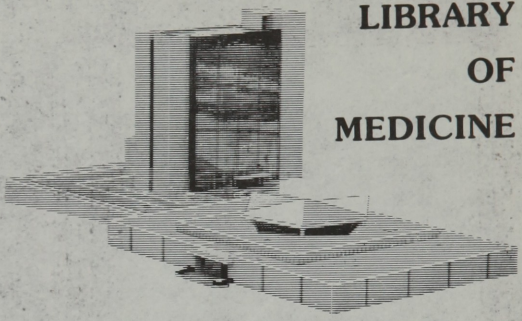
The Mother's Guide and Daughter's Friend.

NATIONAL LIBRARY OF MEDICINE
NLM 00562979 4



U.S. NATIONAL
LIBRARY
OF
MEDICINE

SURGEON GENERAL'S OFFICE
LIBRARY

ANNEX
Section

Form 113c No. 292496
W.D.,S.G.O.

GOVERNMENT PRINTING OFFICE

RETURN TO
NATIONAL LIBRARY OF MEDICINE
BEFORE LAST DATE SHOWN

Staff Notes

APR 16 1985

Lind, George Dallas
111

THE

MOTHER'S GUIDE

AND

DAUGHTER'S FRIEND

A COMPENDIUM OF VALUABLE INFORMATION FOR WOMEN,

EMBRACING

SEXUAL PHYSIOLOGY, SEXUAL HYGIENE, HOUSEKEEPING AND HOME-MAKING, CARE AND CULTURE OF CHILDREN, DESCRIPTION AND HINTS ON HOME TREATMENT OF THE MOST COMMON DISEASES OF WOMEN AND CHILDREN, WHAT TO DO UNTIL THE DOCTOR COMES, OCCUPATIONS SUITABLE FOR WOMEN, DOMESTIC ECONOMY, ETC., ETC.

LIBRARY OF CONGRESS, COPYRIGHT
JAN 3 1888
CITY OF WASHINGTON
8175

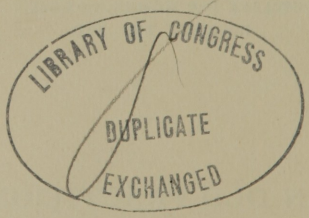
BY AN OLD PRACTITIONER.

INDIANAPOLIS, IND:
WEBSTER PUBLISHING COMPANY.
1886.

ARMY MEDICAL LIBRARY
292496
WASHINGTON, D.C.

WP
L742m
1886

Entered according to the act of Congress, in the year 1886,
BY G. M. WEBSTER,
In the office of the Librarian of Congress, at Washington, D. C.



PREFACE.

PLEASE READ THIS FIRST.

I claim but little originality in the preparation of this book. I have read a large number of works each containing something valuable, some containing much that is untrue, others much that has no bearing on the subject, others, again, the language of which would require a dictionary to help comprehend it. From these varied sources I have culled, condensed and put in my own language a large amount of valuable information, and have added what my own experience as a physician and an observer has taught me. I have explained all scientific and technical terms, so that a dictionary, or library of books, is not necessary to interpret the work. I have tried to avoid extreme views on all unsettled questions, believing that the golden mean is the best.

The authorities have not been cited except in a general way, since the book is not intended for the critic, nor for the learned, but for the masses.

I have purposely withheld my name from the

public, but if any one has the curiosity to know who the author is she can find out by addressing the publisher.

To the members of the medical profession, for whom I have the highest regard, I want to say that this book is not an attempt to popularize medical science. I do not believe in the doctrine of every man his own physician, any more than in every man his own teacher, but I do hold that educated patients are more satisfactory and on the whole more profitable to the physician than ignorant ones. "'Till the doctor comes," has been my motto all the way through. I have tried to teach the woman what to do in the absence of the doctor, how to be an aid to him, and never to ignore his services. Hence I ask the physician who may chance to see this work to examine it and be free to express his opinion concerning its merits.

Now, please read the directions for using this book and believe me to be

Your Friend,

THE AUTHOR.

DIRECTIONS FOR USING THIS BOOK.

This advice may seem unnecessary to many persons, but did you never consider that the majority of readers are not scholars? Even scholars sometimes do not know how to read a book. There is an art in reading books, which comparatively few persons acquire perfectly.

It is not necessary to read a book through every time you want to use it, nor is it necessary to read it through to find out what is in it. However, it will not be improper to read this book through carefully as soon as you get it. What may not be plain as referred to in one place may be cleared up as you read further.

This book has a full Index, as every book ought to have. The Index is at the close of the book. The Table of Contents follows these Directions. This is to show at a glance what the book contains, and is not to be used in finding what you want. You must use the Index when you want to find a point on any subject.

For example, you want to know what to do in case of painful menstruation, or anything connected with the subject of menstruation, turn to

the Index and run along the M's and you will find the word *menstruation*, and in the following lines every page, where any part of that subject is discussed, will be given. If a child has swallowed what you suppose to be poison, turn to the word *poisons* in the Index, and look on the page indicated. If you know the name of the substance swallowed you will find it given under an alphabetical arrangement with the proper remedies. If you do not know the name of the poison, apply the remedies prescribed in case the poison is unknown. If you wish to know what potatoes contain, their value as a food, etc., look for the word *foods* in the Index. On the page referred to will be found an alphabetical dictionary of foods.

Thus always use the Index when you want to find any point quickly. You should try, also, to catch points by running your eye over a paragraph without reading it word for word. This is a power which can be acquired only by practice. This Index is a full one, yet an Index can not give *every* point. If it did it would equal half the book in size.

Consult the book frequently. If you have only five minutes leisure pick up the book and turn to some subject and read. Read while you are waiting for the kettle to boil, while you are resting for a few minutes from some tiresome work. If you are very tired from physical exertion you will get sleepy if you read long at a time. More may be gained from books by frequent short readings than by spending hours at a time in reading. Never

read until you are tired, but read frequently is a good rule.

This book is not like a story, to be read and laid aside or loaned to a neighbor, but it is a text-book for the school of the home and should be *used*, *consulted often*, *studied*, not simply read.

The first two chapters are the least interesting, but they are of value and throw much light on what follows. Therefore read them conscientiously.

TABLE OF CONTENTS.

PREFACE.

DIRECTIONS FOR USING THIS BOOK.

INTRODUCTION.

CHAPTER I—MAN AND WOMAN.

An Explanation—The Bony Frame-work—The Joints—The Muscles—The Organs of Digestion—The Liver—The Organs of Circulation—The Blood—The Lymphatics—The Organs of Respiration—The Skin, Hair and Nails—The Nervous System—The Eye—The Ear—Smell, Taste and Touch—Peculiar Organs of the Body—The Reproductive System—The Urinary Organs—Physical Differences Between Man and Woman—Mental and Moral Peculiarities of the Sexes.

CHAPTER II—HEALTH IN GENERAL.

Introductory—Health Defined—The Value of Health—Importance of Cleanliness—Bathing—Change of Clothing—Danger of Retained Excretions—Pure Air—Clothing and Shelter—Sunshine—Exercise and Rest—Gymnastics for Women—Sleep—Mental States—Quantity of Food—Quality of Food—Frequency of Eating—Manner of Eating—Drinks—Cooking.

CHAPTER III—MATING.

Who Should Not Marry?—Proper and Improper Matches—Proper Age to Marry—Proper Time to Marry—Love in the Case—Choosing a Husband—Courtship—Long Engagements—Breaking Engagements.

CHAPTER IV—MATED.

The Wedding Tour—Consummation of Marriage—Sleeping Together—A Helpmeet—Work and Worry.

CHAPTER V—SHALL IT BE?

Knowledge Necessary—Excessive Child-bearing—The Blessings of Children—The Crime of Abortion—Evils of Improper Prevention—The Safe Way.

CHAPTER VI—SUPPOSE IT IS?

The Nature of Fecundation—Duration of Pregnancy—Peculiarities of Pregnancy—Signs of Pregnancy—Miscarriages—Sterility.

CHAPTER VII—THE EXPECTED.

The Mother's Influence Upon the Unborn Child—Can the Sex be Predicted?—Hygiene of Pregnancy—Clothing—Diet—Exercise—Importance of Fresh Air—Bathing—Sleep—Attention to the Bowels—Engaging a Physician.

CHAPTER VIII—THE ARRIVAL.

Painless Child-birth—Preparation for Confinement—Signs of Approaching Labor—Labor, its Cause, Symptoms and Duration—Duty of the Patient During Labor—Duty of the Attendants During Labor—Duty of the Physician During Labor—Attention to the Child—Attention to the Mother—Further Attention to the Child—Further Attention to the Mother—The Getting Up—Lingering Labors—Peculiarities of Babies.

CHAPTER IX—THE TENDER SHOOT.

Infant Mortality—Bathing the Infant—Clothing of Infants—Pure Air and Light for Infants—Sleep of Infants—Habits of Cleanliness—Nursing—When Nursing is Impossible, and When Improper—Stated Times for Nursing—Influences Affecting the Quantity and Character of the Mother's Milk—Too Much or too Little Milk—Bringing Up by Hand—Weaning—Teething—Vaccination—Exercise for Infants.

CHAPTER X—BUDS AND BLOSSOMS.

Boys and Girls—Diet of the Young—Exercise for Children—Habits of Cleanliness Should be Taught—How to Prevent Constipation—Bed-Wetting—Bad Habits—Sleeping—Care of the Teeth—Effects of Rapid Growth—Mental Culture—Age of Puberty—Menstruation—Hygiene of Menstruation.

CHAPTER XI—SOME OF THE ILLS OF WOMEN.

Sex and Disease—Constipation—Diarrhœa—Deviations of Menstruation—The Whites—Itching of the External Genital Organs—Neuralgia—Sick Headache—Fainting—Displacement of the Womb—Hysteria—Nervousness—Miscarriages—Hemorrhage After Delivery—Child-bed Fever—Sleeplessness—Gathered Breasts—Sore Nipples—Milk Leg—Varicose Veins—Morning Sickness—Green Sickness—"Change of Life."

CHAPTER XII—HOME TREATMENT OF SOME OF THE DISEASES OF CHILDREN.

Introductory Remarks—Croup—Diphtheria—Worms—Colic—Convulsions—Cholera Infantum—Thrush and Canker of the Mouth—"Night-Terrors"—Bed-Wetting (as a Disease)—Earache—Contagious Diseases—Chicken-pox—Measles—Whooping-Cough—Mumps—Scarlet Fever.

CHAPTER XIII—WHAT TO DO IN EMERGENCIES.

Presence of Mind—Pain—A Medicine Chest—Burns and Scalds—Wounds and Bleeding—Broken Bones, Dislocations and Sprains—Drowning—Freezing—Bites of Snakes and Dogs—Dangers from Foul Air, etc.—Poisons and Poisoning—Alphabetical List of Poisons and Antidotes—Sunstroke—Sudden Childbirth—Objects Swallowed—Objects in the Nose and Ear—Objects in the Eye—Fainting, etc.—Choking—Toothache—Boils, Carbuncles and Felons—Ingrowing Toe Nail—Miscellaneous Emergencies.

CHAPTER XIV—CARE OF THE SICK.

Importance of Good Nursing—Qualities of a Good Nurse—Conduct in the Sick-Room—The Nurse and the Doctor—Giving Medicines—The Sick-Room—The Bed—Feeding the Patient—Kinds of Food for the Sick—Bed Sores—Use of the Clinical Thermometer—Miscellaneous Hints.

CHAPTER XV—FOODS AND DRINKS.

Importance of a Knowledge of the Subject—How to Select Articles of Food—Buying—Storing—Preserving Food—Essential Elements of Food—Dictionary of Foods and Drinks, Giving Composition and Relative Value.

CHAPTER XVI—HOUSEKEEPING AND DOMESTIC ECONOMY.

Importance and Dignity of Housekeeping—Beginning Housekeeping—The Kitchen—The Dining-Room—The Sitting-Room—The Parlor—Bed-Rooms—Taking Care of Rooms—"House Cleaning"—Regular Times for House Work—What is Dirt?—Suggestions to Those About to Build a House—Economy, not Stinginess—Some Hints on Economizing in the Home.

CHAPTER XVII—WOMAN'S WORK AND WORTH.

Some Statistics—The Profession of Teaching—Women as Physicians—Women as Lawyers—Women Preachers—Women as Dentists—Women as Professional Nurses—Women as Telegraph Operators—Women as Canvassers—Dress Making and Millinery—Gardening—Poultry Raising and Bee-Keeping—Professional Cooks—Housekeeping as a Profession—What all Women Should Learn to Do—Women in Literature—Unmarried Women—Influence of Women—The Kingdom of the Home.

INTRODUCTION.

Knowledge is safety. Ignorance is dangerous. But what knowledge is of the most worth? Evidently that which the most directly conduces to human happiness. No one can be happy and be sick. A knowledge of the human body, its workings in health and disease and of the best methods of maintaining it in a healthy condition, are certainly among those subjects which most nearly concern our earthly happiness.

We can not know too much about ourselves. Says an eminent lady physician, Sarah Hackett Stevenson, M. D.: "Learning is not a dangerous thing, it is a *little* learning that is to be feared, and the danger increases in direct proportion to the littleness. The more one *really* knows about his own system the more willing he is to trust the judgment of a man or woman who has spent a life-time in the study of the human system. In other words, the more wisdom you possess yourself the more confidence you have in wisdom."

There are certain things which can not well be learned except from books, and these only from a certain class of books. What common school book teaches a knowledge of the Reproductive System of Man? Where is it taught outside of a medical college? Such subjects are not the topics of ordinary conversation. Women hesitate to inquire of

physicians concerning such subjects until they are forced to by suffering and sickness. Even then a native modesty compels many to suffer on in silence. Even a close cross-examination sometimes fails to elicit the truth from a female patient, because she does not know that there are certain facts about her case which a physician must know and can find out only through her statements.

A more universal diffusion of a knowledge of sexual physiology and hygiene among women would greatly lessen suffering throughout the world, a stronger race of children would be born, and the course of universal progress would be more rapid. In fact, there will never be a millennium until this knowledge prevails among all classes.

But how shall woman get this knowledge? Only through books of this kind. We must admit that there are many books which contain valuable matter on these particular subjects, but we are safe in saying that there is no book which contains so much that is valuable to women in such small compass. It is therefore the cheapest among the many books of its kind.

The man or woman who engages in the work of distributing information of the kind contained in this book is a real missionary and is doing a noble work. Can you not, reader, aid a little in a good cause by showing the book to your neighbors and friends, and calling their attention to its contents? Should there be no agent in your place, a copy of the book can be had at any time by addressing the

PUBLISHERS.

THE
Mother's Guide and Daughter's Friend

Chapter I.

MAN AND WOMAN.

AN EXPLANATION.

I propose in this chapter to describe in brief the human body, including the organs which especially distinguish sex, and to note the general physical and mental resemblances and differences of the two sexes. I shall aim to be plain-spoken and clear in all my statements, avoiding technical language, or when using it, I will explain as best I can. I shall write as though I were writing for readers who have had no instruction in general physiology.

Although this subject is taught in most of our schools, a majority of the women who will read this book have very little knowledge of the human body. I will say then to the readers who have studied school physiology, this brief description of the body may serve to refresh your minds on many points, and to those who have not studied or read any on the subject, I hope this book will give you a general idea of the body, and that it may provoke

you to read some more extensive treatise on the subject. The limits of this work are too small to permit more than a general glance at the subject, but I have deemed it important to give a smattering at least of some of the things which women ought to know.

THE BONY FRAME-WORK.

The bones of the body taken together are called the skeleton. The human skeleton consists of 200 separate bones. The head consists, first, of eight bones, which are so placed as to form a rounded box containing the brain, which is thus well protected from injury ; and, second, of fourteen bones which form attachments for muscles and make up the frame-work of the face. The head rests upon a column of short bones which have some movement upon each other. This column forms the axis or main-stay of the body. It is called the spinal column, or sometimes the spine, and consists of twenty-four separate bones called vertebræ.

Each vertebra contains a large opening, these openings together making a canal running the entire length of the column. This canal contains the spinal cord, which is the main axis of the nervous system, and a continuation of the brain downward.

To twelve of these vertebræ are attached twelve pairs of ribs, which, with the breast-bone in front, compose the thorax, or chest. The ribs are fastened to the spinal column by hinge-like joints, and move up and down somewhat in breathing. The front ends of all the ribs except two are attached

to the breast-bone by means of yielding substances called cartilages.

The bones of the arms are joined to the rest of the skeleton by means of the clavicle or collar-bone, which may be felt just below the neck. This bone is attached to the breast-bone and extends outward to help form the shoulder. It is joined to the scapula, or shoulder-blade, which is a flat bone of a triangular shape. The collar-bone is often broken by falls when the shoulder strikes the ground. The upper arm contains one long, round bone, which fits to the end of the shoulder-blade, and has great freedom of motion. The fore-arm contains two bones, one of which, the radius, rotates on the other, the ulna, giving the ability to roll the hand. The carpus, or wrist, contains eight little bones, and the hand nineteen bones.

The bones of the lower extremity are joined to the spinal column by means of the pelvis. This consists of a pair of large bones usually called hip-bones, and two bones which are continuations of the spinal column. The hip-bones are very irregular in shape and in youth consist of three pieces, which grow solidly together in adult life. The sacrum is the main continuation of the spinal column and joins closely with the two hip-bones, which are joined also to each other at the front, the whole forming a bony ring, which contains the important organs of the female. The coccyx is the other bone of the pelvis. It is small, and is only the termination of the sacrum.

The lower extremities contain sixty bones. The

longest bone in the body is the femur, or thigh-bone. It is joined to the hip-bone by a ball and socket joint, and has great freedom of motion. The leg consists of two bones, the larger, called the tibia, or shin-bone, can be felt just beneath the skin in front. The smaller is called the fibula. The knee joint is covered by a small bone called the patella, or knee-pan. The ankle consists of seven bones, and the foot of nineteen bones.

The bones are composed of two kinds of substances; one is hard and solid as rock and is called earthy matter; the other is soft and elastic and is called animal matter. These two are intimately mixed, and when in proper proportions give the bones the necessary degree of firmness and strength. In children the bones contain a large proportion of animal matter, and are consequently more easily bent. They may be bent by gradual though easy pressure. Hence the danger of cramped and unnatural positions and tight clothing in producing deformities. As the body grows older the bones become more and more brittle on account of the increase of earthy matter, and in old age they are quite easily broken. Hence a deformity produced in youth can never be remedied. Old persons should take particular care not to receive falls.

