

Clear directions for the prevention of the spread of fevers : a primer for girls' schools / by Frances Johnstone.

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W. Squire

CLEAR DIRECTIONS
FOR THE
Prevention of the Spread of Fevers,
A PRIMER FOR GIRLS' SCHOOLS.

REVISED AND CORRECTED BY
DR. WILLIAM SQUIRE;

RECOMMENDED BY
DR. W. H. BROADBENT,
Of the Royal Hospitals Commission of 1882;

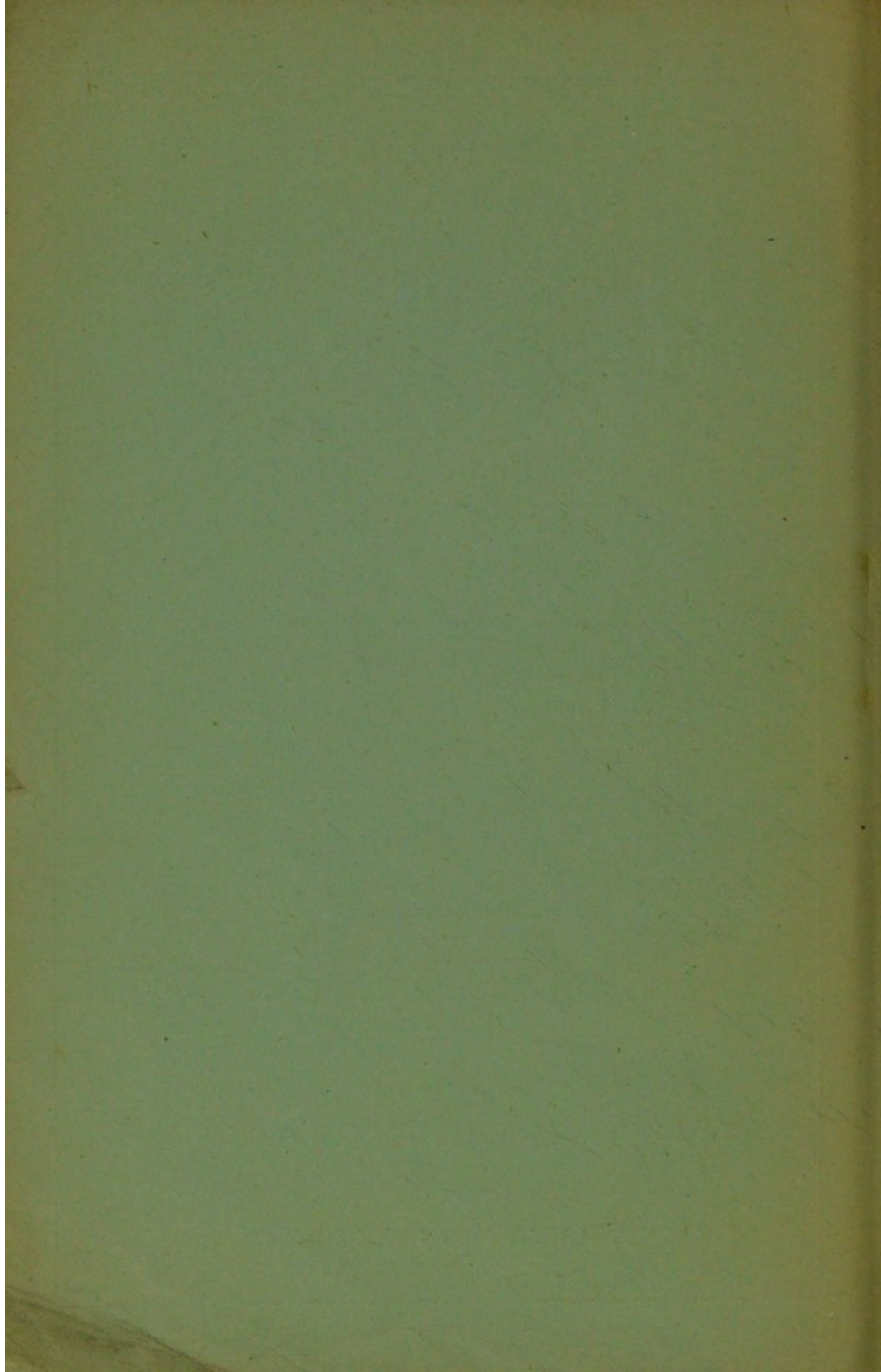
AND DEDICATED BY PERMISSION TO
HENRY W. ACLAND, F.R.S.,
Regius Professor of Medicine in the University of Oxford;

BY
FRANCES JOHNSTONE,
*First Manager (Hon.) of the Hastings and St. Leonards Sanitary
Aid Association.*

“God made not death.”—*Wisdom of Solomon, ch. 1, v. 13.*

PUBLISHED BY
JAMES DORMAN, ST. LEONARDS-ON-SEA.

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Copy of a Note from Dr. W. H. BROADBENT.

(Written since the final revision of the proof sheets of this
Primer by Dr. WILLIAM SQUIRE.)

34 Seymour Street,
Portman Square, W.

15th January, 1883.

Dear Mrs. Johnstone,

I can now thoroughly approve of your little Manual. It is calculated, by its clear statement of the precautions to be observed in cases of contagious fevers, and by the explanation it gives of the way in which these diseases are spread, to render very great service, and I trust it will be adopted by the School Board Authorities.

