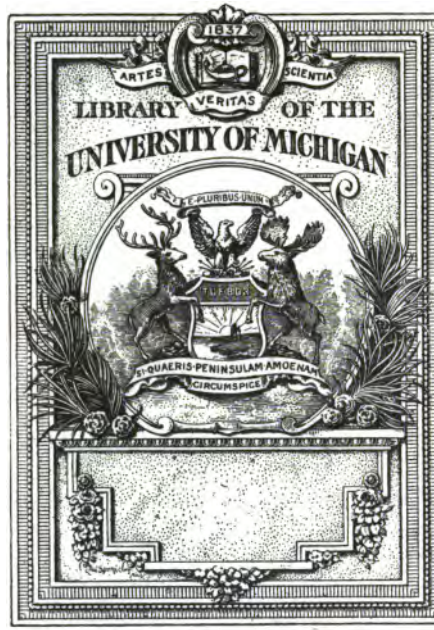
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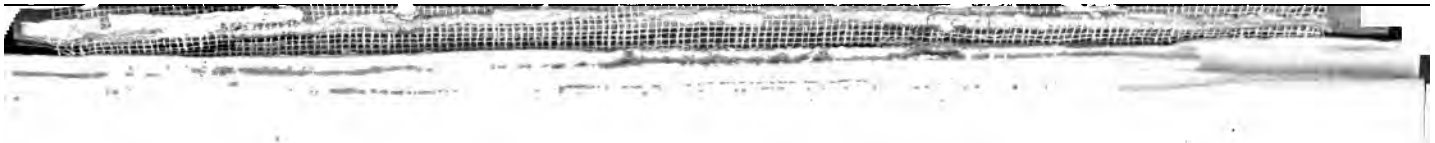

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CHICAGO
AMERICAN SCHOOL OF HOME ECONOMICS
1911

AUTHORS

ISABEL BEVIER, Ph. M.

Professor of Household Science, University of Illinois. Author U. S. Government Bulletins, "Development of the Home Economics Movement," "Selection and Preparation of Food," etc. President American Home Economics Association.

ALICE PELOUBET NORTON, M. A.

Assistant Professor of Home Economics, School of Education, University of Chicago; Director of the Chautauqua School of Domestic Science; Author "Teaching of Home Economics."

S. MARIA ELLIOTT

Instructor in Home Economics, Simmons College; Formerly Instructor School of Housekeeping, Boston.

ANNA BARROWS

Teacher of Cookery, Teachers' College, Columbia University, Director Chautauqua School of Cookery; formerly Editor "American Kitchen Magazine"; Author "Home Science Cook Book."

ALFRED CLEVELAND COTTON, A. M., M. D.

Professor Diseases of Children, Rush Medical College, University of Chicago; Visiting Physician Presbyterian Hospital, Chicago; Author of "Diseases of Children."

BERTHA M. TERRILL, A. B.

Professor of Home Economics and Dean of Women, University of Vermont; Author of U. S. Government Bulletins.

KATE HEINTZ WATSON

Formerly Instructor in Domestic Economy, Lewis Institute; Lecturer University of Chicago.

MARION FOSTER WASHBURNE

Editor "The Mothers' Magazine;" Lecturer Chicago Froebel Association; Author "Everyday Essays," "Family Secrets," etc.

MARGARET E. DODD

Graduate Massachusetts Institute of Technology; Teacher of Science, Woodward Institute.

AMY ELIZABETH POPE

With the Panama Canal Commission; Formerly Instructor in Practical and Theoretical Nursing, Training School for Nurses, Presbyterian Hospital, New York City.

MAURICE LE BOSQUET, S. B.

Director American School of Home Economics; Member American Public Health Association and American Chemical Society.

CONTRIBUTORS AND EDITORS

ELLEN H. RICHARDS
Author "Cost of Food," "Cost of Living," "Cost of Shelter," "Food Materials and Their Adulteration," etc., etc.; Chairman Lake Placid Conference on Home Economics.

MARY HINMAN ABEL
Author of U. S. Government Bulletins, "Practical Sanitary and Economic Cooking," "Safe Food," etc.

THOMAS D. WOOD, M. D.
Professor of Physical Education, Columbia University.

H. M. LUFKIN, M. D.
Professor of Physical Diagnosis and Clinical Medicine, University of Minnesota.

OTTO FOLIN, Ph. D.
Special Investigator, McLean Hospital, Waverly, Mass.

T. MITCHELL PRUDDEN, M. D., LL. D.
Author "Dust and Its Dangers," "The Story of the Bacteria," "Drinking Water and Ice Supplies," etc.

FRANK CHOUTEAU BROWN
Architect, Boston, Mass.; Author of "The Five Orders of Architecture," "Letters and Lettering."

MRS. MELVIL DEWEY
Secretary Lake Placid Conference on Home Economics.

HELEN LOUISE JOHNSON
Professor of Home Economics, James Millikan University, Decatur.

FRANK W. ALLIN, M. D.
Instructor Rush Medical College, University of Chicago.

MANAGING EDITOR

MAURICE LE BOSQUET, S. B.
Director American School of Home Economics.

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MISS ALICE RAVENHILL

Special Commissioner sent by the British Government to report on the Schools of Home Economics in the United States; Fellow of the Royal Sanitary Institute, London.

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We Believe—

THAT right living should be the fourth "R" in education.

THAT home-making should be regarded as a profession.

THAT health is the duty and business of the individual; illness of the physician.

THAT most illness results from carelessness, ignorance, or intemperance of some kind.

THAT as many lives are cut short by unhealthful food and diet as through strong drink.

THAT on the home foundation is built all that is good in state or individual.

THAT the upbringing of children demands more study than the raising of chickens.

THAT the spending of money is as important as the earning of the money.

THAT economy does not mean spending a small amount, but in getting the largest returns for the money expended.

THAT the home-maker should be as alert to make progress in her life-work as the business or professional man.

THAT the most profitable, the most interesting study for women is the home, for in it center all the issues of life.

THAT the study of home problems may be made of no less cultural value than the study of art or literature and of much more immediate value.

—American School of Home Economics

Home Care of the Sick

BY
AMY ELIZABETH POPE
INSTRUCTOR IN TRAINED NURSING, PRESBYTERIAN HOSPITAL, NEW YORK CITY
WITH PANAMA CANAL COMMISSION

CHICAGO
AMERICAN SCHOOL OF HOME ECONOMICS
1911

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AMERICAN SCHOOL OF HOME ECONOMICS
CHICAGO

January 1. 1907.

Dear Madam:

Good nursing consists chiefly in being able to render certain assistance deftly and correctly and to derive the full benefit from this course you must, so far as practicable, try to carry out the instructions given in the lessons.

Practice should not wait until you have a sick person on whom to experiment--your attempts might not be appreciated--but have someone "play patient" while you change the bed clothes, the gown, lift her up and down in bed, to another bed, to a chair, change the mattress, etc.

Do all this not once but many times until you can follow out the directions softly and quickly. It would be best to do this before the answers to the tests are sent in, so that if there is anything in which you fail or that is not perfectly clear, you can ask for explanations.

I regret that my new duties with the Panama Canal Commission will not permit me to look over your tests personally, but my substitute will, I know, give you all assistance needed. If I can be of any further help, I shall be glad to have you write to me even though an exchange of letters takes some time.

With best wishes for your success, I am

Sincerely yours,

Amy E. Pope

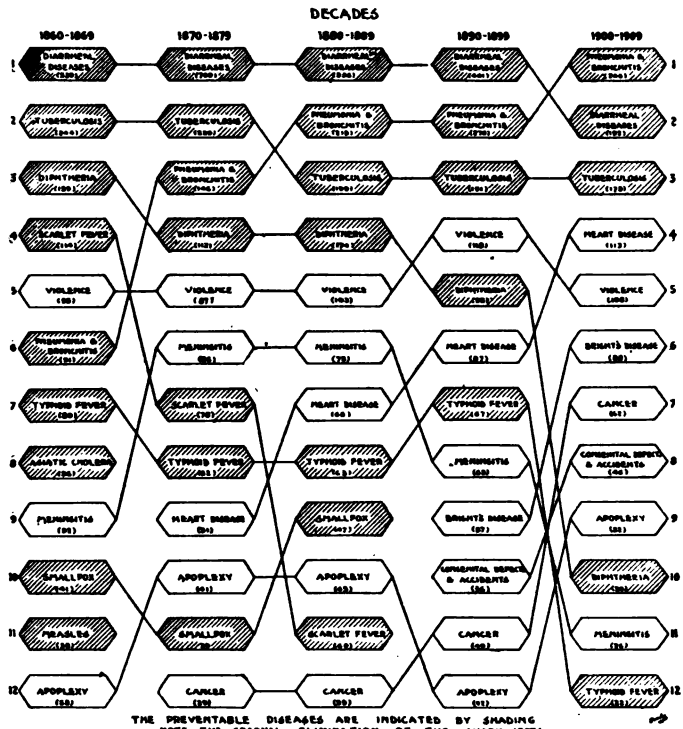
Supervisor

TWELVE CHIEF CAUSES OF DEATH IN CHICAGO.

BY DECADES, 1860-1909

CAUSES NAMED IN ORDER OF HIGHEST DEATH RATE.

AVERAGE RATES PER 100,000 OF POPULATION IN PARENTHESIS



THE PREVENTABLE DISEASES ARE INDICATED BY SHADING
NOTE THE GRADUAL ELIMINATION OF THE SHADY SPOTS

DEPT OF HEALTH, CHICAGO

HOME CARE OF THE SICK.

IT IS the minority, not the majority of people, who can afford the luxury of a trained nurse, especially in cases of protracted and chronic illnesses.

Aims of the Lessons

These lessons are intended to help those who cannot always command the services of a trained nurse, to teach how to carry out the doctor's orders, what to look for and observe in his absence, so that by giving him a definite report of what the patient's condition has been he may be able to work more understandingly, be able to diagnose the disease more quickly, be surer of how the patient is progressing, and of the influence the medicine ordered is having. And to teach above all how to handle and move patients without tiring them, how to render them comfortable, thereby ensuring rest of nerve and body.

The Doctor's Province.

What to do in illness is purposely omitted in these lessons, except in very simple troubles and in cases of emergency. The "what to do" is for the doctor to decide, the "how to do" for the mother to know. Incalculable harm is continually being done by the latter encroaching on the doctor's prerogative. Many a mother has treated her child for supposed colic and only called the doctor in after some days when the pain has refused to yield to her treatment. In very

many cases the treatment has been the worst thing possible for what has proved to be appendicitis, gastro-enteritis, or other serious abdominal trouble.

What the Mother Should Know

There are few who can afford to run up the doctor's bill by calling him in unnecessarily. To avoid this, and yet not run the risk of endangering the lives of those entrusted to her care, especially the little children who cannot tell clearly where the pain is or how badly they feel, it is imperative that every mother should know how to count the pulse, take the temperature, and be cognizant of at least a few of the primary symptoms of the most common diseases, especially the contagious ones, where the lack of early recognition and isolation may imperil the health or life of others.

The following table gives the primary symptoms, period of incubation, and usual time required for isolation of the most common contagious diseases. The number of days between exposure to and the development of a disease is called the period of incubation.

FIRST SYMPTOMS IN SOME OF THE MOST COMMON DISEASES

CONTAGIOUS DISEASES

DISEASE	PERIOD OF INCUBATION	SYMPTOMS	TIME OF ISOLATION
Mumps	Days 14-21 average 18	Swelling of the glands between ear and jaw, on either side or both.	From day when swelling first appears till 10 days after, usually 3 weeks.

CONTAGIOUS DISEASES (Continued)

DISEASE	PERIOD OF INCUBATION	SYMPTOMS	TIME OF ISOLATION
Chicken-pox	Days 12-16 average 14	Slight fever, after 24 hours small pimples appear on back and face.	From onset until last crust has fallen, usually 14 days.
German Measles	Days 6-18 average 14	Very slight fever, rash (if any) appears first on face, may only last a few hours. There may be headache and nausea.	From 2 days before rash till symptoms are gone. Sometimes 2 weeks.
Measles	Days 9-16 average 12	Sneezing, running from eyes and nose, face swollen, sore throat, cough, fever gradually rising, rash appears first on face and neck.	From first catarrhal symptoms until desquamation ceases, usually 24 days.
Small-pox	Days 9-16 average 16	Chill, rapidly rising temperature, intense headache, pain in back and legs, rash, small, red, hard pimples, appearing first on face and wrists.	From onset until last crust has fallen, usually 6 weeks.

CONTAGIOUS DISEASES (Continued)

DISEASE	PERIOD OF INCUBATION	SYMPTOMS	TIME OF ISOLATION
Scarlet-fever	Days 1-7 average 7	Sudden vomiting, sometimes chill or convulsions, high temperature, sore throat, tongue coated on edges, bright red in center, general malaise, typical rash appearing first on chest and shoulders.	From appearance of rash till desquamation has entirely ceased; usually 6 weeks.
Diphtheria	Days 1-6 average 6	Especially in the beginning of the disease the temperature is not as high as in tonsillitis; headache, nausea, sore throat, with white patches on the tonsils.	From onset till germs have entirely disappeared.

As it is sometimes difficult even for the physician to distinguish between diphtheria and tonsillitis without taking a culture for examination, when white patches appear on a child's throat it should be isolated and a doctor called in at once.

DISEASES NOT CONTAGIOUS

Children's Diseases

Colic. Give castor oil, then a few drops of peppermint in hot water (never soothing syrup); keep the baby warm and lying on his abdomen. Gentle rubbing in a circular direction, and the application of hot flannels will generally relieve it. If not, a physician

should be notified as continued abdominal pain is a symptom of many serious disorders.

Cholera Infantum. Caused by over or improper feeding, heat and impure air. Symptoms: Diarrhoea and intestinal pain, excessive thirst, but no appetite. Try no home remedies, seek medical aid at once.

Intestinal Obstruction. Symptoms: Obstinate constipation, followed by vomiting and abdominal distention; usually not much temperature. Get medical advice promptly, as immediate operation may be imperative.

Convulsions. Caused by indigestion, worms, difficult dentition, or fright. Muscular twitchings coming on suddenly, sometimes even during sleep. Send for the doctor immediately, but do not await his arrival to put the baby in a hot bath. Give castor oil and an enema, according to directions given on page 55, using, if the child is small, a rubber catheter for a rectal tube.

Pneumonia. Primary symptoms: Chill followed by high temperature, cough, pain in chest, expectoration which gradually becomes rust colored and bloody. Put patient to bed and send for the doctor immediately.

Typhoid Fever. Primary symptoms: Temperature rising a little higher each day, nausea, headache, pain in back and limbs, nose bleed, sometimes constipation, sometimes diarrhoea, watery, yellow stools, abdominal pain. Put patient to bed and only allow liquid diet until the doctor comes.

Meningitis. May develop suddenly with continuous convulsions, or come on gradually with symptoms of fretfulness, restlessness, headache, vomiting, and intolerance of light and noise. Put patient to bed in a quiet, dark, well-aired room and only allow liquid diet till the doctor comes.

Croup. There are two forms of croup—the true or membranous and the false or spasmodic. The former is always associated with diphtheria, but since the use of antitoxine it has become a much rarer complication, seldom occurring when antitoxine is used. It comes on gradually.

False Croup

False croup comes on suddenly, generally in the middle of the night; it is as a rule the result of exposure to damp and cold, excitement, or indigestion.

The spasm is the result of the spasmodic closing of the glottis. Though not dangerous, it is very distressing and calls for immediate treatment. Relief usually can be obtained best by applying hot fomentations to the throat, inducing vomiting by giving a drink of tepid water and salt—a teaspoonful to the glass—and by steam inhalations.

The most effective way of giving inhalations is with the croup kettle and canopy. The quickest way to improvise these is to tie an umbrella to the top of the child's crib and over this drape two sheets, pinning them to the sides of the bed. They must overlap about one inch and hang down far enough over the sides and back of the bed to be tucked under the mat-

tress. The lower third of the front space is left open for the admission of fresh air. Water is kept boiling in a kettle at the back of the bed by a gas or oil stove

Canopy for Giving Steam Inhalations Made with a Sheet and Umbrella

and a cone of cardboard or stiff paper is attached to the spout and inserted between the overhanging sheets to carry the steam over the child's head.

Minor Troubles

In nearly all cases of slight indisposition, even diarrhœa, a cathartic such as castor oil or calomel, followed by salts such as Rochelle salts, magnesium sul-

Rear View of Croup Canopy Showing Stove, Kettle, and Tube for Steam

phate, or seidlitz powder, five or six hours later, together with rest and fluid or soft diet is indicated. *Give as little medicine as possible without a doctor's order.*

THE CHOICE, FURNISHING AND CARE OF THE SICK-ROOM

Sunshine, pure fresh air, and freedom from noise and odors are the principal things to be considered in choosing the sick-room. When possible it is advisable to have a room with a southern exposure. If there is a fireplace or grate in the room so much the better, as a chimney is an excellent medium for ventilation.

Despite the fact that the sick-room at the top of the house gives many stairs to climb, it is better to have it there. It is further removed from the noises of the street and house and the air is generally purer.

Furnishings

Only necessary articles of furniture should be retained; all heavy hangings, draperies, and upholstered furniture must be removed. Care must be taken, however, that the room is not made too bare and unattractive. Short, washable curtains; clean, white linen covers for the tables; a few fresh flowers will help to make the sick-room bright and cheerful. Flowers should be removed at night, the water they are in changed daily, and they should never be tolerated after they begin to fade.

The Bed

The ideal bed is iron or brass; single or three-quarter width. The double bed is unadvisable, for owing to its width, the mattress is apt to sink in the middle and it is then almost impossible to keep the under sheets drawn tightly enough to prevent wrinkles. The bed should be at least twenty-five inches in

height, but if it is not, can easily be made so by placing heavy blocks of wood under each leg. Hollows about two inches in depth should be made in the blocks to fit the ends of the legs. Especially if the patient is liable to be ill long, the trouble of doing this is well repaid by the added convenience in lifting and working over the patient.

The Mattress

A hair mattress is by far the best kind to have; the feather one the worst. Not only is the latter too heating, but when occupied it is almost impossible to make the bed properly.

The bed should be placed far enough from the walls to give access on all sides, care being taken to avoid having the light in the patient's eyes.

Lighting

The best plan is to have the window behind the bed; then more sun and light can be admitted without disturbing the patient. Except in certain cases, it is a mistake to keep the sick-room darkened.

Besides the bed, there should be two or three chairs in the room; one a comfortable arm chair with high back. If upholstered, it should be encased in a pretty, light, washable cover. Rocking chairs should never be permitted in the sick-room; when sitting in them one is almost sure to rock, and the motion is very apt to irritate the patient.

Two tables are necessary; on one should be kept writing material, where the doctor can write his orders and the nurse keep the record of the patient's condi-

tion. The second table can be near the bedside to hold the patient's bell; also her food-tray; the latter must always be removed as soon as the meal is finished. Never leave empty or half empty glasses of milk, cups of broth, etc., standing by the patient.

Bedside Table

There is a bedside table—made on purpose for use in the sick-room—which is very convenient. The top extends over the bed in front of the patient; it is adjustable and has a foot piece which goes under the bed and keeps the table from upsetting. (See page 30.)

Medicine bottles and all necessary utensils should be kept in an adjoining room, if possible.

The floor should be swept with a soft broom covered with cheese cloth, or other soft material which is free from lint. Carpets are very objectionable; small rugs which can be removed and shaken daily, being preferable. If the carpet must remain, see that it is kept well dusted, and that no dust is raised while doing so. The best way to do this to to sweep with a damp broom, going over it afterwards with a damp cloth pinned over the broom. Do not have this too wet or it will injure the carpet.

When it is necessary for the nurse to sleep in the room, the cot is the most convenient arrangement, as it is comfortable, inexpensive and can be easily removed in the day time.

Dusting

Never use a feather duster but clean, soft dust cloths which may be washed out every day. Except for the

varnished furniture, it is better to have the duster slightly damp, as this will prevent scattering of the dust.

Ventilation

The air in the sick-room must be as pure as the air outside. The value of fresh air as an aid to recovery is sadly underrated. The open fireplace is one of the best methods of ventilation. A current of air can be created in summer by placing a lamp or a candle in the chimney place, and in winter a wood or a coal fire. Next to a fireplace, an open stove gives the best means of ventilation.

Window ventilation is best obtained by double windows with double sashes. The lower sash of the outer window is raised about two feet; the upper sash of the inner window lowered about the same distance. The passage of air being thus directed upward, a direct draught upon the patient will not be produced, if windows and doors on the opposite side of the room are kept closed. Where there are single windows, the same effect can be obtained by tacking the lower end of a piece of cotton, about twelve inches in depth, to the frame of the upper sash and to the top of the window frame; then lower the sash about ten inches. When less air is desired the lower sash can be raised and a board fitted to the opening; the air then passes upward between the sashes.

Airing

In addition to this slight continuous ventilation, the window must be opened and the entire air of the sick-room changed at least twice a day. In doing this, be

careful that there is no draught and that the patient has extra blankets. If there is no screen at hand, a large umbrella will prove quite effective in protecting the patient's head from the direct current of air. If it is necessary to warm the air before it enters the patient's room, the window in an adjoining, well-heated room may be opened, the door between the rooms being left slightly ajar. The corridor or bath room (especially the bath room) should not be used for this purpose.

Fuel and Ashes

Hard coal should be used if the room is heated by a stove on account of its freedom from dust.

In removing the ashes, they should be sprinkled with water first to prevent flying, then quietly shoveled up. The coal can be added in paper bags filled outside, thus avoiding all noise likely to disturb the patient.

The temperature of the sick-room should be 68 degrees F at night and 70 degrees F during the day.

CARE OF THE PATIENT

Care of the Nurse

A few essential points to be remembered in caring for the sick may be stated briefly.

To properly care for a patient those undertaking the responsibility of the nursing must take proper care of *themselves.* Rest, recreation, and out of door exercise are positive necessities.

If the same member of the family has both day and night nursing to do she should always dress herself as comfortably as possible for the night. A cold bath

in the morning, with complete change of clothing, will be found very refreshing.

Dresses of light wash material should always be worn when attending the sick, but dresses and skirts must never be stiffly starched, as the rustling noise they make is very annoying to patients. Squeaking shoes are another abomination.

"Nevers"

Never whisper in or near the sick-room.

Never discuss the patient's condition with her, or with anyone else in her hearing.

Never tell the patient what her temperature, pulse, etc., are, not even when they are normal.

Never tell the patient what medication you are giving her.

Never lean nor sit on the patient's bed, and be careful not to knock against it in passing.

When Speaking

When speaking to a patient always stand in front of her, where she can see you; be particularly careful not to speak to her suddenly from behind, for when people are ill and nervous they are easily startled.

Keep door and window hinges well oiled; nothing is more aggravating than a squeaking door.

When windows rattle, wedge them apart between the sashes with pieces of wood or newspaper.

At Night

Especially at night, or, rather, when getting ready for the night, attention must be paid to anything likely to prove a disturbing element to the patient's rest.

Before the patient goes to sleep see that you have everything at hand that you are likely to need for the

night: Extra blankets—a shade for the light, if necessary—coal prepared in paper bags, as previously described—milk—water—all the medicines you will require—ice, etc. Wrapping the ice in flannel or newspaper will keep it from melting. A hat pin makes an excellent and noiseless ice-pick. A large tin pan, enveloped in a blanket, will make a serviceable refrigerator in which to keep your ice, broth, milk and water.

A shade for the lamp or gas can be easily made out of green or other dark colored cambric, but be sure that the globe over which it is pinned is far enough from the flame to avoid scorching the cambric.

Bed Making

An uncomfortable bed is a great addition to the miseries of an invalid, therefore, one of the first essentials to be learned is how to make a bed.

The mattress is covered by a sheet, stretched tightly and tucked firmly as far under it as possible; folding the corners like an envelope helps to keep it firm.

The Draw Sheet

Another sheet called the "draw sheet" is also used under the patient; this is put on with the length across the bed, thus allowing a considerable fold under the mattress, thereby securing a further means of keeping the sheet tight. When putting the draw sheet on care must be taken to have it perfectly straight; it is first tucked in on one side, well under the mattress. In tucking in the second side it is best to begin in the middle, going first towards the bottom, then from the middle to the top, pulling it very tightly. The top sheet and blankets (single blankets are preferable to

double) should be put on separately, the corners being folded in, in the same manner as the under sheet. If it is not convenient to obtain a spread of dimity, or other light material, it is better to use a sheet, as the ordinary spread is heavy and gives comparatively little warmth.

Protecting the Mattress

When it is necessary to protect the mattress a rubber sheet is placed between the lower and draw sheets. White double faced rubber is the nicest for home use. The single faced rubber will answer the purpose and is cheaper, but it is not so easily kept clean. Either can be obtained at any rubber store.

When impossible to get the regular rubber sheeting thin oil cloth, such as is used for covering tables, will serve. In cases of emergency, several thicknesses of newspapers may be used until something better can be obtained.

CHANGING THE BED OF A HELPLESS PATIENT

Before starting to change the bedding be sure that you have everything necessary near at hand, and that the bed clothes are all well aired, perfectly dry and warm.

First take off the spread, fold it neatly; next take off the top blanket, and hang it out to air. Fold the other blanket and upper sheet over the patient, leaving the ends just long enough to cover her when you turn her over. This method answers a threefold purpose: (1) it has a neat appearance; (2) it replaces the

CHANGING THE DRAW SHEET

discarded blanket, and (3) the clothes are not in the way while you work. Loosen the lower sheets by raising the mattress with one hand while drawing out the sheets with the other. Raising the mattress is important, because the draw sheet has been tucked so far under the mattress that otherwise you risk not only jolting the patient but also tearing the sheets. Remove the pillows and if the patient does not object to lying flat for a while leave them out; if she does, one can be replaced. It is necessary to take them out to turn them and to make sure that there are no crumbs caught between them or in the pillow cases.

Changing the Night Gown

The night gown is the next thing changed. Have the patient lie on her back and flex her knees; if she is well enough she can easily raise herself while in this position; if not, place one hand under the buttocks and raise her, as you draw the gown up with the other hand, then raise the shoulders in like manner, drawing the gown up over them and the head before taking out the arms.

In putting on the clean gown roll the skirt up, and put the patient's head through the hole. Putting your hand through one sleeve grasp the patient's hand and draw it through; then do likewise with the other sleeve. The gown is then pulled down in the same manner as the soiled one was taken off.

The easiest way to change the under sheets is first to turn the patient on her side.

To do this, stand on the side towards which you will

Turning the Patient

turn her, slip one hand over and under her, with your arm slightly crooked, so that the hand and forearm will support and control one shoulder, the elbow support the back of the head, and the arm the other shoulder. Slip your other arm under the patient slantwise across the buttocks, so that the hand is under the small of the back. In this way the patient is well supported as you gently turn her towards you. If there is an assistant, one can hold her thus while the other manipulates the sheets; if not, and the patient needs to be supported, a pillow placed well up against her back will answer the purpose.

