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Publication/Creation

London : Scientific Press, 1897.

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FEVER NURSING

WILLIAM HARDING, M.D.

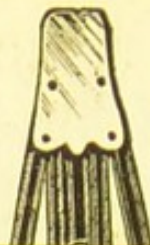


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THEIR NURSING AND PRACTICAL
MANAGEMENT

BY

WILLIAM HARDING, M.D. ED., M.R.C.P. LOND.

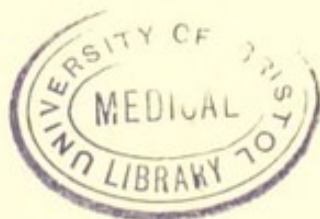
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28 & 29 SOUTHAMPTON STREET, STRAND, W.C.

1897



LONDON : THE SCIENTIFIC PRESS, LTD.

PREFACE.

THIS little book does not pretend to deal with anything more than the practical management and nursing of infectious diseases. Diagnosis and treatment are the work of the physician: the intelligent carrying out of orders and the exercise of trained observation are the duties of the nurse. Her usefulness is increased when she understands why certain things are to be done, and, what is equally important, why others are to be left undone. Her reports are also of greater value when she knows something of the dangers which may beset the patient under her charge.

FEVER NURSING.

I.

INFECTION.

INFECTIOUS diseases are caused by microscopic parasites. These are minute organisms which are known as microbes, or, using the word in its widest sense, bacteria. As the result of their presence certain symptoms are produced which differ according to the kind of organism causing them. In one group of these diseases we find that eruptions on the skin are a prominent symptom. These are called "eruptive fevers". There may be no eruption, but some particular part of the body may be more especially attacked, though the whole system suffers from the effect of the poison produced by the parasite. For example, in diphtheria the throat is usually the part affected, while in cholera it is the intestinal tract. The germs of these diseases are given off by the patient, who thus infects the rooms he occupies, and becomes a centre of danger to all around. These germs may be conveyed to a distance by means of the air, or they may be

carried by water, milk, articles of clothing, etc. Each disease is caused by its own organism, which has the power of producing a similar set of symptoms in other human beings to whom it may gain access. These germs do not all gain admittance to the body by the same channels, and they differ widely in the ways in which they pass from the infected individual to others. In some diseases the poison is received through the respiratory system, in others by the alimentary canal: in some it is given off from the skin, and in others in the discharges from the bowels, etc. By disinfection we kill the germs which form this living poison, and so prevent them from spreading the disease. We cannot destroy them in the patient's body, and therefore we isolate or separate him from all but those who attend upon him. All discharges from the patient, and any clothing, utensils, etc., which have been used in the sick-room must be disinfected. When he is convalescent and no longer throwing off the germs, he can leave the sick-room, which can then be thoroughly disinfected with everything that is in it. These diseases generally run a definite course, and if there be no complications we know that if we can support the patient's strength for a certain period we may hope for his recovery. The value of good nursing in these cases cannot be over-estimated: in some instances we may say with truth that the nurse

holds the patient's life in her hands. Each fever has special dangers which must be guarded against. The nurse should know what these dangers are, and should be on the outlook for, and immediately report, any symptoms which might give warning of them. She ought to know how the infection in each case is spread, and what steps should be taken to ensure the safety of herself and the community.

Stages of an Eruptive Fever.

It is convenient to divide the progress of an infectious disease into stages. There must first have been exposure to infection. Sometimes it is quite easy to determine when this took place, but it is often impossible to learn how the disease was acquired. The germs may enter the body through the respiratory organs, by means of the digestive system, or may gain access through some wound or sore which may be so slight as to be almost unnoticed. For a while the parasites give no sign of their presence. They are multiplying in the body, and the disease is said to be hatching or incubating. Hence this is called the stage of *incubation*. After a variable period, which may be very short or may extend to two weeks or more, the patient begins to feel ill. His temperature goes up, and he suffers from headache, rigors, vomiting, etc. The poison now begins to

show its effect on the system. This is the stage of *invasion*, and the patient may become prostrated very rapidly, or there may be a gradual onset of symptoms. After a period, which varies from hours to a number of days, the distinctive eruptions on the skin (when there are any) make their appearance. This is the stage of *eruption*. In some cases there is a temporary diminution of the fever with the appearance of the rash on the skin. It may return however, and in the case of smallpox, this *secondary fever*, as it is called, may be so severe as to constitute in itself a grave danger. After a number of days the fever lessens and the temperature returns to normal, either by an abrupt descent, when the fever is said to end by *crisis*, as in typhus; or, there may be a gradual fall which may extend over several days. When this occurs the fever is said to end by *lysis*, as in enteric fever. Unless there be any complications, the patient is now convalescent. The parasite has run its course in the person affected. As a rule an individual who has had one attack is protected from the effects of the same kind of micro-organism, though this is not invariably the case. Very susceptible persons may have two or more attacks of the same infectious disease. The length of the stages varies in the case of different kinds of microbes. It takes one kind a greater number of days to hatch the disease than

it does another, and there may even be differences in individuals affected by the same disease. By knowing the length of the incubation period we can determine how long any one who has been exposed to the risk of infection should be kept in quarantine before it can be definitely stated that he has not been infected, and may safely mix with his fellows. This is especially important when the disease is one which is infectious during the incubating period. The time of the appearance of the eruption, its character, and the parts of the body on which it is first found, all vary in the different kinds of eruptive fevers. In some there is a greater risk of infection at one stage; others are infectious during the whole illness.

We will first consider the nursing points common to all fevers, and will then take those points peculiar to each infectious disease afterwards.

The Nurse.

A woman who takes up the nursing of infectious cases should be in good health. She must have been vaccinated, and should be re-vaccinated at least every seven years. If she do not look after her own health when nursing a case she cannot do her best for the patient, while she lays herself open to a greater risk of infection. Daily exercise in the open air is a necessity. She should never take her meals in the sick-room.

Her nails should be cut short, and she must invariably wash her hands in disinfectant solution (p. 29) before taking any food. Her clothing ought to be of washable material, and overalls which cover in the whole of her garments are useful. When any part of her clothing is the least soiled by any discharge from the patient it should be at once taken off and disinfected. Her hair should be smoothly combed back, and worn under a close-fitting cap. There is no reason why this style of dress should not be made as dainty and neat as an ordinary nurse's uniform ; indeed, there is every reason why it should be so. Before going to take exercise she should change the clothing worn in the sick-room, and wash her face, hands and neck in disinfectant, including any hair left uncovered by the cap. When she is sitting in the sick-room she should not have her chair placed between the patient and fireplace, but in some position where she does not breathe in air which is laden with the exhalations from him. Her intercourse with the other people in the house should be restricted to what is absolutely necessary.

The Sick-room.

If the case is to be nursed in a private house he should be placed in a room in the uppermost story. Sometimes it is well to have the whole

story vacated, and with smallpox it is better to have the entire house given up to the patient and his attendants. It has been recommended that the patient should have two rooms, one for night and the other for day. The difficulty of conveying him from the one to the other might be an objection to this arrangement, and especially so in enteric fever, but this might be obviated if the bedstead were on rollers, and could be conveniently rolled or carried to and fro. By selecting a room at the top of the house we can isolate the patient more completely, and it has been shown that, in one form of infectious disease at least, the poisonous matter given off by the patient is lighter than air, and ascends. It is well, wherever practicable, to have two rooms opening into each other, one of which can be used as sick-room, while the other forms a convenient place in which the nurse can wash up, etc., and rest, when not required to be with the patient. The sick-room should be large and lofty. If it is to be occupied by more than one patient it should be remembered that each case of infectious disease requires at least 2000 cubic feet of air space and 144 square feet of floor space. A plentiful supply of fresh air and free ventilation must be the first consideration. If possible the room chosen should have a southern aspect, and contain windows facing each other so as to allow of cross ventilation. It is also

beneficial at times to flood the room with sunlight. The patient can, if necessary, be protected by screens. The windows should open top and bottom, and the sashes must move easily and quietly. Ventilators should be seen to and put into thorough working order. There should be a fireplace in the room, and, even in summer, a little fire is generally beneficial. All superfluous furniture must be removed. It is not advisable to leave the walls absolutely bare and cheerless, but it is well to remember that the room will afterwards require disinfection, and, if this be done thoroughly, any valuable pictures may be injured. No curtains, valances, or hangings are permissible, though blinds will be required to the windows. Carpets should be taken up and a small mat put down where needed. Washable walls and a polished floor are unfortunately seldom obtainable. Perfect cleanliness is an absolute necessity. All dust should be wiped up with a cloth wrung out of disinfectant, and afterwards burnt. A table should be placed on the landing, and anything required for the patient placed thereon. The nurse can then remove it without coming in contact with the other inhabitants of the house.

An iron bedstead with wire mattress on which a hair mattress is placed is the most suitable. It should not stand in a corner, but away from the walls in a position to allow of a free change

of air all around it and to enable the nurse to get at the patient from all sides. It should be of such a height and width as to allow the nurse most conveniently to attend to and move him. Feather beds and large bedsteads are inadmissible. But if the bed be of necessity a large one the patient may use one half for day and the other for night. The clothing should be light and no extra coverings are required. In feeble cases and when there is diarrhœa a drawsheet and mackintosh should always be used. In many cases it is a good arrangement to have two beds, and it is certainly most refreshing to a patient, when restless and uncomfortable, to be transferred to a fresh, cool bed. If the nurse have sufficient assistance he can be lifted in a sheet from the one bed to the other. This should invariably be done in cases of great debility or of typhoid fever. When it is permissible, the change can be effected, if the nurse be single-handed, by pushing the two beds side by side with the two mattresses touching each other. If a piece of mackintosh be placed over the junction the patient can then be gradually drawn by means of the drawsheet from the one bed to the other. The cups, spoons, etc., used by the patient must be kept solely for his use.

Ventilation.

Free ventilation is one of the most essential

points in fever nursing. For the patient it is all-important and it is equally needful for the health of the nurse. If our climate permitted it, the best thing for the invalid would be to have his bed out in the open air. There *must* be a continuous supply of fresh air: it is as necessary as food. If the patient have a high temperature, and do not suffer from certain complications affecting the larynx or bronchial tubes, even a current of cool air over his bed will do no harm. Screens can always be used if there be any danger of draughts. With opposite windows it is always possible to secure cross ventilation. The great difficulty often lies in keeping the air constantly changed and at the same time maintaining the temperature of the room at a proper level.

Temperature of Sick-room.

