspection the punctiform reddish points, or papular character of the rash is still distinguishable.

. Distribution.

It appears first on the chest, neck, inner aspect of the thighs, and arms. The papules, or red points are most perfectly developed, and most vivid in those parts, rarely distinct on the face, often more or less patchy, the same applies to backs of hands, dorsum of feet, and legs, where they are not so crowded together, but attain a larger size, and appear slightly elevated above

the skin, but not nearly so much as the roseolæ of measles. The degree of redness may vary from a pale to a dark scarlet red; as a rule the redness is in direct proportion to the intensity of the disease, a dark livid appearance, approaching a violet hue being generally indicative of a severe case - so that the darkness of the colour of the rash is generally in proportion to the malignancy of the disease, to the depression of the vital powers, and to the amount of vitiation of the blood -

Time occupied by the rash varies. Sometimes it comes out rapidly at other times slowly, in some cases the eruption is so slight as almost to be overlooked; in other cases its occurrence is extraordinarily delayed, & such cases are

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apt to prove very severe.

Rousseau narrates a case in which the stage of invasion was prolonged for 5 days and during that time no eruption appeared, but at last it appeared on the 5th day. Such cases of delayed appearance of the eruption are very rare, and generally turn out to be of a malignant character or type.

History of eruption -

The eruption generally goes on advancing for 3 days, remains at its height for one day, and fades away in two days; so that it is out for six days, very often on the seventh day from the rigors the rash is all away -

While the rash is attaining its maximum development, the other symptoms are increasing in intensity,

the temperature rises, the pulse increases, respiration much accelerated, the tongue changes its yellow fur, & coated aspect to a morbidly red appearance, denuded of epithelium with prominent red papillae giving rise to the characteristic red strawberry tongue, but often the tongue is coated with a white fur through which the swollen papillae project constituting the white strawberry tongue.

Symptoms of disturbance of the alimentary system arise, such as loss of appetite, vomiting, diarrhoea, or constipation -

Disturbance of the urinary system in the form of transient albuminuria, takes place often about the height of the fever.

The Nervous System is also affected as shown by headache, sleeplessness, delirium and Coma.

- in Fourth Stage or Period the temperature rises, reaction is accelerated

✓ Resolution the tongue is coated with a white film, appearance demands of epithelium with prominent papillae giving rise to the characteristic red straw - heavy tongue, but often the tongue is coated with a white film through which the swollen papillae project - situated the white shagreened tongue - symptoms of disturbance of the alimentary system arise such as loss of appetite, vomiting, diarrhoea, constipation -

Restoration of the normal equilibrium in the form of transient albuminuria

of Fifth Stage or Period later place of fever -

the Convalescence is also affected as shown by headache, depression albuminuria and coma.

Fourth stage or period. *being the result of the* Resolution. This

takes place about the seventh day by crisis but not very sudden.

The rash begins to fade by first assuming a violet tint, afterwards a pale rose, or coppery hue, and if a mild favourable case, the other symptoms subside, such as throat complications, pulse, and temperature are also reduced, tongue becomes moist, thirst delirium, and other nervous symptoms, also disappear. Sometimes the temperature remains high owing to complications.

Fifth stage or period. *of the fourth week from the* Convalescence. This

is the stage of desquamation and begins from the sixth to the ninth day, in mild cases it may be deferred for several weeks, in severe

cases it begins sooner being the result of the dermatitis. It follows the same course as the rash did on appearing, viz. first on chest, side of neck, inner aspect of thighs & arms.

. As desquamation proceeds the surface becomes pale, the epidermis exfoliates in small whitish bran-like scales on the trunk of the body, and in large scales or flakes where the cuticle is coarser, and thicker, as on the palms of the hands, and soles of the feet.

The scales & scurf are loaded with the poison -

During the stage of desquamation, the temperature keeps above normal, and it is not completed until the end of the fourth week from the initial rigor, and sometimes the end of the sixth week.

This stage is attended with more or less danger. for during it, albuminuria with dropsy, and uraemia occur, and

cases it begins however being the result of the bacteria. It follows the same course as the rash but on appearing, first on chest, side of neck. When aspect of things is over. As degeneration proceeds the surface becomes pale the epidermis exfoliates in small patches like in the trunk of the body, and in large scales or flakes where the cuticle is coarser, and thicker, as on the palms of the hands, and soles of the feet.

Types of Scarlet Fever

Scarlatina Simplex

anginosa

Maligna

Lata

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Convalescence is often retarded by serious consecutive affections and sequela which ought to be anticipated and as much as possible guarded against.

Types of Scarlet Fever:

There are four generally recognised types under which it is convenient to classify the different cases, and arrange properly our ideas of the character, and treatment of each, viz.

I. Scarlatina Simplex.

II. " Anginosa.

III. " Maligna.

IV. " Latens.

We must remember that these are but various phases of one disease which fall into each other imperceptibly, so that while cases which may be assumed as typical of each division vary very much,

convalescence is often prolonged
because consecutive infections and
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I Scarlatina Simplex

Types of Scarlet fever
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I. Scarlatina Simplex.
II. Scarlatina Maligna.
III. Scarlatina Latens.
IV. Scarlatina Vesicularis.

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there are others which are with difficulty classified under any of those types or divisions.

I Scarlatina Simplex. I will describe each of these types in turn, taking the simplex first, which is supposed to be the normal condition of the disease, and in which there is simply the eruption with no sore throat.

The onset of this is always unexpected, very rarely are there those premonitory symptoms, such as loss of appetite, languor, and headache which are generally found in other febrile diseases. The invasion is generally in the night, a child will retire to bed in usual health, and about the middle of the night will wake up with sickness, and complaining of being restless, and fretful. Skin hot, great thirst, and in 24 hours neck, chest &c will be found covered with a vivid scarlet rash con-

-sisting of minute points, interspersed upon a uniform efflorescence which disappears under pressure of finger but instantly renewed on removal.

The pulse will beat from 120-160 with a temperature reaching 104 & over -

The tongue is coated with a white fur through which the prominent papillae project. On looking at back of the throat the tonsils and palate will be found of the same vivid redness.

From this sudden onset the disease pursues a rapid course, the rash extends over the whole body during three days, & begins to fade away on the fifth day of the rash, the pulse still remains quick through the whole rash, also the temperature high.

The rash is not elevated above the skin as in urticaria, and measles, but sometimes over the chest, neck and abdomen clear vesicles of minute size called sudamina make their

appearance. The condition of the digestive system varies much, in some case there is an entire loss of appetite, in others a constant desire for food. The bowels are unaffected in this form in the primary stage.

The kidneys are healthy as regards secretion for the first four days but towards the 7th or 9th day of the disease the urine becomes scanty in quantity and high coloured.

The functions of the skin are impaired according to the intensity of the eruption.

From the 6th to the 9th day the appearance of the tongue changes, it is entirely denuded of its fur & looks red smooth & glazed with prominent papillae on it. Coincident with the change in the tongue and disappearance of the rash desquamation begins, the cuticle separates in thin scales from neck chest. arms legs &c.

The symptoms are sometimes so mild, in the different stages of this type, that no medical aid is called on, but nevertheless in these mild cases there is always a danger from the sequelæ. It must not be supposed that all cases of Scarlatina Simplex are mild in their character, for in some, from the intensity of the cause, or peculiar constitution of the individual, the nervous system becomes impressed severely, and we have ~~a~~ delirium, convulsions, headache, and stupor. Again on the 3^d. or 4th. day it is no uncommon event to have the patient complain of pain in the ears, or be overcome with drowsiness, either of which conditions after continuing 24 hours, will in all probability be followed by a discharge of thin serum from the external meatus auditorius which excoriates the neighbouring skin, and

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III Scarletina Anginosa

but nevertheless there is always a danger from the sequelae. It must not be supposed that all cases of Scarletina Anginosa are mild in their character for in some, from the intensity of the cause, or peculiar constitution of the individual, the nervous system becomes impressed severely, and we have delirium, convulsions, head-ache, and stupor. Again, on the 3rd or 4th day it is not uncommon to have the patient complain of pain in the ears, or be overcome with drowsiness, either of which conditions after continuing 24 hours will in all probability be followed by a discharge of thin serum from the external orifices which characterizes the eruptive form, and

gives rise to a vesicular eruption.