Changing the Draw Sheet

The sheets to be changed are folded close to the back of the patient, making the fold as flat as possible. The clean sheet is either folded fan shape or rolled to its centre, the roll or fold, as the case may be, is placed close to the sheet being removed, the loose edge is tucked in, as far under the mattress as possible, the patient is then rolled gently over on to the clean sheet, the soiled one removed, and the clean sheet well stretched, and tucked in according to the directions given in the making of the bed.

Changing the Top Sheet

The top sheet is next changed. Placing the clean sheet over the sheet and blanket which are still over the patient; on top of this put the blanket which has been airing, draw the other blanket and sheet from underneath, then tuck in the clean ones, put on the second blanket, if one is necessary, then the spread, and arrange the pillows.

The draw sheet, upper sheet, and night gown should be changed twice a day when the patient is not too ill; if they are not soiled when removed, air them well, after which they may be used again.

When the patient is not allowed to be bathed, her back should be washed with soap and warm water, rubbed with alcohol and powdered with talcum powder. This should be done while she is turned on her side for the changing of the sheet. When the night gown is closed in the back it is sometimes more convenient not to put the clean gown on until the patient's back has been washed. In such circumstances wrap a small shawl around the patient.

Special Gowns

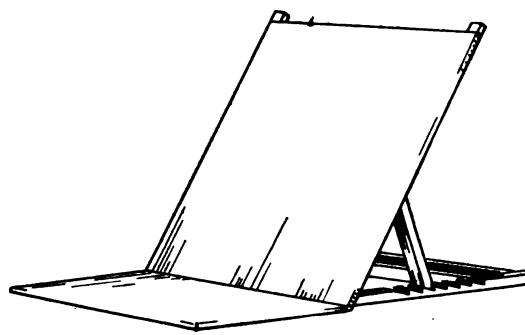
When for any reason it is inadvisable to move the patient, and it is necessary for her to lie on her back, it is convenient to have short gowns, open in the back, buttoned at the back of the neck and shoulders. The skirts can be drawn from under the patient, enabling her to lie on the sheet, which it is comparatively easy to keep free from wrinkles. Another important advantage of the short gown is the ease with which it can be changed. Large collars or ruffles at the neck of the gown are very objectionable in illness.

When changing the gown of a patient whose arm is disabled, the sleeve should be taken from the affected arm last, and the sleeve of the fresh gown put on first.

LIFTING AND HANDLING THE PATIENT

When lifting a patient it is important to stand firmly; to do this the feet should be placed well apart,

bracing one foot against the leg of the bed. Try to bend the back as little as possible, make the knees do the bending. In lifting, endeavor to have the weight come on your shoulders, not on your back. For example, when a patient is to be helped into a sitting position, bend your knees till your shoulder is only



A BACK REST, CANVAS COVERED.

slightly higher than the patient's, then have her put her arm across your shoulders, have your shoulder directly under her armpit, your elbow supporting her head, your hand under her other armpit—your other hand is thus free to arrange the pillows. Now raise the patient. By using this method your shoulder bears the burden, whereas if you attempt to raise the patient by bending your back, or if you have the patient's arm around your neck, the entire weight must

be sustained by your back, which will soon become strained.

The Back Rest

A back rest should always be provided when the patient sits up in bed for the first time. Many varieties of these are to be had, and they are inexpensive; some are made entirely of wood, others have a wooden framework with canvas stretched across it. A good substitute for the back rest is a straight back chair turned upside down. The pillows should be placed across the rest in such a way that the head will not be thrown forward and that the small of the back will be well supported.

Foot Brace

When the patient is obliged to sit up all, or nearly all the time, something should be provided for her to brace her feet against. A convenient arrangement for this purpose is a board the same length as the width of the bed and about twelve inches wide, placed between double folds of strong muslin which must be long enough to tie around the head of the bed when the board is supporting the patient's feet. The board may be padded on one side if desired.

Change of Position

When a patient has slipped down in bed and needs to be drawn up, place one arm under the shoulders in the usual crooked position so that your elbow may support her head, and taking a firm grip under the upper part of her arm, put your other arm under the thighs, and move the patient gently upwards. If well enough the patient can flex her knees and help in the movement.

If a patient is so heavy that two persons are required to move her, they should stand on opposite sides of the bed and reaching across the patient's back firmly grasp her under the armpits, their crossed arms thus forming a V-shaped rest for her head while they clasp each other's hands under her thighs.

When the patient is well enough to help herself, putting a stout, broad piece of muslin round the foot of the bed with the ends long enough to be grasped, will help her to assume a sitting position; one round the top of the bed will help her to pull herself up higher in bed.

Changing the Patient from One Bed to Another

If necessary to change your charge from one bed to another, place the beds about five feet apart, parallel with each other, with the head of one on a line with the foot of the other. Unless the patient is very light there should be two to lift, both standing on the same side (between the beds). One puts her arms under the shoulders and buttocks, the other under the back and thighs. If possible have the patient hold herself stiff. Lift her gently in unison, turn round and place her on the fresh bed.

If the patient is heavy three may be required to do this well. Under these circumstances the first lifter supports the head and small of the back, the second the shoulders and thighs, the third the buttocks and under the knees.

When the lighting of the room or other considerations render it unadvisable to change the position of

CHANGING A PATIENT FROM ONE BED TO ANOTHER

the head of the bed, they are placed near together with the heads on a line. The patient is lifted from the far side of the first bed, carried around between the two, and laid down in the second bed. This entails a longer carry, but if all work in unison it is not difficult.

TO CHANGE THE MATTRESS WITH THE PATIENT IN BED

To the uninitiated this seems an almost impossible feat. In reality, if done according to rule, it is not much harder than changing the under sheets. If the patient is heavy four people will be required to accomplish this deftly, two on either side of the bed. The sheets are loosened on all sides; the top sheets and the blankets treated in the same manner as when the bed clothes were changed; the under sheets are rolled tightly up to the patient's side (the roll being undermost). Using these rolls for support, the patient is moved to one side of the mattress; this side is then pulled to the centre of the bed, curving the mattress upwards; the fresh mattress is placed alongside, the patient lifted by the bed-clothes on to it, the discarded mattress removed, the fresh one drawn into place, and the patient lifted to the centre; the sheets are again unrolled and tucked in place.

THE PREVENTION AND CURE OF BED SORES

A bed sore is gangrene, or death of the tissue of the affected parts. The bony prominences such as the lower part of the spine, the shoulder blades, elbows,

CHANGING THE MATTRESS WITH THE PATIENT IN BED

and heels are the parts most likely to be affected. Moisture, wrinkles, crumbs, and a too long continuance in one position are the pre-disposing causes, therefore these conditions must all be guarded against.

Avoid Moisture

The presence of moisture is generally due to perspiration, or discharge from wound, bowels or bladder. When the two latter are the causes pads made of oakum or jute placed in cheese-cloth or old muslin, put on the patient like a child's diaper, will save the bed linen. These must be changed as often as necessary, and the patient well washed with warm water and soap; dusting with a little talcum, starch, or rice powder will help to keep the skin dry and soft and it will also prevent chapping. Crumbs and wrinkles must also be guarded against. By keeping the draw sheet tightly drawn and tucked far under the mattress the latter will be overcome; the former must be looked for after every meal; brushing them out with the hand is the most efficient way, but a small whisk-broom may be used.

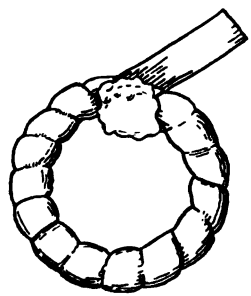
At least twice a day all parts likely to be affected, especially the back, should be washed with warm water and soap, rubbed with 50 per cent alcohol, and dusted with talcum. This not only helps to prevent bedsores but is unspeakably refreshing to the weary invalid. Avoid using too much powder or it will cake and do more harm than good.

Artificial Skin

A preparation of equal parts collodion and castor oil painted over the surface will often prevent a breakdown of the tissue, by forming an artificial skin.

Relieving Pressure

Frequent change of position is another important means in the prevention of bed-sores. Prop the patient over on her side by putting a couple of pillows lengthwise behind her, one under her shoulders, the other under the lower part of her back. Rings made of batting or sheet wadding wound with bandages are excellent mediums for relieving pressure. They should be made with the hole just large enough to permit of the bony prominence fitting into it. When the patient has to lie for some time on her back, often considerable relief is given by flexing the knees. They can be supported either by a pillow doubled and tied to hold it so (the pointed side placed next the body), or a cylindrical pillow made like the old-fashioned bolster, only smaller and stuffed with hair. Small pillows or hot water bags filled with cool water, placed under the small of the back, will help to make a long continuance of the dorsal position bearable.



Wadding Ring, to Relieve Pressure

All pillows should be shaken and turned frequently.

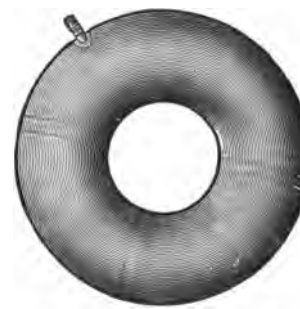
Care of a Sore

If the skin should become broken, the resulting sore should be washed daily with bichloride of mercury 1-2000, and a dressing applied. Gauze soaked in balsam of Peru or an ointment made of castor oil and zinc oxide powder are generally found efficacious.

CONVALESCENCE

The most anxious moments in nursing are certainly when the disease is at its height, but by far the most trying are, as a rule, during the time of convalescence. It is then that the greatest exercise of tact, discernment, self-control and patience on the part of the attendant are necessary.

Relapse, except in the germ diseases, is nearly always due to over-feeding, over-exertion, or nervous excitement.



Rubber Air Cushion

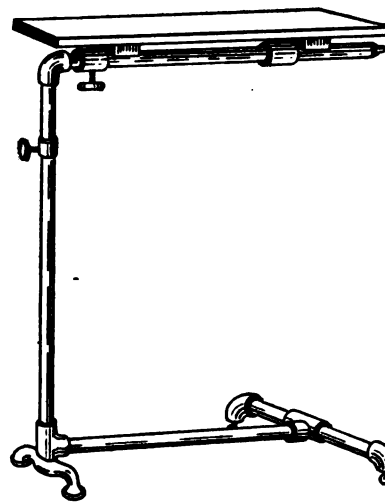
The diet is a very important factor in the treatment of convalescents. Carry out the doctor's orders minutely regarding it. Have, so far as you can, things that you know the patient likes. If she expresses a preference for a certain dish have it if allowable, but as a rule it is not wise to consult her on the subject.

Serving of Meals

Always serve your patient's meals as daintily as possible; have the tray covered with a spotless table napkin or tray cover; use the prettiest china available; even one bright flower with a little green is a great attraction. But above all see that the food is properly cooked and properly served; that all hot things are very hot, and cold ones really cold. More salt and less sugar will generally be wanted than when in

health. Highly seasoned food is not advisable or often desired even by those who like it when well.

It is better to set before the invalid too little than too much, for it is easy to get more, and the sight of too much food on the tray is apt to imbue anyone



A Bedside Table Convenient for Serving Meals

whose appetite is poor with a dislike for it. Besides, as the digestive functions are weakened during and after illness, it is better for a time to serve food in smaller quantities and oftener; for instance, give an egg nog, milk punch, egg lemonade, egg albumen, or other light, easily digested drink between breakfast

and the noonday meal, and again at three or four o'clock in the afternoon. A glass of hot milk given at bed-time will often induce sleep.

Amusing the Patient

Keeping the patient amused is another important item in the care of the convalescent. A few visitors (provided they do not stay too long, talk too much, or give any worrying or disagreeable news) will often help to brighten up the patient. Playing cards or games, reading aloud to her, etc., will help to pass away the time and tire her less than talking.

When people have been ill for some time the muscles of the eyes are apt to be weak and will be easily strained, so they ought not to be allowed to read much themselves, especially while they are in the recumbent position.

Sitting Up for the First Time

Those who are strong and well little realize the exertion and excitement caused by the first sitting up, after being confined to the bed for some time.

The period is usually limited to half an hour the first day, gradually increasing the time as the patient can stand it. Do not wait for her to complain of fatigue; on showing the first signs of it she should be put to bed. Of course there are patients who think themselves a great deal worse than they really are, and who have to be encouraged to sit up longer than they think they can. At such times the pulse is a good guide.

Do not really dress the patient until she is well enough to walk around. Warm stockings, bed slip-

pers, a warm wrapper and blankets are all that are necessary.

Lifting into a Chair

If the patient has been seriously ill she should not be allowed to stand or exert herself in the least when sitting up the first few times. If not too heavy she can be lifted by one person. The arms of the patient are locked about the neck of the attendant, who, placing one arm under the thigh, the other under the back, lifts the patient into the chair, the back of which is parallel with the foot of the bed.

When two people are required to do the lifting they should stand at the same side of the bed, placing the hands, one under the shoulders and buttocks, the other under the thighs and ankles, and lifting in unison, turn and seat the patient gently in the chair. The chair should be made comfortable with pillows, and the patient kept warm with blankets. When possible the chair should be carried carefully into an adjoining, well-aired room. The sick-room and bed should be well aired and made ready immediately for the patient's return, as it may be necessary for her to be put back to bed sooner than expected.

CARE OF THE HAIR, MOUTH, TEETH

While caring for the hair protect the pillow-case with a towel. When the hair is tangled always hold it between the tangle and the head to avoid pulling it. Rubbing a little vaseline into the scalp will help to get the snarls out more easily. To avoid tangles the

hair should be brushed twice daily and braided in two plaits.

If the scalp is kept clean by rubbing it occasionally with a little alcohol and water (equal parts) the hair always well brushed, and rubbed once in a while between a damp wash-rag, it may not be necessary to wash it for quite a while.

Washing the Hair

When it must be washed, protect the pillow and upper part of the bed with a rubber sheet covered with a bath towel. Pull the pillows down under the back so that the head extends somewhat beyond them and over a basin of water. Have a slop jar at hand in which to empty the water, and plenty of warm water to wash the soap out thoroughly. Support the head with one hand while you wash it. Dry the hair well after washing. A little alcohol or hair tonic containing it, well rubbed into the scalp, will lessen the chance of the patient taking cold.

Care of the Teeth

When the patient is unable to brush her own teeth it is often easier to do it for her with clean gauze wrapped around the index finger or the end of a piece of whalebone, than with a tooth-brush. In illness sordes (tartar) is apt to collect between the teeth unless they are very frequently and carefully cleansed.

Care of the Mouth

Clean not only the teeth but also the gums, the roof of the mouth and the tongue. Whalebone and gauze are far better for this purpose than the brush. When a patient is on milk diet her tongue and mouth should be cleansed after each feeding.

Some good mouth washes are:

(1) Equal parts of listerine, boric acid 4 per cent, lemon juice and water.

(2) Listerine, one ounce; peroxide of hydrogen, three drachms; alboline, one drachm.

(3) Tincture of myrrh, half a drachm; soda bicarbonate, grains twenty; aboline, one drachm.

(4) Listerine and water, equal parts.

BATHS AND BATHING

Perhaps there is nothing that will give greater refreshment to the invalid, obliged to lie in bed day after day, than a bath. Unless contrary to the physician's orders, one should be given every day. If given in a warm room, without exposure, there is absolutely no danger of the patient taking cold. To make matters doubly sure, before taking out of the bath blankets, rub the patient all over with 50 per cent alcohol.

The Cleansing Bath

Never give a bath until an hour after a meal. Before beginning see that the room is not only warm but free from draughts, also that you have everything needed at hand. It is best to have the water in a foot tub; it will keep warm longer than in a shallow basin. Have a pitcher of hot water to keep the bath the required temperature.

A large blanket, face and bath towels, wash cloths, alcohol and powder are the other necessary articles. Slip the blanket under the patient. If it is not wide enough to come well round her and also for the ends

to overlap, use two. The blanket may be covered by a sheet if necessary but the wool next the body is desirable.

Take off the night-gown and fold down the upper bed clothes—the face and neck are washed first and well dried, then the arms and hands. Be particular about drying between the fingers, also around and inside the ears. Especially while washing the face have a firm touch. Expose only one portion of the body at a time, and that not longer than necessary. Dry each part well before going on to the next; in order not to fatigue the patient, work as quickly as possible. It should be necessary to turn her only once. The towels should be warmed by wrapping them around a hot water bottle. It is well to give hot broth or milk soon after the bath.

The Foot Bath

To give a foot bath, loosen the bed clothes at the bottom, protect the bed with a blanket, put the foot tub, half full of water lengthwise on the bed, flex the patient's knees, raise her feet with one hand while you draw the tub under them with the other; wrap a blanket round tub and knees.

When mustard is desired, make a paste of the mustard—about two tablespoonsful to a large foot tub. The feet remain in about twenty minutes, the bath being kept at the same temperature by the addition of hot water from time to time. Be careful in adding the hot water not to pour it in near the feet.

When the bath is over wrap the feet in the blanket for a few minutes, then dry.

Baths for Reduction of Temperature

To give a bath for the reduction of temperature a large rubber (covered with a sheet) is necessary to protect the bed, as a considerable amount of water must be used.

There are several different kinds of bed baths given for this purpose. Sometimes the patient is simply sponged off with cold water, at others a hot sponge comes first, followed by the cold which often consists of equal parts of alcohol and water, made colder at times by the addition of ice. The doctor always orders the temperature of the bath, and also the duration, which is generally from ten to twenty minutes.

In giving these baths, use slow, long, curving, downward strokes, and plenty of water. Where there is a high temperature there is no danger of catching cold, and as eradiation of heat is the effect sought, the patient should be exposed as much as possible. It is often desirable, when the sponging is over, to rub the patient with alcohol, and fan till dry.

"Brand" Treatment

When possible, the "Brand" treatment is used for the reduction of temperature (especially in typhoid). For this, a portable tub, which can be wheeled to the bedside, is required. It would not be safe to give such a bath without the assistance of a doctor or trained nurse; it is, therefore, not worth while going into details, and, except in cases of long continued fever, the bed bath is generally all that is necessary.

Hot Baths to Induce Perspiration, or Quiet the Nerves

When given a hot bath in a tub, fill the tub three-fourths full of water; the exact temperature will be ordered by the doctor, usually it is from 106 degrees F to 110 degrees F. The doctor also states how long he wishes the patient to remain in the bath. When giving a hot bath of any kind, for any purpose, always apply cold cloths or an ice cap to the head. A hot drink given either while the patient is in the tub

BATH THERMOMETER

or after the return to bed will further induce perspiration. Mustard is sometimes added to these baths, just as it is to the foot bath.

Precautions

While in the tub the patient's pulse must be noted carefully, as such baths are sometimes very depressing to the heart. After the bath the patient must go to bed immediately, and remain there well covered, and care must be taken to have warm clothing going from the bath to the bed. These baths are also given to children in convulsions.

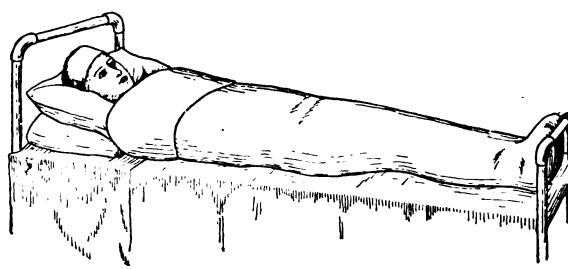
The Hot-pack or Sweat

The hot-pack, or sweat, is generally considered a better medium for inducing perspiration. To give this protect the bed with a rubber sheet or oil cloth, wring out two old blankets in water 130 degrees F, put one under the patient and around one arm and leg, the

other over the patient and around the other arm and

GIVING A HOT-PACK

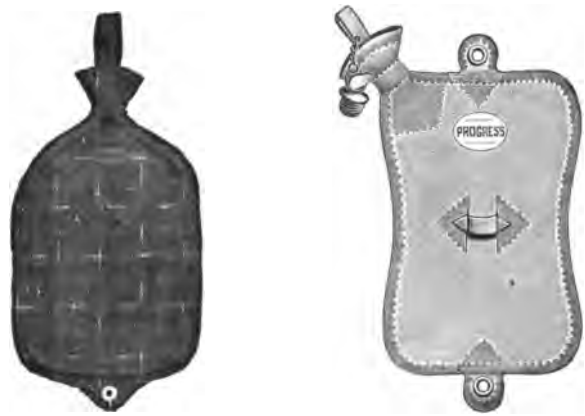
leg; put an ice cap or cold compress on the head, a hot water bag at the feet, another over the heart,



HOT PACK COMPLETED

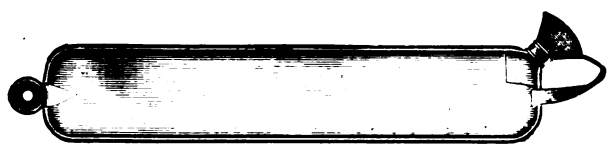
others along the side, over all wrap a couple of dry blankets; give a hot drink. The patient generally re-

mains in the pack from twenty minutes to half an hour. The pulse should be taken every five minutes, and as



HOT WATER BOTTLES

the hands are under the blankets it must be taken at the temporal artery.



HOT WATER BOTTLE FOR THE SPINE

After being taken out of the pack the patient should be rolled in a dry blanket and remain so for an hour.

Except where a light weight is desirable, as over the heart and abdomen, a good substitute for the rubber hot water bag is a stone bottle; even a glass one can be used, and if a wire a couple of inches longer than the bottle is put into it to act as a heat conductor, it can be filled with quite hot water without breaking. When using hot water bags or bottles of any kind, precautions must be taken to avoid burning the patient, which is very easily done, especially with old people, or where from any cause, the circulation of the blood is sluggish or the tissues in poor condition; therefore, see that the bottles are tightly corked, that they are well and securely covered (flannel bags slightly larger than the bottles make the best covering); never put them too near the patient, and remember that when the patient is restless the bags are apt to slip nearer than you intended them to be.

Water Bottle for the Throat

Salt Baths

Salt baths are given for their tonic effects. A bath sufficiently strong to redden the skin and have an exhilarating effect will require ten pounds of ordinary sea salt to a bath tub about half full of water.

The average standard temperature for baths is as follows:

Cold.....33°-65° Fahr.	Tepid.85°- 92° Fahr.
Cool.....67°-75° Fahr.	Warm92°- 98° Fahr.
Temperate.75°-85° Fahr.	Hot..98°-112° Fahr.

The regular bath thermometer is encased in wood to protect it from hard usage, but the ordinary atmospheric thermometer will answer the purpose just as well. Mix the water well before taking the temperature.

SICK ROOM METHODS

Taking and Recording Temperature, Pulse and Respiration Observation and Recording of Symptoms

Clinical Thermometer

The heat of the blood is ascertained by means of the clinical thermometer. These thermometers are self registering and vary in delicacy, the finest ones registering in one minute, others in from three to five minutes. The more expensive ones magnify the scale, and are therefore easier for the novice to read. Hick's thermometer is probably the best.

The temperature is taken either in the mouth, rectum or armpit. Before using the thermometer the mercury must be shaken down to 95°. Be careful not to shake it into the bulb, or the thermometer will be rendered useless and also be careful not to hit it against anything, as it will break very easily. While in constant use it is best kept in a glass containing a little boric acid or listerine, with some soft cotton in the bottom of the glass.

Temperature by Mouth

When taking the temperature by mouth be sure that the patient has not had anything to eat or drink recently. Place the end of the instrument containing the mercury under the tongue, on either side. See that the lips are tightly closed all the time the thermometer is in the mouth, and do not leave it in place longer than necessary.

Clinical Thermometer

Never take the temperature of a delirious patient nor a child by the mouth; they are likely to bite off the bulb and swallow the mercury. If this accident should occur give white of egg immediately and notify the physician. In such cases it is always safer to take the temperature by rectum and it is also expedient to take a rectal temperature when the patient is very ill, for this is the most accurate method.

Before inserting the thermometer, the bulb should be oiled and precautions taken to have the rectum free from faeces. Five minutes should be allowed for registration. The temperature will be one degree higher than when taken by mouth.

The axillary temperature will be from three-tenths to half a degree lower than the mouth. The armpit must be wiped thoroughly before taking; the thermometer is then placed in the hollow, and kept in place by holding the arm close to the side and flex-

ing the elbow so that the hand rests on the opposite shoulder. It will take ten minutes for the thermometer to register.

Normal Temperature

The normal temperature of the human body is from 98° F. to 99° F. The temperature is apt to be highest between 4 p. m. and 8 p. m. and it reaches the lowest ebb about 3 a. m. This fact makes it essential that special care be taken of the sick in the early hours of the morning, the lowering temperature indicating a lower vitality.

High Temperature

Though a rise of temperature is always to be regarded with suspicion it must be remembered that many causes (especially with children) may create a slight deviation from the normal, without anything serious being the matter. Constipation will often cause a rise of temperature, sometimes even a slight cold, attack of indigestion, or undue excitement will do the same, while profuse perspiration or diarrhœa is apt to cause a sub-normal temperature.

Sub-Normal Temperature

A sub-normal temperature is far more dangerous than the same number of degrees above normal. If a patient's temperature drops to 97.5° or 97° she should be rolled in blankets, a hot water bag put at the feet, another over the heart, and a cup of hot coffee or milk given. If the temperature does not soon respond to this treatment the doctor should be notified.

The following table gives the different variations of temperature:

Hyperpyrexia....	105° and over, extremely dangerous	
High Fever	103°	105°
Moderate Fever	101°	103°
Sub-febrile	99½°	101°
Normal	98°	99½°
Subnormal	97°	98°
Collapse	95°	97°
Algid Collapse.....	Below 95°, extremely dangerous	

Temperature Records

A record of the temperature is of great value, not only in diagnosis, but also in watching the course of the disease; it should therefore be charted every time it is taken. This can be done in figures, but the regular clinical temperature chart conveys a clearer idea of how the temperature is running. The temperature should be taken at the same time each day; when it does not deviate much from the normal twice a day, morning and evening, is sufficient; otherwise it should be taken every three or four hours, according to the nature of the case.

The Pulse

A thorough knowledge of the pulse can only be gained by constant study and practice. It takes many months of careful observation of the numerous cases in the hospital ward, before the medical student or nurse can readily discern between the various characteristics of the different pulses. It is, therefore, impossible to go very deeply into the subject here.

The three principal things to be learned are: (1) How to count it; (2) to discern if it is regular or irregular; (3) if strong or weak.

To Count the Pulse

To count the pulse place the index and middle fingers on the wrist, on the thumb side, where the radial artery can easily be felt. Count it for a full minute, dividing the minute into quarters, as you can then tell if the frequency of the pulse is regular or irregular. For instance, if you count fifteen beats in one quarter and twenty in another, you will know that the frequency of the pulse is irregular.