Instead of the earthy or solid matter, the bones, previous to birth, and to a great extent for some time afterward, contain cartilage, an elastic, flexible substance which is gradually replaced by bone substance. The completion of the change from cartilage to bone takes place at different times in

different bones and in different parts of the same bone. The process of ossification, or change from cartilage to bone is a very gradual one. In some parts the cartilage remains through life unchanged. There is a layer of cartilage over the ends of all the long bones at the joints, thus forming cushions and preventing shocks in walking, leaping, etc. Between each of the vertebræ, or joints of the spinal column, are plates of cartilage. These add greatly to the flexibility of the back-bone and greatly lessen shocks to the brain. A person being all day in an upright position, the weight of the body somewhat compresses each one of these elastic cushions, so that in the morning one is just a little taller than in the evening. The ribs, as before stated, are connected to the breast-bone by means of permanent cartilages. These, by their flexibility, aid greatly in breathing. They can easily be pressed out of shape by tight clothing and by sitting in a stooping position.

THE JOINTS.

The bones are joined together in various ways. In some places the union is so close that scarcely any motion is possible, as in the separate bones of the head. Again they are very movable, as in the limbs. In movable joints the ends of the bones are held together by means of fibrous bands called ligaments. In some rare instances these ligaments are so long that the joints are capable of being dislocated and again thrown back at will. Ligaments are often put upon the stretch so that some of the

fibers are ruptured. This is called a sprain. When injured, healing takes place very slowly. Children sometimes have their arms dislocated by careless nurses or mothers lifting or swinging them by the arms.

The movable joints have also a sac-like membrane which contains a slippery fluid called synovia, or "joint-water," which makes them work easily. Joints are easily injured and sometimes incurable lameness results from apparently slight injuries.

THE MUSCLES.

All the movements of the body are brought about by the contraction of bundles of fibers called muscles. They are recognized in animals as the lean meat or flesh. There are over 500 different muscles, and they form the greater part of the bulk of the body, and give plumpness to the limbs and trunk. They are connected to either bones, cartilages, ligaments, skin, or to each other, directly or by means of fibrous cords called tendons (sinews). The tendons may be felt as rounded cords beneath the skin in some places, as in the wrist and just above the ankle. They are often called the "leaders." In some cases the large tendon of the ankle is too short, drawing the heel up and causing the deformity known as "club-foot," or the tendons at the side of the leg are too short, drawing the foot to one side, producing the deformity known as "reel-foot." It is perhaps not generally known that surgeons often cure these deformities by cutting the tendons beneath the skin

and applying proper means to straighten the foot.

A muscle is capable of contracting powerfully, but soon loses its power and becomes exhausted when repeated contractions are made. The muscles are caused to contract by the nerves acting upon them. This nerve action is of two kinds, voluntary and involuntary. The heart is a muscle which acts involuntarily all the time. All the muscles of the body may act involuntarily, as when a sudden noise, or the approach of danger causes us to jump before we take time to think.

Muscles also contract when any stimulus is applied. Thus sharp blows, electricity, heat, etc., will cause muscles to contract in the human body a short time after death, and in some of the lower animals, as in the frog and turtle, even two days after the animal is dead. When a chicken's head is severed from the body with one blow of the ax, it is dead the moment the head is off, but the contractions of the muscles cause the body to jump around in a lively manner for several minutes.

Muscles grow when a proper amount of exercise is given them, and dwindle in size when not exercised. Thus the arms of the blacksmith and of the prize-fighter show very large muscles, and the legs of dancers and those who walk much are proportionally larger than those who do not exercise the lower limbs. One should not, however, exercise one set of muscles to the exclusion of others.

THE ORGANS OF DIGESTION.

The parts of the body which are directly or indirectly concerned in preparing the food for becoming a part of the body are called organs of digestion. Food is first taken into the mouth, divided by the teeth and at the same time mixed with a fluid called saliva. This fluid is produced by certain organs called salivary glands. These glands are three in number, one in front of the ear, one beneath the lower jaw and one under the tongue. Saliva serves a variety of purposes. It keeps the mouth moist and prevents the disagreeable sensation of dryness. It moistens the food and renders it more easily masticated by the teeth, and aids in swallowing. Without it, many kinds of food would have no taste. But its most important use is to convert the starch of the food into sugar. This is a somewhat mysterious process, yet we can easily prove it to be a fact. If starch is placed in a cup and a quantity of saliva be put upon it, in a little while, if the mixture be kept at a certain temperature, a sweet taste will be observed and a chemical test will show the presence of sugar in the cup.

Whenever food is taken into the mouth the salivary glands are excited and saliva flows. Certain medicines, especially preparations of mercury, excite the salivary glands to an undue degree. This is called "salivation," or the person is said to be "salivated."

The act of swallowing consists in the passage of the food from the mouth through the pharynx and

esophagus to the stomach. The pharynx is a cavity just back of the mouth. It has seven openings, one to the mouth, one to the esophagus, one to each ear, one to the larynx and one to each nostril. The opening into the esophagus is back of the opening into the larynx. The food is prevented from going into the larynx by the epiglottis, an organ which is arranged and acts somewhat like a trap-door. The food glides over it, closing it down over the opening into the larynx. Sometimes when we attempt to breathe while food is passing, the epiglottis is forced open by the air from the windpipe, and the food enters the windpipe through the larynx. Violent coughing is thus produced by the irritation of the food. We then say the food "has gone the wrong way," or that we are "choked."

The esophagus, or gullet, is a muscular tube about nine inches long leading from the pharynx to the stomach. When the food is once in the pharynx we have no longer any control of it, but it is involuntarily forced down by the successive contraction of a series of muscular rings.

The stomach is a sac, or bag, varying much in size but usually capable of holding three or four pints. Here the food receives from glands in the inner lining of the stomach another fluid called gastric juice. This substance converts certain other parts of the food into a condition capable of being absorbed, or passed into the blood. That the gastric juice may act more readily the muscular fibers of the coat of the stomach are, when food is present, continually contracting, causing the contents

to be rolled about, or churned, as it were, until all is reduced to a pulpy mass which is called chyme. Much of the water and some of the digested food is absorbed by the veins of the stomach and thus passes into and becomes a part of the blood. The greater part of the contents of the stomach, however, passes into the intestine (bowels) which is simply a tube coiled up within the body and about thirty feet in length. In the upper part of this tube further changes take place in the food. Here it receives a fluid from the liver called bile, also a fluid from an organ which lies behind the stomach. This organ is called the pancreas (in animals, the "sweet bread,") and the fluid, pancreatic juice. The fluids cause certain changes in the food. In this part of the intestine are also certain organs called lacteals, which, with the veins, absorb or gather up the digested food and pass it into the blood. The undigestible portion of the food passes on along the intestine until it is finally discharged as waste material. The digested food in the upper part of the intestine is called chyle.

The time of digestion varies from two to five hours, some articles being more quickly digested than others. Severe exercise, fits of emotion and passion temporarily arrest digestion

THE LIVER.

This is the largest organ in the body. It is important that you know its location. It lies just below and partly behind the ribs on the right side. It is an irregularly-shaped body, measuring about

twelve inches from right to left, about seven inches from before backward and about three inches up and down, and weighs from three to four pounds in a grown person.

Its color is a reddish brown. It consists of a net-work of blood-vessels, ducts and cells. The blood from the walls of the stomach and intestines, and from the spleen and pancreas is carried through the liver in a net-work of veins. The ducts are small tubes which carry out the bile and empty it into the intestine.

One use of the liver is to secrete bile, which is partly a waste product, but also effects changes in the food and keeps up the action of the intestines in carrying the waste material through them. The liver also converts the sugar which has been absorbed in the stomach and intestine into a substance called glycogen, and converts it gradually back again into sugar. The use of sugar in the blood seems to be to keep up the animal heat.

From the fact that bile is sometimes brought up in vomiting, many persons think that this fluid gathers in the stomach. The bile is poured into the intestine during digestion. At other times it accumulates in a little sac called the gall-bladder, which lies on the under surface of the liver. During the act of vomiting the bile may be forced from the intestine into the stomach and from thence, along with the contents of the stomach, into the esophagus and mouth, and be ejected. Vomiting often gives relief, but it is not because the bile is thrown up. We often hear persons say of a patient,

"he will be better now, as he has thrown a large quantity of bile from his stomach." Such persons are ignorant of the physiological fact above given.

ORGANS OF CIRCULATION.

The blood is the fluid which nourishes all parts of the body. It is manufactured from the food we eat by the digestive organs. In order that it may be brought to all parts of the body to nourish them, there must be some arrangement for its distribution. This is effected by means of a central organ, called the heart, and a series of tubes leading to all parts of the body.

The heart is a hollow muscle located in the chest nearly in the central line. It may be felt beating at a point between the fifth and sixth ribs, about two inches below the left nipple. It is, in the human being, about the size of the closed fist of the individual. The heart is oval in shape, with its point or apex downward and toward the left, and is divided into four cavities, two above and two below. The upper cavities are called auricles, and receive the blood, the lower ones are called ventricles, and discharge the blood. The right auricle receives the blood from the body and discharges it into the right ventricle. The right ventricle sends the blood to the lungs, where it is purified by the air in a manner to be described hereafter. The blood next comes back from the lungs to the left auricle from which it goes to the left ventricle. From the left ventricle it is sent all over the body again. Thus it will be seen that the heart is a

double pump, forcing the blood to the lungs and to the entire body, both actions going on at the same time.

The system of tubes which carry blood *from* the heart are called arteries and those which return the blood *to* the heart are called veins. There is but one main tube carrying the blood from the heart to the lungs. This tube divides and sub-divides many times until the branches are smaller than the finest hairs. These small tubes are called capillaries. The capillaries form a net-work around air-cells which terminate in other little tubes which are branches of the windpipe. The oxygen of the air is taken into the blood through the walls of these air sacs and through the walls of the capillaries, and carbonic acid gas is given off from the blood to the air. In this way the blood is purified.

After the blood is purified in the lungs it passes on in the capillaries which gradually enlarge to become veins. These veins unite until they form four main tubes which convey the blood to the heart. The purified blood is sent to the whole system through one main artery which divides and sub-divides and sends off many branches until they finally terminate in capillaries. Here the nourishing part of the blood passes through the walls of the capillaries and builds up the body. That which goes on receives in the capillaries certain materials which are produced by the tearing down of the old tissue of the body, thus rendering it impure. These capillaries end in veins which gradually unite until they form but two main tubes. These empty their

contents into the heart, and the round of circulation is complete.

The capillaries are so numerous that a needle can scarcely be pushed anywhere into the body without striking one or more of them. If the web of a frog's foot be placed under the microscope the blood may be seen circulating through the capillaries forming a wonderful and beautiful sight.

The heart sends the blood through the arteries by a series of contractions or pulsations. This produces a wave-like motion in the arteries which can be felt in various places where these vessels come near the surface, as in the wrist. This motion is known as the "pulse." The pulse then beats at the same time the heart does, and is taken as a measure of the heart's action. In the adult the average rate is about seventy times per minute. At birth it is 130 to 140 per minute. It varies greatly under different diseased conditions.

THE BLOOD.

The adult human body contains about ten quarts of blood, or a quantity equal in weight to one-eighth of the body. When first drawn from the body blood consists of a clear transparent liquid in which float immense numbers of little bodies called corpuscles, or blood-cells, too small to be seen except by a high magnifier, and so numerous as to give color to the blood, and make it appear to the naked eye as a red liquid.

In ten minutes or more after blood has been drawn from the body it undergoes a peculiar change

called coagulation, or clotting, and becomes thick and jelly-like. Blood flowing from a wound clots around the opening, and if the injured vessel is not of great size the bleeding is arrested by the clotted blood. If it were not for this, a man might bleed to death from a very slight wound. It is a well-known fact that soldiers on the battle-field seldom bleed to death from bullet wounds. There are two reasons for this, first, coagulation takes place more readily where the blood flows over a ragged surface, and second, bullets are very apt to push the yielding artery or vein to one side instead of cutting through it, hence harge blood-vessels are seldom severed.

The blood is the store-house from which all the material which goes to build up the body is drawn. It is important that the blood be pure, that is, that it contains no materials which will destroy or in any way affect any of the tissues of the body. It can not be pure when the natural modes of relieving it of the waste material are prevented from performing their office, as when we breathe impure air, do not keep the skin clean, or allow the excreted material to remain in the bowels

THE LYMPHATICS.

As an aid to the circulatory organs there are an immense number of very fine tubes throughout the body and connecting by two main channels with the veins. These are called lymphatics. The main object of these vessels seem to be to take up the surplus nutritive material which has passed

through the walls of the blood-vessels and return it to the veins. A part of them in the intestine are engaged in collecting the products of digestion and carrying them to the veins. These are called lacteals. The lymphatics throughout the body also absorb and remove parts which are no longer of any use. Thus the roots of the temporary teeth are removed to make room for the permanent teeth. Tumors and other diseased enlargements are often removed in this way. Medicines stimulate these vessels to a greater activity and thus often cause tumors to "scatter," as we say.

Absorption in the body takes place in two ways, by the veins, and by the lymphatics. Medicines and poisons rubbed on the skin thus produce their peculiar effects, and the waste matter thrown out through the skin may be again absorbed if not removed.

THE ORGANS OF RESPIRATION.

The blood must get rid of the waste material which is torn down throughout the body in the process of living, for life is nothing more than a constant death of the tissues and a constant renewal of the same. One of the ways by which the waste matter is thrown out is by the lungs. The blood is also a carrier of oxygen to the tissues, the oxygen being necessary to this tearing down and building up process. The blood gets its oxygen from the air through the lungs.

There are two distinct lungs, the right and left, connected by the bronchial tubes, which are divisions of the trachea, or windpipe. The heart lies

between the lungs and is almost completely covered by them. The lungs fill nearly the entire cavity of the chest. They project a little above the first rib and collar-bone into the neck. The lower part rests upon the diaphragm, or midriff, which is a muscular partition stretched across the interior of the body, separating the chest from the abdomen. The substance of the lungs is very light, floating readily in water. In animals they are often called, for this reason, the lights.

The lungs are made up, (1) of numerous branches of the bronchial tubes, each terminating in a little air sac, (2) the divisions and sub-divisions and terminations of the arteries and veins before described, (3) nerves, (4) lymphatic vessels, and (5) lastly, the various parts are held together by fibrous tissue.

The windpipe is a tube about four and one-half inches in length extending from the upper part of the neck to the lungs. It is composed of rings of cartilage covered and connected together by a membrane. The windpipe divides below into two main branches, one going to each lung, and called bronchial tubes. These again divide many times like the branches of a tree, and finally terminate in air-cells.

The upper part of the windpipe is modified to form a kind of musical instrument, the larynx, or voice-box. It lies close beneath the skin of the neck, can easily be felt in all persons, and in lean persons and especially in men, may be seen as a prominent lump, known as "Adam's apple." It is composed of nine pieces of cartilage, and stretched

across its interior are two fibrous bands, called vocal cords. These bands are made more or less tense by the action of muscles, and when the current of air from the lungs is driven over them through the larynx, their vibration, together with the vibrations of the larynx itself and the reflections caused by the parts of the throat and mouth, produce the various tones of the voice.

The larynx opens into the pharynx and is covered when air is not passing through with the epiglottis, which was described in connection with the organs of digestion.

The air is drawn into the lungs by the elevation of the ribs and the depression of the diaphragm acting together to enlarge the capacity of the chest. This is called inspiration. The air is forced out of the lungs by the opposite movements, that is, depression of the ribs and elevation of the diaphragm lessening the capacity of the chest. This is called expiration. There is always a large portion of air which can not be moved by the most forcible expiration. The amount moved at each respiration is comparatively small. The air taken each time mingles with that already there, thus keeping it about the same in temperature and quality. The air can not be removed entirely from the lungs after breathing has once begun. Even if the lungs be cut up in little pieces after death they will float in water. This fact is taken as evidence that a child has been born alive and has breathed, since there is no air in the lungs before birth.

The lungs take in air. The air is composed of

oxygen and nitrogen, two invisible gases, simply mixed in the proportion of one of oxygen to four of nitrogen. The nitrogen has no effect. A portion of the oxygen at each inspiration passes through the walls of the air-cells of the lungs and through the walls of the blood-vessels and is thus carried to all parts of the body by the blood current. We do not know exactly what becomes of all the oxygen thus taken in, but we know that a gas is given out by the lungs called carbonic acid gas, and that this gas is a combination of oxygen and carbon. We know also that a great part of the material of the body is carbon, and that when carbon unites with oxygen, carbonic acid gas is the result. Hence we infer that either directly or indirectly the oxygen is concerned in producing the carbonic acid which is given off by the lungs, and that this is one way nature has of disposing of the materials of the body after they have served their purpose. Since the lungs are so largely concerned in throwing off waste material, it is then of special importance that their action be not disturbed in any way. More people die of some form of lung disease than from any other single cause, and the reason is that people generally do not take the proper care to breathe pure air, to avoid drafts, to exercise so that the muscles of respiration are brought into activity, or to give free motion to the chest in breathing.

THE SKIN, HAIR AND NAILS.

The skin is composed of two principal layers. The outer layer, called the epidermis, cuticle, or

"scarf skin," is very thin, except where pressure is frequently applied, as in the palms of hands and soles of feet. It is nearly transparent and is not sensitive, having no nerves nor blood-vessels. It protects the body and prevents too rapid evaporation. A blister is simply a raised part of the cuticle caused by the watery portion of the blood collecting beneath it. This layer is constantly being thrown off in the form of minute scales and constantly being renewed from the true skin beneath.

The second layer is called the derma, or true skin. It is tough and elastic and consists of a network of films, some of them muscular, intermingled with minute blood-vessels, nerves, lymphatics, some fat, with oil glands and sweat glands.

The oil glands are most numerous about the head and face. The oil they secrete keeps the skin pliable and prevents the hair from becoming harsh. A healthy person never needs to put oil on the hair. An insufficient quantity of this oily matter causes chapped hands and lips and makes the hair harsh. A healthy person ought to be able to make a grease spot on white paper with the fingers any time except for a few minutes after washing the hands. The use of soap is to dissolve this oil and thus release the dirt which it holds.

The sweat glands are very numerous in nearly all parts of the skin. They consist of minute tubes which are coiled up and terminate on the surface in the openings called pores. In the palm of the hand as many as 3,528 pores have been counted to the square inch. It is estimated that over the entire

body there are as many as two and one-half million sweat glands and that these little tubes if extended and placed end to end would reach to the distance of two and one-third miles.

The sweat glands are constantly pouring out a fluid which usually evaporates as fast as it appears. But when the heat is great, or exercise increases the circulation, the water appears in drops. In the first case we call it insensible perspiration, in the second, sensible perspiration, or sweating. This fluid is mainly water, yet contains certain waste materials of the body. Thus it is seen that the skin aids the body in purifying the blood. If the body be covered over with a coat of varnish, death ensues speedily. At the coronation of Pope Leo X a little boy was covered completely with gold foil to represent a cherub. The boy died in a few hours.