II. Scarlatina Anginosa.

In this type or variety, we have the same series of events, just described generally, in an aggravated degree. The rash may appear more vivid, or it may be present only in patches about the back, and abdomen, or flexures of the larger joints. The nervous symptoms are more often manifested, and more violent when present, there is often great tremor of the muscles, with disposition to sleep.

The throat symptoms are more aggravated; besides redness, there is distinct enlargement, and swelling of tonsils & soft palate, with a great deal of viscid mucus adhering to it; sometimes, there is also an enlargement behind the angle of the jaw, accompanied with

difficulty of swallowing, and stiffness of the neck. On examining the fauces there will often be seen deposits of lymph upon the tonsils, of a white or grey colour, which are sometimes mistaken for ulcers, & can be easily removed by means of a gargle or a mop. In some cases, these deposits of lymph cover ulcerated spots on the tonsil, which ulcers sometimes spread from the fauces, through the eustachian tube, to the membrane lining the inner ear giving rise to otitis; more frequently the membrane lining the external auditory meatus, takes on ulcerative action, as mentioned in the simplex type. In both cases there is great pain, and the ulcerative action spreads from the soft parts, and involves the bony structure of the ear, destroying the ossicula and resulting in permanent deafness, and an offensive

discharge from the ear.

The tongue as in the simple type loses its coat, and looks very angry, and glazed, and often the ulcerative action will affect the side of the tongue, and posterior nares and fauces, then the lymphatic glands of the neck become enlarged, and swollen, and painful to the touch, whilst accompanying this condition, there is often a great deal of effusion into the cellular tissue of the neck, rendering deglutition impossible and respiration difficult. In more severe cases the cellular tissue gets so infiltrated with serum until the hollow between the clavicles, and angle of the jaw, is filled up, then the head is thrown back to relieve the pressure on the larynx, and throat; the nostrils also discharge a thin acid matter which excoriates the neighbouring skin; the conjunctivae

become injected, and a most offensive sweet putrid odour is emitted from the throat. In more severe forms of this type with a typhoid tendency large abscesses are formed in the cellular tissue of the neck, and gangrene and sloughing take place.

In this anginose type the stages of the disease are as regular as in the simple, but not always so perceptible, due to the secondary sources of irritation, which produce fever more intense than that already described, which naturally terminates on the 4th day.

In the most favourable cases the subsidence of the fever on the 4th day is generally followed by a decline of the ulceration, glandular swelling, and throat complications, but after the effusion into the cellular tissue of the neck, ulceration of

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III Scarlatina Maligna

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tonsils, and glandular enlargement, produce an increase of temperature before the 4th day, & keep up the increased temperature for some time and in this way disturb and distort the natural course of events, so that the stages are not so easily recognised.

III Scarlatina Maligna.

To this type belong cases wherein there are severe nervous symptoms & great fever which may prove fatal at an early stage of the disease, or severe sore throat which may end fatally at a later period, in fact all cases in which the symptoms are unusually severe and in which death tends to take place rapidly come under this type.

The epithet "maligna"

torsils, and glandular enlargement,
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III Varieties of Cholera.

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 come under this type.
 the epidemic cholera

is by no means a happy one for while it expresses nothing distinct concerning the nature of the disease, it involves an hypothesis as to the presence of something hostile to the principle of life. & may thus mislead to a certain extent.

The course of the disease in this type cannot be reduced to the same regularity as regards the stages, as in the simplex and anginosa.

Varieties of S. Maligna.

There are

several varieties of this type according to the mode of death.

1st Neurosis. This is a variety which kills the patient at the very onset, sometimes on the 1st day of the disease, often before the rash makes its appearance, & before the throat symptoms are manifested, due to

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Varieties of S. & Malpighia.
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2nd Syncope
 which kills the patient at the very
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 the disease, after before the local matter
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 symptoms are manifested, and

the poison paralysing the nerve centres. Or again the rash may appear, and then disappear suddenly, to be followed by severe nervous symptoms, rigors, convulsions, tremulousness of muscles, delirium, high temperature, rapid quick pulse, shallow respiration, dusky countenance, and anxious expression.

I have met with 3 such cases in my practice, all proving quickly fatal. but I imagined that life was prolonged by a hot bath, & rubbing with mustard while in the bath, which partially brought the rash out again, and prolonged life for several hours -

small skin hot, and dry.

Such 2nd Syncopal variety. In this variety death takes place from sudden collapse with abrupt fall of temperature. It would seem that the poison acts principally on the

the person paralyzing the nerve
 centres. Or again the
 man of fever, and then disappear
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3rd Typhoid
 nervous symptoms, rigor, convulsions,
 tenderness of muscles, delirium,
 high temperature, rapid pulse,
 shallow respiration, cyanosis,
 countenance, and anxious expression.
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2nd Sympchol variety.
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 -ature. It would seem that the
 person also principally on the

circulatory system by paralyzing the heart -

3^o Typhoid Variety In this variety
 the local symptoms are moderately developed, not much ulceration, or swelling of tonsils or lymphatic glands, but the temperature remains abnormally high after the 4th day, and the tongue becomes brown and dry. Indications of disturbance of nervous system take place as manifested by headache, drowsiness, delirium, deafness, and general apathy, pulse quick, and small, skin hot, and dry.

Such symptoms may continue for 3 or 4 weeks, and then dropsical symptoms supervene, indicating kidney mischief. If the fever does not soon abate, then typhoid symptoms are developed, low muttering delirium, resulting in death.

25
suppurative gangrenous
the heart -

3. Tiphoid variety
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fever subsides, of the fever are
not seen, then typical symptoms
are developed, low continuing delirium, vomiting, etc.

4^u Gangrenous Variety.

In this variety the local symptoms are very severe with a high temperature; the ulceration of the throat increases, deepens, and destroys the tissues, and gradually involves some large blood vessel, leading to hæmorrhage and resulting in death -

5. Hæmorrhagic Variety -

In this from the onset the symptoms are severe - high fever, with cerebral symptoms - rash imperfectly developed, of a dark purple, or livid hue. The blood being so altered in its composition by the poison, that hæmorrhages occur in the skin instead of the rash and often bleedings from the nose and other parts take place -

It would seem in this

variety the local symptoms are very
 severe with a high temperature; the
 ulceration of the throat increases,
 deepens, and destroys the tissues and
 occasionally involves some large
 blood vessel, leading to hemorrhage and
 resulting in death.

2. Hemorrhagic variety -
 In this

from the overabundance of
Gastro-intestinal -
 severe - high fever, with cerebral
 symptoms - rash imperfectly de-
 veloped, of a dark purple, or livid
 hue. The blood being so altered
 in its composition by the poison
 that hemorrhages occur in the
 skin instead of the rash and
 often bleedings from the nose and
 other parts take place -
 It would seem in this

variety that the effect of the poison is chiefly concentrated on the blood, altering its composition so that it escapes from the blood vessel, but no doubt the vaso-motor nerve centres which supply the blood vessels are deeply impressed, which may with the change of the constituents of the blood, account for the escape of the blood from the blood vessels -

6th. Gastro-intestinal Variety.

In this variety there are symptoms of disturbance of digestive system, and intestinal tract, such as sickness and diarrhoea. The local symptoms are in this variety very severe, tonsils are swollen, and ulcerated, also more or less swelling of the lymphatic glands -

IV *Scarlalina Latens*

varieties that are characterized by a
paroxysmal or chiefly concentrated
the blood, altering its composition
so that it escapes from the blood
vessel but no doubt the vaso-motor
nerve centres which supply the
blood vessels are deeply impressed,
which may with the change of the
constituent of the blood account
for the escape of the blood from
the blood vessels.

V. Gastro-intestinal Varieties

In this
varieties there are symptoms of
disturbance of digestive system and
intestinal tract such as sickness
and diarrhoea. The local symptoms
are in this variety very severe, and
are swollen, and irritated, also
more or less swelling of the
lymphatic glands.