If some beats are strong and others weak the quality of the pulse is irregular. By careful consideration of the pulse every time you take it, it soon becomes possible to realize where there is a difference in the quality of the pulse; that is, when it is stronger or weaker.

Pulse by Temporal Artery

The pulse can be taken at the temporal artery when for any reason it is impossible to take it at the wrist, it also can be felt in the groin.

The average normal pulse is:

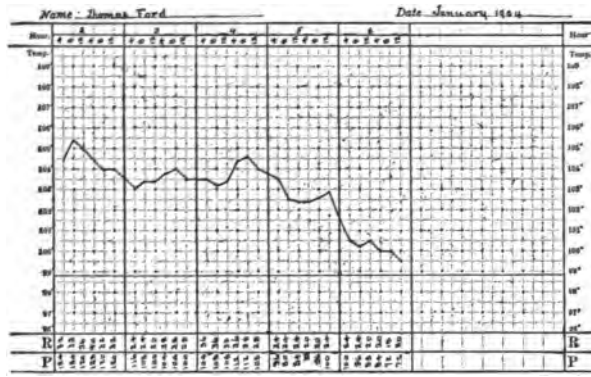
In men from.....60 to 70 beats per minute
In women from.....65 to 80 beats per minute
In children from.....90 to 100 beats per minute

Just as the temperature, even in health, is affected by certain conditions, so is the pulse; food, exercise, excitement, will all cause an increase in the pulse rate.

The pulse should always be taken and recorded at the same time as the temperature. The pulse is generally written in figures. When there is any difference in the quality, or if it is irregular this also should be recorded.

The Respiration

A record of the respiration is also often required. The respiration being more or less under the control of the patient it is never wise to let her know that you are taking it; therefore, keep hold of her wrist, as though you were still counting her pulse, and watch the rise and fall of the chest. If you find it hard to



TEMPERATURE, PULSE, AND RESPIRATION CHART

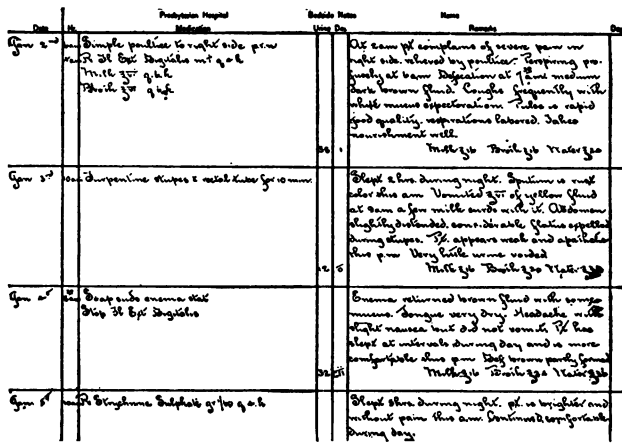
count by simply looking, hold the patient's hand on her chest, then you can feel the motion as well. This is generally the easier method for the beginner. Count it as you do the pulse, for a full minute in quarters. The inspiration and expiration count as one breath.

Keeping Records

Besides the temperature, pulse and respiration, a record must be kept of all medication given, and also of all changes in the patient's condition. If the patient has pain note it, stating where the pain is and

if it be continuous or only in paroxysms. When medicine is given to relieve the pain state with what result. When the patient is on liquid diet, the amount of fluids taken during the twenty-four hours should be charted every morning.

Mark every movement of the bowels; observe the



BEDSIDE NOTES AS MADE IN A HOSPITAL

movements carefully to see if there is anything abnormal in their appearance. If so, not only describe it in your record, but save the movement for the doctor's inspection. The same thing should be done if the patient vomits.

When there is not sufficient urine voided, report it; also if there is anything untoward in its appearance.

Forty ounces is the amount that should normally be voided in twenty-four hours. In fevers there is apt to be less, and what is passed will be highly colored. In nervous diseases, on the contrary, there is likely to be a larger amount of a pale color. Perspiration, a chill or chilly feeling, coughing, expectoration, restlessness, the amount of discharge from wounds, are all items of import of which the doctor must know the details to treat the patient understandingly. He never will fully know them unless they are clearly and concisely written down at the time they happen.

Important Items

The accompanying temperature chart and record is an example of hospital practice.

THE GIVING OF MEDICINE

A few rules to be remembered in giving medicines are:

Rules

1. Always give exactly what the doctor orders, neither more nor less.

2. Always give medicine on time—if a dose is due at twelve, give it at twelve and not at half past.

3. Medicines intended to be taken before meals should be given twenty minutes before meal-time, those to be taken after eating, twenty minutes after the meal is finished.

4. Never give medicine without reading the label on the bottle twice; before and again after pouring it out.

5. When pouring medicine always hold the label on the upper side, to avoid defacing it.

6. Do not use spoons for measuring for they are never accurate; small graduated glasses, which are infinitely better, can be bought at any drug store for about ten cents. **Measuring**

7. When pouring hold the mark of the quantity you require on a level with your eye.

8. Always shake the bottle before pouring out the medicine.

9. The bottle should always be recorked immediately after use, for many medicines contain volatile substances and are apt to become either stronger or weaker than intended, if left uncorked.

10. Medicines containing iron should be taken through a glass tube or straw, as they discolor the teeth.

11. Some medicines, notably several that are given for coughs, should be given undiluted, while others on account of their irritating properties should be very well diluted. Never dilute more than necessary, for the addition of a large quantity of water often renders a disagreeable dose still more unpleasant to take.

12. Holding a piece of ice in the mouth for a short time before taking medicine will often render a disagreeable flavor less noticeable; a drink of seltzer afterward will help to "take away the taste." Castor oil given with lemon juice, a piece of ice small enough to **To take away the Taste**

swallow, seltzer added just before taking, and a drink of seltzer after, is not at all unpalatable. Holding the nose while taking medicine will also diminish the taste.

Powders and Pills

13. Insoluble powders such as calomel, bismuth and acetanilid should be placed far back on the tongue and washed down with a swallow of water. Those with a disagreeable taste can be given in jam or bread or encased in wafers or capsules which can be bought for the purpose.

14. Pills also can be made easier to swallow by giving in bread or jelly. Unless pills are freshly made, they should be pulverized, as they soon become so dry and hard that they will not readily dissolve in the stomach.

15. Never buy a large quantity of medicine at a time, there are very few kinds that will not deteriorate by keeping; and because a medicine is beneficial in one case, do not imagine that you can give it to everyone whom you may think has the same ailment.

16. Medicines should be kept in a cool, dry place and properly labeled. All poisons should be marked as such and kept under lock and key.

Injections

Medicine is occasionally given by rectum, either when a local effect is desired or when the stomach is unable to retain it.

When medicine is given by rectum it is generally ordered well diluted. The water, added for this purpose, should be warm enough to make the injection about

100° F. A rubber rectal tube, or a large size rubber catheter, connected by a glass connecting tube with a piece of rubber tubing about eighteen inches long, into the further end of which has been fitted a small glass funnel, are the best in giving medicinal enemata.

Porcelain Feeding Cup

Let warm water run through the tube to be sure that it is in working order; this will also heat it and thus avoid cooling the medication. Grease the tube well, with oil or vaseline, and before inserting it fill the funnel with the solution, allow half of it to run

GLASS DRINKING CUP

through, back into the pitcher, pinch the rubber to prevent the rest running through. This is done to avoid getting air into the intestine.

For sedative enemata (these generally consist of bromide or chloral) the tube is only inserted about six

inches, but for stimulating enemata (brandy or whisky and salt solution) and nutritive enemata, the tube is inserted about fourteen inches, and a small pillow placed beneath the hips to help the upward flow. When giving these enemas have the patient lie on her back. Holding a folded towel to the anus, after the removal of the tube, will help the patient to retain the injection.

Nutritive Enemata

Nutritive enemata generally consist of peptonized milk, white of egg, salt and one of the beef preparations made especially for that purpose; but every doctor has his own formula and will specify how he wishes it prepared. When patients are having nutritive enemata constantly they must have a cleansing enema daily, and this must be given at least an hour before the next nutritive one is due, and not till two or three hours after the last one has been given.

Starch and other emollient enemata are sometimes given in diarrhoeas and dysentery. To prepare the starch mix a teaspoonful of laundry starch in cold water, add a teacupful of hot water, let it come to the boil. A few drops of laudanum are sometimes added to this; when it is ordered, be very accurate in counting the drops.

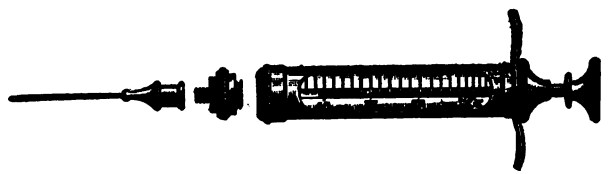
Suppositories

The suppository is another method of giving rectal medication. This is a conical shaped preparation of cocoa butter in which the required drug is incorporated. It is oiled and gently inserted, pointed end foremost, the patient lying on the left side.

Medication for the throat is often given by means of the atomizer. When using this see that the patient's tongue is held down sufficiently to allow the spray to reach the affected parts, and be careful not to let the end of the atomizer touch the back of the patient's throat, as this tends to induce vomiting.

Inhalations

The inhalation of vapor is another method of conveying medication to the throat and also to the bronchial tubes and lungs. Mix the medicine with boiling



HYPODERMIC SYRINGE

water and put in a small kettle over an alcohol lamp. With stiff brown paper, make a cone, one end to fit over the mouth and nose, the other over the spout of the kettle.

Hypodermic Injections

When rapid absorption is necessary medicine is sometimes given hypodermically. The hypodermic is a graduated syringe to which a hollow needle is attached. As hypodermic injections are attended with great danger unless properly given, no one should attempt to administer medicine this way without being personally instructed by a physician or nurse. In giving medication hypodermically, the greatest cleanliness should be observed; the flesh, where the injec-

tion is to be made, must be well washed with alcohol, the needles should be attached to the syringe and alcohol drawn into the syringe and expelled several times before the medicine is drawn in. When the syringe is filled with the required amount, expel the air by pointing the needle upward and gently pressing the piston till a drop appears at the point of the needle. Be careful not to let the needle touch anything after it has been cleaned—if it should, hold it in the alcohol again for a minute before inserting. The injection may be given in the outer side of the arms, thighs or abdomen. Hold the flesh between the thumb and first finger of the left hand, plunge the needle in with one quick downward movement, inject the fluid slowly by gently pressing the piston. Draw the needle out quickly. Rub the spot where the injection was made for a few seconds to hasten absorption.

Clean the instrument with alcohol before putting it away.

PURGATIVE, ENEMATA, DOUCHES AND CATHETERIZATION

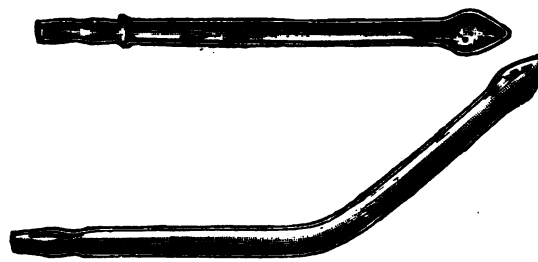
Cleansing Enema

The purgative, or as it is also called, cleansing enema, is given as its name indicates for the purpose of washing out the intestines. It is generally resorted to when cathartic medicine fails to act, when immediate catharsis is necessary, or when for any reason the patient is unable to take a cathartic by mouth.

The long rubber rectal tube is the best appliance for

the giving of such enemata; the water is injected higher into the bowel and there is a steadier flow than when any of the bulb syringes are used. This can be attached by means of a connecting tube to the tube of the ordinary fountain syringe bag. See that the stop cock is on the tube.

The cleansing enema generally consists of a soap **Soap Enema**



GLASS DOUCHE NOZZLES

suds made with "ivory" or castile soap; the froth of which should be removed as it contains too much air; the temperature should be about 98°F. Make the soap suds in a pitcher, pour it into the bag, let some run through the tube to warm it and expel the air, shut the stop cock, grease the rectal tube. Hang or hold the bag not more than three feet higher than the patient.

The bed should always be protected with a rubber sheet and large towel, the patient lies on her left side with the knees well flexed. The tube should be in-

serted very gently, never use force, let the water run in slowly. If much pain is given shut the water off occasionally, for a minute or two. When a sufficient quantity has been given (two to three pints for an adult, one for a child) remove the tube quickly, but gently, and press a folded towel to the anus. The fluid to do much good should be retained from fifteen to twenty minutes.

After use the tube must be carefully cleansed, wash it in warm soap suds and water, afterward let a quantity of hot water run through it, hang it up lengthwise to drip till perfectly dry.

When used for more than one person the tube should always be boiled for five minutes after use.

Vaginal Douches

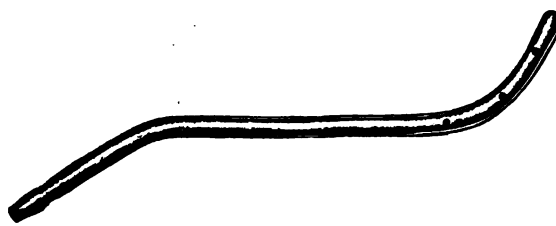
Douches are given, as a rule, either for cleanliness or to relieve inflammation. When used for the former purpose the solution should be of a temperature ranging from 100° F. to 110° F. When given to relieve inflammation it is generally required very hot even 118° or 120° F., and great care must then be taken not to burn the patient by having it any hotter; mix the water well before you test it. Some disinfectant is often added, carbolic or bichloride being the ones most frequently used; they should, however, never be used without a doctor's order. In giving, the patient lies on her back, have the douche pan placed under her properly so that the return flow of the water will run into it. Put a pillow under the small of the back. Before inserting the nozzle let the water flow through

the tube, to expel the air. Insert gently and move it around while in.

The douche nozzle should always be boiled or washed in boric acid, or other disinfectant, after use. Glass douche nozzles are preferable to any other. They can be attached to the ordinary fountain syringe.

Catheterization

Catheterization improperly performed is fraught with so much danger to the patient that it must not be



GLASS CATHETER

attempted till further instruction than can be given in writing is obtained.

Catheterization is necessary when the patient is unable to void urine naturally, but there are many simple devices which should all be tried before this is resorted to; for instance, put hot water in the bed pan, allow water to run from a faucet within hearing (if this is impossible pour water from one vessel to another), squeeze a sponge dipped in warm water over the lower part of the abdomen, or hot stupes can be applied, and, this failing, the stupes can be alternated with ice.

In preparing to catheterize it is necessary to exercise not only the greatest cleanliness but asepsis. The catheter (glass ones are preferable for women) should be boiled for five minutes. Have at hand some small sterile swabs (see chapter on asepsis) in a solution of boric acid. Put the patient on the bed pan (leaving it further in front than for ordinary use), have the patient's knees flexed and separated, drape a sheet around her legs, leaving the vulva exposed. Then wash the hands well with soap and hot water, soaking them afterwards in a solution of bichloride of mercury, 1-1000. With the left hand separate the labia, and carefully wash all around the meatus (the opening to the urethra, the tube leading to the bladder); into this opening the catheter is then carefully introduced, it must not be forced forward if any obstruction is met with, but withdrawn slightly and the course changed.

Care to be Taken

When the bladder is very much distended it should not be emptied entirely at one time; when a pint or a pint and a half has been withdrawn remove the catheter and insert it again four or five hours later.

Before removing the catheter, the index finger is placed over the end; this prevents drops of urine falling upon the bed.

POULTICES AND FOMENTATIONS

Poultices and fomentations are applied for the relief of localized pain, when caused by inflammation. The heat, by dilating the superficial blood vessels, draws the blood from the congested area.

Linseed Poultice

The linseed poultice is the one most generally used. To make it, stir the meal slowly and evenly into water while it is boiling. When it is thick enough not to run, boil it a minute more; remove from the fire and beat it briskly. When properly made it is perfectly smooth, and just stiff enough to drop away from the spoon. Spread it on a piece of muslin the required size and shape, leaving an inch margin all round to turn over. The side which is to go next to the patient is best covered with cheesecloth or gauze. This is cut slightly larger than the muslin, so as to turn back over it to keep the contents of the poultice in place.

Applying

Few poultices should be more than half an inch thick. They should always be applied as hot as the patient can possibly stand them. To keep the poultice warm while taking it to the bedside it can be placed between two hot plates or rolled in a piece of hot flannel. The flannel can be left over it when applied if there is no oil muslin or oil paper to be obtained; these latter are preferable, however, as they are very light and keep in the heat and moisture better.

The poultice is kept in place by a bandage. A muslin binder is the best means for keeping a chest poultice in place. Poultices should always be shaped to fit the

affected part. They should be changed at least every two hours.

Starch Poultice

Starch poultices are used in certain skin diseases. The starch is mixed with a little cold water, then enough boiling water added to make a thick paste. It is boiled, spread and applied in the same manner as the flaxseed.

The cotton jacket or "dry poultice" is made by tacking a layer of non-absorbent cotton or wadding between two pieces of cheesecloth, shaped for the chest, and is excellent to keep on for a few days after other poultices have been discontinued.

Sinapisms

Sinapisms relieve pain through the agency of the mustard which, by irritating the sensory nerves, causes the dilatation of the superficial blood vessels—under the point of application—and the consequent lessening of the congestion in the inflamed tissue. Sinapisms are made of flour, mustard, and tepid water, in varying proportions. Those for a man are generally made one part mustard to four of flour; for a woman one part mustard to six of flour; for a child one part mustard to ten of flour. The water used should always be tepid; cold water feels uncomfortable to the patient, while hot destroys the virtue of the mustard. The flour and mustard are first mixed well together, care being taken to crush all lumps of mustard; enough water is then slowly added to make a thick paste, which is spread on muslin and covered with gauze. The sinapism is generally left on from fifteen to

twenty minutes, but it must be watched carefully, and removed as soon as the surface of the skin is well reddened, as otherwise it will blister. After the removal of the sinapism the skin must be washed, and if a little vaseline be rubbed on, this will allay the irritation.

Fomentations

The usual method of applying fomentations is to have two pieces of flannel in use, applying them alternately and changing every three minutes for twenty minutes. The easiest way is to have the water boiling over an alcohol or gas lamp near the bedside.

Put two layers of coarse, soft flannel (an old blanket is good) in the center of a towel; dip this into BOILING water, wring it out by twisting the ends of the towel, give the flannel a quick shake, and apply the flannel; cover with oiled muslin or oiled paper.

As hot applications promote suppuration there are conditions when their use is contra-indicated and cold applications are ordered.

Cold Applications

The most effectual way of applying continuous cold is by means of the ice cap. The pieces of ice put into the cap should be about the size of a walnut; it should never be more than half filled, and the air should be expelled before putting on the cover. Salt is sometimes mixed with the ice to intensify the cold. The cap should be tied in an old handkerchief or piece of gauze to prevent the rubber from coming next the skin, as the extreme cold is very irritating, and may even produce frost bites.

Ice Caps

When ice caps are being used all the ice must not be allowed to melt before the cap is refilled, as the reaction caused by the resulting change of temperature is very injurious, especially if there is any inflammation.

ICE CAPS

Compresses

For the application of cold to the head, old handkerchiefs or pieces of soft gauze can be used, folded so that they will come down well over the temples, but not touch the pillow. They must not be wide enough to wet the hair, or come far down over the eyes. Compresses should not be made too wet. The best scheme is to have a piece of ice in a basin, and two compresses, then while one is on the forehead the other can remain rolled round the ice.

Compresses for the eye should be small and very light. If both eyes need the compresses two separate ones should be used. If only one eye is affected be careful that the compress on it does not touch the other, lest it should become infected. If gauze is used for compresses always turn the ends in, that the ravellings may not annoy the patient.

TEST QUESTIONS

The following questions constitute the "written recitation" which the regular members of the A. S. H. E. answer in writing and send in for the correction and comment of the instructor. They are intended to emphasize and fix in the memory the most important points in the lesson.

HOME CARE OF THE SICK.

PART I.

Read Carefully. Place your name and address on the first sheet of the test. Use a light grade of paper and write on one side of the sheet only. *Do not copy answers from the lesson paper.* Use your own words, so that your instructor may know that you understand the subject. *Carry out the directions given in the text, if possible, before answering the questions.*

1. What is expected of the nurse?
2. Give the period of incubation, first symptoms, and time required for isolation for: (a) Mumps, (b) Measles, (c) Smallpox, (d) Scarlet fever, (e) Diphtheria.
3. What are the causes of cholera infantum? Symptoms? What are the symptoms of intestinal obstruction?
4. What are the most common causes of convulsions in children? What should be done?
5. What are the primary symptoms of typhoid fever? Of pneumonia? Of meningitis?
6. What is the difference between false croup and true croup in symptoms, danger, and treatment?
7. Describe the ideal sick room.
8. How should the sweeping and dusting be done? How prepare for the night?
9. Why is ventilation in the sick room important? Describe different methods.
10. Make the bed as explained in the lesson and then describe the process.

11. Endeavor to change the bedclothes with a person in bed and report your success.
12. The points suggested in the section on the "Care of the Patient" are all essential. What ones might you neglect if you had no experience?
13. What must be guarded against in lifting and moving a helpless patient?
14. How would you change a patient from one bed to another?
15. What are bed sores and how can they be guarded against?
16. How would you wash the hair?
17. Describe the process of giving a bath in bed.
18. How can the heat of the blood be found? Why is it important?
19. How would you count the pulse?
20. Mention some of the points in a patient's condition that should be noted and recorded?
21. What rules should be observed in giving medicines?
22. What are the different kinds of enemata? How given?
23. What devices can be tried before catheterization is attempted?
24. How is a linseed poultice made and applied?
25. What is a sinapism? A fomentation?
26. How is cold applied to relieve pain?
27. Do you understand everything in this lesson? What questions occur to you?

NOTE.—After completing the test sign your full name.

LOUIS PASTEUR. FATHER OF BACTERIOLOGY

HOME CARE OF THE SICK

PART II

CONTAGION; DISINFECTION—NURSING IN CONTAGIOUS DISEASES

We have learned in our study of Household Bacteriology that nearly all diseases, especially those coming under the head of infectious and contagious, are caused by certain species of bacteria.

If we would be immune from these diseases, then we must do everything in our power to exclude these germs. Cleanliness, plenty of sunlight and fresh air, are the first requisites for their exclusion; and, when disease has entered, proper isolation and disinfection to prevent their spread.

Disinfection

By disinfection we mean destruction of the bacteria by use of certain chemicals or heat. Heat, when it can be used, is always the surest and quickest method. The rules for disinfection, or sterilizing by heat, will be given under the head of "Surgical Operations at Home."

The disinfectants most commonly used in illness are bichloride of mercury, 1-1000, for the hands and utensils, and carbolic acid, 1-20, for the clothes, instruments, etc. Bichloride is the stronger disinfectant, but as it discolors clothes and instruments it should not be used for them.

MAKING DISINFECTANT SOLUTIONS

Bichloride of Mercury

A bottle of blue bichloride tablets can be bought at any chemist's; this is the safest form to use it in the home, as the tablets make a blue solution. The bichloride is perfectly odorless, and if the clear, uncolored solution were used it might be mistaken for water. As this is a very strong poison the tablets should be kept always under lock and key, and out of the reach of children. It is well to have a bottle of tablets in the house at all times, to use in case of cuts, etc. They contain salt, which is always required in making bichloride solution.

To make bichloride solution dissolve one tablet in a quart of hot water.

Carbolic Acid

When a large quantity of carbolic acid solution will be required continually, it is cheaper to buy the 95 per cent solution, which can be reduced as needed to the required strength. To make five pints of 1-20, mix four ounces of the 95 per cent carbolic with five pints of boiling water and shake the bottle well.

As 95 per cent carbolic is not only a strong poison, but also very corrosive to the skin, so be careful not to spill even a drop on your hands, but if you should, wash the spot immediately with alcohol or warm water and soap.

Infection and Contagion

An infectious disease is not always a contagious one; that is, it cannot be contracted by being in the same room with the patient, but it is transmittable by some intermediate means of communication.

Tuberculosis is not contracted by coming in contact with a patient suffering from that disease, but by inhaling dust containing the germs derived from the dried sputa of some consumptive person.

The germs of typhoid fever are disseminated when the stools and other excreta of the patient are not properly disinfected by those in charge.

Disinfection Without Isolation

It is not necessary to isolate patients suffering from diseases of this kind, but it *is* necessary to disinfect, according to the nature of the infection; thus, knowing that the germ of typhoid fever is in the stools, and to some extent in the urine, the stools and urine must always be disinfected by covering with bichloride, 1-1000, and letting stand half an hour before emptying. The bed pan must be well washed and disinfected afterward. It is also a wise precaution to disinfect the bed-clothes by soaking in carbolic, 1-20, for twelve hours, and then boiling; also to keep utensils and dishes used for the patient separate, boiling them before they are again mixed with the household supply.

Consumption

Consumption, or tuberculosis of the lungs, is perhaps the most dreaded disease of the present day. There are more deaths from it than from any other, except in times of epidemic. The sputum of patients suffering from this disease contains many millions of the bacilli. If this is deposited in places where it is allowed to dry and become pulverized, it is a source of danger to others. The sputum must, therefore, be disinfected.

Patients suffering from this disease should be provided with sanitary cups. The best for this purpose are made of prepared paper and are very cheap. These should be burnt after being in use for twelve hours at most. If these cannot be obtained, porcelain ones with covers may be used, but bichloride or carbolic must always remain in the cup, and it should be emptied and scalded frequently. The patient should not use ordinary handkerchiefs, but gauze or Japanese paper, which should be burnt. All clothing

Sanitary Cup.

Paper Sanitary Cup.

and bedding soiled by the sputa should be disinfected in the usual manner, and the sufferer should wash and disinfect the hands frequently.

Perfect cleanliness, plenty of sunlight and fresh

air, and nourishing food are the most important points in the modern treatment of consumption. Special care should be taken by consumptives to smother every cough when close to other people.

CONTAGIOUS DISEASES

Measles, scarlet fever, smallpox and diphtheria are not only infectious but also contagious, and can be taken by touching the person or anything that has come in contact with the patient.

The Spreading of Germs

Anyone who has been in the room with a patient suffering from any one of these diseases can scatter the germs far and wide; this must be remembered, especially by those who do the nursing. It is an absolute necessity for them to go out every day, but before doing so they should change all their clothes, and wash face and hands with bichloride, 1-1000. As it would be impossible to wash the hair every time, it should be covered by a cap, while on duty. Even when all these precautions have been taken, shops, theaters, and street cars should be avoided.

The rules of isolation are these:

Rules of Isolation

(1) The patient should be removed to a room as remote as possible from the rest of the house.

