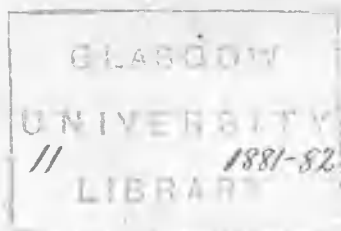


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Clinical Observations,
On
Epidemic Scarlet Fever.
being
Thesis, for Degree of M. D.,
of the
University of Glasgow.
by
John S. Mann, M.B. & Ch.

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The history of epidemics is always interesting to the physician, and it is of special value as showing not only the changing character of the disease, but also the consequent change in the treatment of it. This is emphatically true of Scarlet Fever, than which there is no affection that more thoroughly tests the resources of our art, or more frequently fills the mind of the physician with anxiety, or often disappoints by its sudden and unexpected result.

By an epidemic disease, I mean a disease exceptionally prevalent, whether mild or severe. Epidemics, may be conveniently classified under three heads, the:—

Exotic, Indigenous, & Naturalized.

To the exotic variety, belong such diseases, as plague and cholera; to the indigenous, such as ague & scurvy; to the naturalized such as small-pox, and Scarlet Fever. Before referring to Scarlet Fever in particular,

particular, perhaps it may not be out of place, to draw a sketch of the nature, & history of epidemics in general; and for this purpose, I will choose an exotic, - Cholera: -

Having its birthplace in the East, in the Sunderbunds of Bengal; it journeys from country to country, & place to place, by preference along the great lines of intercourse; but neither rivers nor seas stop it. Sometimes it is demonstrably contagious, sometimes it seems to be borne along in currents of air, so that it will strike down the inhabitants of one side of a street, or one section of a camp, & spare the other. In every spot it visits, it affects the inhabitants much in the same way; it inflicts its sudden deaths, it stirs up its acute illnesses, some to end in death, some in recovery. It is a poison which can enter the body, either in the air we breathe, or the water we drink; and when it has effected an entrance, the body tries to rid itself of it, and the channel

it

it chooses for the purpose, is the alimentary canal; its efforts to free itself being made during what seems to be the prolonged cold bit of the fever.

And it is in this stage that most of Cholera-patients die. This disease, too, like others of its class, is most fatal when it first breaks out, least fatal when it is passing away. How it selects its victims we do not know, and cannot be expected to learn.

Some whom it kills quickly seem to be in the rudest health, others who are longer in dying are obviously less vigorous. Whether a man is to succumb or recover, probably depends in part on the strength of the dose, but in part on his having, or not having, some unsound organ, which will not bear the congestion of the cold, or the quickened circulation of the hot stage. The intemperate man is always favored at a dis-advantage, & the chances of escape lessen with age. Another fact is noteworthy, as common to all epidemics - the points where

when it does not kill by sudden shocks,
remains for a variable period, in
some shorter, in others longer, inert.

The seed is sound, but takes time to
germinate. The interval of real or
apparent inaction is known as the
period of incubation. It is not easy
to fix the limits ~~in~~ these maladies.

In Cholera it is thought to extend
from three ~~weeks~~ days to a week;
in typhus fever from a few minutes
or hours, to a few weeks or months.

The fact that there is this period of
inaction, or incubation, helps to explain
some apparent anomalies. The Cholera,
considered as a type of the class to
which it belongs, has one or two other
characters worth noting. It has been
more than once preceded by the milder
epidemic, influenza; it has given
something of its own character to
other diseases prevailing before, during,
and after, its own visitations; it
has seemed to require time to develop
itself in the several places which it
attacks, for several weeks will
sometimes

Sometimes elapse before the weekly deaths exceed one or two; & it is certainly, as a general rule, fostered & promoted by overcrowding & uncleanliness.

So much by way of introduction. I will now ~~to~~ return to the subject-matter of my thesis, - Scarlet Fever - the most fatal, of our naturalized epidemics.

In looking over the figures of the Registrar General's returns, it cannot but be noted, that these harmonize completely with the notion, of a disease always active, sometimes, raging with epidemic violence.

That the Scarlet Fever of to-day, differs in many respects from the Scarlet Fever of a former time, there can be little doubt. At all events, the bleeding, purging, and blistering, said to be followed by the happiest results, even in the severest types of former epidemics, would prove very injurious, if prescribed & adopted, in similar types of the fever now.