IV. Scarlatina Latens -

Comprises cases wherein there is no eruption and in which no complaint of sore-throat has been made, or other symptoms observed, but after an indefinite period of exposure to contagion, certain symptoms occur which are known to be sequelae of scarlet fever poison; viz desquamation, albuminuria, with anasarca, or both. The number of cases of this type depend to a great extent upon the acuteness of the practitioner to diagnose them.

Complications IV

Complicated cases
wherein there is no eruption and
in which no complaint of sore-
throat has been made, or other
symptoms observed, but after an
indefinite period of exposure to
contagion, certain symptoms occur
which are known to be peculiar
of scarlet fever, having no diagnosis
- other, albuminuria with ureaemia
or both - the number of cases
of this type depend to a great
extent upon the acuteness of
the practitioner to diagnose
them.

Complications & Sequelæ.

Are very numerous, and may occur at any period of the disease, sometimes they occur suddenly without any warning whatever, at other times they may be preceded by some insignificant symptoms, or it might be significant symptoms, such as the sudden disappearance of the rash.

There are two classes of complications

- 1st Those which appear to be a mere continuation of the local lesions developed during the course of the disease, and confined to the same vicinity.
- 2nd Those which are due to congestion of kidneys, and not directly connected with primary lesions or cause.

Ist Class Complications

(a) Affections of Glands

very numerous, and many occur at any period of the disease, sometimes they occur suddenly with out any warning whatever, at other times they may be preceded

(b) Inflammation of Glands
or it might be significant symptoms such as the sudden appearance

of the rash. There are two classes of

Complications
1st those which appear to be a mere continuation of the local lesions developed during the course of the disease, and confined to the same vicinity.

2nd those which are due to a distant affection of primary lesions connected with primary lesions.

Under the 1st class of complications we have (a) affections of glands.

The lymphatic glands of neck & the parotid become inflamed and suppurate, and require to be opened.

(b) Inflammation of Ear.

This may arise from the inflammation extending from the pharynx along the eustachian tube to the inner ear, causing otitis with disease of the petrous bone, and resulting in deafness. Or the inflammation may extend to the brain, and result in abscess or pyæmia. The middle ear may be primarily affected, or the external meatus —

If the external meatus is only affected appropriate treatment will soon rectify it. but when the middle or inner ear is affected

Under the 2nd class of complications we have (a) affections of glands. (c) Croup the larynx of which the parotid becomes inflamed and suppurate, and requires to be opened.

(b) inflammation of ear. This may arise from the inflammation extending from the pharynx along the eustachian tube to the inner ear, causing otitis with disease of the petrous bone, and resulting in deafness.

(d) Diphtheria or leucorrhoea may extend to the throat, and result in abscess or proptosis. The middle ear may be primarily affected or the external meatus.

2nd Class.

If the external meatus is only affected (a) Pleurisy will soon verify it, but when the middle ear is affected

nothing but deafness can result.

(c) Croup may occur as a complication, and generally proves a formidable one. The ulcerative^{ive} action of the throat partakes of a croupous character which spreads and involves the larynx. One case came under my notice 3 years ago in which croup supervened during the second week of the disease and proved fatal in five days after its appearance -

(d) Diphtheria also occurs as a complication but very rarely, at least not so often as croup -

2nd Class of Complications not directly connected with primary causes.

(a) Pleurisy. By no means a common complication but when it does take place it comes on rapidly and is

Nothing but deafness can result

(c) Group may occur as a complication and generally follows a formidable one. The ulceration of the throat portals of a group of Rheumatism spreads and involves the larynx. The case

comes under my notice a year ago in which group supervened during the second week of the disease and proved fatal in five days after its appearance -

(d) Sphincter also occurs as a complication but very rarely at least - not so often as group -

(e) Pericarditis & Endocarditis

Class of complications not directly connected with primary disease. (a) Pericarditis. In its course a common complication but when it takes place it comes on rapidly and is

characterised by slight local disturbances or symptoms, is generally confined to one side, and the effusion has a tendency to become purulent.

(b). Rheumatism is a more frequent complication, and may occur during the decline of the fever, or during convalescence, and behaves in the same manner as under ordinary circumstances, affecting successive joints, and accompanied by swelling and pain.

. It often results from carelessness in premature exposure, and is apt to occur after mild cases therefore.

(c) Pericarditis and Endocarditis are perhaps the most formidable complications mentioned by writers on this subject. The suddenness and violence of the onset of these complications convert a hopeful case

characterised by slight local
tenderness or symptoms, is generally
confined to one side, and the
effusion has a tendency to become
(d) Inflammation of Joints

(b) Rheumatism is a more frequent
complication, and may occur during
the decline of the fever, or during
(c) Renal complications

in a manner as under ordinary circumstances
affecting successive joints, and
accompanied by swelling and pain.
It often results from catarrhs in
premature exposure, and is apt to
occur after mild cases therefore.

(e) Pericarditis and Endocarditis are
perhaps the most formidable com-
plications mentioned by writers
on this subject. The suddenness
and violence of the onset of these
complications cannot a hopeful case

into one of great anxiety.

Pericarditis generally occurs with rheumatism but by no means always.

(d) Inflammation of joints sometimes occurs as a complication, supposed to be disconnected with rheumatism, but rarely goes on to suppuration.

(e) Renal complications are by far the most common.

Nephritis may occur early or late, inflammation of the tubule was known to have occurred long ago, but only recently known that the glomeruli were affected.

Recognised by 1st dropsy in nearly all cases
 & 2nd by bloody urine & copious tubecasts.

The dropsy occurs as anasarca, as serous infiltration of the subcutaneous cellular tissue, with often effusion into the larger cavities.

This complication bears

no relation, or rather an inverse relation to the severity of the disease, being more common after a mild case than after a severe one.

Thus in the malignant, & irregular types, the eruption is slight and transient, and death takes place often in the first week from injury to the nervous system, while in mild cases of the simple type, with abundant eruption, if death does occur, it is generally the result of dropsical effusion, or some other secondary affection -

There is no doubt a close and direct connection between the affection of the skin, dermatitis, desquamation, and the appearance of dropsy -

When the rash has been abundant and vivid, desquamation is then most marked, and in those cases we have most to fear from dropsy - while in those cases in which there has been a slight rash and

consequently a minimum amount of dermatitis and desquamation the functions of the skin are not much interfered with and there is not much danger of the occurrence of dropsical effusions. Again in the simple and anginose types dermatitis is most severe and the functions of the skin are more interfered with than in the malignant type, and all writers are agreed that dropsy is more apt to occur in mild and regular cases, than in severe and irregular cases.

I think there is little doubt but that the functions of the skin are interfered with by the appearance of the rash, and coincident with this there is more or less catarrh of the tubules of the kidney.

This catarrh is not accompanied by diminished secretion of the urine, but with cylindrical casts, and cloudy

epithelium, sometimes a trace of albumen, but often an entire absence of albumen. Now as desquamation proceeds, this catarrh may pass off during the second week, or it may go on to glomerular nephritis, with scanty bloody urine, abundance of hyaline, and epithelial casts with red and white blood corpuscles, and abundance of albumen. In 50 per cent of my 300 cases, I found a trace of albumen from 3^d - 7 day; while in the other 50 percent, there was an entire absence of it.

About 6 years ago I contracted scarlet fever of a mild type, there was abundant rash; I examined my urine daily, and found nothing abnormal until the 3^d day of the rash when there was a trace of albumen, with cylindrical casts, and cloudy epithelium, on the 4th 5th & 6th day of rash, still a trace of albumen with the

cylindrical casts, and cloudy epithelium, but on the 8th day of the disease, the albumen disappeared but cloudy epithelium and cylindrical casts were found up to the 18th day of the disease or 10 days after the disappearance of the rash, & during this time the quantity of urine was normal. After the 18th day of the disease there was no albumen, no casts & no epithelium. On the 23rd day of the disease, I exposed myself to cold by leaving my room, and visiting an urgent case at night, and on the 24th day there was a diminished secretion of urine with albumen, casts, and blood corpuscles, but with careful treatment by the 30th day of the disease my urine was quite normal, so that in my own case there was a gradual merging of the calarrh into the glomerular nephritis -

Epithelium, but on the 2nd day of the
 disease, the albumen disappeared
 but shortly epithelium and epithelial
 cells were found up to the 18th day of
 the disease or 10 days after the dis-
 appearance of the red cells, during
 this time the quantity of urine was
 normal. After the 18th day of the
 disease there was no albumen.