A thermometer should always be included in the furniture of a sick-room. The temperature will vary with the nature and stage of the affection, and also with the age and strength of the patient. In an ordinary case with high temperature where there are neither bronchial nor laryngeal complications, and the patient is not very feeble, the room should not be above 55° Fahrenheit. For young and restless children, aged people, and feeble and exhausted cases, it should be kept about 60°. This temperature

will also be required by convalescents when they first get up, but afterwards it must be reduced to 55° . Where there is an affection of the larynx or bronchial tubes, the air should be moistened by steam and the temperature kept between 60° and 65° ; while if tracheotomy have been performed it must be kept still higher, with special arrangements for keeping the air moist. In every case ask the physician and consult the thermometer—remembering that it is in the early morning that the temperature is likely to get too low. It is well to have an extra blanket at hand for such an emergency.

The Patient.

Personal Cleanliness.—The nurse must pay scrupulous attention to this. It is important that the skin should be kept clean, and its action encouraged. In addition to the ordinary washing of face and hands, the patient should have the whole body sponged over twice daily; and while the fever lasts sponging every few hours with tepid water, to which a little vinegar, eau de Cologne, or Condyl's Fluid has been added, is very refreshing and at the same time beneficial. The patient should be covered with a blanket and only one limb exposed at a time, which, after sponging, must be carefully dried before proceeding to another part of the body. The

mouth will require regular attention: the teeth being cleansed frequently with a soft tooth-brush in cases where sordes collect on them. If the patient be very feeble and the stools passed in bed he must be sponged and wiped dry after each evacuation. This must never be neglected. It is sometimes necessary, especially in typhus and smallpox, to cut the hair, but this should never be done by the nurse on her own responsibility.

Clothing.—When the temperature is high, linen clothing will be more comfortable unless there be much perspiration, when flannel must be used. In cases where there is much diarrhœa or great weakness, the night-dresses should open all the way down.

Food.—In fever the digestive powers are impaired, and at the same time there is great need to support the patient's strength, but much harm may be done by giving the patient more food than the stomach can deal with. Nourishment has to be given in such forms and in such quantities as can be most easily digested. During the acute stage, liquid food will alone be taken. Little and often must be the rule for feeding. If three pints of any form of liquid food be ordered for the daily diet it is not intended that the patient should have three meals of one pint each, but that he receive the three pints in small quantities spread over the twenty-four hours.

Two ounces or four ounces may be as much as it is advisable to give the invalid at a time. The nurse must exercise her discretion to some extent. She can find out how the patient prefers to take nourishment, and, if the physician permit it, let him have it in that way. If very weak, it may be necessary to give him food without subjecting him to the exertion of being raised up. His head must then be slightly lifted on the pillow, and the feeding spoons which are covered in will be found useful. The question as to whether a nurse should wake up a patient to take food can only be decided by the physician from the special circumstances of each case. If in any doubt the nurse should consult him. The heavy drowsy condition which is sometimes associated with extreme weakness must not be confounded with healthy sleep. Such cases must be given nourishment at frequent intervals. Nutrient enemata may be required. The bowels should be empty before the nourishing matter is given, and it should be injected slowly and without any force. The secret of giving nutrient enemata successfully lies in taking plenty of time, and allowing the liquid to pass very gently into the bowels. With extreme care and in favourable cases a practised nurse may be able to give a pint, though four ounces will be as much as a beginner can manage, and perhaps as much as it is advisable to give. A good method is to use

a large-sized gum-elastic catheter attached to a long piece of tubing which is fixed on a funnel. The patient is placed in the ordinary position, and the catheter passed into the rectum. The funnel is then elevated, and the fluid passes slowly into the bowel by its own weight. The nurse can move the catheter occasionally if there appear to be any stoppage in the flow, as the eye may be blocked against the mucous membrane. Nutrient suppositories are at times useful. In severe throat complications, when there is persistent vomiting, and in some emergencies in enteric fever it may be necessary to resort entirely to rectal feeding.

The physician will decide upon the nature of the diet. It is for the nurse to see that the patient takes what is ordered, and she should make it as appetising as possible. The ideal food of course is milk, and, while the fever lasts, it will form a main part of the patient's support. Thickened soups, eggs, etc., are useful in suitable cases. Beef tea is a stimulant and contains in itself but little nourishment. It may, however, be used as a vehicle for giving something which is more sustaining. The superstitious belief which many people still have in the strengthening powers of beef tea is hard to shake. In cases where there is diarrhœa, and especially in enteric fever, a careful outlook should be kept for curdled milk in the stools. When this is

found it shows that the milk taken is not being digested, and is an indication that some alteration in the method of feeding is required. It may be necessary to digest the milk artificially, and in rectal feeding this is generally done. Directions for peptonising milk and other articles of diet are given with all preparations sold for that purpose. The addition of soda water causes milk to be more easily taken and also more pleasant to some persons. It must be given in a state of effervescence, and only the small amount that can be drunk at a time should be mixed. When syphons can be depended upon they are the most convenient, and should be used. Lime water is also added to the milk and especially if there be diarrhœa. Barley water when thoroughly mixed with milk prevents it coagulating in large masses, and at the same time it contains nourishment in itself.

Thirst will often be a prominent symptom. It is cruelty to refuse the patient a reasonable amount of cold water. It is also foolish because the patient is the better for it, and the popular prejudice against allowing him to have it is difficult to understand. When the thirst is excessive it may be relieved by allowing the patient to suck small pieces of ice. Barley water to which freshly made lemon juice has been added makes a refreshing drink.

Sponging the body will sometimes help to

relieve a distressing thirst. When children are allowed a large quantity of water it may be difficult to get them to take anything else. Under these circumstances they should be restricted to milk either alone or diluted.

Stimulants ought to be looked upon as drugs, and given under as strict rules as to time and quantity as any other medicine.

Temperature.—The normal temperature of the body is 98.6° F., but even in health it may vary from 97.5° to 99° . There are considerable variations in disease during the course of the twenty-four hours. The temperature is lowest in the early morning; it begins to rise during the forenoon and reaches its highest point between five and eight in the evening, after which time it again declines. If the temperature be taken only morning and evening, the same hour should be adhered to every day. If taken, as it often is, between nine and ten in the morning and during the same hour in the evening it should be remembered that, though these times are very convenient, they do not give the lowest and highest temperature during the twenty-four hours. When the fever is high, the temperature must be taken every four hours, and in some cases even more frequently than that. It may be taken in the mouth, the rectum, the axilla, or the groin. The usual and most convenient places are the mouth and the axillæ. If a change be

made from the mouth to the axilla, or *vice versâ*, the fact should be noted on the chart, as the temperature recorded in the mouth is somewhat higher than in the armpit. When the latter is the place selected, there are some precautions which should be observed.

1. Note that the mercury in the thermometer is shaken down.

2. If the skin be moist it must be wiped dry, or the temperature registered will be too low.

3. Be careful that the clothes do not come in contact with the bulb of the thermometer, which should be laid in a fold of the skin and kept in position by the arm being held close to the side.

4. Leave the thermometer in for five minutes and mark the result on the chart immediately after reading it, giving the hour at which it was taken.

5. Wash the thermometer in disinfectant each time after using it.

When the evening temperature does not reach 103° F. the fever is not excessive, but the case is a serious one when it runs from 103° to 105° . If it pass the latter figure the condition is called hyperpyrexia. The temperature may go up to 108° or even higher. This is a very dangerous condition, and, if it be not remedied, may become speedily fatal. The patient may be drowsy and heavy, or restless with muttering delirium. The nurse should always inquire what is to be done

should the temperature go above 103° , and if it reach 105° a report should at once be made to the physician. If any definite orders have been left for such an emergency no time should be lost in carrying them out. If no directions have been given there can be no harm in sponging the patient (using proper precautions) with tepid water until the doctor's arrival. The application of cold in some form will probably be ordered, and the nurse should have everything in readiness. Ice should be kept on hand in every case where there is any danger of high temperature.

The following are the usual methods of applying cold in such cases. The temperature should be taken immediately before and after, and noted on the chart with a record of what was done for the patient.

Cold Sponging.

The patient should be covered only with a blanket and exposed as little as possible. The whole of the body is then sponged from above downwards with ice-cold water. One limb is uncovered at a time, sponged, and at once dried. Precautions should be taken not to wet the bed. The patient should be left quiet for a while after the sponging is completed, as it is possible that he may sleep.

Application of Cold Cloths.

A mackintosh is spread on the bed, and a blanket placed over it. On this the patient is laid, quite naked, except for some covering over the genitals. Towels are then wrung out of ice-cold water and laid over the body from above downwards. When the feet are reached the cloths on the upper part of the body are again changed. This is continued for the length of time ordered. Cold cloths should also be applied to the head. When the operation is completed the patient should be rapidly dried in a blanket, and put comfortably into bed.

Cold Pack.

A sheet wrung out of cold water is spread out on a blanket which is placed over a mackintosh. On this the patient is laid, and the sheet is wrapped closely around him. He is then covered with the blanket and kept in the pack for ten or fifteen minutes. Cold cloths should be applied to the head. It may be necessary to use a double thickness of wet sheet. When taken out he should be wrapped in a dry warm blanket, and dried quickly.

Cold Bath.

This is the most efficient means of reducing

temperature, but the friends of patients often have a prejudice against its use. A bath, long enough to allow the patient to lie in it at full length (a necessity in some cases; in others a tub may be used), and containing water at a temperature of 95° or 96° F., is brought to his bedside. His temperature is taken, and he is carefully lowered into the bath on a sheet. Cold water is then gradually added to reduce the temperature of the bath to 70° F. The bath thermometer must be constantly in use to enable the nurse to regulate the heat of the water, and the patient's temperature must be taken in his mouth while he is in the bath. The duration of the bath will be determined by the physician, but if the patient begin to shiver he must be at once taken out and wrapped in warm blankets. Stimulants must be ready to administer if required, and perhaps a little may be ordered before the bath. The doctor will usually be present while the bath is given. It may be necessary to repeat it or any other form of cold applications whenever the temperature rises.

In cases of delirium it may be useful to apply cold to the head, either by means of Leiter's coils in the form of a cap to the head through which a stream of cold water is kept running, or an ice-bag may be used. It is well to remember in the latter case that if the ice be allowed to remain until melted and the water becomes warm

from the heat of the scalp the application is likely to do more harm than good.

Cold Compresses.

A small bath towel doubled is wrung out of cold water and applied to the part of the body desired. It is well to have two towels, one of which is lying in ice-cold water while the other is being applied. They must be changed before they become warm. They are often used for the head.