White

While acting as an assistant to a
General Practitioner, in the I. of England.
I had the good fortune, - which of course
to the patients means bad-fortune, - to
witness several epidemics of Scarlet
Fever. The disease was imported to
this district, some years ago; & then ran
a most violent course. Since then, it
has quite naturalised itself, & usually
crops up once a year, & generally during
the warm months of Summer, in spite
of the most vigorous efforts of the
Medical Officer of Health for the district,
who has done all in his power to
eradicate it. - Perhaps, it is only
vulnerable in one part, like Achilles!
if so, he has not yet been fortunate
enough to touch that part. - The
district I refer to, is a very picturesque
one, but I have not yet seen in any
Medical book, that S. F. has any
special litm^s of this kind, - it may
be so however. These epidemics gen-
erally began in one, or two, & then
gradually spread over the district, - the
low-lying part, - this being also the
worst

worst Ventilated, worst, drained, & most filthy part, - being that usually first invaded. Their nature & progress, had become in time to be very well defined; so much so, that we could generally draw a pretty sure outline, of each epidemic, from the beginning. The first cases, were generally mild, they then became more severe till they seemed to reach a climax; & then as gradually began to die out. - As if sorry for what havoc it had committed, we generally saw no more of it till next Summer, - usually the months of May, June, July, & sometimes August, - rather a good thing, that it should hibernate in this way! - still better, if the hibernators some year, would pass into Coma, and death, - a few winters like last may do this!. I have left that district now, but I understand that so far, - May - it is still quite dominant, perhaps dead!.

This district, - Barnard Castle - used to be a favorite Summer resort for families, but the prevalence of Scarlet Fever in
the

The Summer-time, has acted quite as a Bear-crow, - Very few come now. The Fever in the majority of cases was ushered in by its usual symptoms, either congregated together as it were, or following each other in a fixed order in rapid Succession; while in the remaining cases the usually prominent & characteristic symptoms were scarcely observed or altogether wanting. The primary symptoms were either mild & came on gradually, or they were severe & sudden. In the former cases the eruption was sometimes the first thing to attract attention, or the patient complained of slight sore throat and oedema only, which gradually passed away without any other symptom of the fever manifesting itself, & which under other circumstances, would have been regarded as a simple catarrhal Sore throat. In these cases the disease was generally throughout of the mildest character. But in another class of cases the patient was suddenly & violently attacked, sometimes with

(Severe)

Severe rigors & violent headache & vomiting,
and high temperature of skin & very severe
sore throat; & occasionally the fever at
the outset simulated an attack of
Cholera. The gravity of the fever was, as
a rule, proportionate to the suddenness
& violence of the early symptoms.

The temperature of the skin varied ex-
ceedingly in different cases. In those
in which there was no eruption, or in
which it was partial & natural in site
and colour, or if general over the whole
body, not confluent, the temperature was
never very high, & began to fall about
the third or fifth day, & continued to do
so till it was natural. These cases
were always of a mild kind. In three
cases again in which there was a very
copious, confluent, and normal rash,
the temperature was very high for the
first few days, but it began to fall
about the fifth or sixth day. This the
earliest symptom of improvement, was
first observed in the morning & forenoon;
and if the temperature continued grad-
ually to fall, excepting slight increase
in the

in the evening, the patient as a rule did well. In a third class of cases there was violent excitement of the circulating system, extraordinary heat of skin, the pulse ranging from 140 to 160, & the temperature being considerably over 100°. This form of the disease I always regarded as the most serious. The continuance of the high temperature rendered the prognosis very unfavorable; while a fall in the temperature was invariably accompanied by improvement, which was permanent if the temperature did not again rise. A sudden rise in the temperature I always regarded with anxiety.

When it occurred early in the disease, it was usually the precursor of some new complication; as for example, rapid enlargement of the glands of the neck; or it was followed by an aggravation of the general symptoms.

When it took place later in the affection, say from about the 10th to the 20th day, or even later, it was frequently due to some incipient disease of the kidneys, or other

or other internal organ. A careful ex-
amination of the patient's urine will
frequently disclose the cause.

The time at which the rash appeared
varied from one to three days. In most
of the cases it made its appearance
in some parts of the body within 24
hours after the fever of invasion; in some
as early as the first and second hours:
while in others it did not show itself
till the third or fourth day. It usually
began to fade about the fourth or sixth
day, but in some it remained bright
till even the tenth. In some more serious
cases, the rash either suddenly disappear-
ed, or changed its character, & these re-
quired immediate attention. The character
of the eruption was far from being
uniform or constant. Even among members
of the same family, under the same
roof, suffering at the same time, from
the same fever, almost every variety of
eruption was exemplified. A suppressed
or imperfect eruption, is not a thing to
be desired; but (*ceteris paribus*) the
symptoms were more serious, & the prog-
Prognosis

Prognosis more unfavorable, in proportion
to the abundance, & extent of the eruption.
The brighter and less confluent the rash,
the smaller the spots, & the more natur-
ally & gradually the rash faded, the
milder as a rule did the fever turn
out to be. When the rash suddenly
receded, it assumed a darker hue, &
coalesced into larger spots, the fever
always put on so more serious aspect.
The larger & darker, the spots & the
patches were, the more unfavorable was
the prognosis. Large dark patches,
occurred only in the more malignant
forms, & in which there was seldom
a recovery, the patient dying poisoned;
& in rare cases from passive hæmorrhage.
The nervous system, seemed to feel the
effects of the poison most. With the
darkening of the spots, the cerebral
disturbance increased.