(2) No one should be allowed to enter the room except the physicians and attendants.

(3) Long-sleeved aprons and caps which will cover the hair should be worn by physicians and attendants while in the room. (These can be made of cheap muslin.)

(4) A solution of bichloride, 1-1000, should be kept by the wash basin for the disinfection of hands, and they should be disinfected every time after touching or doing anything for the patient. For proper isolation there should be two rooms,—the wash stand, gowns, disinfectants, etc., being kept in the outer room.

Disinfection of Clothes

(5) A foot tub or other receptacle containing carbolic, 1-20, should be placed near the bedside when the clothes are about to be changed, and they should be put immediately into this, remaining there well covered for twenty-four hours. They should, even then, be boiled before being washed.

(6) The advice given earlier as to the furnishing and care of the sick-room is especially applicable in cases of contagious diseases. When dusting, the duster should be dampened in 1-40 carbolic. As bare floors are apt to be noisy, a small rug or two may be retained, but they should be old ones, as they ought to be burned at the termination of the disease. They must not be shaken, as at other times, but kept well dusted with the damp duster.

(7) It is well to keep sheets, wrung out in carbolic, 1-20, both between the two rooms set apart for the nursing and at the entrance of the outer room. The door of the latter must be kept closed.

Dishes and Utensils

(8) The dishes and utensils used by the patient and attendants must not be removed from the room; they must be washed there, the patient's always being

washed and kept separate. When food is brought it should be left at the door of the outer room. The attendant, first taking off her cap and apron and disinfecting her hands, should remove the food from those dishes to the ones she has in the room; the others should be removed immediately.

Separate Bath Room

(9) Whenever it can be managed the isolated rooms should be in close connection with a bath-room, which should be set apart for the use of the inmates of the sick-room. When this is impossible the attendant must, when it is necessary to go there, first remove her cap and apron and disinfect her hands. When her object is to empty the slop jar or bed pan they should be completely covered with a large towel wrung out in carbolic.

(10) The bed pan should always have bichloride, 1-1000, in the bottom, and after use more of the same solution should be added. It should stand thus for half an hour before being emptied. When there is no separate bath-room a tightly covered box nailed on the outside window sill of the outer room will be found convenient to hold the bed pan, while its contents are being disinfected.

Special Rules

Besides the general rules for disinfection there are in some contagious diseases special rules, incidental to the nature of the disease.

In scarlet fever the greatest danger of infection lies in the dissemination of the skin, while it is peeling. To prevent this the patient should be rubbed all over,

night and morning, with carbolized vaseline or boric ointment.

In diphtheria the most virulent contagion is in the expectoration, especially when the membrane loosens. Soft gauze should be used instead of handkerchiefs, and if there is no grate in the room a pan must be at hand, in which these can be burnt immediately after use.

DISINFECTION AT THE TERMINATION OF THE DISEASE

Time of Quarantine

Even after the fever has abated it is necessary to keep the patient isolated, or "in quarantine," as it is called, for some days. A rough estimate of the time required for quarantine in the different diseases is given in the table in the first section, but the doctor should always be the one to decide when it may be raised, as circumstances or complications may arise which might make it allowable to shorten or necessary to lengthen the time.

Disinfecting the Patient

When the doctor does allow the patient to be moved, a warm cleansing bath (including the washing of the hair) must be given. This is followed by a bichloride bath, 1-1000, and an alcohol rub. The patient is then wrapped in a clean sheet and taken to a different room, where fresh clothes which have not been in the sick-room are put on. Those who have done the nursing must go through the same procedure.

THE DISINFECTION OF THE ROOM AND ITS CONTENTS

Disinfecting with Formaldehyde

The use of sulphur fumes as a disinfectant has been proved to be practically useless, and formaldehyde has almost entirely replaced it. The easiest form of using this is the "Pure Formaldehyde Gas" put up by Seabury & Johnson. It can be procured at most druggists. In appearance it looks like a stone, cone shaped. There are two sizes; the smaller, 2 inches square, will disinfect a room 500 cubic feet, and the larger one, 1000 to 1500 cubic feet. Close the windows, pasting paper over all the cracks; pull down the blinds; open cupboards, drawers, bundles, etc., that everything may be exposed to the fumes of the gas; place the fumigator on the top of an inverted pail—it must not be too near the floor, or it may scorch it—set fire to the top of it, and leave the room; lock the door and paste up the cracks and key hole.

Leave the room thus for five or six hours, then open all the windows, if possible allowing them to remain open for twelve hours.

Books and toys used in the sick-room should be burned, as they are hard to disinfect.

The Mattress

Unless the mattress can be baked it should be opened, so that the formaldehyde can penetrate through to its center. In all large cities there are bake houses where such things may be sent for disinfection at comparatively small cost. They should be carefully wrapped up.

PERSONAL PRECAUTIONS TO BE TAKEN BY THOSE NURSING CONTAGIOUS DISEASES

(1) Take sufficient sleep and rest; never in the patient's room. It is when the muscles are relaxed, as they are when resting, that the greatest danger of infection comes.

(2) A daily walk in the fresh air is necessary.

(3) A daily bath; change of all clothing at least three times a week. The clothing must be disinfected.

(4) When working over the patient never stoop so that you inhale her breath. Never kiss your patient.

Personal Disinfection

(5) Never put your hands to your face, especially your mouth or eyes, without first disinfecting them.

(6) Disinfect your hands frequently in bichloride of mercury, 1-1000. Keep the nails short and scrupulously clean. When washing the hands wash the soap off before putting them into bichloride, or they will soon become sore.

(7) Before meals wash and disinfect your hands well, rinse your mouth with boric acid solution or listerine. Never eat in the patient's room.

(8) When irrigating a diphtheria patient's throat tie a handkerchief over your mouth, and wear glasses to protect the eyes.

The nursing in infectious and contagious diseases is the same as in all other cases of fever. While the temperature is high the patient should be kept in the recumbent position to avoid strain upon the heart.

In typhoid this position is particularly necessary, as hemorrhage from the intestines is liable to occur if it is not strictly adhered to.

Nourishment

Nourishment and medication must be given exactly as ordered. When the doctor orders fluids give nothing solid; many a life, especially after typhoid, has been lost by so doing.

Except when the patient is nauseated, unless contrary to orders, give plenty of water, every two hours at least. See that the patient drinks it slowly.

Remember the rules already given about the care of the mouth, especially with typhoid patients. Vaseline applied to parched lips gives relief.

Care of the Eyes

In measles and scarlet fever the eyes are apt to be affected, so the room should be kept darker than in other cases, and the eyes should be washed with boric acid, always bathing from the inner angle outward.

In all diseases where the skin is not working properly, as in measles, scarlet and other eruptive fevers, be especially observant of the urine as various kidney complications are liable to ensue.

There is little danger of the patient catching cold while the temperature is high, but when it begins to lower be doubly careful.

SURGICAL OPERATIONS AT HOME *

For twenty-four hours previous to operation the patient should be given broths every two hours, but neither milk nor solid food. A cathartic is given, if possible, thirty hours prior to operation, and repeated

*This section is optional.

in six hours; a soap suds enema is given three hours after the first cathartic, and repeated twelve hours before operation. A bath is also given the afternoon before, and after the bath the field of operation is shaved, then thoroughly cleansed with green soap, and a compress wet with green soap solution, 25 per cent to 50 per cent, applied (the liquid green soap which is used for this purpose can be obtained at any druggist's); this is covered with a protector—oil muslin or oil paper—and left on from three to six hours, as the skin will bear. When removed, the surface is washed in the following order, with green soap, ether, alcohol, and solution bichloride of mercury, 1-1000; a compress wet in the latter is applied covered with a protector, and left on till an hour before operation, when the process is repeated and the fresh bichloride compress is left on till the doctor removes it on the operating table, after the patient is under the influence of the anaesthetic; then he re-scrubs it, and the ether, alcohol, and bichloride must be ready for him to use. All these precautions are taken to kill or remove *every* bacterium or spore.

Preparation for an Operation

For a vaginal operation the rules for diet, catharsis, enemata and bathing are the same as for any other. In addition a green soap douche is given on the preceding day, followed by one of bichloride of mercury, 1-5000. The vulva is then covered with a pad wet in solution of bichloride of mercury, 1-1000, until two hours before operation, when another bichloride douche

is given, the parts cleansed and a fresh bichloride pad applied.

Just before the anaesthetic is given, the patient should void urine. If she has false teeth they should be removed.

The Room

The Room. In the choice of the room the light is one of the first considerations, a good light being a positive necessity. If possible the operation should take place in a different room from the one the patient is occupying beforehand. Remove rugs, carpets, all unnecessary furniture, curtains and draperies. A piece of cheesecloth tacked across the lower sash of the windows will keep the light from being too glaring and obstruct the view from outside.

The day before the operation the walls should be dusted, especially the cornices and mouldings; the floor should be scrubbed if possible, or at least wiped with a damp cloth and it should be washed over again the morning of operation after the furniture is in place.

If the patient is to remain in the room after the operation, have the bed as nearly in the position it is to occupy later as possible, but out of the way.

Protect the floor under and around the operating table with several thicknesses of paper, covered with a sheet tacked down at the corners.

Operating Table

A kitchen table covered with a couple of old blankets protected by a rubber pinned or tacked under the table will answer for the operating table. Three small

tables should be at hand, protected with papers, covered with large sterile towels. On one table, convenient to his right hand, the surgeon will need his instruments. On the second table have three bowls which have been well washed first with soap and hot water, then bichloride, 1-1000. The inside of the bowls should not be dried. One bowl is intended to hold the solution for the disinfection of the surgeon's and his assistant's hands, the other two for washing the sponges. The third table is required for the dressings and sterile towels. The former, the doctor will provide or tell you where to get them. Very reliable sterile dressings are now put up by Ellwood Lee, and can be procured at any drug store. They are really better than anything that can be prepared without a sterilizer. If it is impossible to obtain these, the dressings should be prepared in the same manner as the towels, namely, rolled in bundles not more than 9 inches square (or the heat will not penetrate) and steamed in the clothes boiler for at least one hour. If there is no tray to keep them out of the water a hammock of gauze will answer the purpose. They are then dried in the oven, which must not be hot enough to scorch them.

Sterile Dressings

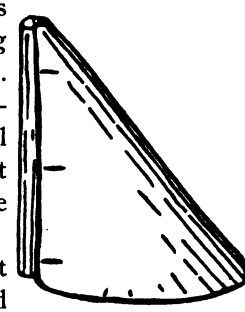
At least a dozen and a half towels will be required. The surgeon will bring the instruments and anaesthetic. If chloroform is administered, some vaseline will be required to grease the patient's face.

An ether cone can be made out of paper, covered with a towel.

An irrigator or douche bag must be at hand for the irrigation. This should be sterilized by boiling for five minutes, as are also the surgical instruments.

Sterilized Water

There must be plenty of sterilized water prepared, six gallons at least, two gallons of which must be boiled long enough beforehand to be cold. This must be kept tightly covered after it is boiled, or it will not remain sterile. Water must boil at least thirty minutes to be properly sterilized.



Ether Cone, made from stiff paper, covered with a towel.

Bichloride, carbolic and salt solutions may be needed and must be at hand, as well as two sterile pitchers, a pus basin, a chair, a blanket or two to cover the patient, two rubbers to protect the blanket, a slop jar, hypodermic syringe, and stimulants—the doctor will give definite instructions regarding the last.

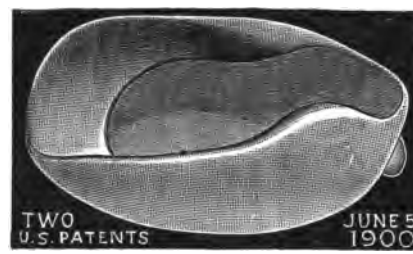
The Bed

The bed is made according to the directions already given for bedmaking, with the exception that no pillow will be required as the patient's head must be kept low. Instead, a small rubber covered by a towel is desirable to protect the bed if the patient is nauseated. A blanket is put over the patient, before the upper sheet; hot water bottles should be in the bed all the time she

is on the table; a couple of towels and pus basin should be on a table near the bed in case of nausea, also small pieces of gauze to wipe the mucus out of the mouth, and a wedge-shaped piece of wood to put between the teeth if they become clenched.

Sterilizing the Hands

If necessary to assist the surgeon during the operation, scrub the hands for ten minutes with hot water and soap, using a new stiff nail brush which has been



PORCELAIN BED PAN

soaked in carbolic, 1-20. Be particularly careful of the finger nails, which should be cut very short. After scrubbing, the hands should be soaked in bichloride, 1-1000.

Nobody, whose hands have not been so treated, must touch the dressings or instruments, and after washing nothing but the sterile things must be touched.

After the Operation

When the operation is over, if the patient's night-gown is wet it must be changed. She is then covered with a warmed blanket, and put into bed. She should lie on her back without pillows and be kept very quiet.

If she vomits, hold her head on one side to prevent strangulation.

Washing the mouth out, as previously directed, will help to relieve the thirst which is generally intense after an anaesthetic.

After a few hours either crushed ice or very hot water, in teaspoon doses, may be given.

Bed Pan, "Eureka" Pattern

The Pulse

The pulse must be watched carefully, and if its rate increases should be reported to the doctor, as this, together with pallor, restlessness, longing for fresh air, sighing respiration, and fall of temperature is a sign of hemorrhage. As the hemorrhage does not always show through the dressing these signs must be watched for.

Perfect Cleanliness

For treatment of hemorrhage see the section on "Emergencies." As the after treatment depends altogether on the nature of the operation, and subsequent condition of the patient, no rules for it can be given here further than to emphasize the fact that the first requisite for success in surgical work is perfect cleanliness. The gauze used for dressing the wound after the operation, the instruments and the hands of those

touching these things, must always be as carefully sterilized for the dressing as for the operation.

The diet, like the treatment, will depend upon circumstances. For the first day or two the patient is generally on fluid diet, and care must be taken that it is given slowly and in small quantities, but as soon as possible plenty of nourishing food should be given to build up the system.

OBSTETRICS

The average duration of pregnancy is 280 days. The most accurate way of calculating the probable date of confinement is by counting back three months from the date of the cessation of the last menses and adding seven days.

Preliminary Care

The expectant mother should place herself under the doctor's care in the early stages of pregnancy, as not only her own but the infant's after health depends largely on the care the mother takes of herself at this time. The principal rules of hygiene to be followed are:

1. Daily exercise in the open air.
2. At least eight hours' sleep out of twenty-four.
3. A daily bath, a sponge bath if the tub bath is too exhausting. A brisk rub after the bath will cause a good reaction.
4. The bowels should be moved daily, with mild cathartics if necessary.

5. The urine must be carefully watched and any abnormality reported to the doctor. Frequent specimens should also be sent him, as there may be danger of serious kidney troubles.

6. Freedom from excitement, worry, hurry, and too heavy manual labor.

7. The clothing should be worn loose enough to allow of free circulation.

8. A nourishing, but not too stimulating diet should be adhered to.

9. The nipples require attention, especially during the last two months, and should be washed twice daily with boric acid solution and treated with fresh cocoa butter or albolene.

What to provide:

For the Mother

1. Two large rubber sheets.

2. If possible, a Kelly Pad, if not, make an obstetrical pad, consisting of four thicknesses of cotton wadding, covered with a layer of absorbent cotton, the whole encased in absorbent gauze and tacked to keep the cotton in place. This pad should be three-quarters of a yard square.

3. Two dozen pads for dressings, half a yard long, ten inches wide and two inches thick, made of the same materials.

4. Two dozen smaller pads.

5. Five boxes of sterile gauze (each containing one yard of gauze), to be used both for the mother's dressing and to cover the baby's cord.

6. One roll of adhesive plaster.
7. Six abdominal binders of unbleached muslin.
8. Six breast binders of unbleached muslin.
9. One pair long stockings made of flannel or an old blanket.
10. Two dozen paper bags in which soiled dressings can be put and burnt.
11. At least two hot water bottles.

KELLEY PAD.

12. Bed pan—"Perfection" is the best.
13. Douche pan.
14. Douche can or new fountain syringe bag.
15. Two glass douche nozzles.
16. Two glass catheters.
17. One agate basin to boil nozzles and catheters in.
18. Two large agate pitchers in which water can be sterilized, solutions made, etc.
19. Clinical, room, and bath thermometers.
20. One bottle carbolic, 4 per cent.
21. One bottle Lysol.

22. One bottle bichloride tablets.

23. New nail brush and fresh cake of soap for the doctor's use.

For the baby:

For the Baby

1. A tube of sterile tape.

2. A rubber sheet, or, preferably, a nursery cloth to protect the crib mattress.

3. Talcum powder.

4. Sweet oil or sterile vaseline.

5. Pure castile soap (never use perfumed soap of any kind).

6. Bath tub—good rubber ones are the best.

7. Old table linen makes excellent towels and wash cloths for the baby.

8. A large square of soft, thick flannel to roll baby in after it is greased.

9. Basket containing sewing materials and safety pins.

10. Crib and bedding.

11. Scales to weigh the baby in are very desirable.

12. A rubber or padded lap protector for the attendant to use while bathing the baby.

13. A large flannel apron for the same purpose. The latter is especially desirable as the baby can be rolled in it, when taken from the bath.

Clothing for Baby

14. Baby's clothing: Six flannel bands, not hemmed, 6 inches wide, three-quarters of a yard long. Four knitted or woven shirts. Six flannel petticoats. Six white petticoats; these should all be made without

bands, and the fastening on the shoulders, running a draw tape through the hem of the flannel petticoat, will keep the baby's feet warm without confining them. Six slips for night wear. Six dresses. Diapers, two sizes, eighteen and twenty-two inches square.

As in other cases of sickness, the room should be as large, light, and airy as possible, scrupulously clean, and have no superfluous furniture.

The Bed

In this instance the foot of the bed should be towards the light. It should be made as shown in the section on bed-making, with the addition of a second rubber covered with a clean sheet, and either a rubber Kelly pad or an obstetrical pad (made as already described).

The furniture and floor should be protected in the same manner as they are for operations.

Besides the bed a table for the doctor, wash stand, nurse's table, extra table or bureau and chair will be required. See that there is a hook on which to hang the douche bag.

On the wash stand have hot and cold water, soap, nail brush, scissors, and nail cleaner, towels, and bowl of bichloride, 1-1000.

Doctor's Table

On the doctor's table, bowl of bichloride, 1-3000, with towels and sponges in it; bowl of lysol, sterile towels, sterile douche tip, also rubber and glass catheter.

Nurse's Table

On the nurse's table have (for baby) sterile scissors and tape wipes in boric acid (these consist of

small squares of gauze), two large squares of gauze to put over the baby's mouth if necessary to blow into it, soft flannel square to wrap baby in, dressing for cord as ordered by the doctor.

For the mother—chloroform, mask, pus basin, sterile dressing and pads. Under the table the douche pan (which has been washed in bichloride and kept covered with towel, wrung out in same), slop pail and basin, paper bags for soiled dressings and placenta, foot tub, hot and cold water.

On the bureau—room, bath and clinical thermometers; salt, vinegar, alcohol, whisky, hypodermic syringe, binders, pins, hot water bag, tray and alcohol lamp.

First Signs

The signs of beginning labor are pains in the lower part of the abdomen and back, occurring at regular intervals, about once every half hour, and a discharge of mucus tinged with blood from the vagina.

True pains can be distinguished from false by placing the hand over the lower part of the abdomen; in true pains the contractions of the uterus are to be readily felt through the abdominal wall. As the labor advances the pains grow more severe and the intervals shorter. The first stage of labor consists in the dilation of the uterus, and ends when the membranes have ruptured and the uterus is completely dilated.

The second stage or stage of expulsion ends when the child is born.

The third stage ends when the placenta is expressed and the uterus contracted to the size of a closed hand.

At the beginning of the first stage, the patient should have a bath, and her hair braided in two braids. Her bowels are emptied by the giving of a soap suds enema. After this the external parts are washed with bichloride solution, 1-5000, and a pad wet with bichloride solution, 1-10000, or boric acid applied. She is as a rule allowed to walk around the room during the first stage, which may last from ten to twelve hours, and even longer.

She is best clad at this time in a night gown, warm wrapper, and long stockings made of flannel or an old blanket, coming well up over the thigh.

Milk and broths should be given every two hours; alcohol and other stimulants must be withheld.

The patient must be instructed not to bear down during the pains of this stage, and to sit or lie down when a pain occurs.

The Second Stage

During the second stage the patient must be kept strictly in bed. The wrapper is removed and a short dressing sack put on in its place, the night gown is tied up under the arms, and with it a sheet, the end of which comes down over the legs covering the blanket stockings, which are left on; it can be folded up in the center when necessary.

The patient usually lies on her back. A strong band of muslin around the foot of the bed, with the ends so that she can hold them to pull on, will help the patient during pains.

The attendant's hands must be well scrubbed and disinfected with bichloride, 1-1000, that she may be ready to help the doctor.

If the doctor does not arrive in time, the attendant, taking all antiseptic precautions, must place her hand against the head as soon as it appears and hold it back during the pains, thus preventing too rapid descent. When the head is delivered insert the finger into the passage to see if the cord be around the neck, if so, pull it carefully over the head. The right hand supports the child as it comes, and the other is placed on the abdomen and pressed firmly but gently downward till the child is expelled. One hand must be held over the uterus from this time until at least half an hour after the placenta is expelled.

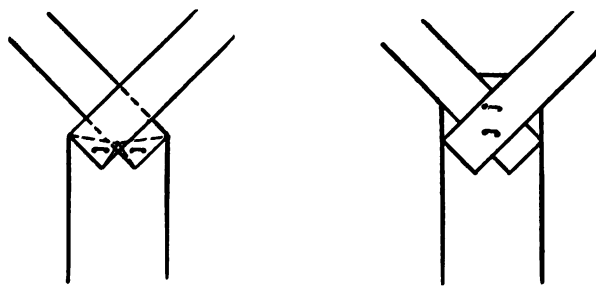
Care of the Child

Place the child on its right side between the mother's thighs, wipe out its eyes and mouth with swabs wet in boric acid; place gauze over the mouth and blow into it; if it does not cry, slap it on the back and chest; if the color does not improve the cord will have to be tied and cut immediately (it is generally better to wait five minutes before doing this) and the child plunged into a hot bath. It is rarely necessary to do this, however. The cord should be tied tightly with the sterile tape about an inch and a half from the navel, and again an inch further on; it is then cut (with sterile scissors) between the two knots. The baby is rubbed with vaseline or olive oil, rolled in the flannel square, and a warmed blanket, then put in its crib with at least

one hot water bottle until the mother is attended to.

The Third Stage

The placenta is generally expressed about fifteen or twenty minutes after the birth of the child; but even if it take longer, the cord should not be pulled upon—it is better to gently manipulate the abdomen above the uterus, and continue doing this very gently with one hand as the placenta comes out, while with the other hand twist slowly to aid its coming. Even after



ENDS OF THE Y BREAST BINDER

the placenta is expressed, the hand must remain pressed downward over the uterus until it feels hard and firm. An assistant can in the meantime be washing the patient with bichloride, 1-2000, and removing the soiled linen. When the uterus is firm and hard a binder should be applied, a dressing of sterile gauze and a pad being first placed over the vulva; this is afterward pinned on to the binder to keep it in place.

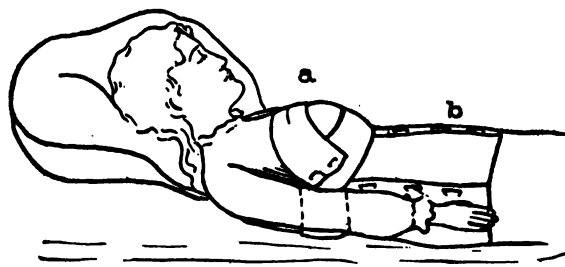
The Binder

The binder is best made of unbleached muslin. One for a medium size woman should be a yard and a

quarter long and half a yard wide. It should, when pinned in place, extend from the border of the ribs to below the prominence of the hips, and should be made to fit the contour of the body by taking in darts over the hips on the upper and lower edges.

A binder is also used to make compression upon the breasts. There are a variety of these, but the Y

Y Breast Binder



Y BREAST BINDER (*a*) AND ABDOMINAL BINDER (*b*) IN PLACE

breast binder originally used in the Boston Lying-in Hospital is perhaps the easiest one to manage, and has the advantage of leaving the nipples exposed. A bandage shaped like a T is made by folding muslin lengthwise and pinning it at right angles to another strip folded in the same way. The T is then made into a Y by making a diagonal fold in the middle of the cross piece and fastening the middle of the plait with safety pins.

To apply, dust the surface of breasts with powder, draw base of Y beneath the patient's back until apex

of the fork is external to the outer edge of breast. Lift breasts upward and toward each other. Draw lower arm of fork snugly across chest beneath breasts, the inferior border of this arm extending at least one inch below margin of breasts; the end of arm is pinned to end of strap, which has been passed beneath back; the lower border is pinned in the center to abdominal binder. The upper arm of fork is then drawn across chest above the breasts and pinned like the lower to the main strap.

Hemorrhage

Watch for the signs of hemorrhage already described. Should hemorrhage occur send for the doctor immediately; induce contractions of the uterus by grasping the fundus and employing a firm but gentle kneading (no doctor would leave the case in your charge without showing you exactly how to do this). Elevate the foot of the bed, and give a hot douche of sterile water, 120° F. Sometimes astringents such as vinegar are added to the douche, but unless the case is very urgent it is best not to use it without the doctor's order.

The patient must be kept quiet and on her back for the first six or seven hours, afterward she can turn on her side but should not sit up for at least five days. She is generally allowed to sit up on fourteenth day, if all discharge has ceased. In no case should the usual routine of life be resumed under four weeks.

The diet is usually liquid for the first twenty-four hours, after which all symptoms being normal, the patient is allowed almost any easily digested food.

The dressing and pad should be changed every two hours until the discharge diminishes, later every three to five, as the case demands. After the third day it is usually necessary to change it only after it has been removed for the requirements of the patient. These dressings must all be sterile and the hands disinfected before applying them. If douches are ordered, boil the douche nozzle for five minutes before and after use.

The breasts must be washed with boric acid solution before and after nursing.

THE CARE OF THE CHILD

After its birth the child's eyes and mouth are cleansed with 2 per cent boric acid solution and its whole body greased with sweet oil or sterilized vaseline. It is then wrapped in warm flannel, put in a crib or basket, heated with hot water bags if necessary, and covered with a warmed blanket. It can then be left until the mother is cared for. Watch the cord carefully as there is danger of hemorrhage.

First Bath

The first bath is often given at once, although some doctors prefer to have the baby rubbed with oil only for the first few days. Before beginning have everything necessary together—a foot tub containing water, 100° F., bath thermometer, warm, soft towels, wash cloth, castile soap, dusting powder, a dressing for the cord, boric acid solution, small squares of gauze, a rubber lap protector, two diapers, flannel band, shirt, flannel petticoat, and a simple, soft white dress.