Application of Ice.

This is generally applied in an ice-bag or bladder. A sponge-bag will sometimes be found useful. The ice should be broken up into small pieces and the bag should not be more than half full. It should be applied comfortably to the head and fixed to the pillow to prevent it from slipping. A convenient method of applying ice to the abdomen is to break it up small, and lay a thick layer of it between the folds of a towel, which is then placed on the skin.

In the nursing of fevers emergencies arise when the use of the vapour bath or hot pack is called for; and when dealing with children the nurse may have to use the mustard bath.

Vapour Bath.

When it is wished to set up the action of the skin a vapour bath, or bath of hot moist air, may be ordered. This is sometimes given, in ordinary cases, when the patient is seated on an open-worked cane-bottomed chair. In fever cases the patient must be kept in bed, which should be covered with a waterproof sheet, and on this the patient, wrapped in a blanket, is laid. A large cradle, or other means, is employed to form a tent and thus keep the remainder of the clothes off the patient. These should be closely tucked around his neck and under the mattress to prevent the escape of the hot air. The spout of a bronchitis kettle should be inserted into a corner at the bottom of the bed, taking care that it does not play directly upon any part of the patient. The kettle may be placed on a chair or low table over a lamp, and the nurse must be cautious that the bedclothes do not get near the flame. It is much safer, wherever practicable, to lengthen the spout of the kettle and have it on the grate so as to obviate the risk of setting the bedclothes on fire. The length of time in the bath will be fixed by the physician, and he will also say what temperature should not be exceeded. This can be tested by having a thermometer inserted into the tent, and examining it from time to time. After the bath, the patient should be sponged

with warm water and wrapped in blankets. When no other method is available, hot bricks may be wrapped in damp cloths and placed in the tent. They should be put on plates and must not be laid close against the patient.

Hot Pack.

A large sheet of mackintosh is spread out on a bed and over that a couple of blankets are placed. On these a sheet, loosely wrung out of hot water, is laid, and the patient wrapped in it. The blankets and the mackintosh are then folded successively around him. Cold must be applied to the head while he is in the pack. When taken out he is sponged with warm water, and wrapped in a dry blanket for a short time. After this he is dried and put into ordinary bedclothes.

Mustard Bath.

This is made by getting a bath of the temperature ordered, and in it the mustard is placed, but tied up in a muslin bag. The bag is squeezed in the hot water, but the mustard itself is not allowed to escape into it. The patient is put into the bath, and at the same time cold is applied to the head.

Sleep.

The nurse may assist the patient in obtaining sleep. The room should be darkened and kept quiet. Sponging the face and hands or applying cold to the head may soothe the patient. Sometimes he will drop off to sleep after the whole body has been sponged with tepid water and a little vinegar. The position of the pillow should be attended to, and there are cases in which a little nourishment after they have been made comfortable aids in getting sleep. If a hypnotic be necessary the nurse should note the hour when it was given, the time at which the patient dropped off, and the character of the sleep.

Delirium.

This is a common symptom in fever, though it is seldom that it becomes unmanageable except in typhus or smallpox. The sick-room should be darkened, or at least any bright light excluded. The patient must be kept as quiet as possible. No attempt should be made to argue him out of his fancies. He should be spoken to firmly, but quietly and soothingly. When the patient will allow it, the application of cold to the head or of ice to the nape of the neck is sometimes useful. A delirious patient should never be allowed out of sight for an instant,

and a careful look-out kept on the door, windows and the fire. The management of the delirium of typhus and smallpox will be spoken of under those diseases.

Bedsore.

There is always a danger of bedsores in severe or prolonged cases, and especially in typhus, enteric, and cerebro - spinal fever. They should rarely occur with good nursing, and the instances in which they are not preventable are very rare. The nurse must bear them in mind from the very first, and attend to the cleanliness of the patient, and his position in the bed. The latter should be changed occasionally, even if only for a short time. The bedclothes should be smooth, and have no creases. The skin over the parts usually affected should be frequently examined. It may be sponged with spirit lotion, and powder freely dusted on it and on the sheets. If any redness appear, means must be adopted, by alteration of position and by the use of pads, to relieve the pressure. Water or air cushions or a water bed may be necessary.

Reports.

Accurate, careful, and full reports of a patient's condition since his last visit are of great service to the physician. The nurse must keep the

chart, and make a note of anything unusual about the patient. Temperature, pulse, and respirations may require to be noted every two or three hours. The amount and character of the sleep obtained should be given, the doses and hours for administering medicine, and no new symptom is too unimportant to be neglected. When this is done, timely warning may be received of some serious complication, and steps taken to guard against it.

Visitors.

It is only in cases of serious illness that visiting should be permitted. A person in a weak state of health should not be allowed to visit a case of infectious disease, and it is always well for the visitor to have had a good meal before entering the sick-room. It is an excellent precaution to have an overall to be worn over the visitor's dress. He should not sit near, nor touch the patient or the bed. His chair should be placed at a little distance from the patient and in a current of fresh air if possible. Visits should be short. After leaving the sick-room face and hands should be washed in some disinfectant, and a brisk walk taken in the open air before associating with other people.

II.

DISINFECTANTS.

A DISINFECTANT is something which kills germs: a deodoriser destroys smells but is not necessarily a disinfectant. A sense of false security may easily arise if this fact be not fully recognised. It is as necessary to use disinfectants in mild cases as in the most severe. The infection caught from slight cases may convey the disease in its worst form. It must be borne in mind that the most efficacious disinfectants are very poisonous. The solutions should be coloured with some material which will distinguish them and prevent their being mistaken for anything else. When kept in bottles they should be of a distinctive shape or colour, and should be labelled "poison" in a way which cannot be mistaken. They should also, and especially if dealing with children, be kept in a cupboard under lock and key.

The nurse should always inquire from the physician what disinfectant he prefers, and in what strength he wishes it to be used. Those mentioned are preferred by the writer, and are,

for the most part, those recommended by Wynter Blyth.

The Inhabited Sick-room.

The air of the sick-room cannot be charged with any effective amount of disinfectant while it is occupied. A sufficient quantity to have any action upon the germs would be fatal to the nurse and patient. The practice of exposing small quantities of carbolic acid solution, or Condyl's Fluid, about the room in saucers is practically useless. They may act to some extent as deodorisers, but as disinfectants they cannot have any appreciable action. They perhaps give some moral support which may be very useful at times. The best means of ensuring safety in the sick-room is to keep up a free and constant supply of fresh air. Some of the poisons appear to require a certain degree of concentration before they become dangerous. The poison of typhus can be rendered comparatively harmless by free dilution with fresh air. It is well also, after taking precautions to prevent the patient being inconvenienced, to flood the room occasionally with sunlight. In our climate, unfortunately, this is not always possible. Perfect cleanliness is called for. All discharges should be immediately covered up and removed from the room. Soiled linen must be at once immersed in dis-

infectant solution and taken away. A deodoriser of some kind is at times almost a necessity. The best again is fresh air. Condly's Fluid, carbolic acid, Sanitas powder, and charcoal in open pans have been recommended. If a plentiful supply of fresh air be maintained, and there be no danger that the smell is simply concealed without the air being changed, a little oil of thyme or verbena with some oil of eucalyptus is very pleasant when diffused throughout the room. This is easily done by dissolving the oils in spirit and evaporating a little of the solution in a thin shallow cup which is suspended in the mouth of a small pan of boiling water. A small tin pan over a gas stand or spirit lamp is a most convenient arrangement, or a piece of lint soaked in the solution may be placed in the spout of a bronchitis kettle.

Means must be taken to prevent the germs of infection spreading to the other parts of the house. A sheet kept damp with carbolic solution (1-100) should be hung over the sick-room doors.

Cats and dogs must on no account be allowed into the sick-room.

Nurse's Hands.

A basin containing carbolic solution 1-40, or corrosive sublimate 1-1000, should be kept ready

for the nurse to wash her hands in after attending to the patient. The soloids of corrosive sublimate, which, when added to a pint of water, form a solution of that strength, are very convenient, though it is cheaper to make a coloured solution.

Discharges from the Patient.

Nose and Mouth.—Soft rags should be used as handkerchiefs, and at once burnt after being soiled. If a cup be used to receive the sputum, it should have a cover, and a little one per cent. solution of corrosive sublimate put into it before it is used. More of the solution must be added to the sputum before it is put away. If there be any reason why it is inconvenient to have the disinfectant placed in the cup, it may be lined with paper, which can be lifted out frequently with the contents and burned. This one per cent. solution, like all strong disinfectant solutions, should have some colouring matter added, to give warning of its dangerous nature. The cup itself should be disinfected by boiling.

Bowels.—Some one per cent. solution of corrosive sublimate should be put into the bedpan before it is used, and more added immediately afterwards. It should be at once covered with a cloth soaked in the solution, and removed from the sick-room, but allowed to stand a short time

before being emptied, so as to allow the disinfectant time to act upon the germs. Sometimes a sheet of glass is used to cover it. The physician can then see the character of the stool without its being uncovered. The chamber utensils and bedpan must not be kept in the sick-room. They should be washed clean and dried each time after they are used. The ideal method of disposing of infected stools is to mix them with sawdust and have them burnt in some furnace. This is seldom practicable. The next best method is to allow them to stand for a short time subjected to the action of so strong a disinfectant as a one per cent. solution of corrosive sublimate, and then to bury them in a place where there is no risk of the water supply becoming contaminated. If there be no other method available than to put them down the water closet, the disinfection must be very carefully attended to, and chloride of lime or sulphate of iron should be placed in the pan of the closet every night and morning.

Clothing.

The nurse should see that the clothing worn by the patient before he took to his bed is sent to the disinfecting chamber.

A tub of carbolic solution (1-20) should be kept outside the sick-room door, and in this

every soiled article should be immersed. Each article should be put in separately and loosely. A pail containing some of the solution must be brought to the bedside, and any soiled clothing put at once into the disinfectant, and so removed from the room to the tub. Whatever is not injured by so doing should be afterwards boiled. Blankets of course cannot be thus treated. After being put into the cold solution of carbolic acid they can be washed in the usual way.

Disinfection by dry heat is most suitable for woollen goods. In some places there are arrangements for washing infected clothing, and the patient's things can be sent there.

Heat is the best disinfectant, and may be used either as dry or moist heat. Most germs are killed by an exposure to moist heat of 212° F., so that keeping garments or utensils in boiling water for a time is a very efficient means of disinfection. A higher temperature than this can be obtained, by means of special apparatus, either as dry heat or by superheated steam, but with this the nurse has nothing to do.