The appearance of the tongue in Scarlet
Fever, forms a valuable guide to the
diagnosis. & tho its appearance alone,
and before the rash is visible, one is
sometimes able to ascertain the nature
of the

of the Malady. The tongue does not however as a rule put on its characteristic appearance, till about the second or even the third day. Its centre is then found, to be covered with a yellowish white fur, with a few red points shining through it, giving the tongue a strawberry appearance, similar to that of a white strawberry; the edge of the tongue is red, showing also that the minute elevated papillae, are apparently affected with the same exanthematous redness as the skin. The tongue daily gets redder & clearer till about the 5th or 6th day, when it is quite clear, & studded thickly with the elevated papillae; but it is sometimes swollen & painful. A day or two later, it is smooth, dry, & raw. It then begins to gradually recover its natural color, its epithelium, & moisture when the tongue suddenly dries, or when it becomes brown, & parched, there is always a rapid aggravation of the other symptoms. A sudden drying of the tongue, is a most serious symptom, (- or even any sudden change upon it, -) demanding a guarded prognosis.

Whatever form the disease assumed the throat, was always more or less affected. In the mild types, the tonsils & fauces were slightly reddened or congested & the neighbouring parts exhibited the characteristic erythema. In the milder forms, they were more congested, swollen & of a darker hue; & occasionally there were little white patches, and ulcers, interspersed over them. But in the more malignant forms, the tonsils & fauces were much enlarged, of a dark red, & covered more or less with spreading & sloughing ulcers, discharging offensive & dirty looking matter. Sometimes they were covered with large diphtheric patches, extending to the neighbouring parts & to the larynx. In some of the worst forms, the back part of the throat only seemed congested; but ~~of a~~ dry & of a deep brown color. The glands of the neck, exhibit every degree of enlargement, from slight swelling of the sub-maxillary & parotid, to the disfigurement of the countenance by their enormous size. The earlier in the fever the

swelling.

Swelling occurred, the more serious was the prognosis; & if the muscles of the feet became involved, the case was always of the gravest character. If the enlargement did not show itself till about the 5th or 10th day, there was every prospect of a favourable termination to the case. The glandular swelling, in the great majority of cases, ended in resolution, & sometimes in what is the next best suppurations; while in the severest types it had a tendency to continue hard, & bony, to the touch. During the progress of one of these epidemics, ~~the~~ some of the cases manifested a diphtheric character; & some were complicated with a more or less acute attack, of arthritic rheumatism. This occurred at all stages of the disease, but more frequently after, or during desquamation, than before. In some cases, the pericardium became affected. In me at least, the immediate cause of death was pericarditis. Before referring to the treatment I adopted, and found most effectual, I will

will

will make a few further Remarks, on the
mode of Propagation of the fever:—
As I have already mentioned, the disease
did not fall upon the whole district
at once. It appeared at first, only in
isolated cases, one here, & there, at long
intervals & at considerable distances.
From each other; but many of the cases
formed the Centre, of a number of others.
It was some weeks after its first
appearance, before it assumed its purely
epidemic character, & then it seemed
to leap from one part of the district to
another. While absent in the locality, it
was very prevalent & fatal in another,
All within the range of any epidemic,
are liable to take into their system, more
or less of the (Materia morbi), which
according to its amount, or the state
of the system at the time of the infection,
will remain inert, or produce the spec-
ific disease, of greater or less virulence.
There are however, certain causes con-
stantly at work, which predispose to an
attack of the disease; & which when
the affection becomes epidemic, have a
most

have a most injurious effect. Whatever tends to generate, in the system, or to introduce into the system, any decomposing organic compound, or to interfere with the functions of the different organs, so as to prevent the elimination of such deleterious substances, cannot fail to deteriorate the blood, to weaken the vital powers & energies; & thus, by giving every facility for the development of the disease, to render the individual in a greater measure, liable to the influence of the specific poison. Against such dangerous influences, may be enumerated impure air, arising from overcrowding, & imperfect ventilation, impure water, unwholesome diet, the effluvia proceeding from the lungs, & skin, & which if introduced into the system & retained there, will act most injuriously on the whole economy. These are some, of the most fruitful causes of fever, & in their combination, constitute the most favorable conditions for the development of epidemic poison. Those children who are exposed to these influences, cannot fail