I remain,

Yours faithfully,

W. H. BROADBENT.

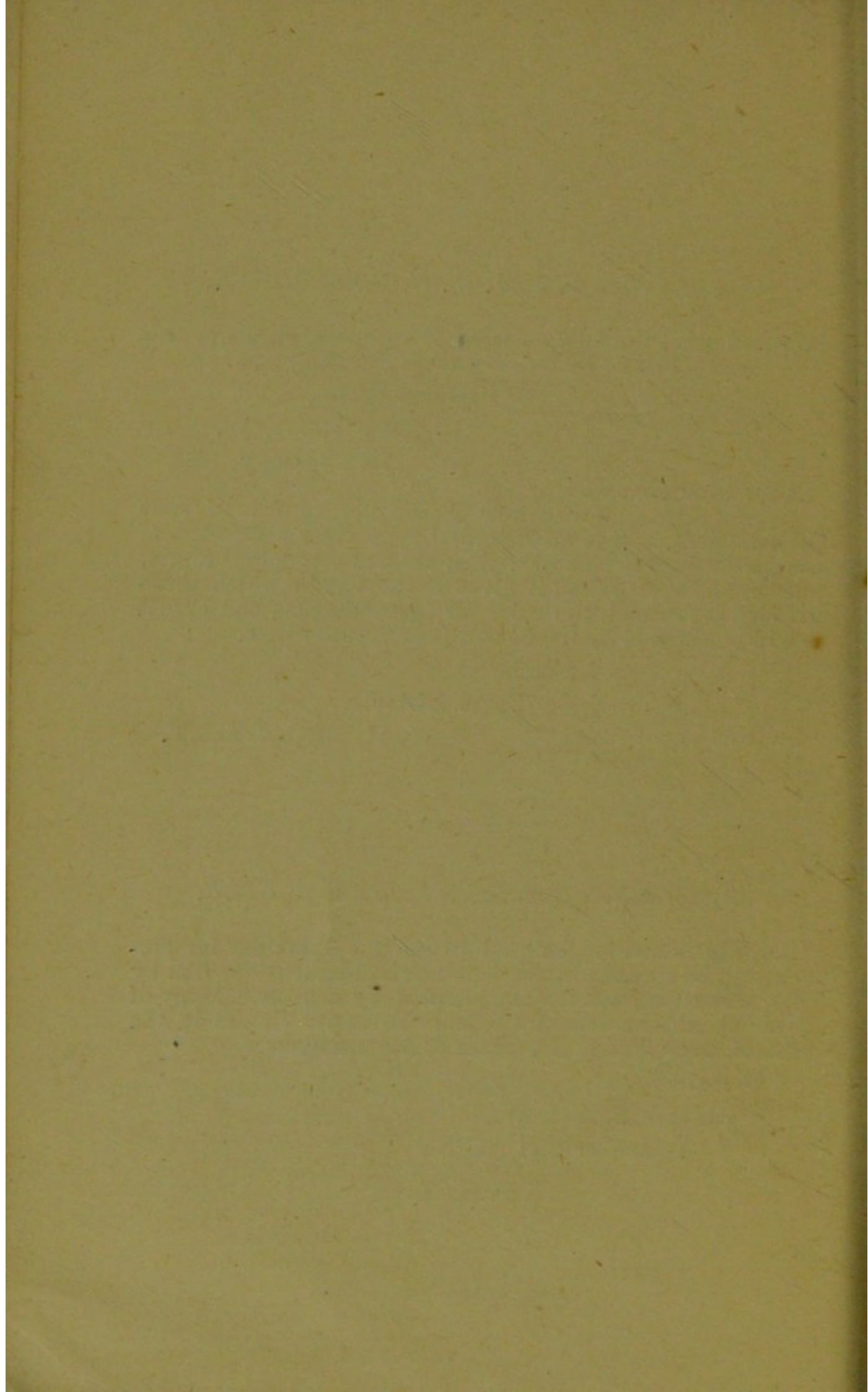
Copy of a Note from Dr. WILLIAM SQUIRE.

Dr. SQUIRE would be glad to see the directions for preventing the spread of infectious fevers submitted to him by Mrs. Johnstone universally adopted by schools. Many of them should be brought before the upper classes in the schools, as well as to the notice of the managers.

6 Orchard Street,

Portman Square, W.,

December 21st, 1882.



PREFACE.

I cannot publish this Primer without acknowledging the invaluable assistance given by Dr. William Squire, in his complete revision of the proof, and very warmly thanking Dr. Acland and Dr. W. H. Broadbent, for their most kind and sustained encouragement of my special purpose in bringing it out. I could wish to mention also other medical friends in London, Hastings, and elsewhere, without whose support and advocacy I should never have obtained a hearing before my country at all, or a chance of being accepted as a public teacher; but I am afraid to begin a list of names which I might extend indefinitely, and after all find deficient. It would contain those of some physicians who, alas! like Dr. Druitt, Dr. Henry Letheby, and Dr. Seaton, aided my early and obscure efforts, but have since become disabled in health, or have not lived to witness the adoption in Westminster of a scheme of Sanitary Work publicly acknowledged by its promoters to be in considerable part copied from that in which I was for eleven years engaged at Hastings. It should mention successive Presidents of the Medico-Chirurgical Society of Hastings, and a great number of the leading members of the medical profession—including the Medical Officers of Health, Urban and Rural, of the years of my service—in that Borough. And not only in London, but in many other towns, it would enumerate every distinguished physician to whom I have ever had the pleasure of being introduced. I am, therefore, reduced to one general expression of my fervent gratitude, which I trust all to whom I am indebted (beginning with my first teachers, Dr. Henry Monckton, of Rugeley, and Dr. R. J. Wilson, of St. Leonards,) will accept.