Convalescent Patient before leaving Sick-room.

If there be any scabs to separate from the skin as in smallpox, or any desquamation as in scarlet fever, the patient should have a warm bath daily, and his skin scrubbed lightly to facilitate the

separation of the particles. The skin should afterwards be oiled to prevent the small scales flying about.

Sometimes immediately before being allowed out of isolation he is given a bath of corrosive sublimate solution of a strength of 1 in 1000. This solution is not strong enough to give rise to any danger from absorption of the drug, but the bath must never be given without distinct orders. Fresh clothing should of course be put on the patient, who must not be allowed to enter the sick-room after the bath.

Sick-room after the Patient's Removal.

Chlorine is the best disinfectant if there be no valuable pictures or other articles which might be injured by that gas. It can be easily obtained by acting upon bleaching powder with strong hydrochloric acid. The windows should be made air-tight, chimney blocked, ventilators, key-holes, and all crevices pasted over. Strips of brown paper should be pasted round the edges of the door with flaps left ready to seal it up as soon as the nurse has left the room. The clothing should be hung on lines in the room, and the bedding, etc., exposed in such a way that the gas can affect every part. The powder in the proportion of 1 lb. to 1000 cubic feet of room space should be placed in saucers about the floor.

The nurse, holding a handkerchief charged with moist lime to her nose, rapidly pours strong hydrochloric acid over the saucers and then leaves the room. She should see that the door is open and that there is nothing to impede her exit before putting the acid on the powder. The room is left sealed up for twelve hours. If a rope has been fixed to the upper part of the top sash and allowed to hang down outside, the windows can be opened by it and the room ventilated before it is entered by the door. The clothing should then be made up into bundles and sent to the disinfecting chamber. The paper should be pulled off walls and ceiling, and burned. The floors must be well scrubbed with disinfectant solution, and the furniture thoroughly cleaned. The room should be thoroughly ventilated and exposed to sunlight.

If there be anything that might be injured by chlorine, then sulphurous acid can be used, though it is not so effective a disinfecting agent. The same precautions must be taken to seal up the room and expose the clothing, etc. Sulphur candles are very convenient, or roll sulphur may be used in the proportion of 1 lb. to 1000 cubic feet of room space. The sulphur is broken up and placed in a metal dish over a pail of water. It can be lighted by means of hot coals, or methylated spirit may be poured over it and ignited. The same, or even more scrupulous

cleansing operations, must be carried on afterwards. Books, papers, etc., used by the invalid had better be burned. It seems wasteful, but it is the safer course.

Treatment of the Body after Death.

Bodies of patients dying of smallpox and typhus are certainly infectious, and possibly also those dying of scarlet fever. The body should be coffined as early as possible. Cotton wool, saturated with a strong solution of corrosive sublimate, should be packed into the mouth, ears, nostrils, and other orifices of the body. It should be washed with the solution, and packed in the coffin in sawdust mixed with Sanitas powder or carbolised lime. The burial should not be delayed.

III.

THE NURSING OF INFECTIOUS DISEASES.

THE chief nursing points in the following infectious diseases will now be considered.

Typhus.	}	ERUPTIVE FEVERS.
(Plague.)		
Enteric Fever.		
Smallpox.		
Chickenpox.		
Scarlet Fever.		
Measles.		
(Rubeola.)	}	
Dengue.		

Whooping Cough.
 Diphtheria.
 Influenza.
 Cholera.
 Dysentery.
 Yellow Fever.
 Cerebro-spinal Fever.
 Relapsing Fever.
 Erysipelas.

Typhus.

Synonyms.—Spotted Fever, Putrid Fever, Jail Fever, Black Death.

Incubation.—Usually about twelve days ; sometimes very short and may extend to fifteen days.

Invasion.—Sudden ; the patient is rapidly prostrated and suffers from headache, muscular pains and high temperature.

Eruption usually appears on the fourth or fifth day, but may be a little later. The eruption appears on the abdomen and chest, back of hands and wrists. It may not be present on the face and neck. There is a dusky mottling of the skin, with spots first of a dingy pink, but becoming darker afterwards. Later there are small subcutaneous hæmorrhages or petechiæ which have been mistaken for flea-bites, and *vice versa*.

Temperature keeps high with a slight morning remission until about the end of the second week, when there is a rapid descent to the normal. The crisis may be marked by diarrhœa or profuse perspiration.

Complications.—The most common are pneumonia, inflammation of the salivary glands, bed-sores.

Typhus is essentially a disease of overcrowding and filth. The poison when concentrated is very virulent, but when freely diluted with fresh air the danger is much diminished. In persons beyond middle life the disease is much more fatal than in those who are younger. It is advisable that the nurses should not be above

thirty. When the room is kept thoroughly ventilated there is comparatively little risk to any one who remains at some distance from the patient. The doctor and the nurse run the greatest danger, as they must be brought in close contact with him. The nurse should be careful not to inhale his breath directly. The infection is spread by the breath and the exhalations from the body. Many cases emit a strong smell from the skin, and it is said that the stronger this is, the more likely is the patient to communicate the disease to others. It has been already mentioned that a large room, and one at the top of the house, must be selected. Cross ventilation is almost a necessity in nursing typhus.

The patient must not be disturbed by conversation nor worried by questions. It is well to remember that there is great sensitiveness in some cases in the early days of the illness. He may start if approached or spoken to suddenly, and hearing may be so acute as to cause distress. The latter trouble may be obviated by putting a little cotton wool in the ears. The temperature, pulse and respirations should be taken every four hours. Frequent tepid sponging is beneficial, and the physician may order some disinfectant to be added to the water. Cold sponging or cold applications may be required in the event of hyperpyrexia. The mouth will need careful attention. Sordes will collect

on the teeth, and the tongue may become brown, dry, and caked. A little glycerine and borax is a useful application after cleaning the teeth. If the fever be high the hair will perhaps have to be cut off, but the nurse must not do this on her own responsibility. Many cases become delirious towards the end of the first week. At the beginning it is merely restlessness and a wandering of ideas, but later the delirium may become wild and maniacal. Restraint must only be used as the very last resource. If it be necessary to struggle with the patient to keep him in bed, it is better to let him get up and walk about the room, first seeing that the door is locked and the windows securely fastened. He will thus exhaust himself less than he might do in a struggle. In a little while it will be possible to coax him back to bed. When a patient is in this condition there should be sufficient assistance within hearing of the nurse's call. The patient may fall into a comatose condition. Cold may be applied to the head if the temperature be high. Poultices may be required over the loins, and the vapour bath may be necessary (p. 22).

The feeding of the patient is all-important. The diet ordered will be in a liquid form, and as nourishing as possible. He must be given the prescribed amount. If he should sink into a heavy comatose condition, or into a state which

is known as coma vigil or waking sleep, the nurse must see that he gets nourishment regularly, and it may be necessary to supplement what he takes with nutrient enemata of previously digested food. A free supply of cold water should be given, and pieces of ice to suck. Stimulants in many cases will be ordered, and large quantities may be taken.

Urine should be saved for examination daily from the beginning of the illness, as albuminuria may occur and have an important bearing on the progress and treatment of the case. Retention of urine is not uncommon. This must be remembered, and any failure to pass water immediately reported. The dribbling which arises from over-distension must not be mistaken for a proper emptying of the bladder. The catheter may be required, and in the case of a female patient the nurse may be called upon to use it. Before doing this, in any case, she must invariably wash her hands in 1-1000 corrosive sublimate solution. The catheter, if silver, should be washed with boiling water, and afterwards in carbolic lotion, 1-20. The vulva should be sponged with carbolic lotion, 1-60, and the catheter oiled with carbolic oil, 1-20, before being passed.

After the first few days of the illness the bed-pan must be used so as to spare the patient's strength and save him any unnecessary exertion.

There may be incontinence of fæces, and the patient must be immediately changed, sponged clean, and carefully dried after each action of the bowels. There is a tendency to bedsores in such a condition, and, if these precautions be not taken, the skin may become irritated and favour their formation. The position of the patient must be changed occasionally to obviate the effects of pressure and also to lessen the risk of pulmonary congestion, which may occur if the patient lie too long on his back. Linseed meal should be kept ready lest poultices are required. When the patient becomes very weak the nurse should examine the condition of the toes and feet regularly. If there be any swelling of the glands under the jaw hot fomentations or poultices may be required. When convalescence once begins the patient's recovery is generally rapid. It is well to repeat that the body is capable of conveying infection after death.

The Plague.

It will be enough to mention here that this disease is considered by some authorities to be allied to, and its nursing does not differ materially from, that of severe typhus with the addition of swelling and suppuration of the glands in the neck, axilla and groin. There is the same necessity for isolation and disinfection.

Enteric Fever.

Synonyms.—Typhoid Fever, Gastric Fever, Infantile Remittent Fever.

Incubation.—Usually about three weeks, but may be much shorter.

Invasion.—Insidious. There is a gradual onset of symptoms, beginning with headache and general malaise.

Eruption.—There may be none or only a few spots. It comes out between the sixth and twelfth days, and consists of small rose-coloured spots slightly elevated above the surface, which make their appearance on the abdomen, loins and chest. The spots are not all found on the same day, but in successive crops.

Temperature.—The peculiarity consists in a difference between the morning and evening temperatures, which gives the chart a zigzag appearance. It begins to fall about the end of the second week, when the zigzag appearance becomes more marked, but the descent is very gradual, and it may not reach the normal before the end of the fourth week.

Complications.—Many and serious. Perforation of the bowel, hæmorrhage, peritonitis, pneumonia and bronchitis, epistaxis, otorrhœa, bedsores.

There is not the same risk in nursing enteric fever as in typhus. Indeed, with proper pre-

cautions and disinfection of the discharges, a case of enteric may with safety be kept in an ordinary hospital ward. When a nurse gets typhoid from her patient it is often an indication that she has been careless in some way. The infection is contained in the stools, and is usually spread by the germs getting into water and articles of diet, as milk, etc. Cases of enteric fever have followed upon persons eating oysters which have been living in water polluted with sewage. Though the disease be spread in this way, there is just the same necessity for observing all precautions as to cleanliness and the prevention of dust, etc., as in other infectious diseases. If any discharge should be neglected and allowed to dry there is always a possibility that the particles may be conveyed by currents of air and deposited in water, milk, etc. Each time after attending to the patient the nurse must be especially careful to wash her hands in the disinfectant solution, and always to do so before taking any food.