The hair is composed of the same substance as the cuticle of the skin. The root of the hair consists of a bulb-like enlargement lodged in a sac, called a hair follicle. Many of these hair follicles extend beneath the true skin. Hair grows from these follicles and unless they are destroyed hair grows again after it is pulled out.

Hair is developed previous to birth, but the first hairs are shed like the first teeth, and new ones take their places. This shedding usually occurs from two to six months after birth. Hair grows from the bottom and pushes itself out from the skin. It grows faster in summer than in winter, and faster the oftener it is cut.

The condition of the hair is an index of the activity of the skin. If the hair is soft and shining, it indicates that the skin is full of blood and in a healthy condition. There are a few well authenticated instances of hair turning gray in a few hours from fright or emotion. The cause is not known.

The hair serves important uses. That on the head protects the surface from cold and shields from the rays of the sun. The fine hairs on the body lessen friction, and in some degree keep in the heat of the body. The eyebrows prevent the perspiration from running into the eyes. The eyelashes keep dust out of the eyes, and the mustache protects the lungs from dust and modifies the cold of the air inhaled.

The nails protect the extremities of the fingers and aid in picking up small objects. They grow from the root and if not cut would attain a length of two inches.

THE NERVOUS SYSTEM.

All the activities of the body as digestion, circulation, respiration, locomotion, reproduction, etc., are originated and controlled by a set of organs called the nervous system. It consists of the brain, spinal cord, ganglia and nerves.

The brain is a large mass of white and grayish matter contained in the cavity of the skull. It weighs on an average forty-nine and one-half ounces. The largest human brain ever examined weighed seventy and one-half ounces. The man was an imbecile from birth. The next largest

weighed sixty-seven ounces. It was that of a bricklayer of ordinary intelligence who could not read or write. The third largest was that of Cuvier, the great French naturalist. His brain weighed sixty-four and one-third ounces nearly. Idiots brains frequently weigh but little over twenty ounces. The smallest ever examined was that of an idiot boy twelve years old, whose brain weighed but eight and one-half ounces. The size of the brain as a general rule, measures intellectual power, but there are some remarkable exceptions.

The brain is composed of four parts, the largest about seven-eighths of the whole, is called the cerebrum, the next in size the cerebellum. The other parts are small, one called the pons varolii, the other the medulla oblongata. The cerebrum is again divided partly by a fissure into two halves or hemispheres. The surface is in deep folds or wrinkles. The folds are more numerous and deeper in men of great intellectual power. The cerebrum is the seat of consciousness and will power.

The cerebellum is behind and below the cerebrum. Its surface is also in folds that resemble plates lying very close together. It has something to do with the power of balancing the body, and co-ordinating the muscles of locomotion.

The medulla oblongata is the lowest part of the brain. It is the center which controls the action of the heart, respiration and other vital actions. If this part of the brain be injured to any considerable extent death immediately follows.

The pons varolii is mainly the connecting link

between the other parts of the brain. Our knowledge of the uses of many parts of the brain is yet very unsatisfactory.

The spinal cord, or spinal marrow, is a long cylinder of nervous matter extending from the head to near the lower part of the spinal column and within its cavity. It seems to be a continuation of the brain downward. It gives off numerous nerves which are distributed to the walls of the body and to the limbs. Its use is to conduct nervous impressions from the brain to the various parts of the body. It is also a center of various motions we call reflex. Reflex action will be explained hereafter.

The nerves are whitish cords consisting of many fine fibers which branch off from the brain and spinal cord, and from ganglia and penetrate every part of the body except the hair, nails and cuticle. They are to the brain, spinal cord and ganglia what wires are to a galvanic battery, conveying nerve force to different parts of the body.

The ganglia are knots of nervous matter situated in the course of the nerves mainly in the head and along the spinal column. They act as small batteries, or nerve centers.

We will understand the nervous system better when we describe it as consisting of two kinds of matter, namely, gray or cellular, and white or fibrous. The gray matter is situated on the outside part of the brain, along the center of the spinal cord and in the ganglia, and everywhere acts as centers of nerve force. The white matter is situ-

ated in the central part of the brain, the outside part of the spinal cord, and composes the whole of the nerves. It acts as a carrier of nerve force to and from the nerve centers.

Now, all the nerves and nerve centers of the body are connected together. This will explain why an affection of one part often produces a result in a part at a distance from it. Thus a disturbance in the womb or genital organs of the female may cause nausea at the stomach, may affect breathing, cause headache and various other symptoms in remote parts. The reader must bear in mind this intimate connection of all the parts of the body by means of the nervous system.

Reflex action needs a word of explanation. When you touch your hand to a hot stove you immediately draw it away, even against your will. In this case we say an impulse, or impression is conveyed along a nerve fiber to a nerve center and there it is changed to a different kind of impulse which travels back to the muscles of the part touched, and causes them to contract and move the limb away from the danger. Experiments on animals prove that in many cases these impulses travel along the spinal nerve and enter the back part of the spinal cord, while the impulse which causes the part to move leaves the cord at the front part but travels along the same nerve. The branches of the spinal cord have two roots, and if the posterior one be cut the parts to which that nerve is distributed lose sensation. If the anterior root be cut the parts lose the power of motion. If both roots be cut, or

if the nerve itself be cut beyond where the roots join, both sensation and motion will be destroyed.

This is a wise arrangement. If it were not for this we would frequently burn our bodies, or get injured in various ways. Nearly all the actions of the body are reflex, that is they are, or may be carried on independent of the will.

I have here given only a few of the general facts concerning the nervous system. To explain fully would take a volume. It will be necessary to mention many more facts but they will best appear in connection with the discussion of parts yet to be described.

THE EYE.

Certain nerves of the body are endowed with peculiar properties. If we prick the skin with a pin, or apply great heat or cold we feel a sensation which we describe as pain. This may be called common or general sensation. But when the light falls upon the terminations of the nerve which goes to the eye, we feel no pain, but are conscious of a sensation called light or vision. When vibrations of the air or other bodies reach the auditory nerve in the internal ear, we are conscious of a sensation we call sound. A certain nerve in the nose perceives a sensation we call smell, and one in the tongue, taste. The terminations of the nerves in the ends of the fingers give us a peculiar sensation we call touch, or feeling. Thus we have what are often called the *five senses*, or the special sense organs. It is by means of these we may acquire knowledge, or in other words, these are the inlets

to the mind, the organs by means of which the mind puts itself in relation with the external world.

The eye is the most important of the organs of special sense. The human eye is a closed globular chamber, in the back part of which a picture of the objects we look at is formed. The optic nerve spreads out on the back part of the eye and terminates in a great many little bodies called, from their shape, *rods and cones*. These are, in some way, specially concerned in transmitting to the brain the sensation of vision.

I will now describe briefly the special parts of the eye. The eyeball is well protected in a socket of bone and cushioned around with fat. It has six muscles attached to it, which give it the different motions. The front part is covered with an exceedingly thin and transparent membrane which is reflected and covers the inner side of the eyelids also. It is this membrane which is inflamed in sore eyes. It is full of nerves and is very sensitive. The white part of the eye is the sclerotic coat. It extends over all the eyeball except the colored part in front. This colored part is covered first with the cornea, a thin, transparent shell, which fits to the white of the eye like a watch crystal. Just inside the cornea is a thin, watery fluid and floating in it is a circular curtain with a circular opening in the center of it. This curtain is called the iris, and the opening, the pupil. The iris is what gives color to the eye, in some persons blue, in others black, etc.

The iris has the power of expanding and con-

tracting according to the amount of light, thus making the pupil large or small. When the light is very bright, the pupil gets smaller, and when the light is less the pupil gets larger. If you stand before a mirror, and shade the eye with the hand, you can see the pupil enlarge and grow smaller as you diminish or increase the amount of light.

Just back of the iris is a dense transparent body in the shape of a magnifying lens, and behind that, filling up the greater part of the cavity, is a substance of the appearance and consistence of the white of an egg. All the transparent parts of the eye act together as a lens to converge the rays of light upon the back part of the eye where the picture is formed. The place of the picture depends upon the distance of the object, or the shape of the transparent parts of the eye. Now, since we can not change the position of the objects at will, it is necessary to change the shape of the parts of the eye. This change is made in an instant, and is called by physiologists, *accommodation*. This accommodation is brought about by muscular action. Now for the practical application. Do not keep the eyes fixed long at a time upon one object, as in reading or sewing. The eyes are rested by frequently glancing at objects at different distances. Women often injure their eyes by too long and close application to needle-work.

The tears we see in weeping are only an excessive amount of a watery fluid which is secreted by a gland above the eye, and constantly flows over the eyeball, distributed evenly by the frequent wink-

ing of the lids. The fluid then flows to the inner corner of the eye and escapes through a tube into the nose where it is mostly evaporated. When the fluid is excessive, it runs over the lids upon the face, and we say we "shed tears." Shedding tears gives relief to the nervous system. Powerful emotions which do not result in tears are more injurious physically than when tears are freely shed. It is wrong to make children quit crying by threats or punishment. Crying is nature's method of relieving the tension of the nervous system.

THE EAR.

Next in importance to the eye is the ear. For convenience of description the ear is divided into three parts, the external, middle and internal ear. The external ear needs no description. It is the part we see. The middle ear, also called the tympanum, or "drum of the ear," is an irregular cavity in the bone. It is separated from the tube leading in from the external ear by a membrane which is stretched across like the parchment of the head of a drum. This membrane communicates with the internal ear by three minute bones, which form a chain across the cavity. The tympanum communicates with the pharynx or throat by means of a channel called the Eustachian tube. This is to admit air to the chamber, otherwise the pressure of the air on the outside would force the membrane in. When we have a bad cold this tube is sometimes swollen and partially closed, causing temporary, partial deafness.

The internal ear is called the labyrinth, because of its intricate winding. I will not attempt a description of it here. Suffice it to say that it is a very irregular cavity in the solid bone, and contains a watery fluid with a membranous sac, which also contains a fluid. In this fluid and upon the sac the nerve of hearing terminates.

In connection with the terminations of the nerve there are about 8,000 minute rods of different lengths. The vibrations of these rods are supposed to enable us to determine the pitch and quality of sounds.

The process of hearing is about as follows: When bodies are set in vibration they communicate that vibration to the air in form of waves, called sound waves. These waves enter the ear and striking the drum-head set it in vibration. This being attached to the chain of bones sets them in motion. The bones communicating with the membrane of the labyrinth, the fluids there are set in motion and this is communicated to the auditory nerve which conveys the sensation to the brain.

Although air is usually concerned in producing sound, it is not essential. A person without the ear-drum can hear provided the internal ear and nerve is not injured, but he can hear only when the vibrating body is placed against his head, or by the use of an instrument which receives the air vibrations and communicates them to the bones of the head through the teeth.

The drum of the ear may be ruptured by very loud sounds, as the firing of cannon. The danger

is less if one is aware before hand that the noise is to be made. It may be ruptured also by striking the hand down forcibly upon the ear, thus driving a current of air upon the drum. Children's ears should never be "boxed." The ears should be protected against the extreme cold winds of the winter. Infants ears are often injured by the beating of drums or by other very loud noises.

SMELL, TASTE AND TOUCH.

The inner surface of the nose is lined with a mucous membrane, in which are spread the divisions of the olfactory, or nerve of smell. The sense of smell is very acute in some persons, as it is in many animals. Substances to affect the nerve of smell must be in a gaseous state. Those odors which are injurious are generally very disagreeable. Hence the nose is a sentinel to warn us of danger.

The tongue and back part of the mouth receive the divisions of two nerves which have the special sense of taste. The sense of taste is frequently confounded with that of smell and touch. We suppose we taste an onion, but in reality the greater part of the sensation is smell. If we do not see the onion and close the nose before putting it in the mouth, we can scarcely tell an onion from an apple. One substance may obscure the taste of another of a less decided taste. The sense of taste may be impared by taking substances very hot, or very cold, in the mouth. Too great use of condiments as salt, pepper, mustard, etc., also impairs the taste.

The sense of touch is not so clearly defined as the other senses. It resides particularly in the skin of the inside of the ends of the fingers, but all parts of the skin are to some extent capable of distinguishing the texture and form of objects. The nerves of the skin everywhere are, however, especially capable of giving sensations of pain, or uneasiness and of temperature.

When one sense is lost, the others usually become more acute, probably because the person is compelled to use the others more. All the senses are capable of much cultivation.

PECULIAR ORGANS OF THE BODY.

There are several organs concerning the use of which physiologists are still almost wholly in ignorance. A brief notice of these organs may be of interest to the reader. The *spleen* (called the *milt* in animals) is a long, flat body situated near the left extremity of the stomach. It resembles the liver somewhat in color and appearance, but does not secrete any fluid. It contains numerous blood-vessels and is always found to be a little larger after digestion of food. One of its uses seems to be that of a kind of reservoir for the surplus blood which is made by the digestion of a meal. We infer this from the fact that it contains more blood after the digestion of a meal. Yet if this be its use, the loss of it is in some way made up by other organs in case the spleen is removed. This has been done in animals and in man, and yet the actions of the body seem to go on as usual. It is a peculiar fact

in regard to the spleen that in intermittent fever, or ague, it sometimes becomes much enlarged, constituting what is known as "ague-cake." The ancients thought the spleen was the seat of anger, hence the expression, "to vent his spleen."

The *supra-renal capsules* are small glandular bodies situated one just above each kidney. They are somewhat similar to the spleen in structure, and their use is not known.

The *thyroid gland* is another peculiar organ. It is a small mass located just in front of the windpipe and on either side of it, in the neck. In structure it has some resemblance to the spleen. In the disease, or deformity known as goitre, big-neck, or Derbyshire neck, this body becomes enlarged, sometimes reaching the size of a person's head. There is no pain or uneasiness connected with it, and unless it grows so large as to interfere with breathing by its pressure, it seems to do no harm. The disease seems to be peculiar to certain regions of the world, mostly the valleys of mountain regions. It is more common in women than in men and in children than in adults. It is said that the people in those regions where it prevails regard the enlarged neck as a mark of beauty and are rather proud of the deformity. The cause of the disease is not definitely known, and it seems to be incurable.

The *thymus gland* is another peculiar body similar to the thyroid and located just above the heart. It is found in full size only in children under two

years of age. In the adult it has almost or quite disappeared.

THE REPRODUCTIVE SYSTEM.

It is one of the peculiarities of all animal and vegetable life that the species or kinds have the power to reproduce and perpetuate themselves. In all the higher forms of life this is brought about by the agency of sexes, or in other words by the union of germs from male and female individuals. The subject of reproduction is not discussed in works for ordinary schools, and the majority of parents have a delicacy about teaching their children a knowledge of this most important branch of physiology. While it would not be proper to teach such subjects to youth in schools, every boy and girl ought to have some knowledge of their own organs.

It should be the duty of girls to read such books as will enlighten them upon such subjects, and of mothers to teach their daughters what they themselves have learned by experience and by reading. Girls should receive this knowledge from books or their mothers rather than from bad companions. Says Dr. Beard: "The desire for sexual intercourse is the most powerful passion of human nature, for the reason that it is indispensable to the perpetuation of the species, and yet children are brought up in blank ignorance of the structure and functions of these organs; they are *compelled* to learn through vile associates and evil communications what they should have been taught at home and under parental guidance."

In the following pages I shall try to describe briefly the male and female organs of reproduction, avoiding obscure and technical terms, on the one hand, and impure or suggestive language on the other.

The principal male organs of reproduction are the penis and the testicles. The latter are two oval glandular bodies contained in the sac, called the scrotum. These glands consist mainly of a bundle of fine tubes which terminate in a receptacle at the root of the penis. These tubes separate from the blood a fluid called semen, or seed fluid, which is the male element of reproduction. This semen is not secreted until the age of puberty, as it is called, which occurs about the fifteenth year.

The penis contains the tube leading from the bladder, and is the outlet of the urine. Under ordinary circumstances, the penis hangs as a soft and flexible organ, but excitements of various kinds, as by friction or contact with one of the opposite sex or amorous thoughts, causes its numerous blood-vessels to fill with blood, which tends to enlarge and erect it. If the excitement be great, a discharge of the semen may occur. All excitements, unless under the proper conditions, which will be noted hereafter, are injurious.

The female organs of reproduction are usually described as external and internal. The external organ is called the vulva. It consists of a slit-like opening, the sides of which are formed by folds of skin and mucous membrane. At the upper part of this slit, between the two lips or folds of skin, is

a small rounded prominence called the clitoris, larger in some females than in others. It somewhat resembles the penis of the male, and like it is capable of erection or enlarging slightly under excitement. Just below and behind the clitoris is the opening of the tube which leads to the bladder and through which the urine is discharged. Just below and behind the opening from the bladder is the opening into the vagina, or passage which leads to the womb. At the lower part of this opening is a membrane called the hymen, which partly closes the opening. This is not always present. In former times it was thought to be always present and that it was ruptured in sexual intercourse, hence its presence was considered a test of virginity. In very rare cases it completely closes the opening. The external organs of generation in both male and female are surrounded with hair after the age of puberty.

The internal female organs of reproduction are of more importance in a physiological sense, and demand special description. The first to be described is the vagina. This is a canal or passage leading to the womb. It is situated behind the bladder, and in front of the rectum, or lower part of the bowel. It is about four inches in length and is lined by a mucous membrane which is continuous with the lining of the womb and with the inner lip of the vulva. The lining membrane is in wrinkles, or folds, and secretes a small quantity of mucous fluid, which prevents the sides from

growing together, for they lie in contact in the natural state.

The womb, or as medical men generally call it, the uterus, is the receptacle in which the new being begins its existence and remains until formed. In the virgin the womb is pear-shaped, with the larger part upward, and is about three inches in length, two in breadth and an inch in thickness. Its position is at an angle to the vagina, that is the vagina is extended upward and backward, while the womb is extended upward and forward. The lower part extends into the vagina a little way and may be felt with the finger as a rounded prominence with a slight depression in the center. The cavity is very small in the unimpregnated state, the opening into the vagina being almost if not completely closed.

The womb is held in place by six delicate bands, or folds of the membrane, which lines the cavity of the abdomen and covers the organs in that cavity. The bands are called ligaments. They are extremely liable to become stretched and allow the womb to get out of place, either to fall too low and protrude into the vagina, or to be turned out of its natural position. Jumping, jolting, pressure of materials in the bowels and bladder and various other causes may produce displacement of the womb. (See Chapter XI.)