The head is first washed, using very little soap, rinsed and thoroughly dried; then wash behind the ears, the crevices of the neck, axilla, joints, and between the buttocks and thighs carefully. Only the part being bathed should be exposed. The baby is now put down into the tub and rinsed, supporting the head and back firmly with the left hand and arm. Cover the lap protector with flannel apron or warm towel and when you lift the baby out, roll this around it. Dry by patting; use very little powder and only when it is necessary to prevent chafing. Some doctors consider it better not to put the baby in the tub until after the cord is off.

Navel Dressing

The navel is now dressed by cutting a hole with sterile scissors in a piece of sterile gauze, which is slipped over the cord and folded about it. The cord is laid toward the left side and a pad of sterile absorbent cotton put over it. A soft flannel binder holds the pad in place and must be put on firmly and smoothly, but not too tightly. It is best sewn on with a few large stitches. After the bath the baby should be rolled in warm flannel and laid on its right side in its crib.

Nursing

The Feeding. The first six weeks the baby should nurse every two hours during the day and every three hours at night; afterward this may be changed to every three hours during the day and twice at night. These hours should be rigidly adhered to. If the baby seems thirsty between meals a little plain water may be given.

The baby's mouth should be washed with 2 per cent boric acid solution before and after feeding and also the mother's nipples.

When for any reason it is impossible for the mother to nurse the child, great care must be exercised in the preparation of its food. First the bottle and nipples must be thoroughly cleansed immediately after each feeding by rinsing in cold water, then washing in hot water and soap suds and rinsing in hot water. The bottle is kept turned upside down and the nipples in a 2 per cent solution of boric acid. Both bottle and nipples should be boiled for five minutes twice a day.

Every doctor has his own formula for prepared milk, but whatever the preparation used it is best pasteurized if not above suspicion.

FOOD FOR THE SICK

In many diseases, especially those accompanied by fever, the powers of digestion are much impaired. For this, as well as other reasons, it is necessary that all food given should be in a liquid form. Milk, except under certain conditions, is at such times considered the best food, as it contains in a dilute form all the constituents of the solids, namely: albumen, fat, sugar, the inorganic salts of lime and potash, and water. Milk

If curds appear in the stools, or vomiting ensues, it shows that the milk is not being properly digested. This difficulty may often be overcome by diluting it with seltzer or other effervescent water, by the addition of lime water or bicarbonate of soda (ten grains to a pint), or by peptonizing the milk. (The recipe for the latter will be found at the end of the section.)

A good substitute for milk is white of egg, beaten to a froth, diluted with an equal quantity of water, and flavored with lemon juice.

Beef tea and broths contain very little nourishment, and should, therefore, be given only occasionally, for a change.

Amount and Frequency

Patients on fluid diet should, as a rule, be given six ounces every two hours, or half the quantity every hour. Of course there are times—as after operation, or when the patient is nauseated—when less must be given.

When a patient is on liquid diet it is especially imperative to give her nourishment at stated times and regular intervals. In giving see that it is taken very slowly.

Feeding Cups

As a rule, when a patient is sick enough to be on fluid diet it is necessary for her to maintain the recumbent position, even while drinking, and there are several devices to facilitate this. There is the old-fashioned feeder with the spout, but the drinking tube or "ideal glass" are preferable. When raising the head slip the arm under the pillow; take care not to throw the head forward, and by so doing make it difficult to swallow. Never bring a glass to the patient in your hand, but on a small tray or plate, and with it a napkin to fold under the patient's chin and prevent drops soiling the sheet.

When a patient is on milk diet her mouth should be washed out after every feeding, with listerine or boric

acid, otherwise it will soon become coated and sore. Directions for doing this were given in the section on the care of the teeth.

Solid Food

A convalescent patient should be given solid food only by degrees, beginning with the so-called soft diet, which includes broths, strained vegetable soups, soft cooked eggs, milk toast, junkets, custard, jellies, and raw beef sandwiches. Then comes "light diet," which means the addition to the "soft diet" of underdone steak, chops, chicken, baked potatoes, and farinaceous puddings.

Pastry and all rich or highly seasoned food should be avoided until the patient has, in every respect, resumed her usual routine of life.

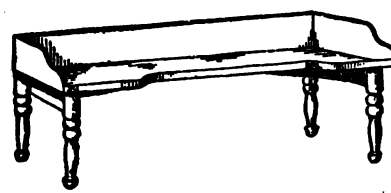
Special Diet

In diseases such as rheumatism, Bright's disease, diabetes, dyspepsia, etc., where fever is not the most important symptom, but where the effect of certain foods must be taken into account, a special diet is prescribed. As the patient's general condition must be considered in the prescribing of such, I think it wise to make only a few general remarks on the subject, as a great deal of harm is frequently done by following set rules for medication and food, by those who are unable to recognize symptoms contra-indicating their use.

In many forms of febrile disease, as for instance tuberculosis, light diet can be given even while there is fever, nourishing food being a most important item in the treatment.

In diabetes, sugar and starchy foods, most fruits, and alcoholic drinks must be avoided. Gluten bread should be used, and that not too fresh; saccharine should be used instead of sugar for sweetening not only tea and coffee, etc., but also in cooking. Fresh milk should not be taken, but buttermilk and koumyss are allowed.

In rheumatism and gout, as in diabetes, all sweetening should be done with saccharine, and sweets of all kinds are prohibited, also pastry, puddings, jellies, pork, veal, and all fried meats. Fruit except strawberries and bananas, is allowed.



TRAY WITH FEET

Dainty Serving

Too great stress cannot be laid on the necessity for a dainty serving of the patient's meals. They should be either very hot or perfectly cold, as the case requires. Have clean napkins, spotless china, and shining silver and glass. Be careful in carrying the tray not to spill any of the fluids, and, as has been said before, do not have too much on the tray at a time.

Furthermore, that the patient may thoroughly enjoy the meal, it is necessary that she should be perfectly

comfortable. Therefore, before bringing in the tray, wash her face and hands, shake up the pillows, and decide where it is best to set the tray. If there is no bedside table or tray with feet, it is a good plan to have two blocks of wood to put on each side of the patient. They should be about the width of the tray, and high enough to hold it off the patient's chest. Magazines will answer the purpose if the blocks cannot be obtained. Always protect the night-gown and bed clothes with a towel or table napkin.

RECIPES

Milk

Never Boil

In warming milk for drinking never allow it to boil, and always keep it covered. It is the coagulation of the casein by boiling, and the evaporation of certain gases, that renders it indigestible.

Brandy Milk with Egg

Beat one egg with one tablespoonful of sugar; add two tablespoonfuls of brandy and a cup of cold milk.

Koumyss

1 qt. perfectly fresh milk.
1-5th of a 2-cent cake of Fleischmann's yeast.
1 tablespoonful of sugar.

Five Days Required

Dissolve the yeast in a little water; mix it with the sugar and milk. Put the mixture into strong bottles; cork them with tightly fitting stoppers; tie down securely with stout twine. Shake the bottles for a full

minute; place them on end in a refrigerator; at the end of three days lay them on their sides; turn them occasionally. Five days will be required to perfect fermentation. Kept in the refrigerator and well corked koumyss will keep indefinitely.

Milk Lemonade

1 tablespoonful sugar.
1 cup boiling water.
¼ cup lemon juice.
¼ cup sherry.
1¼ cups cold milk.

Pour the boiling water over the sugar; add the lemon juice and sherry. Stir it until the sugar dissolves; add the cold milk; stir again until the milk curdles; strain through muslin.

Milk Punch

Sweeten 1 cup of milk with 1 teaspoonful of sugar; stir in 2 tablespoonfuls of brandy; beat with egg-beater; pour into glass and grate nutmeg over the top.

Milk Rennet

Use Dainty China

Stir 1 teaspoonful of rennet and 2 teaspoonfuls of sherry together with 1 teaspoonful of sugar. Heat 1 pint of milk until it is exactly 100° F.; pour into bowl containing rennet and wine; stir quickly and only enough to mix ingredients; grate nutmeg over the top, and set on ice till solid.

Peptonized Milk

Mix 5 grains of pancreatic extract and 15 of soda bicarbonate with cold milk; warm a pint of milk and add; stir well and put on ice to cool.

Barley Gruel

Mix 1 tablespoonful of Robinson's barley-flour with half a teaspoonful of sugar; pour over this a cup of boiling water; boil ten minutes; add a cup of milk; bring to boiling point; serve very hot. **Gruels**

Arrowroot Gruel

Mix half a tablespoonful of arrowroot with 1 saltspoonful of salt, half a teaspoonful of sugar, wet with 2 tablespoonfuls of cold water; pour on a cup of boiling water, stirring constantly. Boil for twenty minutes; add the milk, and bring to boiling point; strain; serve immediately. A little port wine is often added.

Oatmeal Gruel

Mix 2 tablespoonfuls of oatmeal, half a teaspoonful of sugar and a saltspoonful of salt. Pour this slowly into boiling water; cook in a saucepan for thirty minutes, or, preferably, in a double boiler for two hours; strain; add the milk, and bring to boiling point.

Cracker Gruel

Mix 2 tablespoonfuls of cracker crumbs with half a saltspoonful of salt and half a teaspoonful of sugar. Pour over this a cup of boiling water, add one cup of milk and simmer for two minutes.

Beef Tea

Cut two pounds of round steak into half-inch squares; put into double boiler and add one quart of water; let stand one hour, then place over fire and let simmer two hours; flavor to taste.

Chicken Broth

Broths

Cut up a fowl (which has been properly cleaned) into small pieces; add a quart or a quart and a half of cold water, according to size of fowl. Let stand for one hour and simmer for two hours, then boil slightly for one. Strain it, remove fat, and flavor to taste.

Mutton Broth

Cut one pound of loin or neck of mutton into small pieces; put with one teaspoonful of chopped onion into one quart of water. Let stand one hour, and simmer three; strain; let cool; then remove the fat which rises to the top. Heat when ready to serve; season with salt and white pepper.

Flaxseed Tea

Drinks

Boil one tablespoonful of flaxseed in a pint of water for one hour; strain; add one tablespoonful of lemon juice and one tablespoonful of sugar; serve either hot or cold. The loss by evaporation should be made good from time to time, so that at the end of the cooking there shall be one pint of tea.

Coffee

For every cup of water use a heaped tablespoonful of coffee. Soak the coffee for several hours in cold

water; bring to boiling point and let simmer for a few minutes; let stand on the back of the stove for a minute to settle before serving.

Caudle

To a cupful of thin oatmeal gruel add a tablespoonful of sherry, one egg well beaten, sugar to taste; it can be served either hot or cold.

Toast Water

Toast till dry three slices of bread an inch thick; break into small pieces; add a pint of cold water; soak for an hour; strain, and squeeze the water out of the toast with the back of a spoon. Serve cold; if desired a little cream and sugar may be added.

Barley Water

Boil one tablespoonful of barley flour, a teaspoonful of sugar, a saltspoonful of salt and a quart of water together for fifteen minutes; strain; it can be flavored either with lemon juice or port or sherry wine.

Rice Water

This is made in the same manner as barley water, except that two tablespoonfuls of rice will be required to a quart of water.

Oyster Soup

Heat a cup of milk; add two tablespoonfuls of cracker crumbs, a saltspoonful of salt, a sprinkle of pepper, a fourth of a teaspoonful of butter; when this is warm through add a cup of fresh oysters and juice;

allow to simmer for about two minutes, or till the gills of the oysters curl.

Milk Toast

Toast three slices of bread a delicate brown; butter them and put them into a covered dish. Cover them with milk which has been brought almost to boiling point.

Soft Custard

Beat together the yolks of two eggs, a saltspoonful of salt, and two tablespoonfuls of sugar; add this slowly to a pint of milk which has been brought to boiling point; boil three minutes. Flavor with vanilla or sherry wine; serve cold.

Egg-nog

Egg Dishes

Break one egg into a bowl; add one saltspoonful of salt and two teaspoonfuls of sugar; beat until light; add one cup of milk, one or two tablespoonfuls of good brandy or whisky; serve immediately.

Sherry and Egg

Break an egg into a bowl; add a teaspoonful of sugar; beat the two together until well mixed; add two tablespoonfuls of sherry wine and a fourth of a cup of cold water; mix thoroughly; strain, and serve immediately.

Scrambled Eggs

Beat two eggs, a saltspoonful of salt, a sprinkle of white pepper, with a Dover egg-beater, until quite light; add four tablespoonfuls of sweet cream or milk;

turn the mixture into a double boiler; cook, stirring constantly until the albumen is coagulated.

Foamy Omelet

Separate the yolks from the whites of two eggs. To the yolks add a saltspoonful of salt and one-fourth of a saltspoonful of pepper. Beat with a Dover egg-beater until light; add two tablespoonfuls of milk. Beat the whites until fairly stiff, and fold them into the yolk; pour the mixture into a hot buttered omelet pan; cook for about two minutes; put into the oven for one minute to cook the upper surface.

Egg Cream

Separate the yolks of two eggs from the whites; add two tablespoonfuls of sugar to the yolks; beat until well mixed; add the juice and grated rind of half a lemon; place the bowl in a dish of boiling water on the fire; stir slowly until the mixture begins to thicken; add the beaten whites of eggs, and stir for two minutes. Serve cold.

Poached Eggs

Pour some boiling water into a small saucepan; salt it and add half a teaspoonful of vinegar; break a fresh egg gently into this. As soon as the white is firm lift out the egg with a skimmer, and put on crustless buttered toast.

Soft Cooked Eggs

Never boil eggs for the sick. Boil enough water to cover the eggs; put them in; remove the saucepan to

the back of the stove where the water will not lose its warmth too soon, and let them stand ten minutes.

Jellies

Jellies

The order for making nearly all jellies is as follows: The gelatine is hydrated, or softened, by soaking in the cold water for half an hour. The boiling water, sugar and flavoring are then added, in the given order. Strain and cool.

Lemon Jelly

¼ box of gelatine.
¼ cup of cold water.
1¼ cups of boiling water.
½ cup of sugar.
¼ cup of lemon juice.
1 tablespoonful of brandy.

Orange Jelly

¼ box of gelatine.
¼ cup of cold water.
½ cup of boiling water.
½ cup of sugar.
1 cup of orange juice.
Juice of half a lemon.

As soon as the latter begins to stiffen it can be whipped till stiff, making orange sponge, which, served with custard, makes a very dainty dish.

Velvet Cream

Soak ¼ box of gelatine in ¼ cup of cold water for half an hour; then pour in ¼ cup of sherry wine; set

the bowl in a dish of boiling water over the fire. When the gelatine is dissolved add a teaspoonful of lemon juice and ½ a cup of sugar; strain; set the bowl in a dish of ice and water to cool. As soon as it begins to thicken turn in the cream. Stir this until it also thickens; mould and put on ice. Serve with cream.

Wine Jelly

¼ box of gelatine.
¼ cup of cold water.
1¼ cups of boiling water.
½ cup of sugar.
½ a square inch cinnamon.
1 clove.
½ cup of sherry wine.

Coffee Jelly

¼ box gelatine.
¼ cup of cold water.
1 cup of boiling water.
½ cup of strong coffee.
½ a teaspoonful of vanilla.
½ a cup of sugar.

EMERGENCIES. FIRST AID TO THE INJURED

In all emergencies one of the chief requisites is coolness. Do not get excited, or you will be perfectly useless. When the doctor's services are necessary send him a *written* statement of the case, that he may come prepared with the proper appliances. Severe injury

of any kind is apt to be followed by that complete prostration of the vital powers known as "shock." Therefore, after such, the patient should be put into a warm bed, and hot water bags applied to the feet and over the heart.

Exclude the Air

Scalds and Burns. In the treatment of scalds and burns the first object is to allay the pain by excluding the air. This is done best by the application of clean, soft, white linen or cotton cloths wrung out in a solution made by dissolving a tablespoonful of bicarbonate of soda (baking soda) in a pint of boiled water. This treatment can be continued for the first few days; afterwards boric acid ointment spread on lint or soft sterile cotton will be found healing. Do not try to treat a burn of any extent without a doctor's advice, as many complications are likely to ensue. In fact, in such cases, it is always best to send for the doctor immediately, as many people have died from shock after comparatively small burns.

Frost Bites. Rub with snow, or cloths wrung out in ice-water. The rubbing must be very light at first, and the patient kept away from the heat.

Syncope or Fainting. Place the head lower than the feet if possible; give plenty of fresh air. Ammonia may be given by inhalation, but it should not be very strong, as it is irritating to the bronchial tubes. If these measures are not successful treat as in case of shock.

Shock. Put the patient into a warm bed; undress and roll in blankets; apply heat to the extremities and over the heart; raise the foot of the bed, so that the patient's head will be considerably lower than the feet. If possible avoid giving stimulation till the doctor arrives; if, however, he cannot be found, and the case is urgent, give a rectal injection of whisky 1 oz., water 5 ozs. (105° F.), salt 5 grains. Coffee may be used instead of water and salt.

Epilepsy. Loosen all clothing; put something between the teeth to prevent the tongue being bitten; have the head on a level with the feet; give plenty of fresh air but no stimulants.

Drowning. In cases of drowning where a person is apparently lifeless, efforts to restore life should be commenced at once by loosening all tight clothing around neck, chest, and waist. Turn the patient over quickly on his face, raising the body slightly at the waist to allow any water in the throat or air passages to run out. Wrap a handkerchief or a towel around the forefinger and gently cleanse the mouth. All this should take only a minute or two. Place the person upon his back with a folded coat or a firm pad of any kind under his shoulders to raise them a little. Be careful that the tongue does not slip back and shut off the air from the trachea. If it shows any tendency to do so, have some one hold it out, or tie a handkerchief around it and then around the neck.

Now artificial respiration should be produced until the natural breathing is restored. To do this kneel

ARTIFICIAL RESPIRATION (First Movement)

Artificial Respiration

behind the patient and grasping his arms just below the elbows, draw them slowly upward above his head until they nearly touch. Give a firm pull for a moment. This movement tends to fill the lungs with air by raising the ribs and increasing the chest cavity.

ARTIFICIAL RESPIRATION (Second Movement)

Then carry the arms slowly back to the sides of the body and press them against the ribs. This movement forces out the air which was drawn into the lungs and makes artificially a complete respiration. These two

movements should be repeated slowly and steadily about sixteen times in a minute, until respiration takes place naturally. This may require an hour or more.

Asphyxiation, Caused by Gas, Smoke, etc. Remove the patient into the fresh air, loosen the clothing, throw cold water in the face, neck, and chest; apply heat to the feet and over the heart. If respiration is

EXPELLING THE AIR (Third Movement)

shallow, artificial respiration should be performed, and, if necessary, treat as for shock.

Contusions, or Bruises, are best treated by rest and cold applications.

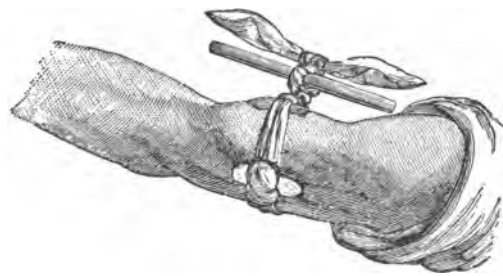
Guarding Against Blood Poisoning

Wounds. When there is a cut, the first procedure, provided there is no hemorrhage, is to wash out the wound well with bichloride, 1-5000, and bind it up with sterile gauze. A wound will heal without the formation of pus if all bacteria are killed or kept out. When the cut is long, or the ends of the wound do not come together well, the doctor should be summoned, as putting in a few stitches may prevent an unsightly

scar. (Having bichloride and sterile gauze always in the house would save many a case of blood poison, infected fingers, etc.) Collodion is useful in keeping bacteria out of small cuts and in applying absorbent cotton over wounds in places where bandages cannot be used.

Tourniquet

Hemorrhage. Elevate the affected part; make compression over the wound by applying clean compresses and bandaging tightly. If this does not check it, and you do not know the course of the arteries well enough



Manner of compressing an artery with a handkerchief and stick.

to make compression upon the required one, tie on a bandage very tightly above the wound. A pencil or a piece of wood stuck under this, and turned around, will act as a tourniquet. When possible, in addition to this it is always better to place a hard pad over the course of the artery. A doctor's aid must be sought immediately, for if the blood is shut off in this manner longer than an hour gangrene is likely to set in.

Cold Applications

Epistaxis (bleeding from the nose). Make the patient stand or sit erect; throw the head back and elevate the arms, while you apply ice or ice-cold compresses to the forehead and back of neck. If the bleeding still continues the nostrils should be syringed with salt and water, ice cold. Avoid blowing the nose, and so disturbing the formation of clots.

Hemorrhage from the Lungs. Keep the patient quiet, give crushed ice, and put ice-cap on chest. Salt solution made by dissolving a teaspoonful of salt in a small cup of water may also be given.

Strapping

Sprains occur most frequently at the wrist and ankle joint. Soak the affected part in hot water, or apply hot compresses. The joint should then be supported by strapping, and given moderate use. A surgeon should do the strapping, for if it is not properly done serious trouble may result.

Fractures Need Not Be Set At Once

Fractures. It is a mistaken impression that a fracture must be set immediately. It will do less harm for it to be left a day or two without splints than for them to be applied awkwardly. Handle the injured limb as little as possible, and keep the patient quiet until a competent surgeon can be obtained. Temporary splints made of pasteboard, shingles, etc., may be bound on to prevent the spasmodic twitching of the muscles; cold or hot compresses applied will keep down the swelling and relieve the pain.

Dislocations should be reduced as soon as possible, but only a surgeon can do this properly.

FOREIGN BODIES IN THE EYE, EAR, NOSE, THROAT

The Eye. If anything gets under the lower lid, draw the lid down by the lashes, direct the patient to turn the eyeball toward the nose, and the offending body can then be wiped out with a soft handkerchief. If it is under the upper lid, this can be turned up over a thin pencil or knitting needle, and treated in the same way, except that the patient is directed to look down. Always wipe the eye towards the nose. If the particle is imbedded in the surface of the eyeball a surgeon must be notified immediately; do not make any effort to get it out.

Use Nothing But Water

Foreign Body in the Ear. Unless the object is something that will swell with moisture, syringe gently with warm water, taking care not to close the opening with the nozzle of the syringe. If this method fails go to a doctor; any unskilled effort to poke or probe the object out is likely to result in permanent injury to the ear.

The Nose. When a foreign body is in the nostril make the patient take a full breath, then close the mouth and the other nostril firmly—the air will probably expel the obstruction. If this fails, and the object is in sight, compress the nostrils above and hook it out with a hairpin or piece of bent wire.

A Foreign Body in the Throat may be hooked out in the same way; if not, a piece of bread should be swallowed; this may carry down the obstruction. Do not give purgative medicine, as is often done, but

rather plenty of solid food, especially potatoes and bread.

A Foreign Body in the Windpipe will usually be dislodged by the coughing which its presence excites; if not, a blow on the back, or, in the case of a child, holding it up by the feet and administering a succession of blows between the shoulders will generally produce the desired effect.

POISONS AND ANTIDOTES

Give an Emetic At Once

The treatment has three objects in view: to remove the poisonous substance, neutralize its further action, and remedy the ill effects already produced. An emetic is the first consideration. A tablespoonful of salt or mustard stirred into a glass of lukewarm water will usually prove effective. This dose should be repeated three or four times. An enema should also be given, the patient kept warm, and, as soon as vomiting ceases, the chemical antidote given.

The following table of the chemical antidotes and further treatment of the most common poisons should be learned and remembered.

Carbolic Acid. Lime water and milk, equal parts, a pint to a pint and a half. Atropine and heart stimulants, such as whisky and strychnine, may be required, given hypodermically.

Nitric or Oxalic Acid. Chalk or whiting, the plaster from walls, milk and lime water. Give whichever can be obtained quickest.

Ammonia. Vinegar or lemon juice, followed by castor or olive oil.

Arsenic. The best antidote is tincture of iron, diluted with water, and either baking or washing soda. Lacking this, or till it can be obtained, give milk and white of egg, or flour and water.

Aconite or Belladonna. Strong, hot coffee. Give artificial respiration if necessary.

Bichloride of Mercury (corrosive sublimate). White of egg—white of two eggs to a pint of water.

Calomel. The same as bichloride of mercury.

Opium. Strong, hot coffee. Keep the patient awake, using artificial respiration when necessary; permanganate of potash and tannic acid are the best chemical antidotes, but they can rarely be obtained in a hurry.

BANDAGES AND BANDAGING.

Materials

The materials most commonly used for making bandages are either unbleached muslin or gauze. Muslin bandages are best when necessary to keep a splint in place, or make firm pressure. Gauzes are infinitely preferable when the object is only to keep a surgical dressing in position; they adapt themselves more neatly to the part, and are much cooler.

Bandages should be six to eight yards long; they vary in width from one inch to four; one inch for finger bandages, two for hands and feet, two and a

half to three for head and arms, three to four for legs, spicas, etc.

The three fundamental forms of bandaging are: the spiral, reverse, and figure eight.

Figure Eight Bandage

The figure eight principle is the one most used, and is the easiest method to learn. It is made by turning the bandage round the limb in the form of the figure 8, each figure being higher than the preceding one, but overlapping it one-third of its width. A bandage must lie smoothly without wrinkles, making an even but not too severe pressure. It must not be loose enough to slip, yet not tight enough to be painful or impede the circulation.

Finishing

When finishing a bandage always put the pin on the outer side of a limb, and in all cases where it will least interfere with the patient's comfort. Safety pins should always be used.

In bandaging a limb begin at the extremity, and work upwards from left to right. Hold the bandage with the roll side upward.

Foot Bandage

To bandage a foot start the free end of the bandage at the instep, make a turn around the base of the toes, carry the bandage diagonally over the foot, across the point of the heel, and back from the other side till it coincides with the first turn. Cover this, and carry a second turn around the heel, half an inch higher than the first. Continue making alternate turns under the sole and behind the heel, crossing over the instep, until the foot is covered. Finish with a couple of circular

turns around the ankle, or, if desired, continue up the leg.

Leg Bandage

The beginning of the leg bandage is placed obliquely across the leg above the ankle; a circular turn keeps it in place; then the bandage is inclined up the leg, and a turn taken around it. It is then brought downward, and another turn taken around the ankle. Suc-

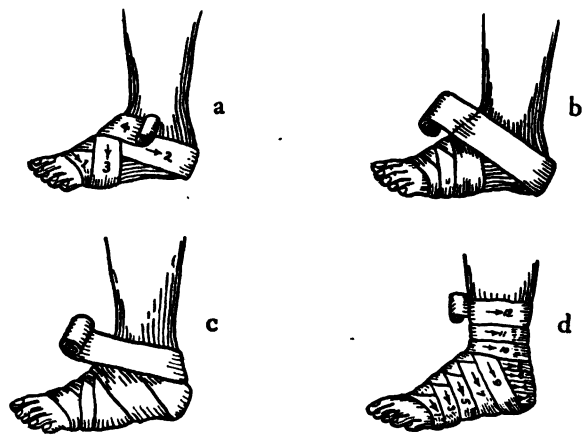


FIGURE 8 OF THE FOOT.

cessive turns are to be made, each one higher than the preceding, till the entire limb is covered.