The important point to be borne in mind when nursing enteric fever is that there is ulceration in the small intestine. This ulceration may open into a blood vessel, and severe hæmorrhage may result. A more serious condition ensues when the floor of the ulcer becomes thinned, and a hole is formed through the wall of the intestine. This is known as perforation. Peri-

tonitis may occur without either hæmorrhage or perforation. It is on account of this ulceration and the very dangerous complications which may arise, and which may be precipitated by any error in management, that it is absolutely imperative to observe great care about the diet, and to avoid any unnecessary movement of the patient. There is no class of diseases in which so much depends upon the nurse as in fevers. There is no fever in which good nursing is so important as in enteric.

Notes every four hours should be made of temperature, pulse, respiration, diarrhœa, etc.; in some cases they will be required every two or three hours. If two beds are used the patient must, if possible, be moved from the one to the other in the sheet and there must be enough assistance to do so without jarring or shaking him. The feeding in fever cases is always a matter of the greatest consideration, but is especially so in enteric. The abdominal complications must never be forgotten. The diet laid down must be strictly adhered to. Many physicians restrict the patient to milk and liquid food, but when any addition is made it should be rubbed through a fine hair sieve so that nothing but the smallest particles are taken. On no account must the patient be given a large meal at once. A wineglassful, or two wineglassfuls, at a time is enough. Whenever possible, stimulants

should be given with, or immediately after, a little food. This, of course, is not always practicable. Should vomiting occur, the milk may be diluted with soda water or lime water. In cases of obstinate vomiting it may be necessary to have recourse to rectal feeding. A constant watch must be kept on the stools for curdled milk. When this is found it must be reported. It is an indication that the milk taken is not all being digested, and some alteration in the quantity or method of giving it may be thought advisable. Should any change be made in the diet an even more careful note than usual should be made of the temperature, pulse, stools, etc. Fruit must not be given on any account unless by definite medical orders. Cold water and drinks may be given in moderate amount, and small pieces of ice may be sucked.

The temperature, as will be seen by the two, three or four-hour chart kept, will show considerable variations during the twenty-four hours, but the evening rise and morning remission are generally present. There are usually great variations towards the end of the second week, and it is then that complications are to be more especially looked for. Any sudden rise or fall of temperature is ominous. Relapses after the temperature has been normal for some time are not uncommon. These are often due to errors in diet, but it is not

invariably so. There may be as many as three or four relapses each of which runs through the same course as the first attack but often of a milder type. Sponging and cold applications must be carried out as ordered, and the cold bath may be required.

The delirium of enteric is seldom of the acute character we meet with in typhus. It is more frequently restlessness with a rambling of speech and wandering of ideas : the patient may sink into a dull muttering condition or may pass into a state of coma vigil or waking sleep.

Since the spots come out in successive crops, and are sometimes few in number, it may be convenient for the nurse to mark those which appear at the same time with some distinctive sign : thus, those appearing on one day might be surrounded by a circle ; those on the next by a square, and so on.

It will often be found convenient for the patient to wear night-dresses which open all the way down. Diarrhœa is generally a prominent symptom. The stools are usually described as resembling pea-soup in appearance. The nurse's report should contain information as to the number and character of the evacuations, and whether they contain blood, or if the patient complained of pain before or at the time of passing them. He should be accustomed to the use of the bedpan from the very first. A time

may come when it is absolutely imperative, and when even the slight exertion required for its use may be forbidden. Draw-sheets, of course, must be always used. The details of disinfection (p. 30) must be scrupulously attended to. If the diarrhœa be very excessive medicine may be ordered to be given by the rectum. In this case it should be mixed with two ounces of thin starch and injected very slowly and gently, the buttocks being pressed together afterwards to assist the patient in retaining it.

Constipation may be present and enemata may be ordered. In this, as in all other diseases, the nurse must not administer any medicine, not even a teaspoonful of castor oil, unless by the orders of the physician.

Urine should be saved occasionally for examination. Sometimes there is retention of urine, which may be overlooked if the possibility be not remembered. Bedsores may occur in rare cases with the best nursing, but the cases are few in which they cannot be prevented with care. Attention to position may assist in keeping away pulmonary complications.

Hæmorrhage.—There may be severe internal hæmorrhage without any appearance of blood from the rectum at the time. A sudden fall of the temperature, it may be even below normal, with pallor of face, coldness of extremities and perhaps abdominal pain are the usual symptoms.

The blood may appear in the stools, and, if in large quantity, may be but little changed, but if it have been in the bowel for some time it becomes dark in colour and tarry in appearance. The doctor should be at once communicated with. Cold should be applied to the abdomen over the right iliac region, that is, over the lowest part of the right side of the abdomen, and the patient may be given small pieces of ice to swallow. Absolute rest must be insisted upon, and on no account should the patient be allowed to make any attempt to move. It is dangerous in such circumstances to give stimulants, and the question of their advisability is a difficult and responsible one for the physician.

Perforation.—In those terrible cases in which the bowel becomes perforated at the seat of one of the ulcers the intestinal contents pass into the abdominal cavity, and, if the patient survive the shock, general peritonitis is set up. He is then in a collapsed condition, with severe abdominal pain. Complete rest must be obtained. It may be that even the slight movement necessary for the use of the bedpan may have to be avoided, and fæces and urine must be passed into the draw-sheet. Some method must be adopted for keeping the weight of the bedclothes off the abdomen, either by means of a cradle or pillows. No food can be given by the mouth, and the patient's strength must be sustained entirely by

rectal feeding. Small pieces of ice may be given to suck.

Peritonitis may arise without preceding perforation, and may even be present without pain, though generally that is a prominent symptom. Poultices, unless very skilfully made and applied, cannot be borne. Spongiopiline will probably be found the most convenient material to use for hot applications to the abdomen. Tympanitis, or the inflation of the intestines with gas, is sometimes distressing, and interferes with respiration.

Epistaxis (bleeding from the nose) is occasionally a troublesome complication. The patient's head should be raised on the pillow, and the nose and forehead bathed with ice-cold water. If it be very severe it may be necessary for the doctor to plug the nostrils.

Convalescence.—For some time after the temperature is normal the patient may be kept on liquid food. His appetite will return, and he will crave for more substantial diet, but the nurse must harden her heart against his appeals. Nothing must be given until definite orders to that effect are given. When any change is made, the temperature must be taken night and morning for some days afterwards. The patient is often left very weak, and it may be long before he recover his strength. Occasionally the mind is much weakened, and even an attack of acute insanity may follow.

Smallpox.

Synonym.—Variola.

Varieties :—

Modified : occurs in those who have been vaccinated. The eruption is small in amount, and the disease is generally of a mild type.

Discrete : in which the spots keep separate though the fever may be high.

Confluent : in which the spots run together and form large blebs. The temperature does not fall to normal on the appearance of the eruption as in mild cases, and the secondary fever is very high. These cases are altogether more severe and dangerous.

Malignant : in which there is a great tendency to hæmorrhage. These cases are usually fatal.

Invasion.—Sudden : with headache, pain in back, vomiting and high temperature. In children there may be convulsions.

Eruption.—The characteristic skin affection appears on the third day, but may sometimes be preceded by eruptions of an erythematous or hæmorrhagic character. The ordinary eruption appears in successive crops on the head and face, the body, and the legs. It begins as small red spots about the size of a pin's head which have a

shotty feeling under the fingers. At first they are not elevated but soon become so. In their next stage, on the second or third day from the appearance of the eruption, they are like little blebs filled with clear fluid. These vesicles have a little depression in the centre. About their sixth day they are becoming purulent and there is much swelling and redness of the skin. When fully purulent the shape alters. The depression in the centre disappears and the vesicle becomes pointed. About the eighth day they rupture, and the purulent matter drying, becomes a scab. From the eleventh to the fourteenth day the scabs fall off. The eruption may appear on the mucous membrane of the mouth, etc., as well as on the skin.

Temperature.—This is high at first but in mild cases there is a fall even to normal on the appearance of the eruption. Fever returns when the spots become purulent, and may be preceded by shivering or rigors. The secondary fever may be very slight in modified smallpox, but in other cases it may be so severe as to constitute in itself a grave danger. It may last from three to eight days.

Complications. — Eye affections, laryngitis, bronchitis, pneumonia.

Sequelæ.—Ear and eye affections, abscesses, glandular swellings, erysipelas, gangrene of fingers and toes.

Smallpox is said to be infectious during the incubation period, and is certainly to be considered so until all scabs have separated from the skin. The poison is the most virulent of all the infectious diseases. The fine particles from the scabs and purulent matter may be retained about a room or in some article of clothing for a long time and still retain their infective power. These particles may even be carried some distance by the air, and perhaps house flies may have something to do with the dissemination of the disease.

Whenever possible, a patient suffering from smallpox should be removed to a fever hospital or an isolated house. It is almost impossible to keep up isolation and maintain good ventilation in an ordinary house in a town. It is advisable to have the whole house given up to the patient and his attendants, and the whole top story at least should be vacated. As with other fevers, it is well to have two beds, and, if the case be a severe one, it is better that one of them should have a water bed. The patient's hair may have to be cut and the nails trimmed very short. Feeding must be carefully attended to. If there be much suppuration there is the greater call for nourishment. There is not the same objection to giving fruit that there is in enteric fever. Cold water and drinks may be taken, and the patient may be given pieces of ice to suck. The

mouth will require attention, and borax and glycerine can be used. The nostrils may get caked up with crusts, which must be softened and removed.

Temperature should be taken every four hours in severe cases.

Oil of eucalyptus may be applied to the surface of the body, and compresses on the face may relieve the swelling and discomfort. Tepid sponging is grateful, and cold applications will be required if the temperature get dangerously high. It is usually during the second week that this complication arises.

The delirium of smallpox is sometimes very acute. The same objection applies to restraint as was mentioned under typhus. It may be safer to allow the patient to get out of bed after taking the necessary precautions. A male nurse will be required if the excitement be very wild.

The eyes must be seen to regularly, and may need medical attention. Many methods have been recommended to prevent the pitting which causes the disfigurement so commonly met with at one time. It is noteworthy how seldom one sees a person now-a-days who is thus disfigured. This says much for vaccination and modern sanitation. Restless and delirious patients should have their hands muffled with soft rags, and children should wear cotton gloves to prevent them picking and scratching the spots.