The ovaries are small organs similar in office to the testicles in the male. They are oval-shaped, about an inch and a half in length and three-quarters of an inch in width. They lie on either side

of the womb in the region of the groin. They consist of a number of little cells containing the female germs, or eggs. From the upper part of the womb are two very small tubes leading one to each ovary. These tubes are called oviducts, or the Fallopian tubes. Their use is to convey the ova, or eggs from the ovary to the womb.

At the age of puberty the ovaries enlarge, the little cells burst and discharge the eggs, which are conveyed from the ovary to the womb. If this female germ, or egg, comes in contact with male germs, immense numbers of which are found in the semen, impregnation, conception, or fecundation, as it is called, takes place. Just where the union of the male and female elements occurs is yet a matter of doubt among physiologists. Should no male elements be present the eggs pass away at intervals of twenty-eight days, each time accompanied by some pain, a greater or less quantity of blood, and more or less disturbance of the system. This process is known as menstruation. The peculiarities and hygiene of menstruation will be fully discussed in another chapter.

THE URINARY ORGANS.

A knowledge of the anatomy and physiology of the parts of the body known as the urinary organs is just as important as a knowledge of any other part of the system. Works on physiology for schools do not treat of them. A brief notice of those parts, therefore, seems appropriate in a work of this kind.

The urinary organs are the *kidneys*, the *ureters*, the *bladder*, and the *urethra*. The kidneys are located one on each side in the lower and back part of the abdominal cavity, opposite what is called "the small of the back." They extend from the hip-bones as high as the eleventh or twelfth rib, the right always a little lower than the left. They are about four inches long, two inches wide and one inch thick, and somewhat the shape of a bean. They are usually surrounded by a considerable quantity of fat. The color is dark red. Careful study with the microscope shows the kidneys to contain an immense number of curiously arranged tubes, terminating in little sacs. Around these tubes and sacs are minute blood-vessels. The urine, or secretion of the kidneys, is filtered out of the blood and is gathered in the tubes which empty into one large tube, which conveys it to the bladder. This tube is called the *ureter*.

The bladder is simply a pear-shaped sac which acts as a reservoir for the urine until it is convenient to discharge it. It lies in front of the womb in the female, and just behind that part of the abdominal wall which is covered with hair in the adult. It is capable of holding about a pint. When greatly distended with urine it presses the womb backward and may cause serious displacement of that organ.

The urethra is the name of the membranous tube which allows the discharge of the urine from the bladder. In the male it is eight or nine inches in length, and terminates at the end of the penis. In

the female it is only about an inch and a half in length, and opens just above the entrance to the vagina, or passage to the womb.

Gravel, or stone in the bladder, is of not unfrequent occurrence. While it is not the intention to discuss the treatment of this affection in this book, it may be well to give the reader some idea of what it is. Sometimes one or more very hard stony masses form from the mineral constituents of the urine, and remain in the bladder until they become of great size, as large as a goose egg in some cases. Sometimes they come away when small with the urine, but usually they must be taken away either through the urethra, or by cutting into the bladder. Only small stones can be removed through the urethra, but a larger one can pass the urethra of the female, as it is more distensible, shorter and straighter than in the male. Gravel is of much more frequent occurrence in men than in women.

PHYSICAL DIFFERENCES BETWEEN MAN AND WOMAN.

Besides the special differences in the sexual organs of man and woman, there are many minor differences in the organization, or make-up, of the body, some of which will here be mentioned. The differences, other than those described, between the sexes in childhood are very slight, but when manhood and womanhood arrive the differences are many and marked.

The principal differences in the skeletons of males and females are to be noticed in the shape and size of the pelvis. In the male the bones are thicker

and stronger and the cavity deeper and narrower. In the female, the bones are lighter and more expanded, the hips being much more prominent. The cavity is much wider and the coccyx, or lowest part of the spinal column more movable. On account of the hips being wider the thigh-bone is inclined more outward in the female.

The chest of the female is less in general capacity, the upper opening larger in proportion to the lower, the breast-bone is shorter and the upper ribs more movable, permitting a greater enlargement of the chest at its upper part. The collar-bone is less curved, and more slender than in the male.

All the bones which give attachment to muscles are, as a rule, smoother, and have less prominent ridges and elevations in the female than in the male. The bones are all usually smaller and the whole skeleton weighs less in the female.

The majority of men are taller and heavier than women. Women are more plump and rounded, the limbs are more tapering. A perfectly formed woman is widest at the hips and tapers both ways. A man is widest at the shoulders, and tapers downward. A woman has naturally a smaller waist than man. Fashion deforms her figure by making it still smaller by means of tight clothing.

A woman's heart is larger in proportion to the size of her body than man's, it being as 1 to 149 in woman and 1 to 169 in man. The lungs, however, are the reverse, being in the proportion of 1 to 37 in man and 1 to 43 in woman.

The muscular fibers in the female are individ-

ually smaller but proportionally more numerous, hence she is capable of less powerful, but longer sustained effort. The strength of the male is to the female as twenty-six to sixteen.

The weight of brain in man is a little greater in proportion to his body than in woman. Woman comes to maturity sooner than man. The skin is thinner and more nearly transparent, the nails are smaller and thinner in woman than in man, the hair of the head is longer and finer, but the other portions of the body are less covered with hair.

Statistics show that there are more male children born alive than females. One hundred and six boys to one hundred girls is about the proportion. A larger proportion, however, of male children die during the first years of their lives, so that there are more women actually living in the world than men. More male than female children are still-born. From the ages of fifteen to forty more women die than men, but not a sufficient number to make the proportion of the sexes equal.

MENTAL AND MORAL PECULIARITIES OF THE SEXES.

Among all ancient nations woman was considered vastly inferior to man in mental capacity, and her position in society differed little from that of a slave. This is the case in all savage and half-civilized communities to-day. Just as people have advanced in civilization, in that ratio has woman advanced in the scale of social life until in enlightened nations to-day she is considered almost if not the equal of man. Previous education of the race,

and the position she has been compelled to occupy so long, has much to do, doubtless, with the fact that to-day the majority of women are intellectually inferior to the majority of men; yet there is no doubt that man enjoys a degree of intellectual superiority based upon his natural organization, and that he will ever continue to stand a little higher in this respect. But while women must admit their intellectual inferiority there is great consolation in the fact that the physical and the intellectual are not the only qualities possessed by human beings. There is a moral element in human nature, and in this respect woman stands preëminent. She is also far in advance of man in her social qualities. Says Dr. Draper: "The physiologist who is obliged to speak of the constitutional and mental imperfections of the female, may be permitted to turn with delight from the dry details of statistics and anatomy to the family and social relations, for it is therein that her beautiful qualities shine forth. At the close of a long life, checkered with pleasures and misfortunes, how often does the aged man with emotion confess that, though all the ephemeral acquaintances and attachments of his career have ended in disappointment and alienation, the wife of his youth is still his friend. In a world from which everything else seems to be passing away, her affection alone is unchanged; true to him in sickness as in health; in misfortune as in prosperity; true in the hour of death. When the schemes that occupied his active years have vanished, or, if realized, are now no more to him than

vanities which hardly fasten his thoughts; when, in the feeble extremity of age, every thought is a burden to him, and the passing excitements of others can not even arouse his attention, the echo of those prayers is still heard which his unskillful tongue first learned at his mother's knee. The stern, the avaricious, the hard-hearted, the intellectual, all are equally brought to confess who was their first and who is their last true friend."

The intellectual and moral qualities of the sexes differ in kind as well as in degree. Woman has less reasoning power than man, but her perceptions and sensations are more acute. Her emotions more often get the better of her judgment. Her tastes in regard to color and form are more accurate, hence her greater desire for dress and adornment. She is more inclined to be religious, her disposition is more trustful, yet when she has been betrayed or deceived she is ever distrustful. She is more apt to go to extremes in everything. When she loves, she loves with more ardor, and when she hates, or is revengeful, her passion is stronger than man's. A woman can be the best and the worst creature in the world.

In the language of another writer, female character is thus portrayed: "Delicacy of feeling, gentleness, softness, mildness, mental as well as physical pliability; a stronger impressibility to external influences; less individuality, easier excitability; but, with all this, a powerful innate endurance, and a much greater sympathy for the pains and sufferings of others than the more selfish male. As she

has less physical strength, she is more timid; but likewise, for the same reason, more modest and chaste. She has a finer sense of the beautiful, and is herself, by nature, more graceful. She is possessed of less violence in passion, but greater depth of feeling; therefore, she is better adapted for the quiet and security of domestic life—the life of the hearth and the heart—than for the outer life of the stormier world. Hers the quiet and gentle virtues, which render others happy, more than the brilliant and heroic deeds which fill the world with admiration. She is adapted more to please than to command—more for the power of the heart than for reason. By all these, she is fitted for those divine virtues—love, faith, hope, and fidelity."

Says Theodore Parker: "I think man will always lead in affairs of intellect, of reason, imagination, understanding,—he has the bigger brain; but that woman will always lead in affairs of emotion, moral, affectional, religious,—she has the better heart, the truer intuition of the right, the lovely, the holy."

An old physician writing for *The Medical World* says: "Man is, by nature, aggressive, woman retiring; man hot, woman cold; man strongly animal, woman refined and æsthetic; the boy delights in fighting, the girl in the quiet of the home. The man has not the love of his kind as strong as the woman. The male of all animals will leave its young, while the female never does so. The woman is quiet, refined, gentle and devoid of heated passions; the male just the reverse. One is actively aggressive the other not so."

Chapter II.

HEALTH IN GENERAL.

INTRODUCTORY.

The object of this chapter is to point out some general, underlying principles of hygiene, or the science of health. More specific directions will be given under the appropriate headings throughout the work.

Much has been written on this subject—much that is sensible and much that is sheer nonsense. A collection of all the advice that has been given by writers on hygiene would be one of the great curiosities of literature. The tendency to carry matters to extremes seems to prevail among the would-be health advisers. Some make a hobby of one thing and some of another. Thus we have had our Grahamites who made a man's physical salvation depend upon the amount of bran he could eat with his bread; and our hydropathists who proposed to wash away all of man's physical sins with cold water; and we have had the maxim "early to bed and early to rise" actually hammered into us as the great promoter of health. Do not understand me, reader, as condemning the use of whole wheat bread, or bathing, or early rising. I mean, simply, that our good health does not depend upon one or two observances but upon the proper understanding and observances of *all* of nature's laws.

Writers also, many of them at least, convey the impression that it is an easy thing to obey the laws of health. They do not give sufficient prominence to the fact that, in many cases our occupations and the necessities of our surroundings compel us to violate many of the laws of our being, and we can only partially avoid the consequences by greater vigilance in observing other laws and requirements. They seem to ignore the fact, too, that we are not apt to follow certain rules unless we at once see the benefits to be derived from their observance. Pain is given us to warn us of injury to our bodies, but it must be remembered that the nerves reveal only their existing state by feelings of pleasure or pain at the moment they are acted upon. Therefore actions which may be pleasurable at the time, may afterwards result in pain and discomfort.

HEALTH DEFINED.

Health is that condition of the body in which all the organs are performing their proper functions, or offices, unobstructed by foreign particles or forces. When one is in a perfect state of health he is not conscious of possessing organs, unless the mind is voluntarily directed to them, that is, when an organ is performing its proper function unobstructed it gives no evidence of its existence in the way of pain or uneasiness. Usually this is a test for health, but there may be exceptions to the rule. There may be poisonous matters in the blood, or a tendency to unnatural growth or unnatural action, often inherited, which may not manifest itself for a

long time, yet continue to undermine the system. There are, perhaps, no human beings in a perfect state of health at least for any great length of time. The causes of disease are manifold and lurk on every side. There may be seeds of poison in the air we breathe, in the water we drink, and in the food we eat. We all inherit to a greater or less degree, some tendency to disease of some kind or other, from parents or grand-parents, or from remote generations. All extremes of heat or cold, too much or too little food, too much exercise or not enough, indulgence in narcotics and stimulants, too frequent exercise of the emotions and passions, are all fruitful causes of disease.

In a state of health there is a just balance between supply and waste. When food is taken into the system it is changed into new substances which are built up into the tissues of our bodies, which are constantly being torn down and cast out as waste matter. This constant change of matter produces animal heat and vital power exhibited in physical and mental force. Every motion is caused by muscular contraction, and every muscular contraction is at the expense of the destruction of some of the substance of the muscle, and every thought and emotion is at the expense of destruction of nerve or brain substance. If the waste material is not removed as fast as formed, it becomes a foreign body and a source of obstruction to vital actions.

THE VALUE OF HEALTH.

Of course, there is no one who does not in a measure at least appreciate good health. But so little attention is paid by some people to its preservation, that one would think they did not know its value. Such is the influence of the body upon the mind that there can be no perfect mental activity unless the body be in a state of good health. Says Rev. G. S. Weaver: "Nothing is clearer than that the most towering genius, the most determined ambition, the most untiring perseverance, must be all unavailing in the struggle for life's great objects without health. Genius may plume her wings for a lofty flight, may revel among her own brilliant creatures, may bathe her plumage in the glittering light of the stars; if young health stand not by her side, to give strength to her pinions, energy and permanency to her young and daring powers, she will be compelled to come down even to the earth, and, like a young eagle struck on his first upward flight by the huntsman's ball, flutter in the dust, a crippled, broken, miserable thing of life in the arms of death."

It is, indeed, your duty to preserve your health as much as to love your neighbor, or to worship your Creator. It is as much a sin to violate wilfully the laws of health as to lie, cheat or steal. A violation of the laws of health will meet with punishment sooner or later.

IMPORTANCE OF CLEANLINESS.

Dirt is matter in the wrong place. It is not easy to keep our persons and surroundings clean. Eternal vigilance is the price of cleanliness, but it pays to keep clean. "Cleanliness is next to godliness." No better text was ever chosen. Mankind have made much improvement in this regard. The Bushman of Africa, the lowest of savages, uses no water on the surface of his body. If he handles an object which soils his fingers to any great extent, he wipes them on his naked arms, sides or breast. Yet these people possess a reasonable degree of health and strength. But the fact that they spend their time in the open air, do not over exercise their bodies, and have no care on their minds, accounts for their comparative freedom from disease, because these conditions make up in great part for the loss occasioned by the violation of the laws of health relating to cleanliness.

In Queen Elizabeth's time the floors, even of the wealthy and refined, were covered with straw, and the bones and other remains of a meal, were thrown under the table. In those days great pestilences frequently swept over the world, destroying people by the thousands. In many of the eastern countries to-day, the majority of the people live in the midst of filth, and when an epidemic breaks out, it makes fearful ravages. In this country, in our day, we take some pains to keep our bodies clean and to remove filth from our surroundings, yet we are far from doing what we ought to do in that line.

We throw slops from the kitchen into the yard, let vegetables and fruits rot in the gutters, pour the refuse of slaughter-houses into rivers and drink the water, allow sewers to open in close proximity to dwellings, and in every village and town our nostrils make us aware of the existence of privy vaults and pig-pens. The variety of smells which greet our olfactory nerves when we enter a city tell us that the air is not wholesome. Asiatic cholera has made several visits to this country with beneficial results—beneficial, because it has compelled the authorities in our cities to enforce measures of cleanliness. This is one of the many diseases that is bred by filth. Could we, everywhere, enforce cleanliness upon the inhabitants, cholera and many other diseases would be exterminated. Water, soap and disinfectants are cheaper than doctors and medicines. "An ounce of prevention is worth a pound of cure."

BATHING.

The worst kind of dirt is the waste matter secreted from our bodies through the skin. It is poisonous if again introduced into the blood, and if not removed it will be absorbed and enter the blood again, or if it is not thrown out but continues to circulate with the blood, the whole system is poisoned and various diseases are the result. Hence the necessity of frequent bathing to remove the excreted matter and to keep the skin soft and the pores open. Bathe then for cleanliness mainly. Other uses of bathing will be mentioned hereafter. But bathing if used too frequently, or at improper times

and with water at improper temperatures, may prove injurious. The effect of a cold bath is to give a shock to the nervous system, and send the blood inward from the surface. In persons of vigorous constitutions this does no apparent harm, if they exercise their limbs and rub the skin briskly, until action comes up, which is known by the agreeable glow of warmth upon the surface. But if the reaction does not follow there is danger. Many patients have been killed by the cold bath. Their nervous systems could not stand the shock.

Bathing in water above the temperature of the body has the effect, first of stimulating the nervous system, but this stimulation is followed by some degree of depression, and a languid and drowsy feeling results, which is not always beneficial. Local hot or cold baths, that is, hot or cold water applied to limited portions of the body, are very useful in many diseased conditions, but are not demanded for the maintenance of health. Water for the bath should be of a temperature a little lower than that of the body itself, a temperature which is always agreeable to the feelings.

For purposes of cleanliness, the entire body should be bathed as often as twice a week in winter and once every day in summer. As to the time of day, I do not think it very material. However, it is not best to bathe immediately before or immediately after a meal.

There may be some women who read this who will say, "I can not follow these instructions, for I have no arrangements for bathing." Yes, you

have all you need. It is not necessary to immerse the body in water in order to take a bath. A half-gallon of water in a washbowl, a cloth or sponge, a good towel and soap are all the materials needed for a thorough bath. Wet the cloth thoroughly and wash the whole surface of the body, using soap, and making repeated applications especially to the parts where the secretions of the skin are greatest, as in the arm-pits. Follow the washing with vigorous rubbing with a coarse towel. This may be useless advice to the majority of my readers, but I know many persons who never bathe. Such persons generally have frequent spells of fever, or other ailments.

CHANGE OF CLOTHING.

The clothing worn next the skin should be changed twice in every twenty-four hours. What an unreasonable demand, you say. I do not mean that your underclothes should be washed as often as changed. Wear one set of under-garments in the daytime, and another at night, and let those which are not worn hang up where the air will strike them freely. The materials which the clothes have absorbed from the body during the twelve hours will nearly all be dissipated during the next twelve hours. If you wear the same underclothes day and night for a week, the body absorbs again the poisonous materials which it throws off. The clothes need not be washed oftener than once a week in winter, perhaps oftener in summer. The nature of the occupation will have something to do

with that, however. Now, do not say that you can not follow my advice here. It will cost you only a little thought and two or three minutes time each day.

Bedclothing should be aired during the day. It is not a good practice to make up the beds in the morning as soon as the occupants have left them. When persons are compelled to live and sleep in the same room, it then becomes necessary. In such cases, two sets of sheets might be used alternating them as you do your underclothing. Where practicable, however, the windows of a bed-room should be thrown open in the morning and the bedclothes turned open, or thrown across chairs.

DANGERS OF RETAINED EXCRETIONS.