Proportion of cases of anasarca

of the disease, began myself
 to edema by learning my reason, and
 visiting an expert case at night,
 and on the 2nd day there was a
 diminished secretion of urine with
 albumen, cast, and blood corpuscles,
 but with careful treatment by the
 5th day of the disease my urine

Time of occurrence of dropsy

was seen there was a gradual
 swelling of the extremities into the
 glomerular epithelium

The anasarca is generally preceded a longer or shorter time by feelings of languor, drowsiness, loss of appetite, and not unrequently by nausea, and vomiting, coated tongue, great thirst, and dryness of skin, the pulse is quick, hard, and corded; there is always more or less suppression of urine -

Proportion of cases of anasarca -

20 percent or 60 cases out of the 300 suffered from dropsy afterwards, but the number depends to a great extent upon the character of the epidemic, and also upon the amount of care & trouble taken by the mothers afterwards.

Time of occurrence of dropsy.

In 50 of my 60 cases anasarca with diminished secretion of urine & albumen took place between the 7th & 14th day

The anasarca is generally preceded
a week or eleven days by feelings
of languor, heaviness, loss of appetite
and not infrequently by nausea,
and vomiting, coated tongue, great

Age at which Anasarca appeared

There is always more or less puff-
iness of face, hands, and ankles;
-retention of urine -

Proportion of cases of anasarca -
50 percent or so cases out of the
300 suffered from dropsy after wards,
but the number referred to a great
extent upon the character of the
epidemic, and also upon the amount
of care & medicine taken by the mother
afterwards.

Time of occurrence of dropsy.
In 70 of my cases anasarca with
diminished secretion of urine & albumen
took place between the 7th & 14th day.

of the disease -

In the other 10 cases anasarca did not make its appearance until between the 14th & 21st day.

Age ^{at} which anasarca occurred

Between 5 & 7 years	in 40 cases
the " " 3 & 5 " "	16 "
sequer " 8 & 9 " "	4 "

Though no amount of precaution can wholly remove the liability to this result, it is by no means uncommon to find it brought about by exposure to cold or to error in diet and it has been supposed by many that it is to the neglect of care on these points, resulting from the idea, that the disease has been too mild to require it, we may ascribe the greatest proportion of frequency, after the mildest cases of Scarlet Fever -

These irregularities of diet, and

exposures act merely as the disturbing causes which derange the normal action of the organism and thus overcome the powers of resistance, which would otherwise have been sufficient to carry the patient safely through the period of disturbance consequent on the primary impression of the cause of the disease.

Although exposure to cold, and irregularity of diet, may often seem to be the exciting cause of this sequelæ, still there is often something in the character of the epidemic, which exerts more or less an influence in producing this, for in some epidemics I have noticed an entire absence of this complication, and again another epidemic will be characterised by an unusual number of anasarca cases, even where the most rigorous diet has been observed

and in whom exposure to cold & draught has been sedulously avoided.

Another determining cause of anasarca, is to be found, in the stumous diathesis, which is marked by a diminished power of resistance, and a greater susceptibility to the chronic forms of disease, and in all ^{my} most severe cases of anasarca, the stumous diathesis could be traced to each of them.

The subcutaneous cellular tissue, is the most frequent seat of the dropsical effusion, and next to this the pleural sac, or lung tissue, the least frequent seat is the ventricles of the brain, which is the most fatal, indicated by the occurrence of stupor, violent headache, vomiting, slow pulse, pupils unequally dilated, impaired vision, convulsions, paralysis, and strabismus.

Etiology

one in whom the etiology has been established. Another determining cause of aneurysm is to be found in the thrombotic diathesis, which is marked by a diminished power of resistance, and a greater susceptibility to the chronic forms of disease and in all most severe cases of aneurysm the thrombotic diathesis could be traced to each of them.

The subcutaneous cellular tissue, is the most frequent seat of the surgical effusion, and next to this the pleural sac, or lung tissue. The least frequent seat is the ventricle of the brain, which is the most fatal, indicated by the occurrence of stupor, violent headache, vomiting, slow pulse, pupils unequal, dilated, impaired vision, convulsions, paralysis, and strabismus.

- Etiology - Has given rise to diversity of opinion, but it is admitted that it is a peculiar substance, which is transferable from the patient to the unaffected individual. The evidence in favour of the contagiousness of Scarlet fever is so positive, that little doubt can be raised. We see constantly the disease spreading and reproducing itself, in a district after it has been introduced from without, through the medium of a Scarlet fever patient, or through some substance which has come in contact with a scarlet fever patient.

A short exposure to the contagious atmosphere of the sick will suffice for infection. Cases are narrated of its being spread by means of a letter - & recently milk has been thought to be a common medium of its spreading in districts -

Age at which it occurred.

to diversity of opinion, but it is admitted that it is a febrile substance, which is transferable from the patient to the unaffected individual. The evidence in favour of the contagiousness of scarlet fever is so positive, that little doubt can be raised. We see constantly the disease spreading and reproducing itself in a district after it has been introduced from another out, through the medium of a scarlet fever patient, or through some substance which has come in contact with a scarlet fever patient. A short exposure to the contagious atmosphere of the sick will suffice for infection. Cases are manifested of its being spread by means of a letter - or recently milk has been thought to be a common medium of its spreading in the district -

The age at which Scarlet fever most frequently occurs has occupied the attention of many observers -

It was formerly thought that the disease was rare if not absent in babes at the breast - It is certainly rare under 6 months and increases after that age in frequency.

From an analysis of my 300 cases I find that 2 cases or .6 percent occurred under 1 year

10	..	..	3.3	..	..	..	between 1 & 2 years
38	..	..	12.6	..	..	..	" 2 & 3 "
90	..	..	30.	..	..	..	" 3 & 4 ..
65	..	..	21.6	..	..	..	" 4 & 5 ..
40	..	..	13.3	..	..	..	" 5 & 6 ..
20	..	..	6.6	..	..	..	" 6 & 7 ..
12	..	..	4	..	..	..	" 7 & 8 ..
8	..	..	2.6	..	..	..	" 8 & 9 ..
15	..	..	5	..	..	..	after 9 years

It would appear therefore that in this district, of those children who have scarlet fever 30 percent are susceptible between 3 & 4 years.

50 p cent between 3 & 5 years
 & 17 after 6 years of age.

The susceptibility therefore declines after the 5th year, 5 p cent being only susceptible after the 9th year, at the same time it would be unfair to attribute to age, any direct relationship to the cause of the malady, age cannot be looked upon as either predisposing or preventive. It is due to the nonrecurrent character of the disease after one attack, and to the extreme susceptibility to it of all who have not suffered, that the ratio of cases at different ages is so marked. Children of 3 or 4 years who are by that time permitted to run about, and are also susceptible to it are naturally more subject to exposure than infants who are at the breast; the former therefore suffer most

50 p cent between 3 to 4 years

... after 12 years of age

the susceptibility therefore is

higher after the 2nd year - 5 p cent

being only susceptible after the 4th year

at the same time it would be un-

fair to attribute to age, any direct

relationship to the cause of the

malady, age cannot be looked

upon as

Influence of Sex.