The face may be rubbed with some oily material. Oil of eucalyptus is strongly recommended, but vaseline may be used. Sometimes the face is covered by a mask, which is formed either by painting some substance on the skin or by covering it with lint soaked in some solution, and leaving openings for the eyes, nose and mouth. Generally the physician has his own favourite application which he prefers to have used. The skin may be kept moist, and air excluded by a mask soaked in a solution of boracic acid (1 in 100), and covered with oiled silk, or some oily preparation may be preferred. A very simple method is to soak the mask in a mixture of iced water and glycerine, and to cover it in with oiled silk.

When the spots are discharging a very disagreeable odour is given out. This may be modified by the use of deodorants or Sanitas powder, and the arrangement mentioned on p. 29 will be found useful.

If the patient be very feeble, or if abscesses form, a water bed may be necessary. In the virulent forms, death occurs at quite an early stage, but the most critical period is between the seventh and twelfth days of the disease.

When the scabs are separating, the skin should be oiled, and baths taken regularly. Frequent changes of clothing and bed linen will be required throughout the disease. Scabs and

débris must be collected and burned. The disinfection of all discharges (p. 30) must be strictly carried out. Quarantine must be kept up until all the scales have separated, and a disinfectant bath (p. 33) may perhaps be ordered. Special attention should be given to the hair. In case of death the precautions given on p. 35 should be carried out.

Besides affections of the eyes, the most frequent complications are those of the respiratory system. If the patient be feeble his position in the bed must be frequently changed. He should not be allowed to lie on his back for any length of time.

The nurse may have to use the carbolic spray in case of throat affections.

Chickenpox.

Synonym.—Varicella.

Incubation.—From fifteen to twenty-seven days.

Invasion.—Sometimes hardly noticeable, and there is generally little fever or discomfort.

Eruption appears on the first day. The spots, which form vesicles and usually last about a week, appear on the chest, and then on the face and body generally. They do not all come out at once.

Fever.—Lasts two or three days, and is rarely severe.

Though the patient (usually a child) may not feel ill he must be isolated. Light diet should be given. If there be fever the skin may be sponged. The child should not be allowed to scratch the spots, lest pitting occur. When the scales begin to separate baths should be used, and the patient cannot be allowed out of quarantine until the skin be quite clear. Convalescence may be protracted.

Scarlet Fever.

Synonym.—Scarlatina.

Varieties :—

Scarlatina anginosa : This term is applied to severe cases in which the throat affection is a serious complication.

Scarlatina maligna : Cases which are fatal in a few days from the virulence of the poison.

Incubation.—Not more than a week ; generally about four days.

Invasion.—Sudden : generally with rigors or shivering, headache, vomiting, pains in the back and limbs, with a high temperature.

Eruption appears on the second day on the head, neck and chest, and gradually extends to the rest of the body. It consists of very minute spots or points, which may be so closely set together as to constitute a general redness. The

colour is usually bright red, but may be deeper in some cases.

Temperature.—Keeps high until about the fourth or sixth day, when there is a somewhat abrupt fall, but the normal may not be reached for some days later.

Complications and Sequelæ.—Sore throat with ulcerations, glandular inflammations with sloughing, ear and eye affections, inflammation of kidneys, heart disease, acute rheumatism, bronchitis and pneumonia.

In scarlet fever there is danger of infection from the beginning of the illness until the last shred of desquamation has separated from the body. The poison is contained in all discharges as well as in the particles from the skin. Isolation and the details of disinfection must be carefully carried out. The poison clings to clothing or rooms, and after a very long time may convey the disease. Every article of clothing which has been worn by the child or exposed to infection should be disinfected. Children after the first year of life are the most subject to scarlet fever, and it is most fatal about the third or fourth year. If a case break out in a large household or institution, every—even the slightest—sore throat should be reported. There may be instances of scarlet fever of a very mild type and without any rash, but which unfortunately have the power of conveying the disease in its worst

form to more susceptible individuals. It is such cases as these which render the task of stamping out an epidemic of scarlet fever so difficult.

The diet should be light and composed chiefly of milk and farinaceous food. There are sometimes objections to the use of beef tea and strong soups made from meat. Water and cooling drinks may be freely given.

In severe cases the temperature should be taken every four hours with the usual notes of respiration, etc. Sponging with tepid water to which a little Condyl's Fluid has been added is refreshing, but no warm baths nor any cold applications must be employed without orders.

The throat affection will require attention. Pieces of ice may be given to suck. The nurse may have to spray the throat, or even to paint the affected part with a throat brush. If doing the latter, she must remember that she must work by sight and not by faith. Fomentations or poultices to the throat may be required. If there be much pain in the tonsil the poultice should be carried up to the ear. It is important that any soft rags used to receive discharges should be immediately destroyed.

Urine should be saved daily for the doctor's visit in case he should wish to examine it. It would be convenient if the nurse could use some simple test for albumen either by nitric acid or by boiling. She might then test a specimen of

the urine night and morning as a matter of routine. Any diminution in the amount or alteration in the colour of the urine should be reported and the specimen saved. The appearance of blood from the kidney in the urine may give it a smoky tint, or if in large quantity it may be reddish in colour. When this occurs all the urine passed must be kept and the quantity excreted in twenty-four hours measured. If the patient be getting up he should at once be put to bed, and the nurse may apply hot poultices over the loins. A note must be made of the condition of the bowels, which should be freely open. Any headache, vomiting, twitching of the limbs or puffiness under the eyelids or about the ankles should be at once reported. Should uræmia, or the retention in the blood of the poisonous materials which ought to be excreted by the kidneys, occur, the vapour bath (p. 22) may be required.

The process of desquamation or peeling may begin at a very early period. This may occur either in tiny flakes, or, and especially on the hands and feet, in larger masses. It is first seen on the face and neck in the form of fine scales, and sometimes while the eruption is still present on the lower limbs. This desquamation may go on for six weeks or more, but until it has quite ceased the patient must be kept isolated. From the first an endeavour should be made to

prevent these fine scales being dispersed about the room. It is a good plan to rub the skin with weak carbolic oil (1-50) from the beginning, and when desquamation is in progress a stronger solution (1-25) may be used. The oil of eucalyptus may be employed for this purpose all through the illness, and has been highly recommended. During convalescence the patient should have frequent baths, and the skin may be lightly rubbed with pumice stone to hasten the separation of the flakes.

Great care must be exercised during convalescence that the patient be not exposed to chills. Any pain in the chest or discomfort in the region of the heart should be reported and the temperature taken. If a joint becomes painful and swollen it should be wrapped in cotton wool and the patient put to bed. It may be the beginning of an attack of acute rheumatism.

Before being allowed out of isolation the patient may perhaps have a disinfectant bath, and the hair should be carefully washed.

Measles.

Synonym.—Morbilli.

Incubation.—Ten to twelve days.

Invasion.—Begins like an ordinary cold, and, in a mild case, there may be little fever. In more severe cases there is much running from the eyes

and nose ; the patient is heavy and the appetite is lost. There may be vomiting and even convulsions ; occasionally there is a little sore throat.

Eruption.—Usually appears on the fourth day. It is first seen on the face and spreads gradually over the body. It consists of slightly raised spots of an irregular shape which have a tendency to run into little patches of a crescentic form, leaving spaces of clear skin. The eruption is sometimes followed by a little desquamation.

Temperature.—Is high on the first day but falls somewhat to rise again on the appearance of the eruption. It continues high for a few days, and falls rather suddenly as the eruption fades.

Complications.—The most important are those affecting the respiratory organs, bronchitis and pneumonia, ear and eye affections, diarrhœa.

Sequelæ.—Lung affections, chronic ear and eye troubles, enlarged glands, general weakness and liability to disease.

It is probable that a child in whom measles is incubating has already infected all who are susceptible in the house and amongst his play-mates, but isolation should still be carried out. The disease is markedly infectious during the incubation period and also throughout the illness. The infection is conveyed through the discharges from the nose and expectoration, and also by means of the particles from the skin. It clings to clothing and may thus be conveyed for great

distances. In mild cases it is hardly necessary that the patient should be put to bed during the invasion period, but he should be kept in a room properly warmed and ventilated so as to avoid any needless risk of lung complications. In severe cases from the very first, and in mild cases from the appearance of the eruption, the child should be in bed. There may be headache and the eyes may be painful. Both these symptoms may be lessened if the light in the room be subdued.

The diet should be light and nutritious. Cooling drinks may be freely given so long as they are not taken instead of nourishment. The temperature in severe cases may be very high indeed, and it may be necessary to have recourse to some means to bring it down. Under such circumstances the temperature should be taken every four hours, and especial note made of the respirations.

The skin may be itchy and irritable. This may be relieved by sponging it with tepid water in which a little bicarbonate of soda or borax has been dissolved. Where the skin is desquamating it may be rubbed with a little oil of eucalyptus or carbolic oil. If there are serious symptoms, and the eruption be delayed, the nurse may be ordered to give the child a mustard bath (p. 23).

When there are bronchitic complications the

air in the sick-room should be kept moist with steam from a bronchitis kettle, or the child may be allowed to inhale steam. Linseed should be at hand lest poultices are required. Any diarrhoea should be reported at once; it is sometimes a dangerous complication.

As much care is necessary during the convalescent period as during the acute stage of the illness, good nourishment must be given, and warm clothing worn. The patient must not be exposed to the risk of any chill. Cough or any pain in the chest should be reported, and the temperature taken, and if it be above normal he should be put at once to bed. Probably the sequelæ of measles, which are often the result of the want of proper care, are more dangerous than those of any other of the eruptive fevers.

The nursing of Rubeola (Rötheln or German measles) does not differ materially from that of ordinary measles.

Dengue.

Synonyms. — Eruptive Rheumatic Fever, Break-bone Fever, Dandy Fever, Polka Fever, Date Fever, and many others.

Incubation.—May be very short, or may extend to five or six days.

Invasion and Course of Disease.—The onset is usually sudden, with vomiting, headache and

elevation of temperature. Frequently a transient blush appears on the skin. There is pain in the joints, usually beginning in the hand, and then passing to other parts of the body. The suffering is often very acute. After two or more days the fever begins to subside, and at this stage there may be profuse perspirations and diarrhoea. The remission may last for three or four days, and the patient, especially if young, may be delirious. Prostration is often marked from the beginning of the illness. A copious eruption, which varies in character, now makes its appearance, accompanied by secondary fever. This stage lasts two or three days, and is followed by desquamation. Recovery is the rule, but convalescence may be prolonged, and relapses are common.

This disease is only met with in warm climates. A four-hour temperature chart should be carefully kept. In children the onset may be marked by convulsions, and the hot mustard bath may be ordered. The severe headache may be relieved by a similar bath for the feet, or cold applications may be used for the head. For this purpose cold water, to which some evaporating lotion may be added, is employed. The patient is laid across a bed with his head projecting over a bowl of iced water, to which the lotion has been added. The head is then quietly but copiously douched.