A fruitful source of many and various diseases is the retention within the body of the waste material of the bowels, and of the urine. Constipation produces more ailments in women than any other one cause. Let us notice for a moment the philosophy of constipation. Nature requires that the contents of the bowels be discharged about once in every twenty-four hours. This varies somewhat with the peculiarities of organization. There are persons who are entirely healthy and have an operation only once in forty-eight hours, and others who habitually discharge the bowels twice in twenty-four hours. But with the majority of persons in good health there is a call of nature to evacuate the bowels once in twenty-four hours, and this inclination comes usually about the same time of the day, the time varying with different persons.

Let us suppose a person in good health and there is an inclination to move the bowels, say at seven o'clock in the morning. Instead of responding to nature's call, suppose the person, by an effort of the will, suppresses the inclination. It is a fact, that many of the operations of the human system have a tendency to be periodical and regular. If the inclination be suppressed, nature will not make a demand probably until about the same time next day. We know that if we do not eat when the regular meal time comes, our hunger soon leaves us, and we are not hungry again until the hour for the next meal arrives.

Now, what takes place in the system in the meantime? The material in the bowels becomes solid by absorption of a portion of its water, and is forced down from its proper receptacle, the lower part of the colon, into the rectum. Here its pressure partially paralyzes the nerves, and the desire for evacuation is lessened, or may not appear at all until the great pressure of the accumulating material above actually forces a passage. This stretches the membranes and partially impairs their functions, and a habit of constipation is the result.

But this is not all. A great many evils follow indirectly. The actual, direct pressure in the rectum, or lower bowel, which physiology teaches us is simply a passage-way for the waste material and not a store-house for it, tends to displace the womb, which lies just in front of it. The pressure also acts injuriously by affecting the nerves which are connected with the genital organs and the bladder,

in fact with every part of the system, and a multitude of evils result. Again, the material of the bowels is poisonous if introduced into the blood. If it is not removed it will be re-absorbed, and cause a kind of blood-poisoning, which may manifest itself as various fevers, billious attacks, etc. Piles are commonly caused by constipation, either from the direct pressure, or by the absorption of the poison.

Medicines usually in the end increase rather than relieve constipation, because they act by stimulating the bowels to greater activity, which unnatural and unaccustomed actions finally result in greater or less paralysis of the parts. Should a person become constipated, it may be necessary in some cases to take medicine, at first to relieve the bowels, and then keep them open by proper attention to diet, and by proper habits of life. The use of a syringe is perhaps less objectional than medicines, but one can easily form a habit of using a syringe and the bowels will not move without it, just as one can form a habit of taking pills, and the more you take the more you will need to produce the same result.

But here, as elsewhere, the "ounce of prevention is worth the pound of cure." Each person should have a regular time for going to the privy. It matters little what time of day it be, so that it be the same time each day. By persistent effort at regular intervals a habit may be formed so that the desire will take place at about the same time each day. Then you should conscientiously, yes,

religiously answer every call of nature. Here is where the majority of women err. If I were writing a code of laws, or a set of commandments which women especially should obey in order to maintain their health, I should have one of them, "Thou shalt not neglect the calls of nature to discharge the bowels." Do not let the demands of society keep you from this. Fix the time when you form the habit, at such an hour as will be the least liable to interfere with the demands of society.

The remedies for constipation will be discussed in another part of this work. I wish here merely to impress the importance of regular evacuations of the contents of the bowels. The retention of urine beyond proper limits also endangers health. The bladder when full presses upon the womb and may cause displacements of that organ. The continued pressure of the liquid in the bladder also tends to weaken the muscles and ligaments, and causes diseases of the bladder itself.

PURE AIR.

Even the most ignorant recognize the importance of breathing pure air, but many do not know what pure air is. They often mistake cold air for pure air. Air to be breathed should be as free as possible from noxious gases and dust and should contain a certain amount of moisture. Air which has been breathed once is impure, because it contains carbonic acid gas thrown off from the lungs, hence the necessity of a constant supply of fresh air. The carbonic acid gas from the lungs of animals is re-

moved from the atmosphere partly by plants taking it in, and partly by being absorbed by water and soil.

In the effort to secure pure air we are often led into another danger. Few persons recognize the great danger in drafts of cold or cool air. I believe that more injury is caused by improper ventilation, which exposes persons to drafts, than is caused by insufficient ventilation. It is true that the soldiers and hunters and others who live out of doors seldom take colds, although they are exposed to all the winds that blow. But it is entirely different with those who are obliged to spend most of their time indoors. When the body is warm and relaxed, and a person is not exercising their muscles, a draft of air cooler than their bodies causes a sudden lowering of the body temperature, which invariably results in what we call taking cold. There is no danger of taking cold if a person exercises in a draft of air, but there is danger in remaining quiet. I am safe in saying that more persons die in this country from lung diseases, which are more or less directly connected with taking cold, than from any other cause.

But how shall we secure proper ventilation? It is a difficult problem. Our houses are not properly constructed. We can secure fresh air only by opening doors and windows, and this nearly always exposes us to drafts. If possible, the opening should be made near a stove so that the fresh air could be warmed before it circulates through the room. A window may be raised or lowered and the opening

screened with a board, so that the current of air will be directed upward and not directly inward, so as to strike the occupants. Especial care should be taken in ventilating bed-rooms to prevent direct drafts upon the bed. It is needless to say that a bed-room should have some opening to admit a constant supply of fresh air and an exit of foul air. As a rule there should be two openings, one near the bottom and one near the top of a room, to secure sufficient circulation of the air. Never try to keep warm in bed by closing the room tightly. Better have a little fire, or use more covering.

Our American women spend too much of their time indoors. More outdoor exercise and recreation ought to be taken. While I do not believe in women taking long walks, or working in the fields, or exposing themselves to extremes of temperature, I do think that if our women would walk out oftener and spend more time in the open air, they would suffer much less. A short walk might be taken every day if the weather is not too severe. The body should be properly protected from dampness and cold by good clothing, of course, and this brings me to speak of

CLOTHING AND SHELTER.

The material for clothing should depend upon the season and climate. Woolen goods are necessary for winter in our latitude. Linen has the greatest conducting power, and is therefore the coolest. Linen underwear is often uncomfortable after being saturated with perspiration, because of

its rapid dispersion of the heat of the body. Cotton is probably the best for summer wear.

The feet, the chest and the abdomen need more protection than any other parts of the body. Leather is the best protection for the feet. It adapts itself to the form of the foot and does not readily absorb water, and to some extent absorbs the excretions from the feet. India rubber is objectionable for constant wear because, while it excludes external moisture, it retains all the perspiration of the feet. Rubber shoes and boots are, however, essential in damp weather. They should never be worn in dry weather nor in the house, nor long at a time. Stockings should be well aired and dried at night. Cork insoles are good, especially for those whose feet perspire readily. They should be taken out of the shoes at night and well dried. Thick-soled shoes, while they keep out dampness better, are very tiresome to the feet, and having less elasticity wear out faster than thin ones.

So much has been said against wearing tight clothes that it will be useless to say anything here. Tight shoes produce corns. This is generally believed, but it is not so generally known that shoes too loose will produce the same result. A shoe should fit the foot neatly, not cramp it, nor be so loose that it will rub. Corsets are almost universally condemned by hygienic writers and almost universally worn by women. I shall not condemn them. Corsets are good things if properly made and worn. So long as there is no compression of any part of the body there can be no possible harm

in wearing a corset. But a corset to be beneficial and not injurious should be made to fit the form exactly, and should be laced with *elastic strings*, not too tightly. Rubber cord of the proper size may be had in dry goods stores. Remember, it is not the corset itself, but the tight lacing of one with inelastic cords which injures the female body. Don't be so foolish as to compress your body with any such instrument of torture, no matter what fashion may say. It is, however, no longer fashionable except among fools.

Woolen blankets or coverings of fur or feathers are better to sleep under, because we can get more warmth with less weight than with cotton bedclothes. Sleeping upon feathers is not a good practice, except it may be in extremely cold weather, and then it is best to sleep upon a straw or shuck mattress and have the feather tick over you. Sleeping between feather ticks is an extreme. The system is debilitated by the great heat. A woven wire or spiral spring bed with a shuck mattress, or a straw tick upon it, is the best kind of bed.

One should avoid getting chilled at any time. The cold which pinches our fingers and faces does not injure unless it be severe enough to freeze the parts, but a general chilling of the whole body is always injurious. A person may become chilled even in mild weather by sitting still in a draft or in a damp room. A little fire in the room on cool, damp days, even during the warmest months of our summer, is not out of place. When engaged in reading, sewing or some other sedentary occu-

pation, one may become chilled without knowing it until too late. The judgment and not the feelings should be a guide in this matter.

Children and old and feeble persons require more clothing than adults of stouter build, and women, as a rule, require more clothing than men. Persons who spend much time indoors must wear heavier clothes when out than those who are much accustomed to an outdoor life. Exposure to cold, damp winds without sufficient protection is the cause of many diseases.

SUNSHINE.

The sun is a great invigorator. Animals as well as plants grow pale and sickly in the dark. It is true that the sun is a tanner by trade and that to persons unaccustomed to being much in the sunshine his direct rays are almost unendurable at times. But those who fall from "sunstroke," as it is called, are generally those who have violated the plainest laws of health with regard to eating and drinking, or, in other respects, have not taken care of themselves.

The sun may fade the carpet if let into the house, but it puts new color into the cheeks of the inmates. Shade trees in great numbers and too close to a house are not healthful. The ground is kept damp and the direct rays of the sun can not purify the surroundings and vivify the inhabitants. Children should be allowed to play in the sunshine as much as they desire. What if the sun does tan them, or produce freckles, so long as they are in good health?

Many chronic diseases are greatly benefited by exposing the patients frequently to the direct rays of the sun.

EXERCISE AND REST.

By exercise I do not mean swinging a war-club, climbing ropes, or going through a prescribed number of motions of the limbs, generally known as gymnastics. Neither do I mean simply work, nor walking, nor riding, nor any one kind of bodily activity. Exercise, in fact, does not mean simply activity of the body, but of the mind as well. All activity of the body or mind is exercise. Except when sound asleep we are always exercising some of the voluntary parts of the body, and during sleep the involuntary acts of respiration, circulation and digestion go on. When we are sitting or standing still, we are exercising, because it requires action of certain muscles to maintain the upright position.

Rest is not necessarily cessation of activity of the entire body and mind. We may rest one set of organs while exercising another. The human organization can endure a wonderful amount of work provided no one part is kept at work too long at a time. The heart makes seventy contractions per minute and may keep it up a hundred years, yet the heart is not worn out, because it rests as much as it works, for between every contraction there is a pause as long as the contraction.

Over-exercise is injurious, so is over-rest. One is as bad as the other. Too much exercise exhausts vital power, too much rest degenerates the tissues, because a certain amount of activity con-

stitutes the life of the body. The majority of persons, men and women, overwork themselves at times. It is a great mistake to expect to accomplish much in life by long and close application to one kind of work. A frequent change of work, or a frequent relaxation from work entirely is necessary for health and long life. Our mistake is in exercising too long at a time and resting too long at a time. Women are more injudicious in this respect than men. A woman has a big washing to do. She invariably does it all in one day, if she does it at all, no matter how large it is, or how feeble she may be. Women stand on their feet for hours, washing dishes, or paring fruit, or other work which they could as well do sitting down.

Exercise should be adapted to the wants of the constitution. I can not put this point in a better way than does Dr. Jarvis. He says: "The same quantity of exercise is not necessary for the health of all men and women, nor are all able to endure the same amount of labor. It must be measured out according to the constitution, the strength and the habits of various persons. What is necessary for one may exhaust the other The quantity of action should be determined, not by any previously established theory, but by its results in each case—by its effects upon each individual."

To be most beneficial, exercise should stop short of great fatigue. Slight weariness may not be injurious. There is a tired yet comfortable kind of feeling which one has after the proper amount of exercise. The labor which results in pain in any

part of the body, is injurious to that part. Let pains and aches be our warnings and guides.

Only very gentle exercise should be taken immediately before and after eating. The powers of the system are needed in digestion, and severe exercise at this time is more exhaustive and interferes with digestion.

What are the best kinds of exercise for women? I would answer, any kind, almost, that is not severe, nor calculated to in any way put a strain upon any special organ. Women as a rule suffer more from violent and unusual exercise than men. They need to be extremely cautious. They are generally more ambitious and will undertake to lift things and perform labors which might tax the powers of strong men. How often do we see women lifting tubs of water upon benches, wash-boilers full of water from the stove, or articles of furniture in the room, just because they are too proud or too foolish to call in the assistance of another.

Dancing and roller skating are not, as a rule, good exercises for women. There is too much danger of jolting the body in such a way as to cause displacement of the womb, or injury to some other delicate parts. Besides, these exercises are usually carried on at late hours of the night and amidst the dust and heat of closed rooms. Riding on horseback is generally healthful for women, but there is the danger of falls and jolting. Walking brings into exercise many muscles and is beneficial if not carried to excess.

GYMNASTICS FOR WOMEN.

By gymnastics is generally meant a series of bodily exercises carried out according to prescribed rules. The term is from a Greek word which means naked, because physical exercises were performed among the Greeks with the body wholly or partially stripped. This mode of exercising has many advantages, but is also attended with evil results, unless great caution is used. Many of the prescribed movements and performances exercise certain muscles too violently. Instead of procuring a book of instructions and a set of gymnastic apparatus, I would advise young women to lay out a plan, or rather resolve to keep up with some degree of regularity a series of exercises devised by themselves, modeled somewhat after the suggestions here given.

Few women have sufficient lung capacity. The chest may be increased in size, and the breathing capacity increased by pursuing a course somewhat as follows: Stand erect, throw the shoulders well back and inhale very slowly through the nostrils until the lungs are well filled with air, then exhale slowly until they are as near empty as it is possible to make them. Repeat this not more than four times in succession and at two different times each day. After each breathing exercise make a number of motions of the arms, throwing them back as far as possible, reaching upward, thrusting them forward and backward, shrugging the shoulders with the elbows raised, etc. These motions not

only strengthen the muscles of respiration but tend to develop the muscles of the arm and shoulder.

Exercise the lower limbs by standing first on one foot then on the other for a moment, changing five or six times in succession; bend each knee alternately until the leg almost touches the back of the thigh; stand firmly on the two feet and wriggle the body from side to side so as to bend the knee and hip-joints slightly; lie on the back across a bed and bend the lower extremities upon the body and the body on itself; while lying on the back draw up the feet toward the body and bend the leg and thigh outward and inward.

Work the toes and fingers, the hands upon the wrist-joints, the feet upon the ankle, in short, try to bring into action every muscle of the body not exercised by the above described motions.

Now, you must be cautious in all this exercising. Do not move a limb so far in one direction as to produce a straining effect. If the part pains, however slightly, it is evidence that you have exercised it too severely. Be more cautious the next time. Do not repeat any one kind of motion more than six times in succession.

This kind of exercise requires no apparatus and is less apt to be overdone than regular gymnastic exercises. When Indian clubs or dumbbells are used, one can without knowing it produce a strain of the muscle and thus do more harm than good. Pulling on ropes and bars is also more apt to produce straining.

The time when such exercises are to be taken is

important. They should not be taken just before nor just after a full meal. They may be taken just before retiring, or just after rising in the morning, if this does not bring the time too close to supper or breakfast. They should not occur within an hour of a meal time.

These exercises should vary with the occupation. If you have been working at something which would bring the upper extremities into action and not the lower, then omit those not pertaining to the upper extremities, and so on, the rule being to exercise those parts which are not exercised in your ordinary labor.

SLEEP.

The majority of persons do not take enough sleep. Some persons, of course, require more than others, but it is impossible to get too much natural sleep. One gains nothing by stealing the hours nature demands for sleep. He only loses vitality. The hours of darkness are the best for sleep, as they are the poorest for labor of any kind. I do not believe in early rising, if that means getting up before daylight. In the summer time, when our nights are the shortest, one should retire soon after dark and get up whenever she feels sufficiently rested. There is no harm in taking a nap in the daytime, either.

Sound sleep is never attended with dreams. One never sleeps sound when the stomach is full, yet hunger, also, prevents sleep. It is not best, then, to retire too soon after eating a hearty meal.

Never use medicines to produce sleep unless un-

der extreme circumstances of disease, and then a physician should be first consulted. Do not allow business or social affairs to interfere with sleep. We can direct our thoughts into other channels. The best way to go to sleep is to try to recall some pleasing events of the past, or build air-castles for the future, or let the mind wander anywhere outside of your daily care or occupations.

Persons often wake in the night, and are unable to go to sleep again readily. This is frequently due to having been too warmly covered. A good remedy for this is to get up, walk around the room for a few minutes, then go back to bed.

MENTAL STATES.

The body and mind mutually influence each other. Thus, dyspepsia may be brought on by despondency of mind, and dyspepsia produced by other causes will produce despondency of mind. Powerful passions and emotions overwork the nervous system, which thus loses control, to a great degree, of the functions of nutrition. There is then a failure to produce good blood, and this in turn affects the nervous system and consequently the mind.

Disappointments of various kinds, as loss of friends and relatives, failure in business, accidents, etc., may occur in the life of any person. We should try to cultivate a buoyant spirit which will react against these depressing influences. The will may be cultivated so that we may control, in a measure, our emotions and passions.

It is not best, however, to suppress emotions and passions too suddenly. Tears and words are safety-valves which relieve the tension of the nervous system. What I mean is, that one should not brood over misfortunes, but try to cultivate a cheerful spirit.

QUANTITY OF FOOD.

The proper quantity of food necessary for health depends upon a great variety of circumstances. The appetite is not always a sure guide, for it is frequently perverted. Children need more food than adults, in proportion to their size. Men generally need more than women, and large men more than small men. Habit has much to do with it. Persons can accustom themselves to eating large quantities and the system seems to adapt itself to the conditions. On the other hand, persons acquire a habit of abstemiousness and get along with a smaller quantity of food. More food is demanded in cold weather and in cold climates. Persons who use the muscles largely need more food than those engaged in sedentary occupations.

I am not inclined to believe that over eating alone is the cause of much ill health. I think people should eat plenty of good, wholesome food, and pay more attention to other laws of health. One should not be too much afraid of starving, either. When persons are sick, they should not be urged to take food. Their own desires will generally be the best guide.

QUALITY OF FOOD.

Man is an omnivorous animal. Experience and the nature of his digestive organs show this. The experience of vegetarians proves simply and nothing more that man can live on vegetable food alone. It does not prove that animal food is injurious. Vegetable food is more bulky than animal and for this reason it should form a larger part of our food, because the stomach can act better on a large bulk of food than upon a smaller bulk. We feed horses hay and straw along with oats and corn rather than upon grain alone. Animal food being more concentrated we are more apt to eat too much, the appetite in such cases not being a good guide.