This Primer is published in the hope that it may be adopted by the Public Schools for Girls, from the Universities to the Board Schools inclusive. The rule for the isolation and disinfection of Scarlet Fever is identical with that followed by the Hastings and St. Leonards Sanitary Aid Association with unfailing success during the last twelve years, and since approved, not only by individual members

of the Royal Hospitals Commission of 1882, but by the Commission itself.

If all womankind were instructed in it, and in the rest of the amply-tested rules in this book for the prevention of epidemic disease, the medical profession would be furnished with intelligent co-operation in their efforts for the preservation of the public health, such as at present they grievously lack. And since the subject of Fever and its dangers and issues cannot be kept out of the Compulsory Code of adult life, I trust that it will be recognised by those who are on the various Councils of Public Education that it would be well to give it a place in the Compulsory Code for the instruction of all who are approaching womanhood.

FRANCES JOHNSTONE.

19 Ferndale,
Tunbridge Wells,
March, 1883.

CHAPTER FIRST.
ON ERUPTIVE FEVERS.

*SCARLET FEVER, TYPHUS, SMALL-POX,
MEASLES, SPURIOUS MEASLES,
CHICKEN-POX.*

1. The measures which will be described as proper for the prevention of the spread of these diseases are such as will stop Scarlet Fever. The other diseases require the same measures, with slight exception, and a much shorter time of treatment. These differences shall, in the proper place, be specified; but it may be stated in general terms that whoever has learnt how to manage a case of scarlet fever, so that no one else, even in the same house, shall catch the disease, can prevent the spread of all the other fevers which come out with rash on the skin.*

2. Infection is a living seed, or germ, which is produced in the bodies of persons ill of what are commonly called catching complaints. This seed is shed

* The eruptive fevers may be distinguished as follows:—The fine rash or blush of Scarlet Fever begins with sudden illness and sore throat, and may be found on the neck and loins before it is seen on the face. The rash of Measles begins in groups of spots on the forehead and face, after three days of illness, cough and sneezing. False measles or Rose-rash comes full blaze on the face, with very little illness. Chicken pox, or glass pock, begins with a few clear pimples on the face, head or shoulders. Small pox comes out in many raised spots after two days' severe illness and back-ache, perhaps with shivering at first. Typhus, now rare with us, has a mottled or mulberry rash, first showing on the wrists, after four or five days of high fever.

from the sick in every matter which passes from the body. That is to say, *there is nothing which passes from the body which can be warranted not to contain such seed.*

3.—There is no perfectly successful rule for the prevention of the spread of any of the diseases named at the head of this chapter that is not framed upon the principle that *everything that is shed by the sick is infectious*: whether it come from

the bowel :

the kidneys :

the skin :

the throat :

the nose and ear :

from ulcer or gathering :

by monthly discharge :

by vomit :

or by the breath.

4. Infection is received into the bodies of other persons by the nose and mouth. They have taken the breath of some one who is infectious, or they have inhaled the vapour of some of the discharges enumerated in the last paragraph, or the powdery, light, flaky skin shed in scarlet fever may have been breathed, or swallowed with the food. Neither milk nor food should be kept in the sick room, nor should *even the nurse* take her meals there. Visitors must be excluded: they may carry infection away in their clothes, or from not washing their hands on leaving the sick room. Infection is also spread in lodging houses by undisinfected matters carried from the sick room to the closet; and by steam from a tub in which undisinfected clothes or bed clothes are being washed.

5. Infection and the severity of illness increase with insufficient air space; or when no means are taken to keep the air of the sick room pure, and to change it by opening the window. The breath in

health makes the air of a room heavy ; each person in a room needs a space of three yards each way, or 729 cubic feet ; a sick child should have 500 cubic feet of air space around the bed. The air of the room can be freshened at times by some disinfectant in spray or vapour. Flowers should not be left in the room at night ; they make the air heavy then, and only give out oxygen in the sunlight. Oxygen is that part of air which is necessary to life : it makes the fire burn, and is used up in the changes both of life and decay.

6. Disinfectants are of two kinds. The first act by producing Oxygen. Such are Sanitas, Terebene, Ozonised water, and Permanganate of Potash, or Condy's Fluid. The second destroy the germs of disease, and are therefore called germicide. Such are Chlorine, Carbolic Acid, Sulphurous Acid, and great heat. Some of the above when diluted, if not quite germicide are yet antiseptic. Burnett's Fluid acts in this way. They are useful as *pickle* in dealing with infected matters till these can be destroyed by other means. Any of the common disinfectants—Condy's Fluid, Burnett's Fluid, Chloralum, Carbolic Acid, Chloride of Lime, can be used for different purposes, but *no two must be mixed together*, as one would interfere with the effect of the other. To prevent the spread of fever, the living seed in every discharge must be destroyed by one of these disinfectants properly applied, and this must be continued as long as the sick person is in any way producing or shedding it.

7. The proper time to begin the use of disinfectants is as soon as there is reason to think that *perhaps* some one is sickening of a fever.