Owing to the general tenderness and severe pains the patient must be gently handled. There may be intense itching of the skin during the period of desquamation. Sponging with carbolic lotion (1-100) will probably give relief. Great care and plenty of nourishment are required during the convalescent stage. Cold baths and douches with massage may be ordered.

This concludes the list of ordinary infectious diseases in which the skin eruption is a characteristic and prominent symptom.

Whooping Cough.

Synonyms.—Pertussis, Kincough.

Incubation.—Usually from ten to fourteen days.

Invasion.—It begins like an attack of bronchial catarrh, and after a week or a little longer, the characteristic cough and “whoop” come on in paroxysms. When these are severe the child is left much exhausted. As a rule they are worse at night, but this is not always the case, and, if the child be startled or agitated, they are more liable to occur. The disease lasts for about two months and the paroxysms gradually diminish in number and severity.

Complications.—Usually lung affections: there

may be bleeding from the nose and mouth during the paroxysm. Hernia may be produced.

Directly or indirectly whooping cough is responsible for a large number of deaths amongst children, and a weakly child should be guarded from exposure to the risk of infection. The poisonous material is thrown off in the expectoration by the coughing, and it may be carried for a considerable distance in the air. Isolation is not an easy matter, though it ought to be carried out. The patient need not be confined to bed unless there be some complication. He is all the better for open-air exercise, which, however, should never be permitted to produce fatigue. He should have two rooms; one to be occupied as a playroom during the day and the other as a sleeping apartment. The ideal arrangement would be to have an isolated house surrounded by a large garden. The rooms should be airy and well ventilated. The patient must not be allowed to run any risk of chills, or of lung complications, and should be warmly clad. Any pain in the chest should be reported and the temperature taken: if above normal or if the child appear ill he should be at once put to bed.

There need be little change made from the ordinary diet in the majority of cases beyond supplementing it with milk. The patient's nutrition may suffer if there be much vomiting, as sometimes occurs, after the paroxysm. The

stomach may be emptied before there is time for the food to be digested. In such cases the nurse should give some easily digested food immediately after the paroxysm so that it may be absorbed before the next attack. The child should have soft food, or should masticate it very thoroughly, so as to make vomiting easier should it occur. If he have a hernia special attention should be paid to the truss. Some children dread the onset of the paroxysm and even scream for assistance when they feel it threatening. The nurse should try to soothe the patient, as agitation precipitates the attack. If the child be young she should take it in her arms during the seizure. When the paroxysms are very severe during the night they can be sometimes relieved by a hot poultice to the chest. The nurse may have to use the carbolic spray in the room. Disinfection with sulphurous acid, of the dayroom by night, and of the bedroom in the daytime, is sometimes ordered. Sulphur is burned in the room, which is closed for five hours, and then thrown open for a while before being occupied.

Diphtheria.

Incubation.—From two to six days.

Invasion.—There is a gradual onset of symptoms. The patient feels out of sorts, and complains of rigors, headache and perhaps vomit-

ing. Before long his throat begins to be sore. At first the tonsils may only be red and swollen, but soon the characteristic membrane is seen. This is a yellowish white patch, which may be confined to the tonsils, or may appear on any part of the fauces. The patient rapidly becomes prostrate, and the effects of the poison generated by the micro-organism are felt over the whole body. The position of the local affection may in itself give rise to serious dangers. Diphtheria affecting the larynx may lead in the first place to a narrowing, and afterwards to the closing, of the air passage. The disease may extend down the trachea into the bronchial tubes, or may affect the nasal mucous membrane. Though the throat is the usual place affected, it is by no means the only one. Any scratch or open sore on the skin may become the resting-place for the germs, and on this the characteristic membrane may form with all the constitutional symptoms.

Temperature.—May be high, and reach even to 106° , but in some cases it is much lower throughout the whole illness.

Complications.—Bronchial affections, pleurisy, pneumonia, albuminuria, paralysis.

Nursing diphtheria is anxious and trying work. Disinfection and isolation must be thorough. The discharges from the nose and mouth are most infectious. The poison may

be carried by the air, and also clings to clothing, etc. It is well to remember that the infection may be spread by cats. The utensils, spoons, etc., used by the patient should be put into disinfectant solution, and afterwards treated with boiling water. The nurse must never put the patient's spoon or cup near her lips. This caution is very necessary in the case of a child being nursed by one who has been accustomed to feed it. The nurse must have open-air exercise daily, and should not forget that she is leaving a moist warm atmosphere when she goes out of doors. She should gargle her throat several times daily with a solution of carbolic acid (1-100). Any scratch on her hand or face should be covered up. Her hands ought to be washed in disinfectant solution (p. 29) after being engaged with the patient, and if any saliva or shred of membrane be coughed on her dress it should be at once disinfected.

To maintain good ventilation, and at the same time keep the air moist and warm, is not an easy task, but it must be done. If the larynx be affected there may be but little air entering the lungs, and that little must be as pure as possible. The steam to supply moisture should be got from a kettle on the fire, and not from one placed over an oil or spirit lamp. The latter does not assist in ventilation,

while it uses up the oxygen and pollutes the air. A tube can be fixed to the spout of the kettle to convey the air where it is wanted. The temperature of the room must not be allowed to fall below 60° F. in ordinary cases, and should be kept from 65° to 70° in cases where tracheotomy has been performed.

Maintaining the patient's strength must be the first consideration. The diet is an important matter, and special directions will be given by the physician. It is unfortunate that in cases where nourishment is so important there should be such difficulties in the way of administering it. The digestive powers are impaired, and the food may require to be artificially digested. Swallowing may be interfered with by the throat affection, or there may be so much nausea and sickness that the patient cannot take food. Rectal feeding by enemata of previously digested food or suppositories may be required. Sometimes children will refuse to take food, and if the nurse try to force it upon them they become exhausted by the struggle. If coaxing and persuasion fail, the doctor should, in such cases, be consulted. Nourishment must be given by some means, but it is doubtful whether the good obtained from the small amount of food taken by the mouth in very obstinate cases compensates for the harm done by the effort to

give it. Any exertion in a feeble case may precipitate a fatal result, and such a patient should not even be allowed to raise himself in bed without permission. Vomiting may be so severe as to compel the cessation of attempts to give food by the mouth. The application of a hot poultice or of mustard to the stomach may help to allay it. In the later stages of the disease, owing to the paralysis of the muscles of deglutition, the patient may be unable to swallow, and the œsophageal tube may have to be employed. Stimulants will often be required.

A regular chart of temperature, pulse and respirations should be kept. In feeble cases the nurse should feel the feet and legs frequently, and if they are losing heat it may be necessary to use hot bottles.

Urine should be saved for examination, as albuminuria is a frequent complication. The nurse may have to make local applications to the throat. These may be in the form of spray, and for this purpose the ordinary bottle and india-rubber ball arrangement used for scent will be found cheap and useful. If the solution used is to be painted on with a brush, the nurse must use a tongue depressor and see what she is doing. She may wear a respirator or some covering over nostrils and mouth, and try to avoid having any particles of membrane coughed directly into her face. With some children it will be found impos-

sible either to spray or paint the throat, and it may be necessary to use inhalers. Poultices or fomentations may be required to the throat, or sponges wrung out of hot water may be applied to the front of the larynx and frequently repeated. The nose may become blocked up and require syringing with a warm solution of Condy's Fluid.

When the larynx is affected the nurse must be on the outlook for signs of suffocation, and immediately summon the doctor, as tracheotomy may have to be performed. She must get things ready for the operation in case it should be decided upon, so that no time may be lost. A steam tent should be put over the cot if there be not one already, and if the child be old enough to stay in one. The cot or bed can be surrounded with light curtains, with an opening at the top to allow the steam to escape. Basins, hot water, towels, a sheet to put round the patient, safety pins, tapes, scissors, oil and a small four-legged steady table will be required. After the operation the temperature of the room and moisture of the air must be carefully kept up. A piece of muslin wrung out of hot water may be laid lightly over the orifice of the tube. The nurse must see that the child does not interfere with the latter. Any secretion from it should be wiped up with a piece of soft rag or absorbent cotton wool and burned. The tube

must be kept clear of mucus by means of a soft feather, which should be washed in an alkaline solution (carbonate of soda) and dipped in a weak disinfectant before being used. The inner tube may have to be taken out occasionally, cleaned, slightly oiled, and put back again. It should be treated in the same way if coughed out. If the tapes require renewing the new ones should be put in and tied round the neck before the old ones are removed. Sometimes the tube becomes blocked, and there is a danger of the patient dying of suffocation. In such circumstances the tube has often been sucked by the doctor or nurse to remove the obstruction. Such an action is very heroic, but if forethought were exercised and such an emergency provided for, valuable lives need not be risked. The same end might be gained by using an apparatus recommended by Wynter Blyth. "It is obvious that a wash-bottle arrangement containing at the bottom of the flask a solution of corrosive sublimate or else strong carbolic acid, and from the glass tube which dips beneath the liquid a rubber tube carrying a little nozzle fitting in the silver canula, would make a most effective apparatus to clear the tracheotomy tube, and the operator could not be directly infected, for the sucked-out matter would pass into the disinfectant. By drawing air through the shorter tube a very considerable vacuum will be produced."

Great care must be exercised during convalescence, and no exertion must be permitted for some time afterwards.

Influenza.

Incubation is very short. It may be three or four days or perhaps a week.

Invasion is sudden. The patient feels ill, with elevation of temperature. There is running from the eyes and nose accompanied by severe headache. There are often severe pains in back and limbs with general prostration and a feeling of utter misery.

Complications.—Pneumonia, bronchitis, diarrhoea, great depression and even insanity.

Owing to the widespread nature of the epidemic it is usually difficult to carry out any effective isolation, though this should be done so far as is possible. Much trouble may be saved by keeping the patient in bed from the very first. Little food will be taken during the early stage, though nourishing diet will be required afterwards. The light in the room should be subdued while the headache is severe. There may be profuse perspirations. The clothing should be changed and the skin sponged with tepid water to which a little vinegar or eau de Cologne has been added. The temperature and respirations must be noted, as they may give warning of chest complications.

Care is needed during convalescence, and no exertion should be allowed. The room should be kept at 55° F. while the patient's temperature is high and raised to 60° as the fever subsides.

Cholera.