The following is the opinion of an eminent authority (*Sir Henry Thompson, in the Nineteenth Century*) on the question of animal and vegetable diet:

"It is a vulgar error to regard meat in any form as necessary to life; if for any it is necessary, it is for the hard-working out-door laborers, and for these a certain proportion is no doubt desirable. Animal flesh is useful, also, as a concentrated form of nutriment, valuable for its portability, and for the small space it occupies in the stomach—unrivaled in certain circumstances. Like every other description of food, it is highly useful in its place, but is by no means necessary for a large proportion of the population. To many it has become partially desirable only by the force of habit and because their digestive organs have thus been

trained to deal with it, and at first resent a change. But this being gradually made, adaptation takes place, and the individual who has consumed two or three meat meals daily with some little discomfort, chiefly from being often indisposed to make active exertions, becomes, after sufficient time has elapsed, stronger, lighter and happier, as well as better tempered and manifestly healthier, on the more delicate dietary sketched. People in general have very inadequate ideas of the great power of habit alone in forming what they believe to be innate personal peculiarities, or in creating conditions which are apparently part of a constitutional necessity, laws of their nature, and essential to their existence. Many of these peculiarities are solely due to habit, that is, to long continuance in a routine of action, adopted it may be without motive or design; and people are apt to forget that if a routine of precisely opposite character had been adopted, precisely opposite conditions would have been established, and opposite peculiarities would have become dominant, as their contraries are now. Alterations in the dietary, especially of elderly persons, should be made gradually and with caution. This condition fulfilled, a considerable change may be effected with satisfactory results, when circumstances render it necessary. To revert once more to the question of flesh eating, it should be remarked that it appears to be by no means a natural taste with the young. Few children like that part of the meal which consists of meat, but prefer the pudding, the fruit, the vegetables, if well dressed,

which unhappily is not often the case. Many children manifest great repugnance to meat at first, and are coaxed and even scolded by anxious mothers until the habit of eating it is acquired. Adopting the insular creed, which regards beef and mutton as necessary to health and strength, the mother often suffers from groundless forebodings about the future of a child who rejects flesh and manifests what is regarded as an unfortunate partiality for bread and butter and pudding. Nevertheless I am satisfied, if the children followed their own instinct in that matter, the result would be a gain in more ways than one. Certainly, if meat did not appear in the nursery until the children sent for it, it would be rarely seen there, and the young ones would, as a rule, thrive on milk and eggs, with the varied produce of the vegetable kingdom."

In cold weather and in cold climates we should eat more food containing starch, sugar and fat. In warm weather we thrive better upon fruits, watery vegetables and lean meats. We need a variety of food, since few articles contain all the elements the system demands. The appetite also demands a variety.

Experience shows that the most easily digested food is not always the most wholesome. The stomach seems to require a certain amount of exercise. Soups are good for a variety, but would not be best for a constant diet, because there is very little work for the stomach to do. (See chapter on Foods and Drinks.)

FREQUENCY OF EATING.

Universal experience shows that three meals in twenty-four hours are best. Habit, however, may modify this, and four or two meals per day may be just as congenial. Children require food oftener than adults. Meals should be as regular as possible. The common habit of having three meals per day during the week, and only two on Sunday, is not a good one. The stomach is inclined to be periodic in its action and is in best condition to digest food when given at regular intervals. Eating between meals is generally condemned because the stomach needs periods of absolute rest.

MANNER OF EATING.

We should eat slowly. One great cause of dyspepsia in this country is our eating. There are two reasons why we should eat slowly. (1). Food needs thorough chewing, not only to reduce it to a fine state of division, but that it may be thoroughly mixed with the saliva. The action of the jaws causes an increased flow of this fluid and at the same time it becomes well mixed with the food. (2). The stomach requires time to produce the proper amount of gastric juice. When we eat rapidly, we are apt to eat too much, because the appetite is then not a good guide. The appetite is controlled mainly by the amount of gastric juice that flows. This fluid can only be secreted at a certain rate and requires a certain time to produce a sufficient quantity. Now, if we crowd a quantity

of food rapidly into the stomach, the flow of gastric juice can not keep pace with it, and continues to flow afterwards, thus causing the desire for food to continue after a sufficient supply is already taken.

We should, therefore, learn to eat slowly. Conversation at meals is good, because it compels us to eat more slowly. In many parts of Europe it is the custom to spend an hour or more at the table.

A cheerful state of mind aids the flow of gastric juice, hence lively conversation at the table is beneficial. The meal time should be the time for jokes and hilarity. All conversation on solemn subjects should be reserved for some other occasion than meal time.

DRINKS.

Water, as a general rule, is the best drink for man and woman, and we should drink plenty of it. Drinking at meals is frequently condemned by writers, but I think a moderate quantity of water taken with the food is not injurious. It is true the gastric juice is diluted, and the temperature of the stomach is lowered, but the water is rapidly absorbed and carries with it much of the digested material, and the temperature is rapidly restored.

Water should be free from poisonous impurities. The water we drink often contains the germs of disease and decayed organic matter, which may generate disease. Wells are frequently in close proximity to privy vaults. There is no doubt that typhoid fever has been many times communicated by drinking water from wells which were near

vaults in which the excrements from typhoid patients, were thrown. Graveyards sometimes contaminate the water supply. Charcoal, if the water be filtered through it, will remove almost all impurities. Boiling water purifies it to a certain degree.

I do not condemn the use of tea and coffee as beverages. There are some persons, no doubt, who are injured by even a moderate use of them, and many are injured by an excessive use. There are many, also, who are benefited by their use. The danger always exists of becoming slaves to their use, a habit being formed which will grow and lead to excessive indulgence. Coffee is better suited to people of warm climates and tea to those of cold climates, hence we find in France, Italy, Turkey, Spain, South America and in our Southern States, coffee is the universal drink, while in Russia, England, and the Northern States, tea is more largely used. Coffee and tea are better suited to middle-aged and old persons than to children and youth. In fact, they are nearly always positively injurious to young persons. Those who can not drink tea or coffee may find a pleasant substitute in hot water with cream and sugar. Individuals should be governed by their own experience in this matter. If coffee or tea makes you wakeful forego their use.

Since women seldom indulge in alcoholic drinks, I need say nothing on the subject here. Remember that tea, coffee and chocolate are exceedingly

mild stimulants, while nearly all alcoholic liquors are active narcotic poisons when used even in small quantities. (See chapter on Foods and Drinks.)

COOKING.

A few simple principles of the science of cooking should be known to every housekeeper. I wonder how many know that beefsteak is made tough by frying it in grease which is not hot when the meat is put in. If you want the grease to soak into the food, put both together in the pan, and let them heat gradually. But if you want crisp, tender steak, let the grease get almost hot enough to take fire, roll the meat in flour, and put it in, having a good fire to cook the meat rapidly. The proper way to fry any thing, is in very hot grease, and it should be taken out as soon as done.

If you want to make potatoes soggy and unfit for eating, put them in cold water, and let the water boil; but if you want them dry and mealy, let the water be boiling when you put them in. Soups are better for having all the fat skimmed off and for having a great variety of vegetables and condiments added, yet not enough of any one kind to give a distinct flavor.

Many writers object to the use of condiments in cooking. An excessive amount is no doubt injurious, but when used in moderation they add a relish to many kinds of food, without which they would be less digestible. The first requirement is that food should taste good.

It should be remembered, however, that an ex-

cessive use of condiments will so pervert the taste that in time no food will taste good, even when highly seasoned. They destroy the delicate sensitiveness of the nerves of taste by over-stimulation. While it would be folly to try to live entirely without salt, pepper, vinegar and spices, we must be cautious in our use of them, especially of the peppers and spices. Salt and vinegar are not so objectionable.

Women usually spend too much time in making pies and cakes. They may be used occasionally for a variety, but they are frequently difficult of digestion. Some think that pastry is very injurious, and the cause of nearly all the dyspepsia that prevails in this country. I do not think so. Dyspepsia, it is true, is the American disease, but it is due to many other causes. The greatest objections to pies and cakes are that they require too much labor to prepare them, and are generally eaten at the close of a meal when one has already eaten enough of other food.

A good cook-book ought to be found in every house and consulted frequently. (See Chapter on Foods and Drinks.)

Chapter III.

MATING.

"A child's first right is to be well born, of parents sound in body and mind, who can boast of a long line of ancestors on both sides; an aristocracy based on the cardinal virtues of purity, chastity, sobriety, and honesty. If the thought, the money, the religious enthusiasm, now expended for the regeneration of the race were wisely directed to the generation of our descendants, to the conditions and environments of parents and children, the whole face of society might be changed before we celebrate the next centennial of our national life."—*Mrs. Elizabeth Cady Stanton.*

WHO SHOULD NOT MARRY.

I shall not waste time in arguing the importance of judicious marriage. I am not a Shaker nor a Free Lover, and therefore, believe in marriage, as the majority of my readers do. It is a divine institution, if there ever was one. Statistics show that the death rate among the unmarried is much greater than among the married. Comparatively few old maids and bachelors attain a great age. Statistics also show that two-thirds of those who commit suicide, and a larger proportion still of the inmates of insane asylums, are unmarried. But in consideration of the welfare of the race, as well as the real welfare of individuals, there are certain persons who should not marry. Physiology and common sense teach this.

It is a well-established fact that certain diseases are transmitted from parent to child, the most common of these being consumption. Scrofula and epilepsy are other diseases especially liable to

to be transmitted. Certain defects and peculiarities of organization are transmissible—as obesity (fatness), color of skin, moles, freckles, tumors, etc. Traits of mind are also transmitted. Even acquired defects, such as results of accidents are sometimes inherited. A French physiologist, Brown-Sequard, produced epilepsy in Guinea-pigs by injuring certain parts of their brains, and this disease appeared in all the offspring of the animals operated upon. Haeckel, a German naturalist, is authority for the statement that a race of tailless dogs was produced by cutting off the tails of dogs of both sexes for several generations.

But the laws of hereditary descent are peculiar. Children of consumptive parents often live to old age, escaping entirely from disease; and again, children may be born of parents who have no signs of the disease and before they reach the age of thirty all die of consumption.

Under the laws of hereditary descent the children often resemble the grandparents or ancestors more remote rather than their parents. But, notwithstanding the many apparent exceptions and peculiarities of descent, physiologists are generally agreed that the force of heredity is very strong. Physicians in examining a patient afflicted with any constitutional disease always inquire into his antecedents. Life insurance companies in their estimates of longevity place much reliance upon the law of hereditary descent.

Heredity, then, being such a force, it is well to consider the question whether persons afflicted

with consumption, scrofula and epilepsy especially, should marry at all. It is asserted by some, however, that if such persons marry those who are essentially their opposites, that is, those who have great physical vigor and have no tendency to these diseases, that there will be no danger of the offspring inheriting the disease. But this has not been demonstrated. It is yet only an opinion. It is best to be on the safe side. There are authenticated cases on record of young girls, who had no signs of consumption, acquiring that disease in a short time after marrying consumptive men. Consumption is believed now to be to a certain extent contagious.

But there is another consideration, another reason why consumptives especially should not marry. It is the almost moral certainty of leaving a widow or widower, perhaps with children, in a few years after marriage. Marriage should be a contract for a long life of happiness and usefulness on the part of both parties. If one is sure to die in a few years, the healthy one is foolish to enter into the contract, and the sickly one is guilty of the crime of robbing a mate of a partner, of creating a happy state which can have but a brief existence, and which may be followed by a life of misery.

Women with deformed bodies should not marry. It is essential to an easy and safe child-birth that the bones of the pelvis be so constructed as to leave a large cavity, or channel, for the passage of the child. There are cases where the pelvis is distorted or unnaturally narrow, so that child-birth is

an impossibility. Such cases are very rare, but they do occur, and such persons often marry, with the inevitable result of much suffering and often death. Of those cases where the pelvis is smaller than the average, but not actually deformed, I shall have something to say in another chapter.

Where insanity or idiocy has appeared in a family for several generations, the offspring should not marry. That family ought to die out. Says Dr. Aitken: "Legislative enactments regarding the inter-marriage of persons tainted by insanity are greatly to be desired; and certainly the concealment of insanity with a view to marriage ought to render marriages null and void which are concluded under such circumstances."

Where there has been inter-marriage of first cousins for several generations there is apt to be weakness of body or mind. Offspring of such families should consider well the facts of heredity before resolving to enter the marriage relation.

In sympathy with persons thus debarred from gratifying a natural desire, Marion Harland says: "In the firm resolve that this shall be so; in the prayerful desire to eliminate so far as in them lies that much of evil from the creation already groaning and travailing together in pain; in the cheerful obedience through lonely years to the Divine beckonings to duty and toil, unsolaced by the dearest of human loves,—herein is heroism which the righteous Judge of all will not fail to reward. It is Christlikeness; a true following of the Homeless One who 'pleased not Himself.'"

PROPER AND IMPROPER MATCHES.

Certain persons ought not for physiological reasons to marry certain other persons. There seems to be a law in nature that likes repel and unlikes attract. According to this law, people should marry their opposites in physical structure. If you will observe your friends and acquaintances, you will find that generally opposites are attracted. You find dark-eyed and dark-haired people loving and marrying blue-eyed and light-haired people; the tall marrying the short, the fat the lean, and so on. But while this is natural, many persons disregard it from pecuniary and other motives.

Persons should not marry those of their own temperament. By temperament is meant certain permanent states of vitality, or qualities of constitution. It is a term difficult of definition, yet one which we may readily understand. We can see at a glance that no two persons are built exactly alike, yet all may be classified into about four groups, individuals of these groups having certain general resemblances. The basis of this classification will be seen in the following descriptions of the four simple temperaments as described by the older writers.

1. The *sanguine* temperament includes all persons having a predominence of the respiratory and circulatory systems, as shown in a strong and rapid pulse, plump figure, ruddy complexion, light eyes, fine hair and a cheerful disposition.

2. The *bilious* temperament includes those in

which the nutritive organs predominate, with dark skin, hair and eyes, strong pulse, powerful passions and great will power and energy of character.

3. The *lymphatic* temperament includes those with a greater proportion of the fluids of the body, the result of active secreting organs, as indicated by well-rounded form, fatness, softness of skin, and an easy and indolent disposition.

4. The *nervous* temperament includes those in which the nervous system predominates, as indicated by slenderness, fine, light hair, narrow chest, large heads and great mental activity.

The majority of people have a blending of all these types, and it is not always easy to tell to which temperament a person may belong, yet the well marked cases are easily distinguished. A crossing of these temperaments in marriage is extremely desirable to secure well developed and healthy offspring, as well as to insure domestic happiness. If a person have a well-balanced temperament, that is, have none of the peculiarities of organization in the extreme, such a person may marry one of either extreme, it makes little difference; but one who has any one of these temperaments well marked, should not marry another having the same temperament.

"A cross of physical qualities is the law of safe marriage. Blue eyes and black, gray eyes and brown, slight forms and solid, short and tall, blonde and brunette, are the contrasts which, other things being right, make the favorable physical conditions for marriage." A very large man, however, should

not marry a very small woman, since greater difficulties in childbirth may be expected.

The parties in wedlock should be of nearly equal station in society, and of about equal mental power. If one is much superior to the other there will be, very probably, dissensions in the household of various kinds. The husband and wife will never agree as to choice of company they may entertain, and the joys and pleasures of one may be the disgust of the other. Says the Rev. G. S. Weaver: "No love should be expected to bear the wear and strain of this difference courageously through a whole life. It is tempting Providence to be thus 'unequally yoked together.' The very idea of marriage is that of an equation — a balance of equals. The moment the equality is disturbed the union is marred."

Much objection has been raised to the marriage of first cousins. The question has been warmly debated by physicians. Says Dr. Napheys, who may be considered good authority on this subject: "The fear of marrying a cousin, even a first-cousin, is entirely groundless, provided there is no decided taint in the family. And where such hereditary taint does exist the danger is not greater than in marrying into any other family where it is also found. But as few families are wholly without some lurking predisposition to disease, it is not well, as a rule, to run the risk of developing this by too repeated unions."

Medical men are almost unanimous in the belief that intermarriage of the races, as the white and

black, are highly objectionable. The offspring of such mixtures are usually short-lived. A crossing of nationalities, however, as of English and German, etc., is an entirely different thing. All experience proves this to be highly beneficial. The most powerful nations in the world are the results of the crossing of different families, or stocks of the same race. Rome, Greece, England and our own country are examples of this.

PROPER AGE TO MARRY.

Very early marriages are not desirable. Children born to very young parents are generally deficient in vitality. Marriage should never take place before maturity. Some persons mature much earlier than others. The time varies in different climates. In this country men reach their maturity at about twenty-three—some sooner, some not so soon. Women mature earlier, at about twenty on an average.

Late marriages are not usually favorable, especially with women. The difficulties of childbirth are greater after the age of thirty than during the ten years before. The children of old men are not likely to have as good constitutions as those of men between twenty-five and forty. Some great men, however, have been born of fathers pretty well advanced in years. Thomas Campbell, the poet, was born when his father was over seventy. Lord Bacon was born when his father was fifty. Benjamin Franklin was the fifteenth child of his father, and the eighth of his mother.

The best time for men to marry is between twenty-five and thirty-five. They should not marry before twenty-three. The best time for women to marry is between twenty and twenty-six. They should not marry before eighteen. It ought to be sufficient to deter girls from marrying before this age to know that child-bearing is then attended with much suffering, as a general rule, and that there is great danger of laying the foundation for life-long weakness. Many a girl has thus married in haste and repented at her leisure. If a girl wishes to preserve her beauty she should not marry young. There are other reasons why a girl should not marry before the age of eighteen or twenty. She has not had sufficient time to acquire the education and experience necessary for the duties of the married state, nor has she the judgment necessary to a proper choice of a husband.

The relative age of a man and wife should be considered. From what has been said, we must conclude that the wife should be younger than her husband. Matches where the wife is many years the senior of the husband usually turn out badly. There should be no great difference in the ages of man and wife, but it is not so bad for a wife to be fifteen years younger than her husband, as it is for her to be five years older. Women rarely become mothers after the age of forty-five. Marriages after that age may be of advantage to both the woman and the man in a business sense, but they can not be called marriages in the true sense of

that term. They may be regarded as close friendships, and are often the proper step to take.

THE PROPER TIME TO MARRY.