8. The dilutions of the disinfectants should be as follows :

First Strength. Two table-spoonfuls TO THE HALF-PINT OF WATER. (*One part in ten ; for very foul*

discharges it may be as strong as one part in three.) This is to be used in the chamber vessels, and in any basin that is to receive vomit, or matter spit from the throat and mouth, and must be put into it *before* it is placed for the patient's use. This strength is also required for rags or poultices that may have dressed sores, or for steeping any thing soiled with discharge from the bowels, or with urine, or with vomit, or discharge from the throat, nose or ears.

Second Strength. TWO table-spoonfuls TO THE PINT OF WATER. This is for things slightly soiled.

Third Strength. TWO table-spoonfuls TO THE QUART. This is to be used for all clothes and bedclothes not visibly soiled with any discharge, and for brushes and combs, or for cleaning the floor, furniture and toys, &c.

9. Condy's Fluid is very good for the chamber vessels, and for every discharge, because it not only kills a bad smell, but refreshes the air of the room sensibly; but it is best avoided for the steeping of clothing, because it is very difficult to prevent its staining the things. It is good, however, for washing toys or any solid objects near the sick. Burnett's Fluid, or Carbolic Acid, second strength: or Chlorinated Soda Solution answer well for clothing.

10. On the first discovery or even suspicion of a case of Scarlet or any Fever, keep the patient apart in one room, put disinfectant of the first strength into the chamber which he has used, and drench the closet with a gallon of the same. When Condy's Fluid turns brown it has done all the good it can, and fresh is wanted.

11. When the chamber vessel is emptied, more disinfectant ought always to be put into it ready for the next time of use, and a can of the same ought to be kept in the closet to rinse down with, and some should always be left in the pan.

12. After the existence of fever has been determined, every change of clothing ought to be prepared for with a large basin of disinfectant of the third strength (or of second strength if palpably soiled) to receive the things taken off instantly on their removal from the person ; it will not do to let them lie till they are going to be washed, they would be giving forth infection all the time.

13. If practicable all curtains and carpets should be removed from the room, to lessen the trouble of disinfection at the end of the illness ; but if the room would thus be made too cold they can remain, and be disinfected at the last. Instead of using a dry duster in cleaning the room, and dry sweeping, everything should be wiped over often with a cloth just damp with disinfectant of the third strength ; but care must be taken not so to wet the room as to produce cold evaporation.

A sheet wetted with disinfectant of the second strength, Carbolic Acid or Chlorinated Soda, should be kept fastened up in the doorway outside the door, and should never be allowed to get dry.

14. The room should often be refreshed with vapour spray, dispersed with an Odorator, such as

Sanitas,

Carbolic Acid,

Terebene,

Condy's Fluid, Third Strength :—

or with some wholesome fumigation, such as :—

The vapour of Hot Vinegar :

Burnt Sticks with the bark on :

Burnt Chips dipped in tar :

Burnt Fir cones . Rosemary or Lavender.

N.B.—Tobacco is of no use : it is even injurious.

15. The staircase of the house should be fumigated in the same way, or kept sprinkled with Calvert's or MacDougall's Carbolic Powder, or moistened Chloride

of Lime should be stood about in saucers.

Open windows on the stairs are necessary, and, in the sick room also, as much as may be possible with the doctor's permission. If the patient be amply covered, and his head both covered and screened, he may benefit greatly by a good admission of fresh air twice a day, in the best part of the day, even in winter.

16. If the doctor should approve of the use of olive oil to the skin, it may be applied under the clothes before the skin peels; afterwards, when the peeling of the skin becomes profuse, it can be used all over the body twice or thrice a week, and washed off with carbolic or terebene soap a few hours after; but the washing must be managed with great care to avoid a chill to the patient. Under any conditions but those of the greatest warmth and comfort, it ought to be done piecemeal, uncovering, washing, and drying with a warm towel, one limb at a time, and so on over the whole body; and when the hair is washed, which it must be three times before the convalescent mixes with other people, it should be done at bed time. The head should be wrapped in one warm towel after another, and squeezed and rubbed dry without uncovering, and should remain in a covered state all night.

17. It must be constantly borne in mind that nothing must be done to the patient, nor practised in the room, that is objectionable to the doctor in attendance. His word must be obeyed as to the choice of disinfectants, the opening or closing of windows, and especially as to the oiling and washing of the patient.

18. No scarlet fever convalescent should return to school, or to any employment, or into full intercourse with his family, for eight weeks from the first discovery of the rash.

19. No small-pox convalescent until six weeks from the appearance of the spots.

20. But it is not necessary, in every case, to keep the patient entirely apart during all that time. On the contrary, in a majority of cases partial release can be allowed in scarlet fever at about forty days, and in small-pox even at about twenty-five days.

21. The safety of this partial release depends upon whether the case may be described as *clean* or *foul*.

A clean case is one unattended by any description of involuntary discharge: such is any one who has full control over all matters passing from the body, and who has no bad throat, running ear, &c. A foul case is the reverse of this: such is an infant whose ordinary discharges pass unawares, an adult female at the monthly period, and every case that is attended by a discharging sore, or inflammatory affection that runs.

22. In a clean case, the patient having been washed all over, including the head, at least three times, and dressed in all clean clothing, may in forty days after scarlet fever, or some times in twenty-five days after small-pox, come into the room and take meals with his family in the day time—but not kiss them—and he may walk out of doors with them; but *all discharges from the interior must still be received with disinfectants as during the earlier weeks, and the can in the closet be kept replenished for use there.* Opportunity should be taken on the patient's first release, to fumigate the sick room with sulphur; but only with two or three sulphur pastilles, or a dessert spoonful of powdered sulphur thrown on some red-hot coals put in a pan placed over a pail of water; after this is done the room must be thrown open and cleaned, so as to admit of his return in two or three hours.