Incubation.—Usually from thirty-six hours to three days, but may extend to a fortnight.

Invasion and Course of Disease.—There may be a sudden onset and patient may die before the development of symptoms. Usually there is premonitory diarrhœa, or the patient may feel ill and miserable for a day or two before the violent purging begins. The stools are very copious, and although coloured at first soon become like water in which rice has been boiled (rice water stools), which, in unfavourable cases, may be tinged with blood. The purging is not accompanied by much pain. Usually a short time after the diarrhœa has set in the patient begins to vomit and may be unable to retain anything in his stomach. He suffers severely from cramps and muscular spasms and soon becomes collapsed. His pulse is hardly perceptible, face is pale and lips livid, extremities cold and blue, and urine may be suppressed. The patient's intellect is generally clear, and, though sometimes hopeful, he is usually indifferent as to the result of the illness. This, the *cold stage*, may last for

twenty-four hours or be considerably shorter, and, if the patient survive it, he passes into the stage of *reaction*. In favourable cases his appearance improves, the skin regains its normal tint, vomiting and purging may cease and urine be again secreted. Sometimes a rash comes out on the skin. In other cases the purging may continue, and the patient may die or sink into a low typhoid condition. Death may arise from uræmia or the retention of poisonous materials in the blood.

Temperature.—May be several degrees below normal during the cold stage when taken in the axilla, though at the same time in some cases it has been found high in the rectum and vagina. In the stage of reaction it rises to normal or may even be a little above it.

Complications. — Lung affections, ulceration and sloughing of cornea, swelling of tonsils and salivary glands, bedsores.

During a cholera epidemic those in attendance on the patients should guard against any indiscretions in diet. Water and milk should be boiled. No diarrhœa, however slight, should be neglected. The infection is spread by the discharges from the alimentary canal, and a very small amount may infect a large quantity of water. Great care must be exercised in the disinfection of the vomit and stools. The doctor should be consulted as to the best method of disposing of the discharges. If it can be avoided

they must not be put down the water closet. Any soiled garments or linen should be at once put into disinfectant solution and the patient carefully cleansed. The caution about the cleansing of the nurse's hands is worth repeating.

Throughout the illness the recumbent position must be maintained. During the cold stage little nourishment can be taken, and often it is immediately rejected by the stomach. The process of digestion and absorption is sometimes in abeyance, but ice, iced water, and effervescing drinks, if ordered, may be given. Stimulants are often administered in the form of sparkling wines. It may be necessary to apply warmth to the surface of the body by means of hot bottles or warm flannels. Sometimes the patient is put into a warm bath, and in that case he must be lifted from the bed in a sheet, and not allowed to raise himself up. The cramps may be relieved by gentle friction, and some liniment may perhaps be ordered to be used for this purpose. The nurse should note if any urine be passed.

During the stage of reaction the warm applications are not required. The clothing should be sufficient but not excessive. Nourishment can now be given, but it must be in a very light and easily digested form, and it may have to be given by the rectum. Iced milk may be taken. The amount of urine passed should be

noted, and a specimen saved for examination. An outlook must be kept for symptoms which might point to uræmia, as headache, drowsiness, vomiting, twitching of muscles, etc. Careful nursing is required in the typhoid stage, and precautions to prevent bedsores must be employed throughout. During the convalescent period the patient must not be allowed to go beyond the limits of his prescribed diet.

Dysentery.

This disease begins with elevation of temperature, headache and a feeling of general malaise. Gripping pains are soon felt, and there is a constant desire to go to stool, though but little is passed after much straining. The stool may consist entirely of mucus or mucus tinged with blood, with occasional little fæcal masses. In severe cases there may be shreds of membrane and much blood. The evacuations are very foul smelling. Vomiting may be a prominent symptom. The frequent motions give no relief, and there is heat and pain felt about the anus. In severe cases the patient may be delirious, or may fall into a condition of coma or stupor. Sometimes the disease becomes chronic, with much weakness and emaciation.

The patient must be kept in bed, and rest in the horizontal position insisted upon. The bed-

pan should be used, and the stools disinfected. The arrangement mentioned on p. 29 will be found useful to mitigate the fœtor when the purging is excessive. Great attention must be paid to cleanliness. If no urine be passed, the fact must be noted and reported. Hot fomentations may be ordered to the abdomen, or mustard plasters over the stomach. Small pieces of ice may relieve the sickness and intense thirst. The instructions as to diet, drinks, etc., must be carefully attended to, and the nurse should consult the physician as to the temperature at which he wishes them to be given.

During convalescence care must be exercised concerning the patient's diet.

Yellow Fever.

This deadly disease is confined to the West Indies and to certain parts of America and the West Coast of Africa.

Incubation.—This varies : it is usually between one and fifteen days.

Invasion and Course of Disease.—The onset may be sudden, or there may be warning symptoms of general malaise and perhaps rigors. The patient rapidly becomes very ill, and severe headache may be a prominent symptom. There is abdominal pain and tenderness, and generally

vomiting ; soon he becomes jaundiced, and from the yellow tint of skin and conjunctivæ the disease takes its name. About the third or fourth day he may begin to improve, but in unfavourable cases there is little remission in the symptoms. His condition gets worse. The vomiting becomes more severe, and altered blood may be passed from the bowel or vomited from the stomach (black vomit). There may be bleeding from the nose and mouth and, as a rule, hæmorrhage from the vagina. The patient may become delirious, and in some cases sink into a comatose condition.

Temperature may be very high during the first two or three days, and may reach to 107° : about the fourth day there is generally a lessening of the fever, but in unfavourable cases this is only temporary.

Complications. — Albuminuria, suppression of urine, hæmorrhages, glandular swellings, gangrene. Isolation, ventilation and disinfection must be carried out as in other infectious diseases. The patient should be kept in a horizontal position in bed, and if a bath be given he must be carefully lifted on a sheet. Food must be light and nutritious. When the patient is very weak there may be difficulty in giving it owing to the impairment of the power of swallowing. Ice in small pieces and small quantities of iced drinks will be grateful to the patient and may relieve the vomiting.

Stimulants will probably be ordered. Cold sponging or the cold bath may be required to reduce the high temperature. There may be involuntary evacuation of fæces, and draw-sheets should be used. The amount of urine passed should be noted and a specimen saved for examination. There may be retention or suppression, and what little is passed may contain blood. In the later stages the nurse should watch for any symptoms which might show the onset of uræmia. This disease is very infectious, and the disinfection of discharges, clothing and sick-room must be carefully attended to.

Cerebro-spinal Fever.

This disease is probably not directly contagious from individual to individual but is epidemic.

Synonyms.—Cerebro-spinal Meningitis, Epidemic Meningitis, Malignant Meningitis.

Invasion and Course of Disease.—There is usually a sudden attack with rigors, severe headache, vomiting and restlessness. There may be convulsions followed rapidly by delirium, stupor and coma. The temperature is sometimes very high, but many cases show only a moderate degree of fever. Skin eruptions are sometimes present, and eye and ear complications are not uncommon.

Much depends upon the nursing. The room

must be darkened and unnecessary visitors excluded. The patient must be kept as quiet as possible. Cold applications will probably be ordered to the head and back of neck, and perhaps also to the dorsal and lumbar vertebræ. This may be done by means of ice in ice-bags, or by pounded ice mixed with bran, which adapts itself more comfortably to the parts. Liquid nourishment must be given, and if the patient cannot take it by the mouth his strength must be supported by enemata of previously digested food. Urine should be saved for examination as there may be albuminuria. A greater quantity than normal may be secreted, but there may be retention of urine and also involuntary evacuation of the bowels. The utmost care will be needed to prevent the formation of bedsores.

Relapsing Fever.

Synonyms.—Famine Fever, Recurrent Typhus, Hunger Typhus.

Invasion and Course of Disease.—The onset is usually sudden. The patient has rigors, with severe pains in back and limbs, accompanied by severe headache. The temperature rapidly runs up to 103° or even a couple of degrees higher in the first twenty-four hours, and in three or four days may reach 107° . Headache, vomiting and sleeplessness are often distressing symptoms.

Between the fifth and seventh days there is an abrupt fall of the temperature to the normal or below it. At the same time there are profuse perspirations, which may continue and seriously weaken the patient. About the fourteenth day there is a relapse, which runs a similar course to the first attack, but is often milder. Frequently the patient is jaundiced, and suffers from eye affections. Delirium is not of the wild character met with in typhus. He may become comatose, or die from uræmia.

Complications. — Pneumonia, kidney disease, diarrhœa, bleeding from stomach and bowels, glandular inflammations, abscesses.

Relapsing fever attacks the poor who are insufficiently fed and badly lodged. Isolation and disinfection must be rigidly carried out. There is an equal necessity for good ventilation, but care must be exercised not to expose the patient to chills or draughts after the first fall of the temperature. When the temperature is high the body must be frequently sponged, and perhaps some disinfectant may be added to the water according to orders. Cold to the head may relieve the headache. Notes of temperature, respirations, etc., must be carefully kept throughout the whole illness. The feeding of the patient in the interval between the attacks will require especial attention. Flannel clothing should be worn during the

perspirations, and changed when damp, the body being sponged and dried. Muscular pains may be relieved by gentle friction, and poultices may be required if there be much pain in the left side. Diarrhœa is sometimes a serious complication. Urine should be kept for examination, and the amount passed in the twenty-four hours measured if there be any diminution in the quantity passed. The heart is often much weakened, and the patient must not be allowed to exert himself during convalescence.

Erysipelas.

Synonyms.—The Rose, St. Anthony's Fire.

This disease is distinctly infectious. It consists of an inflammation of the skin (and sometimes of the mucous membrane) caused by a micro-parasite, and accompanied by fever, with severe constitutional symptoms. Its starting part is usually some wound or abrasion of the skin, which may be so small as to be unnoticed, and there is a great tendency for the inflammation to spread.

The patient should be isolated. The nurse who attends upon him should not come near any case with a wound or open sore, and must cover up any scratch on her own hands or face. Her hands should be washed in disinfectant

solution (p. 29) after attending to the patient. Scrupulous cleanliness must be maintained, and any dressings, etc., burnt as soon as they are taken off. The disease is an exhausting one. The patient must be well nourished, and will require a copious supply of liquid to relieve his thirst. Urine must be saved, as albuminuria may occur. Sometimes, and especially in erysipelas of the face and scalp, there is delirium of an acute character, or the patient may become comatose.

The local treatment must be carried out according to orders.

The disinfection of the sick-room must be very carefully carried out, as the poison has a tendency to cling about it for a long period.



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