Statistics show that the spring and the fall are most commonly chosen as the time for marriage. There is a good reason why the extremes of summer and winter should not be chosen. The woman enters upon a new mode of life, and should have all the advantages of the season in her favor. Extremes of heat and cold are trying to the system. If children are to be born within the year, spring is the best time to marry.

There are good reasons for saying that a day about equally distant between the woman's monthly periods should be chosen. I shall have more to say on this subject hereafter.

LOVE IN THE CASE.

Some marry for money, some for position, some for beauty, some to be sure of a home; and *some* of these marriages are happy ones, or seem to be. Young men and young women ought to marry for love. What is love?

Love is made up of two factors, the spiritual and the physical. If there were no sexes there would be no love. There might be friendship, but no love in the sense we use the term as applied to marriageable men and women.

The physical factor of love is the law, or instinct which makes us desire to reproduce our kind. Love looks forward to marriage and offspring as a nat-

ural following. As proof of this we need only point to those who have by disease, accident, or purposely been deprived of their essential organs of generation. All sentiment of love disappears. If the testicles of a man are removed, he loses his manly appearance, and all his regard for women. There are often cases in the records of medicine where women have been deprived of their ovaries as a result of disease. In all such cases a change took place. The voice became deep like man's, a beard began to grow, and all love of the opposite sex disappeared.

The spiritual factor in love is the congeniality of souls which have much in common. It is an undefinable desire to associate with, to help and to be helped by, to commune with a kindred spirit. Love without the spiritual factor is *lust* and nothing more. Love without the physical factor is *friendship* and nothing more. In our daily life we see a husband anxious for the happiness of his wife, toiling for her support, bending over her sick bed with a look of anxious solicitude; we see a wife at the bedside of her sick husband, worn with watching and cast down by care, yet faithful in her attentions; standing up for him in the face of calumny, trying to console him in his business failures. Is it friendship that prompts these actions? Is it lust? There is something nobler than either. It is love.

Love is not a mere blind instinct, as some believe. If it were, then there would be no use of trying to exercise choice in selecting husbands and wives.

My next topic will be the choice of a husband. If I did not consider love as something which could be cultivated, which will grow if the proper seed is sown and proper care is taken, I would not need to write up that topic. The following from Titcomb's Letters is just to the point: "Make genuine affection the first thing. This is absolutely indispensable. It takes precedence of everything else. You are not at liberty to consider anything before this. A union based upon anything else is essential prostitution. It is against nature—against God's most wise and benevolent intentions. You can make no union with a man, not based on this, that will give you happiness. Friendship alone will not do. Esteem alone will not do. The idea of giving yourself to a man simply because you esteem him, and respect him, is disgusting."

I repeat then, as my advice to young women, marry the man you love. But I will add, love the man you marry.

There is such a thing as a false love and such a thing as a true love. There is also a "puppy love," and a mature manly and womanly, or conjugal love. Girls, do not allow yourselves to be carried away by the first downy mustache that makes advances to you. Weigh him in the scales of common sense, and weigh your own mind and wait awhile. Don't be in a hurry to fall in love. Wait until you are old enough to marry, and then think about the matter seriously. You are capable of loving—it may be lusting, or it may be mere fancying, or friendship—at an early age, at the age of

fourteen or fifteen perhaps, but you will get over that, if you reflect that physiology teaches that, though you are capable of being a mother, you are not yet mature, nor yet capable of being the best of mothers, not yet capable of the best that is in your nature, for you must ever remember that true love has for its aim maternity through marriage.

Suppose you are old enough to marry, and you feel attracted toward some young man. Before you allow that feeling to grow, find out something about the young man. See if he will make a good husband for you. Weigh him according to the rules for choosing a husband. Apply the knowledge you have on this subject, and allow this knowledge to be your guide, and not the feelings which you may call love. If you decide that he is all right, then love him, or rather allow your feelings to grow, and if he courts you, let him know that you love him, not by words, but as women know how to show their love. If, on the other hand, he is not up to your standard of what your husband ought to be, then try to think no more about him, and that which you called love will disappear without a pang. This is what I call proper courtship on the part of the woman.

Remember that love is a passion that is easily controlled in its beginning, but a very strong one when it has grown by what it feeds upon. I do not believe that a woman loves but once in her lifetime. It may be so with some women, but it is not a characteristic of sex. I think a woman may truly love a man, and if the man does not love her,

or suppresses his love for her and marries another, out of love for wealth or some other consideration, or dies, that the woman may recover in time, and as truly love another man. But you may settle this in your own minds. The fact will remain, that life without love is incomplete.

Says Emerson: "For it is a fire that, kindling its first embers in the narrow nook of a private bosom, caught from a wandering spark out of another private heart, glows and enlarges until it warms and beams upon multitudes of men and women, upon the universal heart of all, and so lights up the whole world and all nature with its generous flames."

CHOOSING A HUSBAND.

Has woman the right to choose? In this country she has. True, she does not "pop the question," but she chooses just as much as the man does. She has the right and it is her duty in the first part of courtship, by actions, to tell the young man whether he is a welcome visitor or not, and when he asks her, has she not the right to refuse? What more could she desire? No girl who behaves herself properly and desires to marry, but will have offers and the right one will be among these. Thackeray, in Vanity Fair, humorously but truly says: "A woman with fair opportunities, and without an absolute hump, *may marry whom she likes*. Only let us be thankful that the darlings are like the beasts of the field and don't know their own power. They would overcome us entirely if they did."

Now, what are the marks of a good husband? Let us first inquire what are the qualities which go to making a good husband. The word husband is an old Anglo-Saxon word and is a modification of two words, house and band, or bond. A husband literally then is a "house-band," that is, one who protects and cares for the household. Those husbands who spend their leisure time in the saloon or other loafing places, or at the club or with some secret society, are not house-bands.

The good husband is kind to his wife; he admires her, he is proud of her, he never scolds either in public nor in private; he never finds fault when his wife is doing the best she can, nor at any other time; he never grumbles; he is watchful of his wife's health; he does not indulge in luxuries in which his wife can not share; he is happiest when in her presence; he trusts her; he does what he can to relieve her of burdens, taking upon himself the tasks which are difficult; he sympathizes with her in affliction, and endeavors in all possible ways to make her life happy.

Is there any way to know before marriage that a man will be such a husband? There are some signs which the girl can observe, and upon which she may place much reliance. But first, let it be remembered that you can not expect to find a man all that is described above. He will have some faults. Remember, also, that his conduct and life will be much influenced by the conduct and life of his wife. You can do much towards making a

good husband out of the man after you have him. Of this I shall have more to say in the next chapter.

If you observe that a young man is rough and cross and disrespectful to his mother and sisters, beware of him. There is good reason for thinking that he will not be kind to his wife. Is he polite to other ladies than yourself, and to gentlemen. It is a good sign.

Is he industrious? This you can discover in many ways. If he is not, if he loves to loaf, if you see him frequently doing nothing but lounging around, beware of him. He may make a living, but it will be by luck, which will not do to depend upon, or by dishonest means. Does he appear to know a great deal about base ball playing, cards, fast horses, dancing, skating, and such other amusements, don't encourage him, unless you are positive that he is also industrious and has overwhelming good qualities. Not that these amusements are always bad, but they all have a tendency to lead to bad results, and a young man who allows these things to engross his mind rarely ever amounts to much in the world.

Is he neat in his dress and cleanly in his person? If not, have nothing to do with him. I do not mean that he should dress in fine clothes, by any means. One can be neat, and be dressed in the veriest homespun. He ought to dress well if he can afford it; if he can not, he ought not to dress in fine clothes. His occupation may soil his clothes, but marks of his calling ought not to be upon the clothes he wears in company.

He ought to be intelligent, whatever station in life he may occupy. By this I do not mean that he should be a scholar nor a genius. He ought to be a reader of newspapers and books, and be able to talk upon the topics of the times.

Choose one who is nearly your equal in station. Do not be ambitious to marry a genius, unless you are a genius yourself. If you are poor, encourage the attentions of one who has wealth of muscle, or brain, rather than one who is wealthy in dollars and cents. If you are rich, you may spoil some poor and struggling youth, by endowing him with your wealth. Rather allow the attentions of one who has money and good sense enough to manage it.

Avoid as you would a rattlesnake the man who indulges, however moderately, in alcoholic drinks. While the people of warm and moist climates, who have more sluggish temperaments, may drink wine habitually without fear of going to dangerous excess, it is an impossibility for the great majority of Americans. The American people must be total abstainers from alcoholic drinks. They are too nervous. Even tobacco is too strong a stimulant for the majority of us. A young man is better off who does not chew or smoke. He will save many dollars in the course of his life, if nothing more, by abstaining from tobacco. He will acknowledge himself that tobacco is a filthy habit. Think twice at least before you link your fortunes with a tobacco user.

Don't marry a reformed man, nor marry a man

for the purpose of reforming him. Don't marry a man who has the reputation of being licentious. Don't marry a divorced man.

Do not allow yourself to think more of a young man just because he is very free with his money in your company. He ought not to be able to purchase your regard by valuable presents. If, on the other hand, he is miserly and mean, you will soon discover it.

Says an eminent divine: "Women should know the nature of man. The rough world often makes him appear what he is not. He has a vein of tenderness below the rocky strata of his worldly man which women should know how to penetrate and bring up for her own as well as his enjoyment. It is in this strata of tenderness that she finds her true companionship with him, and he with her. If she is ignorant of his nature, she knows not how to supply his wants or answer the calls of that nature. Their natures, though different, are singularly adapted to each other. When his is bold and hers is trembling, she flies in gladness to him for shelter. When his is strong and hers is weak, she trustingly leans on him for strength. When hers is warm and his is cold, he gladly and lovingly nestles in her bosom, to be warmed into the resistless charms of love. When hers is confiding and his reserved, he with a deep joy opens his heart to her confidence. Man has something peculiar to his character, which is the masculine element of humanity; women possess a peculiarity as marked, which is the feminine element of humanity. These

two, though different, are not repulsive to each other, but strongly attractive. These peculiarities must be known, and known before marriage, or there will be seasons of unhappiness in the conjugal state. It is ignorance in these matters that causes a great amount of matrimonial infidelity. Then this very ignorance renders both young men and women incapable of selecting a companion suitable to their own natures. A good man and a good woman will not always make each other a suitable companion. They may both be very excellent people, and be so different in many respects as to render them wholly unfit for each other."

COURTSHIP.

"The urgency of man and the timidity of woman are tempered by the period of courtship." This is essentially an American custom. In most other countries girls are kept under the eye of their parents, or some elderly person, until marriage, or at least until betrothal. Here the young people are trusted together alone, the safeguard of the girl being her virtue, her knowledge and her self-command. If girls have been properly brought up, no danger need be apprehended. But here let me give a word of warning to the maiden herself. Do not permit any liberties. You know what I mean. Act and expect your partner to act as though you were in the presence of your parents. After you are engaged, there is no harm in kissing, but do not permit any other caresses. You have heard of girls being seduced, and generally

the girl is blamed most, unjustly though, I think, in most cases. The following from Mrs. E. R. Shepherd expresses what I want to say on this question:

"Let us see now if we can understand how it is possible for a good girl to be seduced. I have heard their recitals of the methods used to lead them to ruin—recitals that would make angels weep. They have told how honorable and upright their would-be lover has made himself appear to be; how carefully he studied her mental tastes, and tried to gratify them; how genial and courteous, his manner, and unwearying his attentions, hiding with hellish tact his demoniacal character, making himself appear verily an angel of light, until he got her to confess her love for him—a real love, that was just ripe, ready and waiting to bestow itself with almost deathless grip upon some one who could supply her longings for companionship and love returned. Had he been a conscientious, honorable man this would have been quite proper for her to do. Now the wily villain, knowing he has complete confidence, talks of marriage and engagement; that they should be nearer and plainer-spoken on that account; enlarges upon the 'true woman,' and she, poor thing, avows her love to be true as steel and lasting as eternity, and he proceeds to test her love by breaking down her virtue, meeting all her arguments and protests, perhaps, by telling her she does not love him, or assuring that all engaged couples live the same as married, or representing to her what

an angelic influence she wields over him, that he can not be good or do good without her as he ought, and intends to stay with her always; why, then, wait? why not be all in all to each other at once? perhaps brings up the Bible, reading passages that suit his purpose.

"And so, after a long time and long effort, with a perseverance worthy a better purpose, he gains his object. She knows she loves him, and would make almost any sacrifice to help him to be good, to prove how true and single-hearted her love, never doubting for a moment that his love for her is as pure and unadulterated as she believes hers to be for him, and that he will never forsake her, finally yields, as it were, because she must. The sequel to this is better known to the public than the part just related. She is now forsaken and blamed by her family and friends, scorned by society, branded by the world, hunted down by any common scavenger, who now thinks her fair prey for the gratification of his beastliness, and, worst of all, deserted by the lover for whom she sacrificed herself and all that the world held dear. That must be a heart of stone that does not bleed at the contemplation of her broken heart, broken hope, and broken life."

Beware of permitting liberties from young men. Be chary even of your kisses. Stand on your dignity and you are safe. Is your suitor a little awkward and unpolished in society? Remember that girls have the advantage of boys in this respect. They are naturally more graceful and

more at home in society. If he have other good qualities, if he is your choice in every other respect, never fear for his awkwardness. It will disappear in time. Make him feel at home. Do not take notice of his blunders. Do not tease him. Is he too bashful to propose? You can help matters along. I will not tell you how, but in extreme cases there is no harm in your helping him to "pop the question."

LONG ENGAGEMENTS.

Long engagements are to be avoided, especially if the parties are frequently in each other's society. There are good physiological reasons why the close relations sustained by the lady and gentleman engaged should not be continued for a very long time.

A certain degree of excitement of the sexual system is a necessary consequence of the caresses and admiring glances which lovers bestow upon each other. This is an excitement which meets with no gratification. All such excitements are injurious to the nervous system if they occur frequently and are long continued. Especially is this true of nervous persons. By nervous persons I do not mean those with weak nerves, but those who are very sensitive and easily excited.

Again, as a consequence of sexual desires being ungratified, in the course of time an indifference may spring up and the physical factor in love may die for want of consummation.

Another objection to long engagements is this:

Two young persons studying each other for a long time will discover faults which they did not see at first. Did they discover these faults when in the married state they would be apt to overlook them and try hard to adapt themselves to each other, because the marriage tie is a strong one, made so by legal enactment and social custom. It is true that a betrothal ought to be considered as strong as the marriage tie, but it is not so considered. One may say all faults ought to be discovered and weighed before marriage. I think not. If people were to be influenced by every little failing in their companions there would be but little marrying at all. We all have faults, and it is the part of wise persons to overlook each other's faults to a certain degree, at least. The advantages of a strong marriage tie is this—that people are in a measure compelled to adapt themselves to each other. There is need of a little compulsion. The free-love doctrine will never be found practicable until there is a great change in the nature of human beings.

But what may the lady do to prevent a long engagement? Her womanly tact may suggest a remedy. In extreme cases there would be no harm in her hinting about the propriety of a speedy marriage. Her lover may be bashful. As I said before, you may help matters along and there may be no harm in your taking the lead in the matter of "popping the question." Your lover may think he has not a sufficiency of this world's goods to enter the married state, and may give this as a

reason for delay. While this may be a good reason, yet your lover may have a wrong idea of how much is necessary to make you both comfortable. You may be able to enlighten him, and ought not to hesitate to do so.

BREAKING ENGAGEMENTS.

Should an engagement ever be broken? There are many who make a boast of the number of times they have been engaged. It is a dangerous amusement. Such persons often lose the ability to love any one. There are, however, rare cases where a girl who has pledged herself to a man afterwards sees him in a different light, and is convinced that she can not be happy with him. It is then her duty to renounce him.

Chapter IV.

MATED.

THE WEDDING TOUR.

An unwise and foolish custom is that of the newly married couple going on a journey of a few weeks or months duration. Travel at any time is sufficiently worrying, and at this time, more than any other, the young wife needs quiet and rest. The nervous system is disturbed by the event and the new relations, and a journey only adds to the worry and excitement. To add to this, the woman is frequently tired with the work of preparation for the wedding, and this, with the excitement of the occasion, is often enough to change her whole nature for the time being, and the man, who has only before this seen her at her best, may have a temporary revulsion of feeling toward her. Quiet and rest are the remedies for both parties in this new relation. A little reflection upon the physiological aspect of this question will convince any one that what is here said is true.

CONSUMMATION OF MARRIAGE.

The above is a term often used to indicate the fact that sexual intercourse has taken place after the couple are made man and wife by the lawful ceremony. This is a question which must be discussed in this place, however much one may

shrink from the task, since ignorance on the part of both husband and wife at this stage of married life is often the cause of life-long misery and the foundation of disease.

What does a girl know about such things? If she be a virtuous girl she knows nothing, except what she has been told by others, and who are her advisers in such cases? Her mother ought to be, but mothers are not usually free to advise their daughters as they ought to be. Generally the girl is posted by some married women, who, ignorant of physiological laws, takes occasion to have sport at her expense, and tells her what an awful experience she must go through with before she is initiated as a wife. She is often frightened half out of her wits, but makes up her mind to go through with it because other women have done the same.

Now, there is no need of alarm. Your husband may be more ignorant than you are on the subject, and it is his ignorance that will make you suffer in nine cases out of ten. You can advise him. You can appeal to his love for you. If he be worthy of you, your advice and supplications will be effectual. While marriage is not true marriage without the sexual act, there is no need of haste in this matter. The woman is usually nervous and frightened, and has no sexual desire at first. Not so much so with the man. He must curb his desires. You can promise him more enjoyment, if he will not be too much in haste.

What are the physiological facts in this case? The first acts of sexual intercourse usually give

some pain to the woman, and frequently are attended with some hemorrhage due to the rupture of the hymen. Later the act is one of extreme pleasure to both parties, when not immoderately indulged in. The first sexual congresses should be fruitless, hence the reason given in the last chapter for fixing upon a date of marriage half way between the monthly periods, as conception is not very likely to take place at that time. They should be fruitless, because the act which is to give life to a new being ought to be when both parties enjoy the fullest confidence in each other, and when both can have the maximum of enjoyment.

There are rare cases in which the sexual act can not be performed on account of the physical conformation of the female organs. In such cases medical advice should unhesitatingly be sought. Prompt attention to this will usually be followed by the happiest of results. There are cases, too, where on account of displacement of the womb, or from some other disease of the organs, occasioned by improper dress, or improper conduct previous to marriage, sexual intercourse is attended with great pain, or followed by exhaustion. In such cases a physician should be consulted, one who is reliable and who has made a special study of female diseases. Any timidity, or foolishness which will keep back any necessary information from the physician, or prevent his making a thorough examination, will be at the expense of much subsequent suffering. Do not be afraid to answer all the questions the physican may ask. It is his

business to keep the secrets of his patients. The physician who "gives away" such secrets would soon lose his practice.