Disinfection of the clothing and bed clothing should still be practised in scarlet fever to the end of the

eight weeks, and in small-pox to the end of the six.

23. In mentioning twenty-five days as often enough for the strict isolation of a small-pox case, it must be noted that this time only suffices provided that every scab be clean gone from the body in every part, and that the skin be quite sound and cool. Every scab is to be burnt in the fire at once as it comes off.

24. For a foul case, yet not unhealthy constitution, eight weeks entire separation from family, friends, and employment, are necessary in scarlet fever, and six in small-pox. For a case that up to, and beyond that date, has a discharging sore, even this is not enough; the patient must be kept apart twelve weeks, and all the processes of disinfection kept up, unless the sore should heal sooner. Of course the sore, if it continue to run, will not shed infection for ever; but extension of fever from this sort of case has been known to occur so late as the eleventh week, so that a shorter limit than twelve weeks for the isolation of such cannot be stated with any confidence.

25. The best mode, in a country place, of disposing of all the discharges carried from the sick room, is to keep a deep trench open in the ground, and earth everything in from day to day: with chloride of lime, or quicklime.

26. To purify bedding after an illness, even small-pox, if an under blanket has been used, and *if no discharges have gone through and soiled the bed*, it is enough to sponge over the whole of the tick of bed or mattresses, bolster, and pillow, with disinfectants of the first strength: it must be so done as to *wet* every inch of the tick, the fluid must not merely pass over it so as to run off leaving the surface nearly dry. If foul matters have entered the bed, the Medical Officer of Health for the District must be

requested to remove all for disinfection or destruction, according to his judgment.

27. Observe that if the bedding be destroyed the law gives the Medical Officer of Health power to order compensation, and this should be asked for.

28. To purify a room after infectious illness, if the Medical Officer of Health will fumigate it, and disinfect everything, so much the better: but sometimes, in the country, he simply orders disinfection. In that case the process is as follows:

In the middle of the room place a pail of water, and a pair of tongs extended across. Open the bed and lay all the bedclothes about on chairs, &c. Shut the windows, and close the chimney, and place on the tongs, over the pail, a pan of red-hot coals; put on the coals (for a room ten feet square, and ten high) 1lb. of sulphur, leave the room instantly, shut the door, and do not open till the next morning. All the furniture should be cleaned with strong disinfecting soap and water, and everything that can be put into the wash-tub must first be soaked in disinfectants of the third strength, and then washed. If a carpet has been left down it must be thoroughly wetted like the bed-tick, and then washed with soap and water, and the curtains must be steeped and washed like the blankets, quilt, and everything else.

N.B.—Blankets should be stoved, and the disinfectant used should be second strength. Linen should be boiled for three hours in a copper before washing.

All the clothing worn by the patient must be steeped in disinfectant and washed. The "sprinkling and airing" of cloth and other woollen clothes, so often practised, is not disinfection, and constantly leads to fresh cases.

The chamber vessel and commode must at this time be filled to the brim with disinfectant of the

first strength, and the wood and carpeted parts of the commode must be thoroughly wetted with the same, and scrubbed, and aired out of doors.

The closet must be fumigated like the sick room, and must receive a final drench of the strongest disinfectant. And if the illness have occurred in the country, and the discharges have gone into a cesspool, this should be deluged with disinfectant undiluted, and emptied, and the contents buried in deep trenches with quicklime. The sides should be quicklime washed.

To finish the sick room, if it be a white-washed room whitewash it, walls and ceiling, and wash the paint with soap and water, and scrub the floor. If it be papered it will suffice to clean the paper with white carbolic powder applied on a flannel tied over a broom, and swept off again with another flannel.

It must be well remembered that these processes are enough for a case *that has been managed by the rules given in this manual*. If a room has to be cleaned in which every foul matter has passed undisinfected during the illness, and on the floor of which perhaps the worst has been spilled, all the wall paper must come down and be burnt, fresh paint as well as whitewash must be applied, and the floor must be taken up, a yard square, wherever a stain is visible, and quicklime wash be applied underneath to all the joists, and to all surface that can be reached.

The contents of all drawers and closets that may have remained in the room during the illness must be disinfected like the other clothing, and the drawers and shelves scrubbed inside and out with carbolic soap and water.

29. Any person who may be nursing a case of fever which she has never had will be to a great extent protected by all the means for the limitation of infection which have been above described. But

upon the occasion of the removal of evacuations, and changing of linen, she should use special precautions. While thus engaged she should not swallow, but from time to time relieve her mouth of saliva, and, when she has done, thoroughly clear the nose and mouth and throat, and use a gargle such as Condy's Red Fluid dropped into cold water till it is light clear pink, or, instead of Condy, she may use vinegar. Short out-door exercise should be taken if possible daily.

30. The remedy when infection has been received, *and swallowing has taken place*, is the taking of some other ferment, such as ale yeast. This should be mixed, a teaspoonful at a time, in a wine glass of water, and taken, according to age, from one to three times this quantity in the course of the day; if given to a very small child he would not drink the whole dose at once, but take it in two or three portions.