To bandage a hand begin at the top of the first finger and cover it by a succession of oblique circular turns, or figures of eight, to its base. Then make a turn around the wrist to keep these from slipping, and return to the root of the second finger. Lead the

bandage by one or two spirals to the top of this, then proceed down it, as upon the first finger, concluding with another turn upon the wrist. Cover each finger successively in the same way; then take a wider bandage, start at the back of the hand and wind it around the base of the fingers, carry it obliquely across the back of the hand around the wrist, back to the further side, and again around the palm. Continue these turns alternately till the hand is covered. The arm is bandaged in the same manner as the leg.

Figure 8 of the Leg

Forehead or Back of Head

When it is only necessary to cover the forehead or back of the head the figure-of-eight is all that is required. Start the bandage over the ear, carry it across the eyebrows and around the back of the head as high as possible. Continue to wind it round thus, making

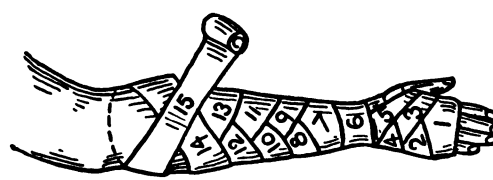


FIGURE 8 OF THE ARM.

each turn a little higher in the front, and lower in the back, until you have covered as much surface as required. When the whole head needs covering the capeline is better. This is put on by a

The Capeline

double roller (join two bandages by rolling). Stand behind the patient, and, taking one roll in each hand, begin low on the forehead and carry them round the head, far down on the nape of the neck; then transfer the bandage in the left hand to the one in the right, and continue it round, while the other is folded over at right angles with it, and brought across the top of the head to the front. Here it meets the other and crosses it again, running backward and overlapping the former folds. These turns are continued until the

Bandage of the Hand

whole head is covered, one bandage going round and round it, and the other going back and forth across it; all the folds leading from the front of the head to the back should be on the left of the middle, while those leading toward the front should be on the right. Finish with a circular turn around the head; fasten with a safety pin in front.

The tailed bandages are often found very convenient, especially for keeping poultices and the like in position.

Four Tailed Bandages

The four tailed bandage of the head is made from a piece of muslin eight inches wide and long enough

to go over the scalp and tie under the chin. It is torn from each extremity to within three or four inches of the middle. The body of the bandage is placed on

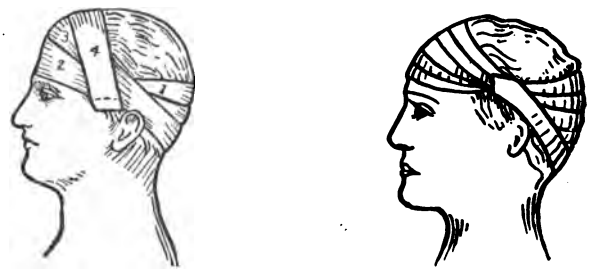
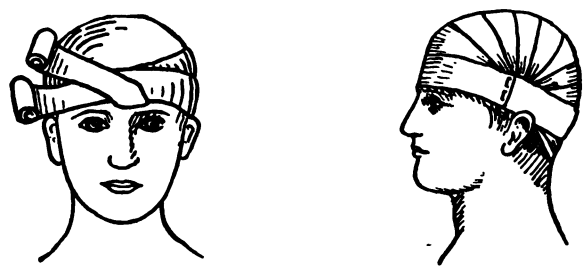


FIGURE 8 OF THE HEAD

the top of the head, the two posterior tails tied under the chin, and the two anterior ones around the back of



THE CAPELINE

the neck. If it is desired to cover the front of the head the body of the bandage is placed at this point, the two anterior tails are fastened at the back of the head, and the two posterior ones down under the jaw.

A four tailed bandage for the knee is made by splitting a strip of muslin at each end, to within two or three inches of the center. Place the body of the

FOUR-TAILED BANDAGE OF THE HEAD

bandage over the knee, carry the tails under the knee, cross them so that the lower ones will come above the joint, and the upper ones below; bring them around, and tie in front.

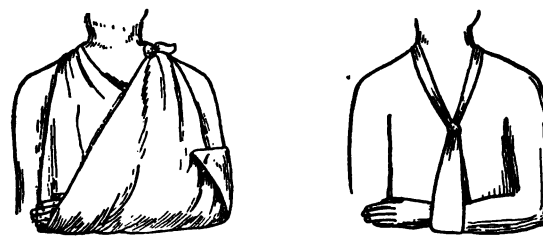
Scultetus

A scultetus, or many tailed, is used on the abdomen, to obtain pressure, to keep a surgical dressing or poultice in place, etc. To make it take four or five strips three inches wide and a yard and a quarter to a yard and a half long, sew them together in the center for a quarter of a yard, each one overlapping the other by two-thirds of its width. To apply, pass the bandage under the patient, so that the sewed part is under her back; fold the strips alternately over the abdomen, from below upward.

Four Tailed Bandage of the Knee

Slings

To make a sling take a square yard of muslin and cut it across diagonally; this makes two slings. When the fore-arm is injured its whole extent should be supported equally. Put it in the center of the sling; carry its outer end around the neck on the side of the injured arm, and the end between the arm and the



SLINGS FOR LOWER AND UPPER ARMS

chest around the other side, tying them at the back. The third end is brought around the elbow and fastened in front.

Sling for Upper Arm

If the injury is of the upper arm the sling should support the wrist only, making no pressure on the elbow. Turn the hand palm inward, fold the apex of the bandage in place, the arm just above the wrist in the center of the sling, cross the ends and tie them around the neck.

The student should practice the various bandages and slings described on some member of the family or a friend. Some little experience is required before they can be applied securely and neatly. The illustrations will help to make the matter clear.

BIBLIOGRAPHY

Food and Cookery for the Sick and Convalescent ($1.50). Fannie M. Farmer.
Food for the Sick ($1.00). Edward C. French.
Home Nursing ($1.00). Eveleen Harrison.
Nursing ($2.00). Isabel A. Hampton.
Practical Normal Histology ($1.25). T. Mitchell Prudden.
Practical Points in Nursing ($1.75). Emily A. N. Stoney.
Text Book of Nursing ($1.75). Clara Week Shaw.

MAGAZINES

The American Journal of Nursing.
The Trained Nurse.

Note.—For the convenience of students the School will purchase and forward any of the above books on receipt of the price given.

TEST QUESTIONS

The following questions constitute the "written recitation" which the regular members of the A. S. H. E. answer in writing and send in for the correction and comment of the instructor. They are intended to emphasize and fix in the memory the most important points in the lesson.

HOME CARE OF THE SICK

PART II

Read Carefully. Place your name and address on the first sheet of the test. Use a light grade of paper and write on one side of the sheet only. *Do not copy answers from the lesson paper.* Use your own words, so that your instructor may know that you understand the subject. *Carry out the directions given in the text, if possible, before answering the questions.*

1. How are infectious and contagious diseases alike? How do they differ? Name some of each.
2. What precautionary measures should be taken with typhoid fever? With consumption?
3. What are the rules when isolation is necessary?
4. What precautionary measures should be taken by the attendant while nursing in a contagious disease?
5. How disinfect (a) the patient, (b) the room, (c) the furnishings at the termination of a contagious disease?
6. Why are the many precautions taken in surgical operations and in childbirth?
7. What can you say of diet for the sick? Why should special care be taken in serving?
8. What should the medicine closet contain in preparation for emergencies and accidents?
9. How would you treat a scald or burn? Frost bite? A wound?
10. What is shock and how should this condition be treated?

11. Why should written directions be sent to the doctor in accidents?
12. What would you do for a sprain? Fractures? In case of hemorrhage from an arm or leg?
13. What should be done at once for one who has fainted? One apparently drowned? Asphyxiated?
14. Give the rules of hygiene in pregnancy.
15. Name some of the things to be provided for childbirth. How should the room be prepared?
16. Describe the stages of labor.
17. What should be done if the doctor does not arrive in time?
18. How should the child be cared for directly after birth?
19. How would you remove a foreign body from the eye? Ear? Nose? Throat?
20. In case of poisoning, what objects has the treatment in view?
21. What would you do for carbolic acid poisoning? Bichloride of mercury? Arsenic? Opium?
22. Of what material are bandages made? How should they be applied and fastened?
23. Bandage a foot as shown in the illustration and then describe the process.
24. Try some of the other bandages described and report.
25. Make and adjust a sling for the forearm. When should it be used?
26. What questions would you like to ask in connection with these lessons? Tell of any experience that you may have had in nursing and of methods that were helpful.

NOTE.—After completing the test sign your full name.

PREVENTABLE DISEASES

CONSUMPTION

CIRCULAR OF INFORMATION FOR PERSONS SUFFERING FROM PULMONARY DISEASE, AND FOR OTHERS LIVING IN THE SAME HOUSE

Issued by the National Association for the Study and Prevention of Tuberculosis, 105 East Twenty-second Street, New York.

GENERAL CONSIDERATIONS

Several diseases of the lungs are spread from person to person by the coughing and spitting of those affected. Among these diseases are Consumption, Influenza or Grippe, Bronchitis, Common Colds, and Pneumonia. Those who suffer with any of these affections cannot help coughing and spitting, but they can cough and spit in such a way as to avoid communicating their disease to others.

COUGHING

The infective agent, or "germ," is contained in the material raised by coughing. Very small bits of such material may contain large numbers of these germs. Most persons, when coughing, instinctively hold the hand over the mouth. That is not a very bad habit, for you may at least know what you have done. You have possibly infected your hand, but have not prevented the act of coughing from scatter-

ing about you fine particles of saliva, which may contain bacilli. It is better to hold a handkerchief* over your mouth, and, when done coughing, to put the handkerchief at once into the pocket — into the handkerchief pocket, into which a small paper bag has been previously placed to prevent contamination of the pocket, and which can be burned when convenient. If accidentally you cough anything, no matter how little, into your hand, you should clean your hand very carefully. If one has tuberculosis or pneumonia it is most important, indeed it is almost vital to persons around, to avoid cantaminating the room with materials coughed up.

Persons subject to prolonged attacks of coughing should, if possible, retire to a convenient place until the fit is over, and under all circumstances should be careful that the fine spray coughed up is all caught upon some material which can be completely and promptly destroyed.

The material expelled by coughing is, as a rule, small in amount, and consists of minute droplets, but its power to infect is not to be judged by the small amount or by the minuteness of its particles, for the tiny germs are plants, each of them capable of rapid growth when transferred to the lungs of another person.

*NOTE.— The use of handkerchiefs for this purpose might well be discouraged, for the mouth and nose secretions of healthy people often contain disease germs. Japanese napkins, tissue paper, or pieces of cloth which can be destroyed, are preferable on all accounts.

Persons in health need have no fear whatever of the matter exhaled by the sick in ordinary breathing or in conversation.

SPITTING

The larger quantities of material, coughed up into the mouth, contain enormous possibilities of infection, but this source of danger is easily avoided by simply knowing where to spit.

Many persons, women especially, swallow what they cough up. This is a bad habit. It is most unclean and disgusting to spit into your stomach, and if one has tuberculosis it is dangerous. Consumptives would oftener get well if they were not repeatedly reinfected, and to swallow the sputum is one way of renewing the infection.

Those who have ordinary colds or pneumonia, or influenza, or tuberculosis, must spit, but they must not spit in such a way that they themselves or any other person can come in contact with any particle of the sputum.

In the house no one, sick or well, should ever spit anywhere except into a vessel made for such purposes. Those who are out of health should have their own spittoons containing water or some disinfecting solution, or sputum cups of paper cheap enough to be dropped in the fire and destroyed, or a water-proof pocket or paper bag for cloths or absorbent paper napkins, which are burned as soon as they are soiled. A disinfecting solution in the spittoon is not absolutely

necessary, but it is absolutely necessary that the sputum should never be allowed to dry, and water in the spittoon will answer every purpose to accomplish this end. Spittoons should have perpendicular sides, and no slanting surfaces on which the sputum can stick and dry. It is well to place the spittoon on a piece of paper which will show if accidentally soiled, and can be easily destroyed. It is dried sputum, from which particles can rise as dust in the air, that is dangerous.

For use on the street, or away from home, similar conveniences can be obtained, capable of being used quite decently and without attracting attention. If one happens to be without such conveniences, when it is absolutely necessary to spit, remember not to spit where anyone is liable to step on the sputum. It is a punishable offense to spit on the floor or platform of a trolley car or railway coach or on the floor of a railway station or public building, and in many places the law forbids spitting on a pavement. When you must spit, look about for a sewer opening or a gutter.

When in company, and in a room, the tendency of the invalid is to swallow the sputum rather than attract attention, but this should not be done, as it is both dangerous to the patient and disgusting, and the expectoration can always be received on pieces of cheesecloth; or it would be better even, if necessary, to expectorate in the handkerchief and burn it afterwards.

Of the diseases considered in this circular the most important from every standpoint is tuberculosis. This disease, when it affects the lungs, is commonly called consumption. Nearly all diseases of the lungs are communicable in some degree, and the advice given in this circular can be followed with advantage by *all persons who have cough or expectoration.*

TUBERCULOSIS OR CONSUMPTION

Tuberculosis of the lungs, commonly called consumption, is the most common form of the disease. There is also tuberculosis of the throat, known as consumption of the throat; tuberculosis of the bowels, called consumption of the bowels; tuberculosis of the lymph glands, known as scrofula; tuberculosis of the various bones, as of the spine, which is the cause of hunch back; tuberculosis of the joints, as of the hip, which is known as hip-joint disease; and various tuberculosis abscesses, known as white swelling.

Tuberculosis is a communicable disease.

Tuberculosis is a preventable disease.

Tuberculosis is a curable disease.

It is communicated from one person to another through the discharges from tuberculous ulcers, the principal source being the sputum which comes from ulcers in the lungs of persons suffering from consumption.

It is a preventable disease, because if these discharges which contain bacilli were destroyed, there would be no spread of the disease.

That it is curable is proven by the fact that more than one-half of the people have tuberculosis some time in their life, and yet only about one in seven die of it.

FIRST STEPS IN THE PREVENTION OF THE SPREAD OF CONSUMPTION

If the spread of consumption is to be prevented, the disease should be discovered as early as possible, and the patient should be told that he has the disease. He should at the same time be told that the disease is curable and that, in order to be cured and in order not to give it to others, he must know that he has it. If the disease were discovered early and the patients thoroughly instructed and trained in being careful, there would be little danger of scattering infection.

If you have a cough, don't say, "It's nothing but a cold." You may be injuring yourself and others. Go to a doctor who knows, and learn the truth.

Persons suffering from tuberculosis should earnestly desire to know that they have tuberculosis, that they may take advantage of the modern methods of treating the disease and be restored to health. They should know that "bronchial trouble," "throat trouble," "stomach cough," and such terms, are only deceptive and mean, in many cases, consumption They should also know that the spitting of blood, unless positively from the gums, nose or throat, is in all probability from tuberculosis in the lung. Repeated protracted colds are often signs of tuber-

culosis. A cough that hangs on for any length of time should always excite suspicion.

DISPOSAL OF THE SPUTUM

The expectoration of persons suffering from diseases of the lungs always contains infective germs, and the expectoration of consumptives is particularly harmful. The matter spat up by consumptives may soil the bedding, furniture, clothing, etc., and other persons handling these things may soil their hands and thus infect themselves. Consumptive persons are very likely to soil their hands through the pocket handkerchiefs which they use. It is best for persons suffering from any pulmonary disease not to use the ordinary pocket handkerchief at all. The Japanese paper napkins, tissue paper, or pieces of gauze, as as they are used but once, are less apt to soil the hands, and can be burned as soon as used.

The best way of destroying sputum is to burn it. A number of disinfectants will destroy its infectiousness, but their action is slow, uncertain, and they are more expensive than burning. Paper cups to receive the sputum are often furnished by State and Local Boards of Health, or they can be purchased at drug stores. These cups should be burned every day or every other day. In summer, when there is no fire in the house, a fire should be made with waste paper and wood for the purpose of burning the cups and paper napkins which have been used. The cups and napkins may be thrown into an earth closet and

covered with dry earth or lime, as the germs soon die under these conditions. In hotels, flats and apartments, where there is no access to an earth closet or a fire, the patient should spit into a cup containing water or a disinfecting solution, and empty it every day into the water closet. In the earth closet and water closet the germs are not destroyed at once as by burning, but they cannot harm the patient or any one else, and they soon die.

The sputum must not be thrown on the ground, or into a surface gutter, or thrown away with ashes, garbage, or other refuse. The cover of the sputum cup should be kept closed to keep out *flies* and *other insects*, which may carry the sputum on their legs and bodies and distribute it wherever they afterwards alight.

Sick persons who are walking about, away from home, where they cannot carry sputum cups, should spit into a Japanese paper napkin, tissue paper, or cheese-cloth, and put it at once into a waterproof pocket, or paper bags can be used for this purpose. The waterproof pocket may be sewed or buttoned into the left pocket of the skirt or trousers. A supply of unused napkins should be carried in the right pocket. The paper napkins should be used only once. Sick patients, too weak to use the cups, should spit into Japanese napkins, bits of tissue paper, or pieces of gauze, which can be kept in a covered pasteboard box or tin bucket, and afterwards burned.

It is well always to wipe the lips after expectorating.

If the sputum accidentally gets on the floor, clothing, or furniture, a thorough washing with laundry soap and water should immediately be applied.

Persons whose sputum contains disease germs, especially those of tuberculosis, should frequently wash their hands with soap and water. Patients who cook or prepare food should take especial care to have clean hands.

The beard and moustache are sure to be infected, and probably help the consumptive to reinfect himself by contaminating his food and drink. The beard should be removed or trimmed quite short.

SPECIAL DIRECTIONS FOR MEMBERS OF THE HOUSEHOLD

Young children should not be allowed to play in the sick-room of anyone who has any disease of the lungs. Playing on the floor of the sick-room especially should be absolutely forbidden.

The germs of consumption are more dangerous for children than adults.

Mothers with tuberculosis should not nurse their infants, as nursing involves a considerable danger to the child and a heavy drain upon the mother's vitality. Mothers should thoroughly wash their hands before preparing the bottles or handling the infants' food.

Patients with pulmonary disease should *not kiss* anyone on the mouth. If the mouth and lips have

been carefully cleansed, kissing perhaps is but slightly dangerous.

Towels, pipes, clothing, handkerchiefs and other personal articles used by a tuberculosis person should not be used by other members of the family. When consumptives are bedridden their clothing and bedding ought not to be thrown into the common receptacle for soiled clothes. Such things as can be boiled should be boiled as soon as possible, or else soaked for several hours in a disinfecting solution.

CARE OF THE SICK-ROOM

A person suffering from consumption should occupy, if possible, a sunny room, and one that can be well ventilated. If the room is not so arranged that there can be good ventilation, so as to frequently change the air, the patient should draw his bed near the window, so as to get as much fresh air as possible.

If the floors and walls of the room have become soiled by sputum the room should be disinfected by formaldehyde gas. If possible, the room should be disinfected, and afterwards the walls scraped, and repapered, repainted, or rekalsomined. After that the walls should not become infected again in many months, provided the coughing and spitting are properly cared for.

The floors may be washed with hot soda lye. The floor should be bare or covered with wash cotton rugs.

Heavy curtains should be removed, and sash

curtains of washable materials substituted. Roller shades are not objectionable, unless they exclude too much daylight.

Do not sweep or dust the room. The floor should be wiped at least once a week with a damp cloth. The bed, furniture, woodwork, mantels, etc., should be wiped off in the same manner.

The patient should have his own bed, and if possible his own room. It is injurious to the invalid and dangerous to the well person to occupy the same bed.

The bedroom should not be used as a dining-room or kitchen if it is possible to avoid it.

The windows should be kept open.

The cardinal principles to be observed in the sick-room are cleanliness, sunlight, fresh air, and care of the sputum.

THE CURE OF DISEASES OF THE LUNGS

Consumption is not a very fatal disease. The majority of those attacked recover. More than in any other disease the outcome of a case of tuberculosis is in the hands of the patient. The development of consumption is caused by errors in our ways of living; some of these are nature's errors, some errors of circumstance, and some our own personal errors. Medical experience has shown that we can easily overcome the adverse chances of nature and circumstance if we correct our personal errors of hygiene.

HOW TO MAKE HEALTHY LUNGS DISEASED

1. Exposure to dust containing germs.
2. Drinking excessive amounts of alcoholic liquor.
3. Loss of sleep, worry and confinement.
4. All forms of dissipation and excess.
5. Unwholesome and improperly cooked food.
6. Meals at irregular hours.
7 Working or living in a dusty or vitiated atmosphere.
8 Prolonged hours of work. Severe and prolonged muscular or mental exertion. Work requiring a constrained or stooping posture.
9. Exposure to extreme heat, noxious fumes, injurious dust, dampness.
10. Certain occupations: Stone-cutting, file-grinding, and dusty occupations generally.
11. Contracting diseases which aggravate or predispose to consumption — measles, whooping-cough, grippe, and pneumonia.
12. Exposure in the room of a careless consumptive.
13. Drinking of milk of tuberculous cows, especially by children.

HOW TO MAKE DISEASED LUNGS HEALTHY

1. The person suffering from tuberculosis should be careful to destroy his sputum. He should not soil his hands, handkerchief, clothes, bed clothes, or anything about him with his expectoration. In case any of these should become soiled, they should be cleaned and disinfected

at once. He should not swallow his expectoration; he should not associate with other persons who have the disease and are careless about their expectoration, for by carelessnes on his own part or that of others he may be reinfected.

2. Employ an intelligent physician. Consult him about food, drink, work, rest, amusements, exercise, and all the details of daily life, including the expediency of going to a sanatorium, or adopting sanatorium regime in your own home.
3. Don't spend one cent for advertised cures, for they never cure.
4. Take the four cures:
   The air cure;
   The food cure;
   The rest cure;
   The mind cure.
5. Sleep well, don't worry, keep out of doors. Be confident that you are going to get well.
6. Don't take any liquor, except on a physician's prescription.
7. Eat plenty of meat, milk, butter and eggs — all you want, and want as much as you can eat.
8. Avoid the frying pan and its products.
9. Keep regular hours, good company and a clear conscience.

10. Your most inportant duty is to get well; let all other duties be secondary.

11. If your work involves long hours, prolonged and severe mental or muscular exertion, stooping position, inhalation of dust or noxious fumes, leave it if you want to get well.

HOW TO KEEP HEALTHY LUNGS HEALTHY

1. Keep your general health in as good condition as possible by avoiding excess, and by living as hygienically as possible.

2. Follow the foregoing rules as faithfully as your occupation permits.

Numerous investigations have shown that prolonged and repeated exposures are necessary to cause tuberculosis in a healthy person; accordingly there is little danger to be feared from casual exposure to consumptives.

Any one may safely live in the same apartments with a consumptive, provided the simple precautions given in this Circular of Information are observed.

Tuberculosis is not a contagious disease like measles or small-pox. It is, however, a communicable disease, and we know just where the danger lies and how easy it is to avoid it. It is not the consumptive himself, but the consumptive's expectoration which is dangerous to those about him. If the simple directions given above are followed by him, the conconsumptive ceases to be a source of danger to those about him.

AS TO CHANGE OF CLIMATE

Climate in Consumption is a will-o'-the-wisp. It is the end of the rainbow with its pot of gold. It is ever just a little beyond. It rests in Colorado, New Mexico, Arizona, California. Like children in their simple faith, chasing the rainbow's vanishing end and delving for treasures where once it stood, our patient pursues his phantom till, worn and wasted, weary, but hopeful still, he falls asleep and wakes to learn that the magic end of the bow of promise rests upon the mystic shores of the spirit land.

"While certain climates may be preferred for certain consumptives, it is nevertheless the consensus of opinion of the leading authorities of the day that there is no climate which has a specific curative power over consumption. Many, including Dr. S. A. Knopf, of New York, an acknowledged expert on the treatment of Consumption, hold that cures effected in the home climate in which the patients will have to live and work after their restoration to health, are more lasting and assured than cures obtained in more genial climes. While it is known that patients cured in the salubrious regions of the West have been able to return and live in Illinois and eastern states from whence they came, it is also known that others can never leave the climates in which they recovered, for on their return to their own state their disease recurs.

"There are many reasons why an attempt should be made to cure a consumptive patient at or near his

own home, if it be in a climate not unsuitable for the cure of Consumption; many reasons why he should not be sent a long distance from home.

Separation from friends depresses the patient. "Homesickness" is a malady which often baffles the physician.

The expense of the journey is a serious drain on his resources and is often incurred unnecessarily. As has been aptly stated by the State Board of Health of Maine. "many patients could be well put on the road to recovery in their own state at a cost which would barely defray their expenses to and from Colorado and Arizona."

The fatigue of a long journey is bad for a consumptive.

The lack of home comforts in a distant state and the inability often to obtain proper accommodations unless at a prohibitive price naturally handicap the best efforts made to cure the patient.

The expense of living in the states having "specific" climates is great. Even if his disease be cured, the patient may not be able to return to live in his home state.

If the patient must work, he can find no occupation. Too many have preceded him.

It is known that in certain Western states doors are closed to the consumptive, and legislation against him is contemplated.

For the wealthy patient, who can be surrounded

by his relatives and friends wherever he goes, a change of climate may be desirable; for the poor patient—and Consumption is often a disease of the poor—a change of climate frequently quickens an unfavorable termination of his disease.