It is due to the

different character of the

disease after one attack, and to

the extreme susceptibility to it of

all who have not suffered, that

the ratio of cases is different

in males and females.

of 2 or 4 years who are by that time

permitted to run about, and are

also susceptible to it are naturally

more subject to exposure than are

female who are at the breast;

the former therefore suffer most

And for the reasons that the majority of cases take place early in life and that the disease is non recurrent as a general rule, children over 10, & adults, are to an extent proportionately large to the whole population, protected from the disease -

Influence of sex -

Differences of opinion prevail on this point, but no trustworthy statistics have as yet proved that sex exercises any influence whatever. In some epidemics more males are affected than females, and vice-versa. There is a prevailing idea, that amongst adults, females are more subject to it than males -

Of my 300 cases, 160 were males, & 140 were females: But I consider that there is not sufficient

One for the reason that the
mortality of cases takes place early
in life and that the disease is
over recurrent as a general rule
children over 10, & adults, are to an
extent proportionately large to the
whole population, protected from

Recurrence - the disease -

Influence of sex -
Difference of opinion
prevail on this point, but on first
-working statistics show a net proved
that sex exercises only influence
in some epidemics over
males are affected than females,
and vice versa. There is a pre-
-valing case, that amongst adults,
females are more subject to than
males -
Of my 300 cases 150 were males
& 150 were females; but I can
-state that there is not sufficient

evidence to show that sex has any influence predisposing or otherwise on scarlet fever. All evidence tends to prove that male and female are alike susceptible, provided they are alike exposed.

- Recurrence in the same person -
 - Opinion is divided on this point. The well known assertion of Willan that out of 2000 cases of this disease, he had never met with one in which it had happened for the 2nd time in the same person, has been mentioned by nearly all writers on the subject, and has led many to believe that the disease could never occur twice in the same individual. This belief is however quite erroneous for well authenticated cases have been recorded of second attacks. Although I have not

evidence to show that there has
any influence breeding or
obscure or scarce form. All evidence
tends to prove that these are forms
are like susceptible, provided they
are like exposed.

- Perennation in the same person -

Influence of the soil & drainage

visited on the point. The well known
assertion of Wilson that out of 2000
cases of this disease, he has never
met with one in which it had
disappeared for the 2nd time in the
same person, has been questioned
by nearly all writers on the
subject, and has led many to
believe that the disease could
never occur twice in the same
individual. The belief is however
quite erroneous for well authenticated
cases have been recorded of several
attacks.

met with a case myself, still I take it that the phenomenon of recurrence is most exceptional & it is satisfactory to know that so far as I can make out no case of second attack of scarlet fever has proved fatal yet.

Influence of conditions of the soil and drainage -

I think there is little doubt but that defective sanitary arrangements, overcrowding, bad ventilation, to a great extent increases the predisposition to this disease -

I have noticed in this district, that an outbreak of scarlet fever generally originates in a part in which the drainage is defective, and in houses in which the sanitary arrangements are incomplete, i.e. bad ventilation, and overcrowding, showing that un-sanitary conditions produce a peculiar

state of health, which predispose the individual to this disease. And again individuals who reside in such unsanitary places, are rendered more susceptible to the influence of the scarlet fever poison, in consequence of their vital powers being kept at a low ebb by the vitiated atmosphere, thus rendering them less resistant to the contagion, so that whatever agent has the power of producing degeneration of the blood, whether by long watching, anxiety, bad food, bad hygienic influences, all such conditions, conduce to the production of the worst forms of the disease. The most malignant cases in this part have occurred in houses in which the drainage was bad and ventilation equally defective. —

Influence of Family Predisposition

Individuals in the disease. Such individuals who reside in such unsanitary places, are rendered more susceptible to the influence of the least fever poison, in consequence of their vital powers being kept at a low level by the vitiated atmosphere, thus rendering them less resistant to the contagion. So that whatever agent has the power of producing degeneration of the blood, whether by long watching, anxiety, loss

Influence of Individual Predisposition

Constitution, course to the production of the most form of the disease. The most malignant cases in this part have occurred in houses in which the drainage was bad and ventilation especially defective.

Influence of Family Predisposition

I have noticed that members of some families have shown an intense predisposition and have all suffered most severely, although families on each side of them have suffered from a mild type. And again I have come in contact with families, who although exposed to the contagion frequently still have never become infected, susceptibility on their part seems entirely absent.

Influence of Individual Predisposition.

Several interesting examples of this have come under my notice one in particular viz. Scarlet fever broke out in the house of a large family, of which 3 members were despatched to an uncle's house, 20 miles distant; within a few days of their arrival, 2 members of the uncle's family manifested the disease, while the

Influence of season
 all suffered most severely, although
 on intense precipitation and have
 members of some families have shown
 from a mild type. And again there
 comes in contact with families who
 although exposed to the contagion
 frequently will have never become in-
 fected susceptible on their part
 seems entirely absent.

Influence of season

Influence of bacterial disposition
 several interesting ex-
 amples of this have come under my
 notice one in particular my brother
 lives out in the house of a large family

Mortality

of which I remember was noted to
 an uncle's house, his sister distant;
 within a few days of their arrival
 2 members of the uncle's family
 manifested the disease, while the

3 visitors remained proof against it, this proves clearly that the poison can be carried by individuals totally insusceptible to it -

Influence of seasons of the year, and temperature in favouring the origin of this disease, or promoting its diffusion is very uncertain - By some writers the winter and by others, the summer is mentioned as peculiarly liable to its prevalence - Some of the most malignant epidemics in this country have occurred during the damp and changeable weather of spring and autumn months -

Mortality.

Most writers on Scarlet Fever have depicted in mournful terms the frightful ravages which this disease has caused - Jan 1848 - 1855

3. writer performed proof against
the fact clearly that the person
can be carried by individuals totally
independent of it -

Influence of Social Position etc
The writer and by others, the business
is mentioned as essentially liable to
the prevalence - some of the most
important specimens in the country
have occurred during the last few
centuries written of spring and
autumn months.

Metaphor.
Most writers on social form
have insisted in successful terms
the highest range where this
order has occurred - 1848-1850

the mortality was $\frac{1}{25}$ and in some years $\frac{1}{20}$ of the death rate.

Some epidemics are attended with a much greater mortality than others. - A mortality below 10 percent is considered a mild epidemic -

Social position and external relations are supposed to affect the death rate. Statistics go to show that mortality increases with poverty and diminishes with affluence -

I consider that the more efficient nursing and measures of isolation, better ventilation, and more healthy houses in cases of the rich and well to do, would account fully for the disparity of mortality in the two classes, as I cannot see how there can be any difference in individual predisposition of the two classes -

The mortality in my 300 cases was 8 percent. or 24 deaths -

the mortality rate of the death rate -
 Some epidemics are attended with
 a much greater mortality than
 others - A mortality below 10 per cent
 is considered a mild epidemic -
 Social factors and conditions

Time of death -

Relationship between the death rate and
 that mortality increases with poverty
 and diminishes with affluence -
 however that the more efficient nursing
 and measures of isolation, better
 ventilation, and more healthy houses

Cause of death

In cases of the cause of death
 a, would account fully for the
 proportion of mortality in the two
 classes, a reason may be that there
 can be any difference in conditions
 prescription of the two
 classes -
 the mortality in any case
 was 8 per cent or 24 deaths

and of these 50 Percent died under 4 years
 20 between 4 & 5 yrs
 12 5 & 6
 8 over 6 yrs.
 so that 70 per cent. died under 5 years.

Time of death of my 24 cases

4 cases or 16 percent died during 1st week
 5 20 2nd
 9 37 3rd
 6 25 4th

Cause of death - of 24 cases -

4 died from Malignant diphtheria throat
 3 Pleurisy
 1 Pneumonia
 1 Croup
 6 Abscess of lymphatic of neck
 7 Anasarca with uraemia & convulsions
 2 effusion into ventricle of brain

Diagnosis

and of these to 9 out of 10 cases
 20
 12
 8
 10 per cent cases

Time of death of out of 10 cases
 11 cases or 10 per cent died during 1st week
 2
 7
 1

Cause of death - of 10 cases -
 4 died from malignant lymphoma
 3
 1
 1
 1
 1
 1
 1

Diagnosis.

A characteristic Scarlet-
-in-a rash is very easily detected,
by noticing the minutely punctate
appearance of the rash at first, and
this punctate appearance of the
rash is still present when the
rash is confluent. The uniform
development of rash over the body,
is an important factor in assisting
us to come to a correct diagnosis.
The absence of rash from the face,
especially about the mouth should
be borne in mind.