This should be continued for a week after exposure to infection; and during this time care should be taken not to mix with those who may be susceptible of infection.*

31. The nurse of a fever case, and all the inmates of the house, should be as well cared for as possible as to their general health. Over-fatigue, want of

* After exposure to infection the time for each common eruptive disease to show itself; or for knowing that one is safe from it is:—

For scarlet fever, two to five days; *safety after a week.*

For measles, eight to ten days; *safety after a fortnight.*

For small pox, twelve days; *safety after a fortnight.*

For chicken pox, ten to sixteen days; *safety after the third week.*

For rose rash, ten to twenty-one days; *safety after three weeks.*

For diseases without obvious rash, the time is:—

For diphtheria, two to eight days; *safety after a fortnight.*

For whooping cough, eight to twelve days; *safety after*

proper food, and want of fresh air, pre-dispose to illness, and render it severe if it be taken.

32. It is necessary to give directions for the safe management of a case which ends fatally. A packet of white carbolic powder should be in the house when danger sets in. This should be strewn thickly over the sheet in which the corpse is to be wrapped, and, it should be put abundantly all over the bottom and sides of the shell, and entirely cover the corpse when it has been placed within. Closing down should be done immediately, and burial should be performed as soon as possible. For the sake of the living these directions should be fully carried out; for it is most lamentable when a family, having lost one member, is deprived of another, and perhaps of more, because they could not bear to cover out of sight the beloved face at once. Nothing is gained by delay, but a few hours postponement of the last sight of it, and, what a price to pay for this, to see others, as dear, sicken, and perhaps die like the first!

33. For measles, chicken-pox, or glass-pock, and spurious measles (sometimes called rose rash), the same processes should be carried out as for scarlet fever, excepting the special skin precaution of oiling. Washing the whole body including the hair, is as necessary as in dealing with the severest diseases.

the third week.

For mumps, fourteen to twenty-one days; *safety after three weeks.*

For typhoid fever, five to ten days; *safety after three weeks.*

For cholera, two to four days; *safety after the second week.*

In all these diseases, except the last two, one attack is generally protective, and so prevents a person being susceptible to that particular disease a second time.

(Signed)

W. SQUIRE.

34. Three weeks is long enough usually, for the use of disinfectants, and for keeping the patient apart, in the slighter ailments, but for measles, four weeks.

35. The cleaning of the room and all that it contains, of all clothing, and of the closet, should be done as before directed, excepting the very powerful fumigation: except for measles, the slighter fumigation will do, as directed when a patient is half liberated at the forty days after scarlet fever.

QUESTIONS ON CHAPTER FIRST.

1. What are the diseases that may be grouped together as Eruptive Fevers, and prevented from spreading by one general method of management?
2. What is infection? How is it shed by the sick?
3. Enumerate the different ways in which it leaves the body.
4. How do other persons receive infection into themselves? And what are the great causes of the spread of infectious diseases?
5. What effect has the want of fresh air where there is a case of infectious illness?
6. What kinds of disinfectants are there? and how do they act?
7. What is the proper time to begin the use of disinfectants when some one is not well?
8. In what degree of strength should the disinfecting fluids be used for the various purposes required?
9. Mention some fluids that are good for different purposes?
10. What is the first thing to be done on the discovery, or suspicion, of a case of scarlet fever?

11. What must be done as to the discharges carried from the sick room to the closet?
12. How must the patient's clothing and bed clothes be treated?
13. How should the room be arranged: and how must it be kept clean during the illness?
14. How should the air of the room be refreshed?
15. How should the staircase and house generally be kept sweet and wholesome?
16. How should the disinfection of the patient be proceeded with as he progresses towards recovery?
17. Who is to decide whether the patient is to be oiled? and when he may be bathed or washed?
18. How long must a scarlet fever patient remain absent from school, and employment?
19. How long must a small-pox case be kept from school and employment?
20. Is it necessary, always, to keep the patient entirely to himself, all this time?
21. Upon what depends the safety or unsafety of partial release? What is meant by a "clean," and by a "foul" case?
22. Describe the precautions still required when a clean case of scarlet fever may be partially released: and state at what date such release may be allowed, and the same as to a case of small-pox.
23. What is the point requiring special attention when the partial release of a small-pox patient is under consideration?
24. What is the length of isolation necessary for a scarlet fever convalescent, who has any sort of running sore, or discharging ears?
25. In a case in the country what is the best mode of disposing of the daily discharges carried from the sick room?
26. How must bedding be dealt with at the end of small-pox, or any fever?

27. If the bedding has to be destroyed how may replacement be obtained by those who are in need?

28. What are the final processes of purification after an infectious illness.

29. How may a person nursing a case of a fever, which she has not had, protect herself against infection?

30. What may be done for those who may have been exposed to infection yesterday, and who were not warned at the time to use the last mentioned precautions?

31. What should be done for the welfare of the nurse, and of the inmates of the house generally.

32. What is the right mode of arranging for the safe disposal of a corpse?

33. What are the means by which measles, chicken-pox, or glass pock, and spurious measles may be prevented from spreading?

34. How long does the infection of these diseases last?

35. How must a sick room be disinfected after these diseases?



CHAPTER SECOND.

*INFECTIOUS DISEASES THAT ARE WITHOUT SPECIAL SKIN INFECTION.*DIPHThERIA—WHOOPING COUGH—TYPHOID AND
CHOLERA—MUMPS—INFLUENZA.