The consumptives of Illinois should not forget that their disease can, as a rule, be cured in Illinois, if it can be cured anywhere.—*Bulletin on Consumption, Illinois State Board of Health*

THE GREAT WHITE PLAGUE

"It is with a very real sense of melancholy that one contemplates the long death-roll of those of the world's great men and women who have succumbed untimely to the tubercle-bacillus, which is and has been through countless generations by far the most potent of all death-dealing agencies. Had it not been for this detestable parasite, Bastien Le Page might have given us another Joan-of-Arc to feast our eyes upon; Rachel might for many years have continued to permeate the spirits of her audiences with the divine fire that was in her. Our navy did well enough in the 1812 war, as all the world knows; but what a rip-roaring time there would have been if John Paul Jones had lived to take a hand in it! We might be reading some more of Stephen Crane's splendid war stories; we might have had some more of Robert Louis Stevenson's delicious lace-work; Schiller might have given us another Song of the Bells; we might

have taken another 'Sentimental Journey' with Laurence Sterne; Henry Cuyler Bunner might have continued to delight us, and to touch our hearts; John Keats might have given us another 'Endymion.' Had the tubercle-bacillus permitted, Nevin might have vouchsafed us another 'Rosary'; von Weber another 'Euryanthe Overture'; Chopin might have dreamed another 'First Polonaise'; and the tender flute notes of Sidney Lanier might even now be heard. Maria Constantinovna Bashkirtseff, Zavier Bichat, John Godman, Rene Theophile Hyacinth Laennac, Henry Purcell, John Sterling, Henry Timrod, Artemus Ward, Henry Kirke White, Henry David Thoreau, Baruch Spinoza—such names as these are but a moiety among those of the world's nobility whose precious lives were cut off in their prime by the 'Great White Plague.' "—*From Popular Science Monthly, by Dr. John B. Huber.*

Of the people living in the United States to-day over 8,000,000 will die of tuberculosis, at the present death rate. All these lives might be saved.

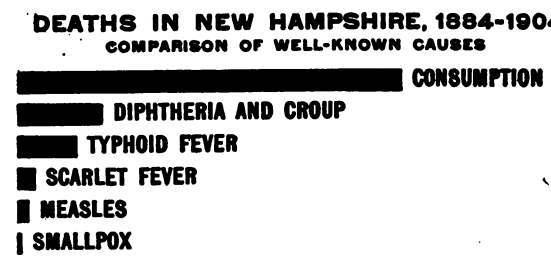
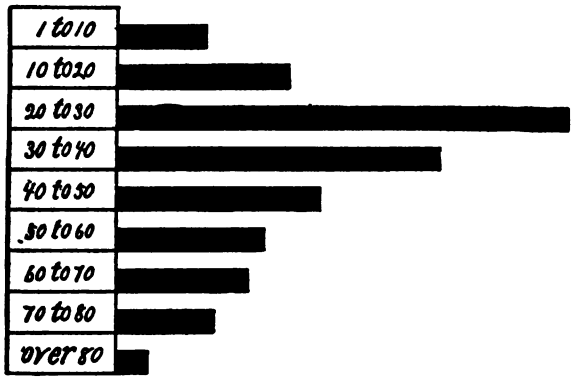


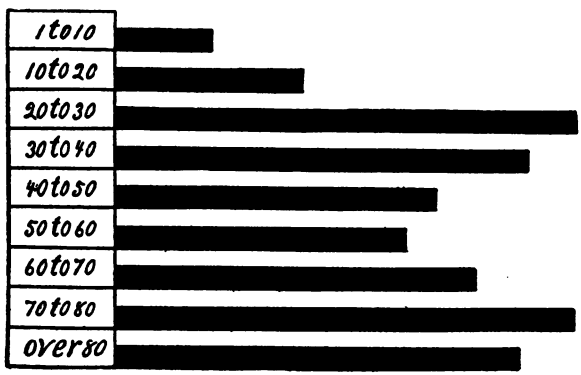
DIAGRAM OF PREVENTABLE DISEASES.

During this period there died in New Hampshire, from all causes, between the ages of 20 and 30, 10,028 persons, of whom 3,961 succumbed to consumption; or, in other words, 39.69 per cent., or one to two and a fraction deaths were caused by consumption.

DIAGRAM SHOWING PROPORTION OF DEATHS FROM CONSUMPTION TO DEATH FROM ALL OTHER CAUSES BETWEEN THE AGES OF TWENTY AND THIRTY YEARS. BLACK, CONSUMPTION; WHITE, ALL OTHER CAUSES.



DEATH RATE FROM CONSUMPTION IN NEW HAMPSHIRE BY AGES.



MORTALITY FROM CONSUMPTION TO EACH 10,000 OF THE SAME AGE, IN NEW HAMPSHIRE, FOR 20 YEARS.

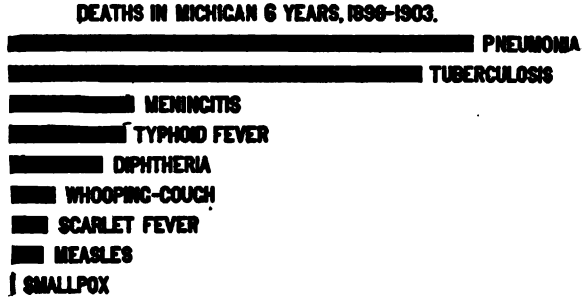
PNEUMONIA*

Definition.— Pneumonia is an infectious inflammation of the lungs, due to a specific micro-organism, the *micrococcus pneumoniæ*, which produces a potent poison, affecting the whole system and frequently causing death.

The Virulence of the Germ.— The virulence of the germ of pneumonia is subject to wide variations. In the bacteriological laboratory there are cultures one-millionth of a cubic centimeter of which will induce death in animals, while there are other cultures twenty times the above given amount of which are necessary to produce the same effect. As a rule, the virulence is increased when the germ passes directly from one person or one animal to another. This is one of the reasons why the disinfection of the sputum of the person suffering from pneumonia is so desirable.

Importance of Pneumonia as a Cause of Deaths.— Averaging the mortality statistics of Michigan, collected under the new law, for the six years, 1898-1903, the latest yet compiled by the State Department, the order of importance of the most dangerous communicable diseases, as causes of deaths, was as follows: Pneumonia, tuberculosis, meningitis, typhoid fever, diphtheria, whooping-cough, scarlet fever, measles, and small-pox. The relative importance of these diseases, in those years, is shown by the diagram,

*Leaflet of the Michigan State Board of Health.



During the ten years ending with 1897, the statistics collected under the old law showed that then the most dangerous communicable diseases, named in the order of their importance, were: Tuberculosis, pneumonia, diphtheria, typhoid fever, influenza, scarlet fever, meningitis, measles, whooping-cough and smallpox. It will be seen that pneumonia was then exceeded only by tuberculosis as a terrible death-dealing scourge. Tuberculosis has continued to decrease. Pneumonia has been rapidly replacing tuberculosis and is now the greatest single cause of deaths in Michigan

The Mode of Communication.— It is by means of sputa (all discharges from the lungs, throat, nose, and mouth) containing micro-organisms capable of producing pneumonia that this dangerous disease is usually spread.

Destruction of the Sputa.— It is evident that the most certain preventive of pneumonia is to destroy

the sputum from the patient before it has an opportunity to dry and scatter the germs of disease.

How the Sputa Should be Destroyed.— During the illness great care should be taken to prevent soiling bed clothing, carpets, or furniture with the sputa. The patient should cough into a moistened cloth and the cloth should be burned before allowing it to become dry. It is not a sufficient precaution to exercise this care during the patient's brief illness, because the germs causing pneumonia are capable of living for a considerable time in the mouth and nose of a person who has had the disease. Therefore, during convalescence, so long as any sputum is raised from the lungs, and for at least two or three weeks, all expectoration should be into a cup or cuspidor containing a disinfectant, the best disinfectant being a five per cent solution of carbolic acid — one ounce of carbolic acid dissolved in a pint and a half of water. If not confined to the house, it is best that the convalescent, and that all persons who have a cough, should carry small pieces of cloth (each just large enough to properly receive one sputum) and paraffined paper envelopes or wrappers in which the cloth, as soon as once used, may be put and securely enclosed, and, with its envelope, burned on the first opportunity. Remember that the sputum must not be allowed to become dry.

The Spitting Nuisance Dangerous to the Public Health.— It is now well known that the human saliva

is the natural habitat of many species of micro-organisms which gain access to the mouth in various ways, the most common being by breathing, through the mouth, air containing them. In a case of pneumonia, however, the germs of the disease are coughed up from the lungs. The sputum is, therefore, the common way by which pneumonia and some other dangerous communicable diseases are spread. After drying, the germs with which the sputum is charged mingle with the dust of rooms in homes, churches, schools, public halls, stores, and cars, In these places they are inhaled by human beings, with results dependent largely upon physical and meteorological conditions. The physical and meteorological conditions cannot always be avoided; therefore, success in the restriction of those diseases must lie in the direction of the destruction of the germs which produce those diseases. It is probable that, could the sputum always be destroyed as soon as ejected, pneumonia and a few other important diseases would soon disappear. We are confronted with the practical problem of how this may be done, either wholly or in a large degree. This problem is not an easy one to solve, for the reason that every man regards himself as independent and endowed with the inalienable right enjoyed by man throughout all ages, of depositing saliva wherever he chooses. Many municipalities are indeavoring to enforce regulations more or less stringent to prohibit spitting upon sidewalks and in other public places.

These efforts are largely due to the knowledge now becoming so common that the germs of tuberculosis are spread by the air containing the germs of this disease which have been ejected in the sputum of the victims of the disease. When it becomes generally understood that sputum may contain not only germs of tuberculosis, but also the germs of pneumonia and of other dangerous communicable diseases, the efforts that are now being put forth to prohibit this public and dangerous nuisance should be largely increased.

Legal measures can be used only against the person spitting in public places. The person who contaminates the air of his home with his saliva is largely beyond the reach of such measures. Public opinion is necessary to sustain the enforcement of any law. It is especially necsssary where it is sought to enforce a law depriving citizens of a privilege they have long enjoyed and can see no reason why they should not continue to possess. Education of the people concerning the importance of destroying or disinfecting all sputum must, therefore, precede forcible measures. This education should be such as to induce every intelligent person to destroy or disinfect the sputum or saliva he or she ejects, and to insist that the careless and the ignorant be compelled to do likewise. It is to be hoped that such education will result in the formation of public opinion, so that it will demand that the law shall not only reach the public spitter, but that it will also apply to the person who contaminates

his own home, thus not only endangering his own family, but also endangering the lives of all who may enter such a home. The press, the teachers in our public shcools, the preachers in our pulpits, and all others who in any degree mould public opinion should urge this most important sanitary reform.

Isolation of the Patient.—It is believed that if care is taken with all the discharges from the nose and mouth, isolation of the patient may not always be necessary, although it is undoubtedly wise for all who can do so, and especially all children, to keep away from the patient. And, pneumonia being an acute disease, of short duration, isolation may properly be practiced.

Ventilation of Buildings.—Through better systems of ventilation, much may be done for lessening the number of micro-organisms inhaled with the dust of floors, carpets, etc., especially by having the foul air exits at the floor level, so that the general motion of the foul air shall be downwards, and not upwards into the nostrils of the inmates of the room. This is especially important with reference to all public buildings, as, also, that they shall constantly have a liberal supply of fresh air.

Personal Precaution.—Any person dusting objects in a room, cleansing the floors, walls or ceiling of the living or sleeping room of a person suffering with pneumonia might well use a respirator. Several folds of gauze moistened and tied loosely over the

nose and mouth might be used. The sweeping and dusting of a room which has recently been occupied by a person sick with pneumonia should be deferred until after the room and contents have been subjected to the fumes of burning sulphur, or of formaldehyde.

No one should sleep in the same room with a patient, nor in a room which has been recently occupied by a person sick with pneumonia, unless the room (with all its contents) has been previously thoroughly disinfected.

It is best not to stand near a person who is coughing, because in coughing finely divided droplets of saliva are thrown from the mouth and may be carried for a distance of three feet. These droplets may contain large numbers of germs. They are also sometimes thrown out in forcible speaking. The ordinary breath does not contain them.

Much may be done to lessen the liability to contract pneumonia, by having the sanitary surroundings as nearly perfect as possible, and by keeping the lungs strong and healthy. These facts emphasize the importance of pure food, pure air, and healthful exercise.

Exposure to Cold Wind should be Avoided.—Statistics of sickness and of deaths, collated with meteorological statistics, prove that the colder months of the year and those following are the months during which pneumonia prevails most extensively, and during which it sometimes assumes an epidemic form. At

such times every person should avoid exposure to cold wind and to chill from a change from heavy to light clothing.

Disinfection.—Disinfection of rooms and contents can be complete only in the absence of living persons, as fumes strong enough for the purpose are destructive of human life. Curtains, draperies, carpets, clothing and all movable articles *should be exposed to sunlight in the open air.* The unwashed clothing of a person sick with pneumonia should not be mingled with the unwashed clothing of another person; care should be taken that the handkerchiefs be boiled, and other articles likely to harbor the germs be disinfected before sending them to the laundry.

After a death or recovery from pneumonia, the room in which there has been a case of this disease, and the furniture and other contents, should be thoroughly exposed for several hours to formaldehyde gas, or to fumes of burning sulphur, and then exposed for several hours to currents of fresh air. Hang up and spread out as much as possible all blankets and other articles to be disinfected; turn pockets inside out, and otherwise facilitate the access of the disinfecting fumes to all infected places. For a room ten feet square, at least eight ounces of a forty per cent solution of formaldehyde, or at least two ounces of solidified formaldehyde should be rapidly distilled into the room, or at least three pounds of sulphur should be rapidly burned; and for larger rooms proportionately

increased quantities should be used, at the rate of at least eight ounces of a forty per cent solution of formaldehyde,or at least two ounces of solidified formaldehyde, or three pounds of sulphur per each one thousand cubic feet of air-space. After fumigation, the walls may be whitewashed, albastined, painted, repapered, or rubbed with bread-crumbs, which should then be burned; the woodwork, including the floor, may be painted or thoroughly washed. If any sputum is deposited thereon, it should be washed with a five per cent solution of carbolic acid.

DIPHTHERIA*

Diphtheria is a dangerous communicable disease, caused by a specific contagium, the germ of which is propagated in the human body or its excretions, and spread *from person to person*, directly and indirectly. Until recent years, the supposition has prevailed that cases of diphtheria might arise *de novo* from a filthy condition of premises, backyards, privy vaults, cesspools, etc.; but later researches have made it plain that this notion is not a correct one. Filthy conditions may serve to harbor the germs, but they do not produce the germ. Rather, it seems to have been proved from statistics compiled in this department that at least four-fifths of the cases of diphtheria in Michigan come almost directly from a preceding case.

The *bacillus* which causes diphtheria does not gen-

*Bulletin of the Michigan State Board of Health.

erally enter the blood. The *poison* generated by the bacillus is absorbed into the body, and causes degenerations of muscular tissue, heart failure, paralysis, etc.; but the germ generally remains in its locality, usually in the throat. Therefore the spread of this disease is mainly from the throat and mouth. Everything touched by the mouth, or by the discharges from the mouth, throat or nose, may be infected.

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HOW TO AVOID AND PREVENT DIPTHERIA

Avoid the Special Contagium of the Disease.—This is especially important to be observed by children. Children under ten years of age are in much greater danger of death from diphtheria than are adults; but adult persons often get and spread the disease, and sometimes die from it. Mild cases in adults may cause fatal cases among children. Because of these facts it is frequently dangerous for children to go where adult persons go with almost perfect safety to themselves.

Do Not Let a Child Go Near a Case of Diphtheria.—Do not permit any person or thing, or a dog, cat, or other animal to come from a case of diphtheria to a child. No cat or dog should be permitted to enter the sick-room. Unless your services are needed, keep away from the disease yourself. If you do visit a case, bathe yourself and change and disinfect your clothing, hair, beard, if any, and hands, before you go where there is a child.

The contagium of diphtheria sometimes retains its virulence for a long time, and may be carried a long distance in articles in which it has found lodgment. Do not permit a child to enter a privy or water closet, or to breathe the air from a privy, water closet, cesspool or sewer into which undisinfected discharges from persons sick with diphtheria have entered, nor to drink water or milk which has been exposed to such air.

Do not permit a child to ride in any closed carriage in which has been a person sick with diphtheria, except the carriage has since been thoroughly disinfected with fumes of burning sulphur.

Abrasions of the skin or mucous membrane favor the contraction of diphtheria. The disease spreads most at such seasons of the year as sore throats prevail. All influences which cause sore throats, such as exposure to wind and to breathing cold, dry air, probably tend to promote the taking and spreading of this disease.

Do not permit a child to wear or handle clothing worn by a person during sickness or convalescence from diphtheria.

Beware of any person who has a sore throat. Do not kiss or come near to such a person. Do not drink from the same cup, blow the same whistle, or put his pencil or pen in your mouth.

Beware of crowded assemblies in unventilated rooms.

Individual drinking cups should be used. A common drinking cup should not be used, especially in school-rooms and places where there is liability of infection. Diphtheria bacilli have been found on cups in actual common use in schools. A fountain cup would be less liable to spread disease, because the water continually overflows the sides and tends to wash away any infection which might otherwise collect on the edges of the cup.

Children believed to be uninfected may be sent away from the house in which there is diphtheria, to families in which there are no persons liable to the disease, or to previously disinfected convalescent wards in hospitals; but in either case they should be isolated from the public until the expiration of the period of incubation, that is, the interval of time between exposure to the contagium of diphtheria and the first sign of the disease in the person so exposed. This time may vary. In many cases it may appear in seven days, in some cases twelve days or more; the average period is about seven or eight days, but for full protection to the public isolation should be observed for two weeks, at least.

Exposed persons should be isolated until this time has elapsed.

The administration of antitoxic serum, by physicians, has been found to be safe and quite effective as a preventive measure, especially in children; and when circumstances are such that they must remain

in the same house with a person sick with diphtheria, the antoxin is so very important that it cannot properly be neglected. But even where the antitoxin is administered, isolation of a person exposed to diphtheria is advised, to prevent the spread of the disease.

Where Diphtheria Is Present in a Community.—When a child or a young person has a sore throat, bad odor to its breath, especially if it has fever, it should immediately be kept separated from all other persons, except necessary attendants, until it be ascertained whether or not it has diphtheria or some other communicable disease.

Persons who are attending upon children or other persons suffering from diphtheria, and also the members of the patient's family, should not mingle with other people nor permit the entrance of children into their house.

SANITARY CARE OF INFECTED AND SICK PERSONS AND ROOMS

Membranous Croup.—Modern researches point to a probable common origin of diphtheria and membranous or inflammatory croup, differing only in location from true diphtheria; therefore, membranous or inflammatory croup should be recognized as a communicable disease dangerous to the public health, and should be reported, and isolation and disinfection should be enforced the same as in other cases of diphtheria.

In all cases of sore throat, precaution should be

taken. It is often difficult to distinguish mild cases of diphtheria from a simple tonsillitis, pharyngitis, or laryngitis, and such mild cases of diphtheria often communicate a dangerous and fatal form of diphtheria; therefore, it is the duty of physicians and householders in reporting diseases dangerous to the public health, and of local health authorities in their efforts to restrict such diseases, in every case, to give to the public safety the benefit of the doubt, and in localities where diphtheria exists to regard cases of acute sore throat as suspected cases of diphtheria.

Bacteriological Tests.—No health officer should fail to act for the restriction of diphtheria in any case of sore throat in which there is doubt, certainly not until bacteriological tests have indicated the absence of Löffler bacillus (now known to be the specific cause of true diptheria). Such tests will be made at cost by the "State Laboratory of Hygiene, Ann Arbor, Michigan." Disease germs cannot lawfully be sent by mail, except in special mailing cases.

Every person known to be sick with diphtheria should be promptly and thoroughly isolated from the public.

In ordering the isolation of infected or exposed persons, the health officer means that their communication with well persons, and the removal of any article from the infected room or premises, shall be absolutely cut off, unless such communication is carried on only under his supervision. Except it be disin-

fected, no letter or paper should be sent through the mail from an infected place.

That this is of more importance than in the case of small-pox is indicated by the fact of the much greater number of cases of sickness and of deaths from diphtheria.

The room in which one sick with this disease is to be placed should previously be cleared of all needless clothing, drapery, and other materials likely to harbor the germs of the disease; and, except after thorough disinfection, nothing already exposed to the contagium of the disease should be moved from the room. The sick-room should have only such articles as are indispensable to the well-being of the patient, and should have no carpet, or only pieces which can afterwards be destroyed. Provision should be made for the introduction of a liberal supply of fresh air and the continual change of the air in the room without sensible currents or drafts.

Handkerchiefs, that need to be saved, should not be used by the patient; small pieces of rag should be substituted therefor, and after being once used should be immediately burned.

Soiled clothing, towels, bed-linen, etc., on removal from the patient, should not be carried about while dry, but should be placed in a pail or tub and covered with a two per cent solution of carbolic acid Soiled clothing should, in all cases, be disinfected before sending away to a laundry, either by boiling for at

least half an hour, or by soaking in a two per cent solution of carbolic acid.

The discharges from the throat, mouth, and from the kidneys and bowels of the patient should be received into vessels containing an equal volume of a five per cent solution of carbolic acid, and in cities where sewers are used, thrown into the water closet; elsewhere the same should be buried at least 100 feet distant from any well, and should not by any means be thrown into a running stream, nor into a cesspool or privy, except after having been thoroughly disinfected. Discharges from the nose, bladder, and bowels may be received on old cloths, which should be immediately burned. All vessels should be kept scrupulously clean and disinfected.

All cups, glasses, spoons, etc., used in the sick-room should at once on removal from the room be washed in the disinfecting solution mentioned above, and afterwards in hot water, before being used by any other person.

Food and drink that have been in a sick-room, or otherwise infected with diptheria, should be destroyed or burned. They should not be put in the swill barrel.

Perfect cleanliness of nurses and attendants should be enjoined and secured. As the hands of nurses of necessity become frequently contaminated by the contagium of the disease, a good supply of towels and basins,—one containing a two per cent solution of car-

bolic acid, and another for plain soap and water,—should always be at hand and freely used.

All persons recovering, or very recently recovered, from diphtheria should be considered dangerous; therefore, such a person should not be permitted to associate with others, or to attend school, church, or any public assembly until the throat and any sores which may have been on the lips or nose are healed, nor until, in the judgment of a careful and intelligent health officer, he can do so without endangering others. The bacillus which is the specific cause of diphtheria has been found in the throat weeks after apparent complete recovery from the disease.

In a house infected with diphtheria, a temporary disinfection after apparent recovery may be made, so as to release from isolation the members of the household who have not had the disease, but those released should be kept under surveillance by the health officer for seven or eight days. After the period of infectiousness has passed, a final disinfection of the room occupied by the convalescent should be made.

Disinfection is Necessary—Diphtheria bacilli in a comparatively dry state remain capable of renewed activity for at least four or five months. Therefore dust derived from the discharges from the throat, mouth, or nose may cause the disease months after the bacilli have left the throat in which they were propagated. This is the reason why disinfection is necessary.

FINAL PRECAUTIONS

After a death or recovery from diphtheria, the law requires that thorough disinfection of the infected person and premises be made before releasing the person from isolation, and that the local board provide for a temporary shelter during disinfection. Disinfection of a room always necessitates vacating it, and sometimes makes it impossible to remain in adjoining rooms; therefore, in some cases it seems essential to have hospital, tent, or temporary shelter for the inmates of infected houses, where bathing, disinfection and washing can be done while such houses are being disinfected and put in order.

Disinfection of the person, after recovery, consists of a thorough washing with soap and water of the person, hair, and beard, if any. Under the direction of a physician an antiseptic bath may be employed; but antiseptics are, as a rule, poisons to be carefully used as directed by a physician. A common antiseptic is bichloride of mercury (corrosive sublimate), one part to one thousand parts of water.

All infected articles, including the clothing worn by the patient during recovery, should immediately be destroyed or disinfected in a way so careful and complete that the contagium have no opportunity to spread the disease in the process. Articles of small value, or which cannot be properly disinfected, should be burned by a quick, strong fire.

Thorough disinfection should be made of the sick-

room, its contents, and all articles handled by the convalescing patient. Germs have been known to remain for a long time in the clothing, especially if woolen, and packed away in drawers or trunks; and books and furs that have been used or handled by those convalescing from this disease are particularly liable to convey the poison to children who have never had the disease. Therefore, great care should be taken to spread out as much as possible all clothing, turning the pockets inside out; to expose as great a surface as possible of the bedding to the disinfectant. Cotton, linen, flannels, blankets, etc., should be treated with the boiling-hot water, introducing them piece by piece, securing thorough wetting and boiling for at least half an hour. Heavy woolen clothing, silks, furs, stuffed bed covers, beds and other articles which cannot be boiled, should be hung in the room during fumigation, pockets being turned inside out and the whole garment being thoroughly exposed. Afterward, they should be hung in the open air, beaten and shaken. Carpets are best fumigated on the floor, but should afterward be removed to the open air and thoroughly beaten. Pillows, beds, stuffed mattresses, upholstered furniture, etc., after being disinfected on the outside, may be cut open and their contents again exposed to fumes of burning sulphur. In no cases should the thorough disinfection of clothing, bedding, etc., be omitted. Infected clothing and bedding have been known to communicate diphtheria months after

their infection. As diphtheria germs have been known to find lodgment in wall-paper and remain active for months, all paper should be removed from the walls of a room occupied by a diphtheria case, before disinfecting said room. After disinfection the woodwork should be washed with a 1-1000 solution of corrosive sublimate, or a two per cent solution of carbolic acid; or better still, painted over with a coat of paint.

Rooms should be disinfected either with sulphur or formaldehyde. For each thousand cubic feet of air space to be disinfected, three pounds of sulphur should be burned. Thus for a room about ten feet square, three pounds of sulphur should be used. The best results are obtained by using roll brimstone broken up, or flowers of sulphur, burning the sulphur in shallow pans of sufficient number and size to rapidly fill the room with the fumes, and having quantities sufficient to last for several hours. Experience of the health officers in Michigan seems to have demonstrated that, in the ordinary homes of the people, in the manner above mentioned, and *without the presence of the vapor of water*, the specific cause of diphtheria is rendered incapable of causing diphtheria. This is a very important fact, because it enables us to disinfect rooms without the destruction of much property which would be entirely ruined if the vapor of water were present. The combustion of sulphur should be rapid, and continue a considerable time. Care should be taken to secure the complete burning of as much

of the sulphur as possible. To avoid danger of fire the iron pot or pan in which the sulphur is to be burned should be free from leaks, and should be placed over water in a tub or pan.

If formaldehyde is used, at least eight ounces of a forty per cent solution, or not less than two ounces of the solidified formaldehyde should be used and vaporized, for each thousand cubic feet of air-space to be disinfected. After disinfection, the room and contents should be exposed for several hours, or days, if practicable, to currents of fresh air and sunshine.

TYPHOID FEVER*

Typhoid fever is a communicable disease of protracted duration and found in all countries and under all conditions of climate. It is one of the preventable diseases, and sanitarians and physicians very generally agree that there is no cause for its existence in any community. This opinion is based upon a thorough knowledge of the nature and character of the disease, the well understood methods of infection and the further fact that it is often directly and positively controlled by modern measures. Notwithstanding this, there are between 350,000 and 400,000 cases of this disease with 35,000 deaths every year in the United States. Its widespread prevalence is due largely to public ignorance or indifference to the measures which can and should be taken to prevent it.

*Sanitary Bulletin, October, 1906, New Hampshire State Board of Health.