If the eruption is not very
distinct, there is generally in all
cases, more or less angina, which
with the state of the tongue,
will generally lead to a correct
conclusion. In every case
where there is a sudden invasion
of fever, with sickness, and the
occurrence of rash within 48 hrs

The appearance of the rash at first, and
 this punctate appearance of the
 rash is still present when the
 rash is confluent. The uniform
 development of rash over the body
 is an important factor in assisting
 us to come to a correct diagnosis.
 The absence of rash from the face,
 especially at first, the mouth
 we have in mind.

From Measles
 If the eruption is all
 distinct, there is generally a
 fever, sore or less surface which
 with the state of the tongue,
 will generally lead to a correct
 conclusion. In every case
 where there is a lenticular
 of fine, with thickness, and the
 occurrence of rash within 48 hr.

Scarlet fever should be suspected.

As a rule the well marked anguine, and malignant forms can not be well mistaken, it is generally in the simple, and irregular cases, that we are apt to fall into error, these however may give rise to the most violent and fatal forms, even the mildest case may become serious in its result, if not properly treated -

There are several diseases which may be mistaken for Scarlet fever.

1st Measles - was for a long time, confounded with it -

Invasion of Scarlet fever is shorter than in measles rash of Scarlet fever appears in 24 hrs

... Measles not until 42 hrs
early angina in Scarlet fever.

absence of it in measles, also absence of strawberry tongue, & swollen glands, but presence of coughing, sneezing, & redness

of conjunctiva -

There is also a marked difference in the appearance of the rash, the eruption of measles may be first seen about the roots of the hair, and behind the ears, in circumscribed well defined spots, which as they spread assume a crescentic arrangement, several spots being grouped together, and surrounding patches of skin of perfectly natural appearance. The punctate appearance of the rash is absent in measles -

There is also a difference in colour of rash. In Scarlet fever this is of a florid, vermilion tint, in measles it is of a dull lake colour.

Again in the sequelae of the two diseases, we have the most striking evidence of their diverse origin, and nature, thus in Scarlet fever we have affections of

of eruption - there is also a marked difference in the appearance of the rash; the eruption of measles may be first seen about the root of the hair - and behind the ear - in various - so they spread across a characteristic arrangement of several spots being grouped together, and surrounding patches of skin of perfectly natural appearance - the pustule app- earance of the rash is absent in measles - there is also a difference in colour of rash, in scarlet fever it is of a florid, vermilion tint, in measles it is of a dull lake colour. Again in the sequelae of the two diseases, we have the onset

2nd from Rubella - striking evidence of its origin, and nature - this in scarlet fever we have affection of

brain, kidneys, cellular tissue, ulcers of throat, & ears, abscess about the neck, and rheumatic pains, while after measles, we have chiefly affections of the air passages as bronchitis, and pneumonia.

But while there are these important and well marked points of difference between the two diseases, still cases occur in which it is almost impossible to discriminate with certainty, during the progress of the disease, and it is even possible that in some, there may be a mixed disease, as though it were the result of a mixed influence, commencing as scarlet fever, running a course, and terminating like measles.

2nd Rubella or German measles.

Between this, & scarlet fever, there is still greater

Brain, kidney, cellular tissue, etc.,
 of throat, etc., often about
 the neck, and rheumatic form;
 while after pressure, we have chiefly
 affection of the air passages
 or bronchitis, and pneumonia.
 But while there are these in-
 -portant ones well marked points
 of difference between the two
 diseases, the cases seen in which
 it is almost impossible to dis-
 -criminate with certainty during
 the progress of the disease, and

3^o from Variola

it is even possible that
 there may be a mixed disease
 as though it were the result
 of a mixed influence, commonly
 a local form, running a course
 and terminating like measles.

3^o Rubella or German measles
 between the
 local form, there is still

difficulty for in German measles there is more or less angina, and also lymphatic glands enlarged to a certain extent, but the duration of the rash, its presence on the face where it appears early, also the absence of the strawberry tongue will generally be sufficient to guide us to a correct diagnosis.

The anterior part of the fauces is red in Rubella, while the posterior part is affected in Scarlet fever.

3: Variola. There is often in cases of small pox a diffuse efflorescence on the 2nd day with more or less angina, but gastric oppression, pain in the back, comparatively slow pulse, and want of the punctate appearance of the eruption, will generally distinguish them.

4. From Myocardium Diffusibility

there is more or less aneurysm and also lymphatic spaces enlarged to a certain extent, but the character of the nod, its presence on the face where it appears early, also the absence of the surrounding layers will generally be sufficient to guide us to a correct diagnosis. The anterior part of the face is red in tubercles, while the posterior part is affected in scabies fur-

3. Variola. There is often in cases of small pox a diffuse effluvescence on the 2nd day, with more or less aneurysm, but points of inflammation pain in the back comparatively slow fever, and want of the pustulate appearance of the eruption, will generally distinguish them.

4th Corysipelas. . absence of the punctate appearance of the rash, oedema of the cuticle, history of the case - and the fact of desquamation in the long run will prove which it is -

There is sometimes considerable difficulty attending the diagnosis in malignant cases which prove quickly fatal without any eruption, but the fact of an epidemic of Scarlet fever being prevalent, also the angina with severe nervous symptoms, high fever, & rapid course of the disease will generally decide-

manner, reaching its maximum, and declining in the usual way, then it indicates a favourable result.

A moderate amount of angina, tonsils and lymphatic glands,

Prognosis - The prognosis is usually good. The prognosis depends upon the extent of the disease. In the early stages of the disease, the prognosis is usually good. In the advanced stages, the prognosis is usually poor. The prognosis is usually good in the early stages of the disease. In the advanced stages, the prognosis is usually poor.

There is sometimes considerable difficulty attending the diagnosis in mild cases which have usually fatal without any suspicion, but the fact of an epidemic of cases has been prevalent, also the diagnosis with some nervous symptoms, high fever, rapid course of the disease was generally decided.

Prognosis. Is always uncertain and indefinite, so treacherous is the disease, and so liable to serious complications, and sequelae that it is safest always to give a most guarded opinion as to the result. No care is so desperate as to shut out hope of recovery, and none so mild as to exclude anxiety.

The constitution of the individual, and above all the type of the fever present should have weight with our prognosis.

When the fever runs a normal course, passing through the different stages in a regular manner, reaching its maximum, and declining in the usual way, then it betokens a favourable issue.

A moderate amount of angina, tonsils and lymphatic glands,

not much swollen, temperature not exceeding 104, slight cerebral symptoms, decline of rash & temperature together, such a train of symptoms, augur well for a good recovery.

If the fever runs an anomalous course, temperature reaching above 105, extreme frequency of the pulse, brain symptoms early developed, and continuing, violent delirium manifesting itself by shrieks, rash disappearing before usual time, temperature remaining high after the rash has gone, dark colour of the rash, croup, complication - lymphatic glands, much swollen with cellular tissue infiltrated, haemorrhage into the skin, gangrenous sore throat, appearance of typhoid symptoms, anasarca with dropsy into cavities, such as into ventricles of the brain

, pleurisy, or pneumonia supervening, all render the prognosis unfavourable.

The character of the prevailing epidemic, should always be taken into account, in estimating the probable result of any case, as in no disease is the mortality more variable. As a general rule, whatever may be the prevailing type, the character of the first case which is seen will attach itself to the subsequent cases.

The extent of the eruption affords no criterion as to the result for cases in which the rash has covered the whole body have ~~proved~~ ^{proved} fatal.

Simple scarlet fever is much less likely to result fatally than the anginose, & this less so than the malignant or irregular -
Convulsions at the

beginning of the disease are not necessarily fatal but if they occur after the 2nd week they augur a bad result.

The condition of the urine in many cases enables one to give a prognosis, if normal in quantity, no blood, no albumen, or epithelial casts, then prognosis is favourable, but if urine is scanty with casts, blood, albumen, and epithelial scales, then prognosis must be guarded.

A continuance of the oedema with abundant urine of low specific gravity, augurs ill, and indicates serious lesion of the kidneys. The age of the individual, and constitution must be taken into account in giving a prognosis as it is a fact that the mortality is greater among adults, than children.

beginning of the disease are not necessarily fatal but if they occur after the 2nd week then prognosis is bad

Epidemics - Character

The condition of the urine in many cases indicates the quantity of albumen, or epithelial cells, but if there is a quantity of albumen, or epithelial cells, there is a quantity of casts, blood, or pus, and the prognosis must be guarded.