fail to have their whole system weakened,
& their vital energies impaired, to such
an extent, as to render them unable
successfully to resist the action of the
poison, & consequently they fall victims
to the disease. — The purer the blood, &
the more healthy the various functions of
the body, the less liable is the system
to be influenced by the (materia morbi).
It is possible therefore, by keeping the
blood in a state of purity, by prevent-
ing the introduction into it of organic,
& other impurities, or when introduced,
by promoting their early removal, to
mitigate, & effectually impede, the progress
of epidemic fever. The disease however,
was propagated in most cases from
individual to individual, the poison
itself, being received directly from the
individual affected, or communicated in
some way by a third party. The period
at which this infection is most likely
to take place, is when the body is feeling
itself of the poisonous matter; this is
generally admitted to be during the period
of

of exhalation. The poison is thrown
of chiefly, by the lungs and skin.
The breath of a fever patient, is not only
charged with the organic products of the
system, but also with the fever poison
itself, & when in quitting the body, it
mixes with the colder external air,
it separates into its component parts,
which are either deposited on the clothes,
& other articles around, or float in the
atmosphere of the apartment. At the
same time the cuticle, during desquam-
ation, is constantly rising from the
body, in the form of minute powdery
scales, & is deposited in like manner
all around, so that those who are ex-
posed to that atmosphere, cannot fail
to breathe large quantities, of the fever
poison. When clothes, & other articles,
saturated so to speak, with the
specific poison, have been long exposed
to such a sick chamber, are carried
to other localities, & brought into con-
tact with other children, who have not
had the fever already, or who are
otherwise

otherwise predisposed to it, they may thus
be a means of spreading the epidemic.

Treatment.

The more slight form of Scarlet Fever,
-Scarlatina Simplex- in my opinion, re-
quires very little active treatment.

In all fevers, nothing is so essential
to recovery, as a good nurse, & very
especially is this the case in Scarlet
Fever, in all its forms. A good nurse,
is the very salvator of these cases, &
without an intelligent nurse, all our
efforts may fail. The line of treat-
ment indicated in these slight forms,
is to place the patient in the most
favorable circumstances for resisting
the disease, to facilitate the elimi-
nation of the poison, & to watch
carefully the progress of the disease.
Special care must be taken, even in
this slight form, to prevent the patient
getting suddenly chilled during, or
after desquamation; if not, we may
then have a more inveterate enemy
to deal

to deal with than the first.

In the Angina, & malignant forms, active medicinal treatment is undoubtedly, of the very first importance.

If Iron is indicated in any acute fever, (I undoubtedly it is), it is specially so, in Scarlet Fever, so speedily does the blood become deteriorated. The combination I have found most useful, - and I give it without hesitation, from the very outset to the termination of the case, - is that of Gr. of the Perchloride of Iron, & Chlorate of Potash, combined with Glycerine, - which serves the double purpose of making the mixture more agreeable to the taste, & dissolving the somewhat insoluble Ch. of Potash. When dissolved in water, this mixture contains, Chlorine, - Hypochloric Acid, Chlorate of Potash, & Iron. The acid, supplies acid to the blood which is in a sub-acid condition, - the Fe. improves the red discs, which are in a black, and melanosed condition, - the Chlor. of Potash, supplies Oxygen, to assist in oxidizing the disintegrated material in the blood, where it is floating freely.

Loomis

Looking at it in this way, the theory of this mixture is good, but what is still better, I can with all confidence speak of its unique utility in practice. I give the Fe. \& K. Cl. O_3 in doses proportionate to the ^{severity of the} case; but I prefer to prefer to give it in pretty large doses. No complication of the fever, makes me desist using this mixture, not even dropsy should it occur, unless there be ~~believed~~ to be very great congestion of the kidneys.

In these cases I think it is also very important, to have the neck wrapped up from the outset, in wadding soaked in Carbolic oil. The glands of the neck & throat, are almost sure to be complicated more or less before all is over in these cases. Where this course is pursued, I am inclined to think that it often acts as a preventative, in all cases at least as a palliative.

It is also well, to warn our patients well of the danger of getting a chill, during, & some time after, the period of desquamation. I always keep them in bed, between blankets,

blanquets, during, or for three weeks after,
the period of desquamation.

Where desquamative nephritis does ensue,
(It will sometimes in spite of all our
efforts), I don't think it is well to give
up the use of $\text{Fe. O. K. Cl. O. 3}$, unless there
be marked renal congestion, or scantiness
of urine. If there is scantiness of urine
very marked, I stop it till I get the function
of the kidneys again established; or for
this purpose, I only use the milder diu-
retics. The use of strong diuretics, I have
found to be very deleterious in such
cases. Warm baths are very serviceable.
Should the acute desquamative nephritis,
pass into the chronic, with marked albumi-
nuria, I have found great benefit, from
a combination of $\text{Irn. O. Chloride of}$
 Cucumernium , as recommended by Dr
George Johnson.

Great care must be taken all through,
to keep up the supporting power of the
system. Food, the most nourishing, & most
readily assimilated, is always essential.
Stimulants, are also generally indicated.