1. Diphtheria sheds infection chiefly by the discharge from the throat, but it is impossible to consider any thing that passes from the body as harmless ; therefore, disinfect in all respects, except the skin dressing, as for scarlet fever. A small basin supplied with disinfectant of the first strength must be always at hand to spit into, and often emptied, and the disinfectant put in fresh. If the matter flow from the mouth without power of control, it must be received on rags, which must be thrown into disinfectant of the first strength. In managing diphtheria, vapour spray, or fumigation should often be used in the room and in the house, and the nurse should guard herself as carefully as possible from receiving the smell of the discharge ; she should cover her mouth with a handkerchief when specially exposed to the smell, and she should gargle often with Condy's Red Fluid, or vinegar, as described in the first chapter, and never take food in the sick room.

2. Whooping cough sheds its seed by all that comes up from the chest, and must be provided for with a basin to receive it, like diphtheria. And fumigation with tar, or the smell of tar unburnt, or of carbolic acid, should be always perceptible in the room ; this will not only help to prevent other children from taking the disease, it will benefit the patient. Bits of ropes end can be dipped in tar, and hung here and there,

(with a piece of paper under to receive any chance drop), with great advantage to whooping cough patients. Or a cloth dipped in carbolic acid, second strength, may be hung near them.

3. When a cough comes on with a preceding feeling of oppression on the chest, or after several days illness, and when the expectoration is frothy or viscid (sticky) it is pretty sure that it will prove to be whooping cough. If a very young child, with a cough, spit *at all*, it may be concluded that he has whooping cough.

The above mentioned precautions should at once be put in practice, and if possible others should be prevented from taking the patient's breath. Pocket handkerchiefs used by a whooping cough patient should be disinfected as soon as put aside, also, finally, the pockets that have contained them. The cough is infectious as long as any thing comes up from the chest, and if attempt has been made to keep up separation from others this should be prolonged until expectoration has ceased a fortnight.

4. Typhoid and cholera shed infection from the bowel, and the precaution taken against them must be directed to this point.

The following directions for preventing the spread of these diseases were adopted by the Hastings Sanitary Aid Association, without alteration, from those published by the Medical Officer of Health for Bristol, and have always answered perfectly ;

*Typhoid Fever (otherwise called Enteric Fever
or Low Fever.)*

“The means by which typhoid fever may be prevented from spreading are very simple, very sure, and their cost next to nothing.

“They are founded on the discovery that the poison by which this fever spreads is almost entirely contained in the discharges from the bowels

“ These discharges infect—1. The air of the sick room. 2. The bed and body-linen of the patient. 3. The privy and the cesspool, or the drains proceeding from them.

“ From the privy or drain the poison often soaks into the well, and infects the drinking-water. This last, when it happens, is of all forms of fever-poisoning the most deadly.

“ In these various ways the infection proceeding from the bowel-discharges often spreads the fever far and wide.

“ The one great thing to aim at, therefore, is to disinfect these discharges on their very escape from the body, and before they are carried from the sick room.

“ This may be perfectly done by the use of disinfectants. One of the best is made of green copperas. This substance, which is used by all shoemakers, is very cheap, and may be had everywhere. A pound and a half of green copperas to a gallon of water is the proper strength. A tea-cupful of this liquid put into the night-pan every time before it is used by the patient renders the bowel-discharge perfectly harmless. One part of Calvert's liquid carbolic acid in fifty parts of water is equally efficient.

“ To disinfect the bed and body-linen, and bedding generally, chloride of lime, or McDougall's or Calvert's powder, is more convenient. These powders should be sprinkled, by means of a common dredger, on soiled spots on the linen, and about the room, to purify the air.

“ All articles of bed and body-linen should be plunged, immediately on their removal from the bed, into a bucket of water containing a table-spoonful of chloride of lime, or McDougall's or Calvert's powder, and should be boiled before being washed.

“ The privy, or closet, and all drains communi-

cating with it, should be flushed twice daily, with the green copperas liquid, or with carbolic acid, diluted with water.

"In towns and villages where the fever is already prevalent, the last rule should be put in force for all houses, whether there be fever in them or not, and for all public drains.

"In event of death, proceed as directed at page 18.

"As the hands of those attending on the sick often become unavoidably soiled by the discharges from the bowels, they should be frequently washed.

"The sick room should be kept well ventilated day and night.

"The greatest possible care should be taken with regard to the drinking-water. Where there is the slightest risk of its having become tainted with fever-poison, water should be got from a pure source, or should at least be boiled and filtered before being drunk. Immediately after the illness is over, whether ending in death or in recovery, the dresses worn by the nurses should be disinfected and washed, and the bed and room occupied by the sick should be thoroughly disinfected.

"These are golden rules. Where they are neglected the fever may become a deadly scourge; where they are strictly carried out, it seldom spreads beyond the person first attacked.

" W. BUDD.

"N.B.—A yard of thin, wide-width gutta-percha, placed beneath the blanket, under the breech of the patient, by effectually preventing the discharges from soaking into the bed, is a great additional safeguard. As in all cases of infectious disorders, full ventilation, by open fire, or otherwise is of the highest importance."

5. Mumps is infectious chiefly by the breath, and

fumigation is therefore of much importance, but there is no reason whatever for confidence that infection is not shed from the bowel and other internal organs, therefore, all precautions that destroy the poison of the discharges from these ought to be used, and the patient kept apart until he has been well more than a week. Children who have not had mumps and whooping cough should be as carefully kept out of the way of infection, if possible, as in the case of measles and scarlet fever.

6. Influenza is extremely infectious as to all that comes from the nose, mouth, throat, and chest, and requires basins of disinfectant to spit into; the pocket handkerchiefs used must be disinfected before being washed, and finally, every pocket that has contained them. It is best to disinfect the discharges from within, though it is not certain that those discharges are infectious. The infection probably lasts while any cough remains.