While no age is exempt from the disease, the most susceptible period is between the ages of 20 and 30. After 30 years of age, there is a decrease of liability of infection up to 70 years of age, when it again increases to the extreme limit of life.

Typhoid fever, although it exists at all seasons of the year, is more prevalent in the autumn months. Its greatest fatality is in September and October. The reason why typhoid fever should be more fatal in autumn than in any other period of the year is not well understood. Many theories have been advanced and some of the older ones abandoned. It is generally thought that the summer heat and dryness are in some way responsible to a greater or less degree for the increased prevalence of this disease in autumn. It is probable that the cold weather following has a restrictive effect, so that upon its advent the disease rapidly diminishes.

THE CAUSE OF TYPHOID FEVER.

Typhoid fever is a germ disease — that is, it is produced hy a micro-organism, known as the typhoid bacillus. The growth and development of this germ take place within the body of the typhoid patient. It is always found in great abundance in the discharges of a person having typhoid fever, from the time of infection to weeks after convalescence is established.

This germ always maintains its specific character,

and when it finds its way into the body of a person who is susceptible, the disease is developed in some form between that of a so-called walking case, slightly indisposed, to the most malignant, fatal type.

Formerly it was believed that typhoid fever was developed from general bad sanitary conditions, but this view is no longer entertained, the fact being that the seed must be sown, or, in other words, the particular germ of the disease must be taken into the system before a true case of typhoid fever can be established, and this germ comes from some prior case. A further consideration of the subject will show the various ways in which this may happen.

HOW TYPHOID FEVER IS SPREAD.

The most frequent medium for the spread of typhoid fever is a *polluted water supply*, and it is to this source that substantially all of the great epidemics of typhoid fever have been traced. From a like source, also, spring a great number of individual cases, frequently classed as "sporadic," the water being contaminated from sewers, house drains, privy vaults, and other sources through which the typhoid fever germ may be transmitted. A water supply, whether well, stream,. reservoir, or pond, that is polluted with human excreta, solid or fluid, is a dangerous supply, because of the liability of typhoid infection at any moment. It is therefore highly essential that all water supplies, both private

and public, should be guarded against pollution of this kind.

Another source of typhoid fever is an *infected milk supply.* Outbreaks of the disease have occasionally appeared from this cause. Milk infection may take place through the addition of polluted water, or by washing the cans and other utensils with such water, or by the carelessness of milkers or others who handle the milk, whose hands or clothing may be infected.

No milk should be distributed from a farm or dairy where there is a case of typhoid fever.

Personal contact has been shown, by the commission appointed to investigate the spread of typhoid fever in the military camps during the Spanish War, to be a factor in the spread of this disease heretofore only partially recognized. In other words, the evidence shows that the disease was transmitted by persons not having the disease, infected bedding, clothing, eating and other utensils, and this to an extent that suggests the importance of most thorough disinfection of persons and things having any relation to a typhoid fever patient.

Flies are also carriers of contagion. Food may be infected through their agency. Oysters and other shell-fish that came from sewage-polluted waters and were eaten uncooked have transmitted this disease in numerous instances. Typhoid infection has undoubtedly been occasionally spread through vegetables grown upon infected soil and eaten raw. Infection from such a source is possible.

HOW TYPHOID GERMS ARE SCATTERED

The media through which typhoid germs leave the body are the fecal discharges and the urine. The expectorations in some cases of pneumonia (typhoid-pneumonia, so called) also contain them. In all cases where complete and constant disinfection is not practised the organisms of this disease are often so disposed of as to endanger the water and milk supplies, and other food products.

The so-called sporadic cases (individual cases, that cannot be directly connected with a prior case,) may readily be accounted for when the various ways in which the infection is distributed are understood.

An interval of 10 or 12 days takes place between the inception of the germ and the development of the characteristic symptoms, during which time the patient is daily excreting the germs of the disease in countless thousands. During this period of incubation the patient is unknowingly scattering the infection, wherever he may be.

There are also mild cases in which the patient is under no restraint, and travels about as usual. Such a case continues often for weeks, and, with no precautions taken, may cause a wide distribution of the germs of the disease.

A third way in which the poison of typhoid is extensively distributed is by patients who have so far recovered from the disease as to be able to travel about, or to assume their ordinary vocation,

it having been demonstrated that the germ in many cases is present in the urine for weeks, and in some cases for months, after convalescence is established. It will, therefore, be seen that the typhoid fever germ is doubtless very widely scattered, and when this fact is understood, it does not require a great stretch of the imagination to account for individual, or so-called sporadic, cases.

These facts, thoroughly established by scientific investigations, emphasize the great importance of enforcing disinfection in the sick-room constantly and to the minutest details and, further, of educating the patient that unless intelligent and effective precautions are taken he may be a source of danger to the community for some time after recovery.

The typhoid germ is nearly always taken into the system with food or drink, especially with water, and multiplies enormously in the intestinal canal. It is cast out of the body in the stools and in the urine, and probably by no other channel. This is of the utmost importance in considering measures to prevent the disease. As stated above, this germ, or plant organism, can live for some time after it leaves the body, just how long we do not know. In polluted soil, that is, earth containing much vegetable and animal matter undergoing decomposition, it may remain alive for several months, and possibly longer. Many soils possess excellent filtering properties, and remove practically all germs from water passing through

them. Other soils fail to filter out these germs. A well with a privy in close proximity is always more or less dangerous, and many outbreaks of typhoid fever have been traced to this condition. The germs of typhoid fever may get into the well at its top. In a hilly or rolling country it is not uncommon to find the privy on higher ground than the well. The privy often has no vault, the stools and urine being deposited on the surface of the ground. If the stools or urine of a typhoid patient are thrown into the privy, the first rain-storm may wash the germs of the disease into the well. The roots of trees growing into a well may serve as conductors for contaminating substances. A leaky drain near the well may pollute it.

It is only since a few years that we have known that the germs of typhoid fever are often present in the urine of a person suffering from that disease. Formerly they were thought to be in stools, so that while the stools were carefully disinfected, and possibly buried at a distance from the well, no attention was paid to the urine. The night vessel containing nothing but urine was often emptied near the well, where it was washed. *We must now consider that the urine, from its liquid character, is even more dangerous than the stools.*

CARE OF A CASE

A typhoid fever patient should be placed in a large,

airy room without a carpet or unnecessary furnishings. If there is diarrhœa, it is well to protect the bed with a rubber sheet, placed under the linen sheet. The most scrupulous care should be taken of the discharges from the bowels and bladder. The stools or urine should be received in a vessel containing milk of lime, prepared by freshly slaking lime, using one part of the resulting powder or creamy liquid to four parts of water. Use a liberal quantity, and mix thoroughly by stirring with a stick. Fresh chloride of lime (it should smell strongly of chlorine), eight ounces to the gallon, may be used instead, or carbolic acid, seven ounces to the gallon. The contents of the vessel may then be thrown into the water closet or buried far from any well or spring.

If the body linen or bed clothing should be soiled with the patient's discharges, they should be at once removed and placed in the carbolic acid solution; or, if the odor is objected to, in a solution of corrosive sublimate, a drachm to a gallon of water. After soaking an hour or more, they may be laundered, as usual. There is no disinfectant for clothing better than boiling water, and if soiled clothing can be promptly boiled this is the best treatment.

The nurse should be exceeding careful about disinfecting her hands immediately after handling the patient. The carbolic acid or corrosive sublimate solution will be suitable for this purpose, or Labarraque's solution, one pint to a gallon of water, is

efficient and pleasant. She should never eat or drink in the sick-room. As spoons, dishes, etc., used in the sick-room may become infected, it is well to disinfect these by boiling them in water for half an hour before they are used again.

The disinfection of stools, clothing, etc., should be kept up until the patient has fully recovered. While it is not necessary to strictly isolate the patient, no needless visits to the sick-room should be allowed.

In all outbreaks of typhoid fever of any considerable extent, there are, as a rule, many doubtful cases; persons who have fever for some days, and possibly bowel symptoms, but who are not confined to the house. These cases should be dealt with as typhoid fever and taken care of, to secure efficient disinfection.

Allow no flies to have access to sputum or discharges from the bowels and bladder, infected with typhoid fever. The disease is liable to be spread by flies, which go from infected excreta to bread, cake, and other food to be eaten uncooked.

QUARANTINE UNNECESSARY

It is entirely unnecessary to quarantine a case of typhoid fever, or the premises in which it exists, provided proper care is given to all the details of the sick-room, as recommended.

The use of placards has been largely discontinued in this disease, and is not now required in this state.

If disinfection is practiced as strictly as it should

be, there is no danger of the disease's being communicated to others from a given case; but constant cleanliness and disinfection are absolutely necessary to secure such result.

DISINFECTANTS

For daily use in connection with a case of typhoid fever there are no better disinfectants than chloride of lime, and the milk of lime, formulas for which are given below. The milk of lime has the decided advantage of not having an objectionable odor.

At the proper time, general disinfection of the sick-room should be carried out by the local board of health, using the formaldehyde process already recommended for this purpose.

CHLORIDE OF LIME SOLUTION

Chloride of lime (bleaching powder), one pound; water, three gallons. Mix. Cost, about three cents per gallon.

Care should be taken to obtain *fresh* chloride of lime.

This solution is so cheap that it can be used with great freedom, and it is one of the best disinfectants known. A quart or more per day may be used in an offensive vault, and such quantities as may be necessary in other places. It may be used in a sprinkler in stables and elsewhere. In the sick-room it may be used in vessels, cuspidors, etc. Sheets and other clothing used by the patient may be immersed in a

pail or tub of this solution, diluted (one gallon of solution to ten of water), for two hours, or till ready for the wash-room or laundry. This solution is non-poisonous and does not injure white clothing.

It may also be used for washing the hands or other parts of the body which may have been exposed to infection from excreta, etc.

For a free and general use in privy vaults, sewers, sink-drains, refuse heaps, stables, and wherever else the odor of the disinfectant is not objectionable, this is one of the cheapest and most effective disinfectants and germicides available for general use. It should be used so freely as to *wet* everything required to be disinfected. Its *odor* does not disinfect—only covers up other odors.

MILK OF LIME (QUICKLIME)

Slake a quart of freshly burnt lime (in small pieces) with three fourths of a quart of water — or, to be exact, 60 parts of water by weight with 100 of lime. A dry powder of slaked lime (hydrate of lime) results. Make milk of lime not long before it is to be used by mixing one part of this dry hydrate of lime with eight parts (by weight) of water.

Air-slaked lime is worthless. The dry hydrate may be preserved some time if it is enclosed in an air-tight container. Milk of lime should be freshly prepared, but may be kept a few days if it is closely stoppered.

Quicklime is one of the cheapest of disinfectants. This solution can take the place of chloride of lime, if desired. It should be used freely, in quantity equal in amount to the material to be disinfected. It can be used to whitewash exposed surfaces, to disinfect excreta in the sick-room or on the surface of the ground, in sinks, drains, stagnant pools, etc.

Much of the so-called disinfection practiced in families is wholly inefficient and useless. The burning of coffee, tar, sulphur, or other substance in the sick-room or in any other part of the house or premises in the presence of the patient or other persons, operates, at most, only as a deodorizer, and does not destroy the germs of the disease.

It should also be known that many of the preparations offered for sale as disinfectants, germ killers, etc., are worthless, or nearly so, and should never be relied upon.

Reliable formulas are given by which a family may make disinfectant solutions possessing the required strength and efficiency, and at a much less cost than is asked for proprietary preparations.

"In olden days, no crime was so atrocious as that of poisoning wells, and even in times of war, the moral sense of those heathen nations was sufficient to prevent such a convenient way of destroying a nation's enemies. But in these days, one city poisons another's water supply without the least

hesitation and with little or no protest except from the State Department of Health."—*Monthly Bulletin, New York State Board of Health.*

"The time is not far distant when an epidenic of typhoid fever in any commonwealth will be just grievance for damage against the municipality allowing its existence. The water and milk supply are the great sources of infection, and by adopting proper sanitary and hygienic measures along these lines typhoid fever can be wiped out."—*Wisconsin State Board of Health Bulletin.*

FORMALDEHYDE DISINFECTION — A NEW PROCESS*

A long series of experiments in the Laboratory of Hygiene have developed the fact that formaldehyde may successfully and very conveniently be used in the disinfection of the rooms with the use of no lamps, generators, or other special apparatus whatever. In the process which has been employed in this work, formaldehyde gas is liberated by pouring formaldehyde upon permanganate of potassium. At ordinary room temperatures a chemical reaction results whereby a high degree of heat is evolved. This heat causes an effervescence or boiling, and formaldehyde gas is given off very rapidly.

The advantages of this method are, that the disinfecter need not transport apparatus from place to place; that there is no generator or lamp which might originate a fire; that almost the whole quantity of formaldehyde available for disinfection is liberated in a few moments, thus giving the maximum concentration of the gas before there has been time for leakage of the part first evolved; that, through the action of the heat liberated by the chemical reaction, a sufficient quantity of steam goes off wih the formaldehyde to insure efficient disinfection.

In carrying out this process of disinfection the

*Circular No. 75, State Board of Health of Maine.

requisites are simply the ordinary so-called 40 per cent formaldehyde solution, commercial permanganate of potassium, and a vessel to mix them in.

The required quantity of permanganate for each pint of formaldehyde is 7½ ounces. The permanganate is first put into the dish and the formaldehyde is then poured upon it. *The permanganate must go in first.* Before the mixture is made everything must be in readiness, because a rapid flight from the room must be made. Leave the room closed up tightly four hours.

The vessel in which the permanganate and formaldehyde are to be mixed should be of considerable size, else the vigorous foaming will throw a part of the mixture upon the floor. A flaring ten-quart tin pail is a suitable and large enough vessel unless more than three pints of formaldehyde are to be used, and even then until the disinfecter is well acquainted with this process, it would be a safe precaution to set the pail inside of a large pan. In this, as in all methods of chemical disinfection, the disinfectant action is more efficient the warmer the room.

As it is necessary to adjust carefully the relative quantities of permanganate and formaldehyde, and as it is much more convenient to measure the permanganate than to weigh it, arrangements have been made with some of the druggists to keep in stock a small tin measure holding 3¾ ounces of permanganate, "strick" measure, not shaken down.

The rule is, in ordinary disinfection: for each 1000 cubic feet of room space to be disinfected, two measurefuls of permanganate and one pint measureful of formaldehyde.

A large quantity of formaldehyde and a shortened time of exposure are more efficient and generally more economical than a smaller quantity of formaldehyde and a lengthened period of exposure. It is a saving to families that have to submit to disinfection to have the time shortened, and is much more satisfactory to them. With the time at four hours, formaldehyde fumigation may be completed in the forenoon and the rooms may have a lengthened airing in the afternooon so the family may occupy their rooms the same evening The state board of health now makes the following recommendations:

1. In ordinary disinfection, when the infection to be destroyed is that of typhoid fever, diphtheria, scarlet fever, small-pox, measles, grippe, whooping-cough, dysentery or cholera, use one pint of formaldehyde for each 1000 cubic feet of space to be disinfected. Though a considerably smaller quantity was found efficient in the experimental work, allowance must be made for unusual leakage from rooms, for low temperature, for insufficient moisture, for inaccessibility of parts of the infection, etc. It is necessary to have quite a wide margin for safety, but the quantities herein advised provide for that margin if the work is intelligently done.

2. When the infection to be destroyed is the more resistant micro-organisms of tuberculosis, or of specticemia, a pint and a half of formaldehyde (formalin) per 1000 cubic feet of space should be used. The same quantity at least should be used in the disinfection of books, clothing, and in all cases in which the infection is not entirely open and accessible to the gas, that is, when some degree of penetration must be secured.

The experiments have shown that, used as is herein recommended, formaldehyde gas has some considerable power of penetration; nevertheless, the state board of health does not yet deem it safe to advise any marked departure from the general method of disinfection given in its circulars on the infectious diseases — scrubbing up of floors, boiling the cotton and linen clothing of the patient and of his bed and such other badly infected articles as can thus be treated, or soaking them in a disinfecting solution.

SUPPLEMENTAL PROGRAM ARRANGED FOR CLASS STUDY ON

HOME CARE FOR THE SICK

MEETING I

(Study pages 1–13)

Symptoms of Disease

See *Care of Children*, pages 153–159, for children's diseases. (Vol. XI of the Library of Home Economics.)

The Sick-Room.

See *Household Hygiene*, Ventilation and Heating, Home Nursing, Harrison, pages 1–13. ($1.00, postage 10c.)

MEETING II

(Study pages 13–34)

Care of the Patient

Make bed with draw-sheet, as described in the text.
Change the bed as described.
Lift patient to sitting position.
Make back rest and foot brace.
Change patient from one bed to another, two methods.
Change mattress with patient in bed.
Make a wadding ring to relieve pressure.
If possible, get a trained nurse to show how these things are done.

Convalescence

Lift patient into a chair.
Topic—Amusing the convalescent and sick children.

MEETING III

(Study pages 34–62.)

Baths and Bathing

Make up pitcher of water, cool, tepid, warm, etc., of the various degrees of temperature given on page 41.

Test with a bath or other thermometer and with the hand. Note how unreliable the hand may be; after the hand has been in the cold water, the tepid water feels warm, and after having been in the hot water, the tepid water feels cold.

Home Nursing, Harrison, pages 63–73. ($1.00, postage 10c.

Practical Points in Nursing, Emily Stoney, pages 83-93 ($1.75, postage 20c.)

Temperature, Pulse, Giving Medicine, etc.

Obtain a clinical thermometer and take temperature a number of times, having all read the thermometer to 1-10 of a degree, and write the reading on slips of paper. Compare results. If there is any difficulty in shaking down the mercury, get a physician or nurse to show how it is done. A clinical thermometer may be purchased through the School for $1.25, or will be loaned for 10c.

Count the pulse in quarters for a second, as described, and compare results as in the taking of temperature.

Count the respiration, as directed.

Have an exhibit of medicine glasses, feeding cups, syringes, ice-caps.

Make poultices, sinapisms, flannel for fomentations, compresses.

(Select answers to the Test Questions on Part I and send to the School. Report on Meetings I, II, and III.)

MEETING IV

(Study pages 63–73)

Contagious Diseases: Disinfection

See article in the supplement, also send for and read some of the following Bulletins issued by State Boards of Health:

Lansing, Michigan, "Dangerous Communicable Diseases."

Concord, New Hampshire, "Consumption."

Springfield, Illinois, "Consumption" also "Practical Disinfection."

Augusta, Maine, "Contagious Diseases."

Trenton, New Jersey, "Restriction of the Spread of Infectious Diseases."

These Bulletins are sent free, or for a 2c stamp. Send to your own State Board of Health, if not included in the above; to your capital city, for any Bulletins.

MEETING V

(Study pages 73–105)

Surgical Work: Obstetrics

Practical Points in Nursing, Stoney, ($1.75, postage 20c.)

Food for the Sick

Food and Cookery for the Sick and Convalescent. ($1.50, postage 18c.)

Food for the Sick, French, ($1.00, postage 10c.)

Hand Book of Invalid Cookery, Boland, ($2.00, postage 16c.

Collect appropriate recipes in addition to those given in the text.

Show dainty and suitable serving for the sick.

MEETING VI

(Study pages 105–121)

Emergencies

Practice artificial respiration, as described.

Make a tourniquet.

Bandaging and Bandages

Practice all the bandages described. If possible, get a trained nurse to show methods.

(Select answers to the Test Questions on Part II and report on Meetings IV, V, and VI.)

INDEX

Purpose of the Course

TO make housekeeping an inspiring profession, instead of deadening drudgery.

TO make the daily work in the home of fascinating interest instead of monotonous labor.

TO make housekeeping easier and simpler by utilizing modern science in the home.

TO make the household money go further, that the higher things of life may be included.

TO preserve and increase health, and thereby promote happiness and prosperity.

TO develop the children—mentally, morally and physically—to their finest possibilities.

TO effect the conservation and improvement of the American home.

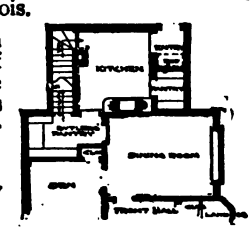
TO raise ideals of American home-making.

—*American School of Home Economics.*

THE LIBRARY OF

PARTIAL SYNOPSIS

Vol. I. THE HOUSE: ITS PLAN, DECORATION AND CARE, by Prof. Isabel Bevier, University of Illinois.

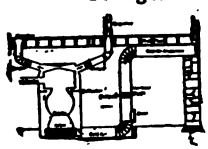


Treats of the development of the modern home and the American house, the planning of convenient houses, construction, floors; the problems of decoration and furnishing; gives suggestions for changes, repairs, household conveniences, "The Cost of Building," etc.

Vol. II. HOUSEHOLD BACTERIOLOGY, by S. Maria Elliott, Simmons College, Boston.

An interesting account of the microscopic forms of life and their relation for good and evil to the household; what dust is and how to make "dust gardens"; disease germs and how to avoid them; the protectin gagencies of the body and how to keep them active; sanitation, etc.

Vol. III. HOUSEHOLD HYGIENE, by S. Maria Elliott, Simmons College.



The healthful home; the best situation for the house; importance of the cellar; all about drainage, heating, lighting, disposal of wastes, plumbing tests, the water supply; practical suggestions for sanitary furnishings and care; hygenic housekeeping, etc.

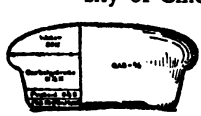
Vol. IV. CHEMISTRY OF THE HOUSEHOLD, by Margaret E. Dodd, S. B., Mass. Institute of Technology.

"A Day's Chemistry"—a fascinating account of the unseen forces in the common things met in a day's work—water, air, fire, fuel; chemistry of food, of digestion, of cookery, of baking powder, of cleaning, of laundry, of stains, of lighting; home tests; home-made baking powder, soap, etc., etc.

Vol. V. PRINCIPLES OF COOKERY, by Anna Barrows, Columbia University and Chautauqua School of Cookery.

"A key to the cook books"—analyzing and explaining the principles on which success rests; all approved methods of cookery explained particular attention being paid to economy of time and materials; full consideration of menus, making a fireless cook-stove, "Directions for Waitresses," etc.

Vol. VI. FOOD AND DIETETICS, by Prof. Alice P. Norton, University of Chicago.

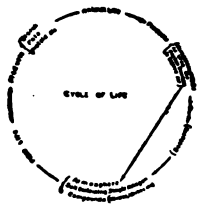


Tells of the composition, nutritive value and digestibility of foods; how the body makes use of food; food economy; the balanced ration; healthful diet for the sedentary, the aged, the children, and so on; food adulterations, etc.

HOME ECONOMICS

Vol. VII. HOUSEHOLD MANAGEMENT, by **Prof. Bertha M. Terrill** of Hartford School of Pedagogy.

Full treatise on economy in spending; the proper division of income; systems of household accounting; system in housework; the servant problem; help by the hour; buying supplies and furnishings; how to market economically; cuts of meat; season of vegetables; experiences of students; "Co-operative Housekeeping," etc.



Vol. VIII. PERSONAL HYGIENE, by **M. LeBosquet, S. B.**, Director of A. S. H. E.

The wonderful human machine; running the machine; care of the machine—sufficient physiology given to show the reasons for the directions for maintaining health; emphasis placed on *do* rather than *don't;* articles on "Ethics of Health," "Use and Abuse of Drugs," etc.

Vol. IX. HOME CARE OF THE SICK, by **Amy E. Pope**, Presbyterian Hospital, New York City.

Includes the essentials of trained nursing; specific directions for handling and caring for the patient; nursing in contagious diseases; obstetrics; food for the sick; emergencies; poisons and their antidotes; bandaging; articles on communicable diseases, etc.

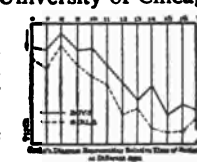
Vol. X. TEXTILES AND CLOTHING, by **Kate H. Watson**, formerly Lewis Institute and University of Chicago.

Fully illustrated descriptions of primitive and modern methods of manufacture; textile fibres and fabrics; plain and ornamental stitches and their applications; machine sewing; cutting and fitting of waists and skirts, color and ornament; children's clothes; repairs, etc.

Vol. XI. STUDY OF CHILD LIFE, by **Marion Foster Washburne**, editor "Mothers Magazine."

Thoroughly sensible and practical directions for the treatment of children; faults and their remedies; character building; home occupations; play; associates; studies and accomplishments; religious training; the sex question, answers to questions, etc.

Vol. XII. CARE OF CHILDREN, by **Dr. A. C. Cotton**, Prof. Children's Diseases, Rush Medical College, University of Chicago.



The care of the baby before birth and of the new baby; healthful clothing; development and growth of the child; authoritative and specific directions for feeding; food disorders; food for older children; treatment of children's ailments; hygiene of the child through the pubescence period, etc.

Each volume has a program for supplemental study, arranged especially for clubs, giving references, exhibits, experiments., etc.

COMMENDATION ON THE COURSE IN BOOK FORM:

THE OUTLOOK

"It is true that the management of the home and the care of the family may now rightly be called both a business and a profession. Looking at the subject in this light, the volumes of this library may be regarded as the tools and formulae for carrying on the work in a systematized and intelligent manner. * * * A wise discrimination has been exercised in the choice of the authors of the lessons, for these writers are recognized authorities and special students in the various fields with which they deal. In all cases, simplicity of statement and clarity * * * brevity without sacrificing completeness, are qualities carefully sought for."

THE INDEPENDENT

"Each of these series of lessons is written by an expert—one possessing special knowledge on the subject concerning which he or she writes. * * * The volumes are handy and are well illustrated and contain an immense amount of information. Things that it must take an old housekeeper years of experience to learn, the young housekeeper may have here under her hand at the very beginning of her regime."

GOOD HOUSEKEEPING

"Practically all the material needed by the home-maker who wants to know about the inside and the outside of her house and the health of those within it is to be found in these twelve volumes. The books are easy to read and scientific without being technical."

BOSTON COOKING SCHOOL MAGAZINE

"This is the first time that an attempt has been made to gather together the whole broad subject of home economics into one correlated series of volumes. They give an epitome of the kind and scope of instructions given on this subject at the present time."

THE CRAFTSMAN

"Altogether the course seems to be widely useful in its scope, and very straightforward and practical in its work."

BOSTON TRANSCRIPT

"These well printed and liberally illustrated volumes present a course of reading and study that shows to what extent the profession of home-making and art of living make for self-culture and the practical ends of our daily existence."

CHICAGO TRIBUNE

"Each volume is prepared by practical instructors, speaking with authority in their particular lines. They are well illustrated and are calculated to diffuse a great body of necessary information to those interested in household advancement."

IOWA STATE BOARD OF HEALTH BULLETIN

"We most heartily commend these courses to all persons interested in healthy homes and the development of a vigorous people—mentally, physically and, as a consequence, morally."