A continuance of the disease with abundant urine of low specific gravity, corpuscles, and indicates serious lesion of the kidneys. The age of the individual, and constitutional must be taken into account in giving a prognosis as in a fact that the mortality is greater among adults, than children.

Scarlet fever is generally fatal in pregnant and puerperal women.

Epidemics - their character - They vary much in character, some being attended with greater fatality than others and some are characterised by tendency to throat affections, others by kidney sequelae, others by disturbance of nervous system - so that often one set of complications predominates in the same epidemic.

The season of the year has no influence on the character of the epidemic -

The different modes of treatment propounded and practised have been almost as numerous as the remedies popular, and scientific, for rheumatism, and gout. Each author has con-

Treatment is not related
in pregnant and puerperal women.

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the season of the year has
an influence on the character of
the epidemic -

Treatment.

There is no disease affecting children in which the mortality is greater than in this, neither is there any in which greater diversity of opinion exists in the minds of medical men, as to the best methods of treating it. This disease above all others requires to be attentively watched in all its various stages, and the treatment to be accommodated to each stage; it is not to be combated by traditional specifics, which possibly might be beneficial in one stage of the disease, & yet detrimental in another -

The different modes of treatment propounded and practised have been almost as numerous as the remedies popular, and scientific, for rheumatism, and gout. Each author has con -

70

tended for the correctness of his own view of the disease and each has maintained the superiority of his favourite plan for the cure of it, losing sight altogether in many instances of those complications, so frequently observed to occur during its progress, which complications when they do occur, are in reality the chief source of danger attending the disease, and constitute the principal difficulty in treating it with success. The history of medicine from Hippocrates to the present time, would bear me out in the assertion, that physicians in all ages, have been too much in the habit of trusting a favourite unaided remedy -

In a disease like this there can be no such thing as a specific remedy for it, for

91

the numerous phases which the disease is found to assume, preclude all reasonable hope of being able to combat it successfully with any single remedy. - It is only from a careful study of its general history, as well as from minute observations of the course of the symptoms in individual cases, that any suitable idea of a rational treatment can be founded. - There is one idea which ought always to be kept in mind, and upon which the basis of every treatment should be conducted, viz. that whatever peculiarities may mark the epidemic character, or vary the individual case, it is a disease which has a specific origin, a fixed course, and a certain termination.

to be placed
in the room and sprinkled on
the floor, which should be

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-structed, viz. that whatever peculiarities
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or vary the individual case, it is
a disease which has a specific origin,
a fixed course, and a certain
termination.

Prophylaxis, It is most essential that all necessary measures, and means to prevent the spread of the disease should be adopted at the very onset.

(a) In the first place the healthy and sick should be separated as efficiently as circumstances will permit, the patient being placed in a top room, or have a floor for himself and attendant.

(b) all useless articles of furniture such as carpets, bed-hangings, curtains, &c. should be removed from the room.

(c) The room should be well ventilated and kept cool, as much fresh air as possible, admitted, without the risk of creating a draught.

(d) Disinfectants should be placed in the room, and sprinkled on the floor, which should be

73
kept scrupulously clean.

Every thing that passes from the patient such as sputum, vomit, urine, and faeces, should be received into utensils containing disinfectant fluid, as chloride of lime, carbolic acid, or Condy's fluid.

All bed, and body linen should be placed in a disinfectant solution, before leaving the room, also all cups, & glasses, &c.

(g) The patient should be kept scrupulously clean, and in bed until after desquamation, and not be allowed to mingle with members of family until after this, and until his skin has been well purified by baths, and disinfectants; all clothes worn during the illness should not be used again, until thoroughly disinfected.

(h) The nurse should avoid coming in contact with members

of the family any more than is absolutely necessary.

(4) No visitors should be allowed.

(j) The medical man should expose himself no more than necessary to the contagious atmosphere, should wash hands in disinfectant before leaving the room, and not go direct to other patients.

(k) The sick room and its contents require thorough disinfecting and cleansing, after the recovery of the patient, all articles of clothing and bedding should be hung upon lines in the room, all openings from the room such as chimneys and windows should be closed. Some brimstone should be placed among hot embers suspended in a dish, over a pail of water, the door should then be closed

15
to allow the fumes of sulphurous acid to remain in the room for 24 hours, when the windows, doors, & fireplaces should all be opened.

(b) All paper should be stripped off the walls and burnt, ceilings should be whitewashed, the wood about the room should be washed with soap and water, and some disinfectant.

(m) The bed, mattresses, and other articles which cannot be well washed should be exposed to a high temperature, ($210-250^{\circ}$) for a few hours in a disinfecting chamber -

In order to make the treatment of this disease clear I will adopt a similar plan to what I did in the de-

-description of it; viz, I will give
 an account of what ought to
 be done in a case of Scarlatina
 Simplex and then describe the
 additional remedies for the com-
 -plications -

In Scarlatina Simplex very
 little requires to be done, beyond
 confining the patient to bed, in a
 well ventilated room, a low temp-
 -erature, plenty of fresh ^{air} but no
 draughts; and keeping his bowels
 open by some mild aperient
 , giving him some cooling drinks,
 as lemon water, barley water, or
 a drachm of chlorate of potash,
 dissolved in a pint of cold
 water, and allow him to sip at
 this, ~~at~~ I have lately allowed
 the patient to drink freely of
 cold water, and I feel convinced
 that nephritis has been of less
 frequent occurrence, since I

99
ordered plenty of cold water,
than before I was in the habit
of prescribing it. When the
craving for cold water is satisfied
, he often falls into a sound sleep, and
is not nearly so restless as when
it is withheld.

It is important that he
should be kept in bed until
after desquamation -

The body should be sponged
night and morning, with a weak
tepid solution of Carbolic acid,
, or of Hyawoyanic acid, glycerine, and
rose water, or vinegar and
rose water, or boracic acid =.

A diaphoretic mixture of liq
ammoniac acetatis, may be given -
more for sake of satisfying the
parents, than of influencing the
disease -

For slight angina, use a
gargle of permanganate of potash

3. 10 gr of water or a glass
of chloride of lime may be used
3. 10 gr of water -

High Fever Let the patient be kept cool
and moist at first as much as
possible, and later, and best
during the decline of
the disease, give nourishing diet
and should be allowed with
plenty of animal broths.
When the operation begins
the patient's body should be
anointed daily with Carbolic
oil, and to remove the scales &
scurfiness, and to prevent
them being carried by the air
to other persons -
Such an expectant method
of treatment answers very well
in simple, uncomplicated cases,
but irregular answers cases
require the resort of further
Collapse

means beside those already mentioned, according to the complications and urgent symptoms present.

For instance a high fever is generally the most frequent indication for interference, some writers advocate cold baths, others quinine, aconite and digitalis, but I have found most benefit from a combination of aconite and veratrum viride - quinine not being well borne by children, & difficult of administration, while cold baths in private practice are not so practicable as in an hospital.

Lepid sponging may always be employed with benefit when the skin is hot and dry, with a quick & strong pulse -

Collapse - When symptoms of

means beside these already
mentioned, according to the
classification and weight symptoms
present.

for instance a high fever
is generally the most frequent in-
Irregularity of menstruation
when associated with other
symptoms, acute and digitalis, but
I have found most helpful from
a combination of acetic acid
Veratrum viride - quinine and
being well borne by children.
difficult of administration; what
colony symptoms are
not so characteristic as in an

hospital -
this spreading may always
be emphasized with benefit when
the skin is hot and dry, with a
pink or straw-colored
coloration -

collapse are present from the toxic effects of the poison on the nervous system, stimulants are of great service as brandy, wine ammonia and eggflip -

Irregularities of eruption may call for interference either from fading too soon, or from slowness in development and in such cases a hot bath and rubbing the body with mustard, combined with stimulants internally will be most efficacious

Nervous symptoms -

When brain and nervous symptoms are present from the fever caused by the specific poison, as delirium, muscular twitching, trembling, symptoms of meningitis, then the greatest benefit is derived from the application of cold to the ~~fore~~ head in the

collapses are present from the
toxic effect of the poison on the
nervous system, stimulants are of
great service as vomiting, urine
ammonia and opium -

largely of the nature of the
Angina (for which there is no
to be seen, or from the
relaxation and in such cases a
hot bath and rubbing the body with
stimulants, combined with
internally will be most effective
- Angina -

When brain and
nervous system are present from
the fever caused by the specific
poison, as diphtheria, scarlet fever,
typhoid, pneumonia, meningitis,
then the greatest benefit is
derived from the application
of cold to the face and in the

81
form of ice and the administration internally of the antifebrile remedies mentioned before with the addition of some chloral hydrate, or bromide of potassium to relieve the brain excitement.