Summer diarrhœa in infants may be infectious; the same precautions are to be taken, especially with the napkins used.

QUESTIONS ON CHAPTER SECOND.

1. How does diphtheria shed infection, and how must it be prevented from spreading?
2. How does whooping cough shed infection, and how may this be remedied?
3. How do the symptoms differ from those of other coughs, especially in children? And which article of dress is the worst infected?
4. How do typhoid and cholera shed infection? What precautionary measures ought to be specially applied?

5. What is the principal infection proceeding from a case of mumps? What general measures ought to be taken.

6. What are the precautions proper in a case of influenza?

SUPPLEMENT.

Any animal which may have got into a sick room, or even have been convicted of spreading the disease, need not be killed; it can be perfectly disinfected in a bath of carbolic soap and water.

1. It is of importance that cats and dogs, and other pets should be strictly kept out of sick rooms; they carry infection, and have been known to take infection and sicken themselves. This rule applies especially to the eruptive fevers, and to diphtheria.

2. It is sometimes said when any infectious illness is prevalent "*it is such an unhealthy season, it must be in the air, it is of no use, taking precautions.*" The answer is yes, it is in the air true enough; *but how did it get there?* It came out of the infectious wash tub, and steamed into the street: it was carried through the house in the slop pail, smelling as it went, and went down the closet and into the drains, and reeked up again amongst the children at play; it flowed from sores into poultices and went out in the dust cart, or rags soiled from sores were thrown into a little dull fire and sent poisonous smoke up its chimney. 1 2

These are some of the means by which fever seed gets into the air.

Most frequently infection is spread by persons themselves not free from disease, or coming from an infected house, mixing with others. Careless visitors,

or convalescents carelessly sent from home before the time of infection is over, or those only *sickening* for the complaint, as it is said, constantly convey infection.

3. The preventive remedy is to carry out with existing cases all the measures that have been detailed in this manual, and, if there be reason to suspect that improperly managed cases are in the neighbourhood, procure if possible disinfectants in large quantity to drench the street drains, and any closets that are the resort for more than one house. And persuade people to drench with disinfectant the closets in their own houses.

4. No food that has been carried to the sick room must come down again to be consumed by other persons. All grape skins and orange peelings and even egg shells must be thrown into disinfectant before leaving the room. All cups, and glasses, spoons, forks, &c., must be dipped in disinfectant fluid before washing, and for this purpose Condyl's fluid is good as not being poisonous.

5. In a clean case (see the definition of this, page 13) a mother can nurse her child without infecting the others, without shutting herself up from them. She can do it as follows: If she sleeps in the sick room she must hang her day clothes in a different room, and must wash and dress in the morning before she touches her other children.

Her night clothes must remain in the sick room, and she must there keep a large bibbed apron to wear always in that room, and never out of it, and she must wash her hands often in carbolic soap and water, and with a sponge damp with the same wipe over her hair. If there be a sick baby that wets the lap, the other children will hardly escape, unless the mother can be entirely with the baby apart from them; but in any case she should, if possible, protect

her clothes with a large waterproof apron, and this should be sponged daily with cold disinfectant of the second strength.

QUESTIONS ON SUPPLEMENT.

1. May cats and other pets be with a fever patient? Why not?
2. What is the true explanation of a common, and often correct notion, that some prevalent infection is "in the air"?
3. What is the preventive remedy? And what the means of disinfection when mismanaged cases are in the neighbourhood?
4. What precaution is needed as to food, and refuse of food carried to the sick room? also mention the right way of cleansing cups, glasses, &c.
5. Can a mother ever manage to nurse a child ill of fever, and go in and out to the others without infecting them? In what sort of case, and how can she do this? and in what kind of case can it not be done?

RINGWORM.

1. The great cause of the difficulty sometimes experienced in getting rid of this is *re-infection*.
2. A child has a spot of ringworm, say, on his neck. His brothers are not allowed to put on his neckerchief lest they should be infected; but *he is allowed to put it on himself*. IF IT WILL INFECT OTHERS WILL IT NOT PRODUCE FRESH SPOTS WHERE IT TOUCHES HIM?
3. As soon as a spot is discovered dress it with white precipitate, or with sulphur ointment, or with

any thing that the doctor may recommend for it. Cover it with a little bit of lint stuck on with the ointment, wash all round it with carbolic soap and water. Then take every article that can possibly have touched it—week-day necktie, Sunday tie, jacket collar, coat collar, shirt collars, waistcoat collar, night shirt collar, pillow case, sheet (where it may have touched the neck)—anything and everything that the child has worn about his neck, steep them in disinfecting fluid diluted of the first strength, and wash them with soap and water.

Keep the spot dressed daily with the ointment, wash all round with the soap, and in a week, if recently contracted, the ringworm will be done with.

4. If it is on the head, cut off the hair all round, and disinfect all cap and hat linings, and pillow or cushion covers used by him.

5. If it is on the hand disinfect gloves, sleeve lining, and pockets, and anything that he has so handled as probably to have infected it.

N.B.—It is to be remembered that the skin diseases of dogs and other animals often infect human beings.

QUESTIONS ON RINGWORM.

1. What is the great cause of the obstinacy of cases of ringworm?
2. How does it take effect?
3. How should the spots be treated? and what should be done with articles of clothing that have probably touched them?
4. If it is on the head what should be disinfected?
5. If on the hand what should be disinfected?