Ulceration of the tonsils
Angina - This manifests itself by tenderness about the angle of the jaw with some enlargement of the lymphatic glands, but so long as it remains moderate, no special treatment is required beyond a gargle of permanganate of potash or chlorate of soda.

Warmth and moisture properly applied will have a tendency to reduce the swelling of the glands. The best plan is to apply flannel wrung out of hot water & of several folds in thickness covered with oil silk, or spongio-piline wrung out of hot water, and

form of ice and the administration
 externally of the antiseptic remedies
 mentioned before with the addition
 of some chloroform, or bromide
 of potassium to relieve the
 pain.

Ulceration

Angina - this manifests itself by
 tenderness about the angle of the
 jaw with some enlargement
 of the lymphatic glands, but so long
 as it remains acute, no special
 treatment is required beyond a
 gargle of ^{one} permanganate of potash or
 chlorate of soda - also of course
 mouth and prosthesis

properly applied will have a tend-
 -ency to reduce the swelling of the
 gland. The best plan is to apply
 formal wound out of hot water
 of several fols in thickness covered
 with oil silk for prophylaxis
 wrapped out of hot water, and

applied to the neck, answers very well. Small pieces of ice to suck I have found beneficial in allaying the inflammation and congestion of the tonsils -

Ulceration of throat.

When ulceration of some part of the mucous membrane begins, either in the posterior nares or fauces, it gives rise to a secretion of a viscid mucus, or a discharge of acrid fluid which affects the neighbouring glands through the lymphatics and excoriates the skin where it touches. These two conditions must be relieved as soon as possible, and the best means is by using a stimulating and antiseptic gargle as liq ammon. acetat. glycerine and Carbolic acid, or condys fluid.

I have also found the in-

applied to the neck, answers
very well. 2 more pieces of ice to
neck than found here and
relieving the inflammation and
constriction of the trachea -

relaxation of throat -
When relaxation of

lower part of the mucous membrane
begin, either in the posterior or
anterior, it gives rise to a secretion
of a viscid mucus, or a discharge
of serous fluid which affects the
surrounding parts through the

Inflammation of Cellular tissue & Glands

When where it touches - there
the condition must be re-
lieved as soon as possible, and
the best means is by using
a stimulating and antiseptic gargle
as hip immersion, acetat. of iron and
carbonic acid, or cooling fluid -
There also found the in-

jection of a weak warm solution of zinc sulphate through the nose most beneficial, it cleanses, & disinfects the posterior nares, and fauces, and at the same time stimulates a healthy action, and discharge. Sometimes it is advisable to mop or swab out the throat with sulphate of zinc, at other times to apply nitrate of silver to the tonsils, or to scarify and abstract blood locally, when suffocation is threatened.

Inflammation of cellular tissue and of Parotid & submaxillary glands.

This complication requires the application of heat and moisture in form of poultices or hot flannels. Painting with iodine is also recommended.

Good nourishing food essential, also quinine & acid, as a medicine.

Ear Complications

When of acute otitis media through the mastoid process, it becomes a dangerous condition, and forces one at the same time stimulates a healthy action and discharge. Involvement of the middle ear is due to the spread of infection from the middle ear, or to directly from the middle ear, or to directly from the middle ear.

and inflammation of cellular tissue and of the middle ear.

Complications require the application of heat and moisture in form of poultices or hot fomentations. This is also recommended with saline also recommended. Poor nourishment is essential also requires to be a measure.

Ear complications should always receive prompt attention as they not un frequently result in the entire destruction of the organ. The external meatus should be kept perfectly cleansed, by the injection of warm water, and if discharge is foetid a little chlorate of soda or carbolic acid should be added to the water.

When the inflammation spreads from the fauces through the Eustachian tube to the inner ear, symptoms of meningitis are generally developed, and require active treatment, blisters or leeches to the mastoid process. quinine internally and sedatives, warm oil dropped into the ear, and heat applied over the ear, so as to hasten & favour the formation of pus —

Croup + Diphtheria

always present prompt attention
as they not infrequently result in
the entire destruction of the

Endocardial Inflammation

should be kept perfectly clean,
by the injection of warm water,
and of a solution of iodine a little
chloride of soda or carbolic acid
should be added to the water.

When the inflammation spreads
from the fauces through the
larynx and trachea to the lower air
passages of the bronchi and lungs
and requires active treatment

Tracheitis, which is the
inflammatory process, requires
and bed rest, warm oil drops
into the ear, and heat applied
over the ear, so as to hasten
the formation of pus.

83

Croup and Diphtheria, as complicat-
-ions, require the adoption of the
ordinary treatment for such diseases;

Endocardial inflammation requires
absolute rest on the part of the
patient, the application of cold, as ice
over the chest, or blisters - with
digitalis internally.

Rheumatism as a complication.
requires tonic treatment with
quinine, and iron, & good food -
The salicylates might be also tried -

Tropical effusion as a complication.
Whenever anasarca shows itself
I have found most benefit from a
hot air bath, or ^{hot} wet pack combined
with a free evacuation of the
bowels by means of sulphate of
magnesium, while internally I give
the salts of potash, acetal. nitrate

Ear Complications

... of zinc sulphate through
the most beneficial, it
... & ... the ...
... and ... at the
... a healthy ...
... and ...
... to ...
... with sulphate of zinc, at
... to apply ...
... the ... or to ...
... these ...
... a ...

... of cellular tissue and
of ... & ...
...

... requires the ...
of heat and moisture in form of
... or ...
with ... also ...
... essential,
... as a ...

Ear complications. should always receive prompt attention as they not unfrequently result in the entire destruction of the organ. The external meatus should be kept perfectly cleansed, by the injection of warm water, and if discharge is foetid a little chlorate of soda or carbolic acid should be added to the water.

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Croup + Diphtheria

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Endocardial Inflammation

should be kept perfectly clean, by the injection of warm water, and of discharge is noted a little chlorate of soda or carbolic acid should be added to the water.

Rheumatism

from the focus through the endocardium tube to the inner ear. symptoms of meningitis are generally developed, and require active treatment.

Prophyl.

prophylactic process. opening internally and bedatives, warm oil dropped into the ear, and heat applied over the ear, as to treat. prophylactic of

Croup and Diphtheria, as complications, require the adoption of the ordinary treatment for such diseases.

Endocardial inflammation requires absolute rest on the part of the patient, the application of cold, as ice over the chest, or blisters - with digitalis internally.

Rheumatism as a complication requires tonic treatment with quinine, and iron, & good food - The salicylates might be also tried -

Tropical effusion as a complication. Whenever anasarca shows itself I have found most benefit from a hot air bath, or ^{hot} wet pack combined with a free evacuation of the bowels by means of sulphate of magnesia, while internally I give the salts of potash, acetal. nitrate

tartarate, Iodide and Bromide of
potass.

In obstinate cases I have tried
abstraction of blood locally, from
the kidneys.

Digitalis sometimes appears too good.
also iron in some form or other.

Sweet oil & all other stimulating
diuretics should be avoided.

If uraemic convulsions are
present, chloroform, compression
of the carotids, subcutaneous
injection of morphia, Chloral
Hydrate, & Bromide of Potassium
might be tried.

The foregoing is
a short and necessarily incomplete
exposition of the subject. The numerous
calls of a large country practice, have
prevented me devoting that time
to the subject which I should
otherwise have liked.

James Craig. M.B.C.M.

Nestwood, Nottingham. April 28th 1883 -