It is true that men frequently have been educated to believe that marriage is but licenced indulgence in lustful passions, and under such circumstances go to extremes, to the disgust and often to the extent of ruining the health of their wives. But here the woman should take a stand firmly and draw the line on moderate indulgence. It is not necessary to quarrel. Men will usually listen to reason, and if you can convince your husband that by the course he is pursuing he is not only ruining your health and teaching you to hate him, but that he is risking his own health as well and destroying his capacity for enjoyment, this is sufficient. If he will not listen to reason, appeal to his love for you. He must be a brute, indeed, who will persist in that which is calculated to bring misery upon the one who loves him.*

A long chapter might be written upon woman's rights to her own person. It should be the woman's say so whether she desires sexual commerce, and not the man's. The man should be educated to know that the only real pleasure to be derived from

* "The president of the Gynæcological Society, in an address delivered before that body, lately stated that if either party to a coition fails of the orgasm, damage is apt to ensue, but especially to the woman if she fail; the organs are congested from the stimulus of the sexual act and the normal final orgasm is required for their healthy relief and return to the resting condition. If this be so, it is clear that coition should be restricted to times when the woman's general state encourages the orgasm, and unless she generally experiences it sexual congress should be avoided until her health is restored."—*Martin's Human Body.*

sexual intercourse, and the only safe and hygienic time is when both parties have the desire. Intercourse under any other circumstances is no better than self-abuse.

Excessive sexual indulgence is prolific of many evils. The sexual act is an intense excitement of the nervous system—almost a shock it might be said. Such acts frequently repeated weaken the nervous system, and since all the operations of the body are carried on through the nerves, all functions are liable to suffer. Consult any scientific work on diseases and you will find that among the causes of disease excessive sexual intercourse is one of the prominent ones.

It would be impossible to say here what is or what is not moderate sexual indulgence. There is such a vast difference in persons, that no rule can be laid down. What would be moderation in one would be excess in another. Persons in good health, of strong constitutions, may indulge more than persons less robust. Proper sexual indulgence is followed by no ill feeling, but on the contrary by satisfied condition of body and mind. Says Dr. Geo. M. Beard: "Normal sexual intercourse, when not carried to excess, is a sedative and tonic. It promotes sleep, calms and strengthens the nervous system, and assists digestion and all the other functions." It must be remembered always that it is a physiological fact that pleasurable acts too often repeated, become less and less pleasurable, and that frequent repetitions, even where they are in a degree pleasurable, may produce disastrous effects,

which may not appear at the time but appear in some form long afterward. Says an eminent scientist, Grant Allen, in referring to the reproductive senses: "These pleasures are greatest after the longest intermissions, and are scarcely felt at all if stimulations are too frequently repeated."

There are times, however, when the sexual act should be refrained from. When one or both parties are in a state of intoxication, when one or both are suffering or convalescing from any disease, or during the time of the monthly periods, sexual intercourse is eminently improper, for reasons that need not be mentioned.

As regards the question whether sexual intercourse is injurious after fecundation is known to have taken place, there is much difference of opinion. Dr. Napheys thinks there can be no harm in moderate indulgence during pregnancy, provided the parties refrain from the act during those days which, were the woman not pregnant, she would be menstruating. Other writers of equal note say that it is injurious, being liable to affect the future condition of the child. In my opinion there can be no harm if both parties to the act have the desire and no ill effects seem to follow to the female. Care should be taken, however, that the indulgence be more moderate than usual. I have not in my experience known any cases of evil results that could be traced to such indulgence.

SLEEPING TOGETHER.

Many writers on sexual hygiene say that man and wife should not occupy the same bed. I see no physiological or moral reason why they should not. Of course a bed-room should be well ventilated. There should be air enough for two sets of lungs, and both parties should be clean and wear clean clothes. There are times when the parties should be continent and it may be difficult for some men and women to sleep in the same bed and be able to control their desires. If such is the case, then separate beds should be enjoined, but I think these cases are rare.

Very young and very old persons should not sleep together, and persons with consumption should not sleep with those who are free from it, and when such improper matches are made sleeping in separate beds becomes necessary.

On the other hand, there is an advantage in man and wife sleeping together. The close companionship develops and sustains mutual love. Says Dr. Napheys: "In general it may be asserted that there are no valid physiological reasons for desiring to change the custom which now prevails in this and most other countries." And I would add, that no custom could be more difficult to break up than this, for one of the greatest pleasures of the married state is certainly that of man and wife resting side by side after the toils of the day are over and in the quiet of the night.

A HELPMEET.

Woman has a power over man stronger than she may dream, if she only knows his peculiarities and adapts her conduct to them. Does your husband love to see things in order, then be careful and keep the house in good shape. Does he love a good dinner, then study your cook book and study his tastes. Does he like to be caressed, do your prettiest in that line. Does he admire beauty in women, then dress neatly and tidily and try to keep clean and in good health, and meet him with a smile. Is he a man of literary tastes, cultivate your literary taste, and be appreciative of his ability. If he loves beautiful things, study house decorations and defer to his tastes. I shall have much to say in another place about economy in household affairs. I merely want to say here that it is preminently the duty of the wife to be economical in the house. "A wasteful wife is apt to have a mean husband." Remember the adage: "A woman may throw out with a spoon more than a man can throw in with a shovel." There are so many little leaks which a woman can see and stop, so many little shifts and turns to be made which she only can make. It is in this matter of domestic economy especially that a woman may become a helpmeet to a man.

Most men like to be petted and deferred to. A wife may defer to her husband's opinion and not lose her own independence nor lower herself in any way. The truly polite person is the one who is a

good listener; who treats no one's opinions lightly. A woman need only to be truly polite to her husband. It is also the husband's duty to defer to his wife's opinions. In many cases her opinion is the best. But if she would have her way at times, she must at times give way to her husband. Husband and wife should be mutually polite, mutually deferent, mutually obedient.

Does the man meet with disappointment and failure in business, the wife should not chide him, should not mope and sulk and wonder how they are going to get along now, but meet him with words of encouragement and love.

The happy pair are the man and wife who are constantly deferring to each other, who frequently caress each other, make sacrifices for each other, who are always striving to relieve each other's burdens. Courtship should not stop with the wedding ceremony. Man and wife should court each other always. This is written especially for the wife to read, and I want to impress upon her the fact that love begets love, politeness begets politeness, and if she does her part the husband will be more likely to do his part, and that much depends upon her own individual effort.

If both man and wife have literary tastes, and are about equally matched intellectually, there can be no higher pleasure than they may enjoy in each other's society. Dr. Holland describes such a couple in his "Mistress of the Manse."

He strengthened her with manly thought
And learning, gathered from the great;
And she, whose quicker eye had caught
The treasures of the broad estate
Of common life and learning, brought

Her gleanings from the level field,
And gave them gladly to his hands,
Who had not dreamed that they could yield
Such sheaves, or hold within their hands
Such wealth of lovely flowers concealed.

His grave discourse, his judgment sure,
Gave tone and temper to her soul,
While her swift thoughts and vision pure,
And mirth that would not brook control,
And wit that kept him insecure

Within his dignified repose,
Refreshed and quickened him like wine.
No tender word or dainty gloze
Could give him pleaure half so fine
As that which tingled to her blows.

He gave her food for heart and mind,
And raised her toward his higher plane;
She showed him that his eyes were blind;
She proved his lofty wisdom vain,
And held him humbly with his kind.

You should not be too easily made to believe that your husband is untrue to you. Do not look with jealous eyes upon him every time he speaks to another woman, or when he speaks in complimentary terms of a female. If he really is in danger of having his affection weaned away from you the evidence is not of this kind. He will not be apt to mention the name of the other woman if he really is in any degree attracted toward her.

Man feels the need of recreation, perhaps, more

than women, because his work is severer for the time he is at it. Women have more little breaks upon the monotony of their labor. They can chat a moment over the back fence with a neighbor, take up a book and read for a few minutes while the kettle boils, take a nap in the afternoon, go out for an hour's walk, or call upon a friend; but the man toils in his office, or store, or in the field for hours at a stretch, and then, perhaps, must think over his work outside of business hours. If, then, he relishes hunting and fishing, has a passion for dogs or horses, or "goes crazy" in the collection of a cabinet of natural history specimens, or something of the kind, you should have charity for his peculiarities, and do not come to the conclusion that he thinks more of such things than he does of you.

WORK AND WORRY.

Don't worry and don't let your husband worry. It is not work that is killing our American people half so much as it is worry. When you have done what you can, what is the use to worry over what you can not do. Take things easy and you will get along faster. Some women have enough to make them worry, but if they could just bring their minds up to that point where they could see that worrying is perfectly useless, they would much lessen their troubles. If your husband worries, try to be cheerful yourself, and it will have a good effect, for cheerfulness, like small-pox, is catching.

Dr. George M. Beard thus distinguishes between worry and work: "Worry is the converse of

work; the one develops force, the other checks its development and wastes what already exists. Work is growth; worry is interference with growth. Worry is to work what the chafing of a plant against the walls of a greenhouse is to limitless expansion in the free air. In the successful brain-worker worry is transferred into work. In the muscle-worker work too often degrades into worry. Brain-work is the highest of all antidotes to worry."

Chapter V.

SHALL IT BE?

KNOWLEDGE NECESSARY.

It is as unnatural for a healthy, well-formed married woman not to have children as it is for a child not to play. The evils which result from ignorance concerning the hygiene of this part of woman's nature are many and great. I say ignorance, for if people knew certainly the results of over-production of children on one hand, and the results of prevention of conception and abortion on the other, they would certainly act differently in this matter. But though nature's laws can not be broken without due punishment following, yet the punishment is often so long delayed and comes in such a variety of forms that it is a difficult matter to make people see the connection between the cause and the effect, and they will persist in violating the plainest laws of their being in spite of warnings of physicians and health writers.

EXCESSIVE CHILD-BEARING.

While over-production, or too rapid production of children is injurious to the health of women, the number who thus suffer is small compared with the number who injure themselves by unnatural modes of prevention and by procuring abortion. As a general rule the women among the poorer classes

bear too many children, and are overworked and poorly fed, yet they suffer less and can endure more than the women of the richer classes, among whom improper modes of prevention, and the procuring of abortion, are very prevalent. But while this is true, there is no doubt that many women are injured by bearing too many children. The medical evidence on this point is abundant. There is a common notion, however, and one that is held forth by many writers, that frequent child-bearing is not hurtful.

The facts in the case are about as follows: Some few women are apparently not affected by frequent childbirths. They may bear healthy children in rapid succession with no bad results. This is more especially true of those who have descended from long-lived and healthy ancestors, have lived largely in the open air, and have had no bad habits. But the majority of women of our day should be temperate in this matter, as in every other.

There are many men who wish an excuse for excessive indulgence in sexual intercourse, and they are very ready to repeat the Scriptural injunction concerning the multiplying and replenishing of the earth, and tell women that it is their duty to bear all the children they can. For proof that it is not injurious, they refer to the hardy peasant women of Europe, or to some of their ancestors who have had large families, forgetting that many of our women of to-day have led largely an indoor life, and are more nervous and delicate in every way.

There appears to be something in our climate and civilization which stimulates people to greater activity and makes them more sensitive to changes, more delicate and finer-grained, capable of enjoying more, but at the same time of suffering more, which makes it necessary that greater care be taken with them, if they would attain the full measure of their years. This will explain in part why, as a rule, American women seem to suffer more in childbirth than those of the old nations of Europe and other parts of the world.

There is another reason for the limitation of offspring in many cases, and though it may seem a very selfish one, it is nevertheless a good one. Where a man is too poor to provide for a large family, he ought to consider the demands of the children he already has, and not be the means of bringing more into the world to share their poverty. A smaller number could be better fed and clothed, and better educated, and consequently happier and more likely to bring rich returns to their parents when they grow up.

But, reader, do not stop here, or you may get a wrong impression. Read the remainder of the chapter.

THE BLESSINGS OF CHILDREN.

The love of offspring is a natural inborn instinct. The little girl plays with her doll, talking to it as to a real child, in obedience to this well-known instinct. Men and women alike take naturally to petting and playing with children. The love for them is greater even than the love of man and wife

for each other. Divorced couples will quarrel over the possession of the children which may have been born to them.

Sunshine comes into a house when the child comes. The house is dark and lonely when it is gone. But so many pretty things have been said on this subject that I can do no better than to quote from an eloquent writer. Says Rev. G. S. Weaver: "What a wonder is a baby, especially the first! What marvels of sweet surprise are its dreamy eyes, its tiny hands, its chubby feet, its rosy lips, its hair of silk and down, its whole little human make-up! Practically considered it seems to be a little good-for-nothing, so helpless and useless is it, and yet in the estimate of those into whose hands it has come, it is worth many times its weight in gold. It brings with it a subtle power by which it changes these young parents into new beings, makes their home a new place, sets before them new objects of life, and transforms the world about them into a new world. Nothing is with them as it was before. They see with new eyes, they work with new hands, they feel with new hearts and think with new minds. They are new beings. They are made over by the wizard power of this little enchanter that has come to rule in the home. They pass through another stage of development and learn more of what is within them, and what they are made to be and made for. They are married again. A new strand is put into the marital cord that binds them together. In this little creature which they call theirs by a title of owner-

ship written in its body and soul, they feel themselves blended into an indissoluble oneness. This actual union no divorce can dissolve, no infidelity can destroy. To this marriage points. This is the fulfillment of its intention."

THE CRIME OF ABORTION.

The ordinary person is perhaps not aware of the fearful prevalence of the practice of procuring abortion. What is abortion? It denotes the premature expulsion of the product of conception, in other words, the birth and consequent destruction of the germ or child before the natural time. Miscarriage is a word frequently used to denote the same occurrence. By some authorities if the expulsion occurs before the close of the sixth month it is called abortion or miscarriage, if after that time and before the full time, it is called premature delivery. If after the sixth month the child may live, before that time the germ can not maintain a separate existence, hence anything that would then cause its expulsion would be the cause of its death.

It is, in some very rare cases, necessary for physicians to cause abortion or premature delivery in order to save the life of the mother. The laws concerning the production of abortion differ in different states of our Union, but generally it is considered a misdemeanor punishable by imprisonment in state's prison unless it can be shown that it is necessary to save the life of the mother. If the mother die as a consequence of the means

used to produce abortion criminally, the perpetrators may be tried for murder.

Many think that it can not be murder to destroy the fruit of the womb before the time which the child, if born, could live. But we can not draw the line between life and the beginning of life, unless we draw it at the period of conception. The moment a male germ comes in contact with a female germ and new growth begins, that moment a new life begins and it is as much a crime to destroy it before the full time as it is to destroy it after it is born. But, notwithstanding the fact that abortion is a great crime—is nothing more or less than murder—it is committed every day and among all classes of people. It is not confined to unmarried girls who have been seduced, but is common among those mothers of families who are considered respectable Christians, are members of churches and figure in the best society. Marion Harland refers to the case of a religious woman who begged, with tears in her eyes, a physician to relieve her, as she said, of "an incubus that would prevent her from saving souls." She could not exhort and attend religious meetings and have the care of a child. This is probably an extreme case, but it illustrates the views which some persons take of this matter.

The law can not reach this crime. There are physicians in every town, generally they are quacks, but sometimes they are physicians of good standing in their profession, who will stoop to this low crime of destroying, for pay, the lives of

unborn human beings. Many women, being refused by honest physicians to relieve them of what they consider a burden, learn from other women what to take or what to do to produce abortion upon themselves.

But, if we were to admit that abortion is no crime, we ought to cry out with a loud voice against it, for it is the cause of untold suffering and disease in the woman upon whom it is perpetrated. The medical world are unanimous upon this question. I append the statements of a few authorities only:

Says Dr. Byford, of Rush Medical College, Chicago: "Abortion is generally followed by either acute or chronic disease."

Dr. Napheys, after warning women of the great crime of abortion, says: "If they have no feeling for the fruit of their womb, if maternal sentiment is so callous in their breasts, let them know that such produced abortions are the constant cause of violent and dangerous womb diseases, and frequently of early death; that they bring on mental weakness, and often insanity; that they are the most certain means to destroy domestic happiness which can be adopted."

Dr. Thomas, the well-known writer on diseases of women, enumerates abortion as one of the principal causes of diseases of the womb

Dr. H. Newell Martin, a distinguished professor and physiologist, says: "There is a current impression that a pregnancy once commenced, can be brought to a premature end, especially in its

early stages, without any serious risk to the woman. *It ought to be widely known that such a belief is erroneous.*" He then quotes Dr. Storer, as follows:

1. "A larger proportion of women die during or in consequence of an abortion than during or in consequence of child-bed at the full term of pregnancy.

2. "A very much larger number of women become confirmed invalids, perhaps for life; and —

3. "The tendency to serious and often fatal organic disease, as cancer, is rendered very much greater at the so-called 'turn of life,' by previous artificially induced premature delivery."

An anecdote which I have just read in a recent number of *The Medical World* illustrates the manner in which physicians of good standing in their profession generally regard the crime of abortion. An old physician was called to see a woman. She had a child in her arms. She said: "Doctor, I am pregnant and you see this baby not yet weaned. *I can not support two children.*" "Then I suppose you want to get rid of one of them," said the Doctor. "Yes," was the reply. The Doctor, without saying a word, seized a hatchet which was lying near and raised it over the head of the baby as though he were going to strike. "What," said the woman, in tones of fear and anguish, "would you murder my child?" "You said you wanted one of them killed," calmly replied the Doctor. "But I didn't mean this one." "Well," said the Doctor, "if I were to destroy the other one I

would run the risk of killing you and thus be guilty of double murder."

Referring to this subject, a writer in the *Ladies' Repository* says; "In a moral point of view it can be nothing else than a crime of the deepest dye, enough to call down upon us as a people the displeasure of Heaven. In relation to human life it is nothing less than murder, and in relation to the perpetrator it is a physiological crime entailing fearful risk to the mother's health and life. We send abroad missionaries to preach the criminality of infanticide to heathen nations, and yet in the midst of our Christian civilization discover a massacre of the innocents in some of its features more detestable than the habits of heathenism."

THE EVILS OF IMPROPER PREVENTION.

From the earliest times people have sought some means by which they might indulge in the pleasures of frequent sexual intercourse without the consequent danger of conception. The means usually employed in preventing conception are more or less injurious to both sexes. A very common mode of prevention is known as pederasty, or sexual fraud. It consists in withdrawal before the emission of the semen has taken place. This practice is very injurious in most cases to both parties. There is what is called the sexual orgasm, a kind of climax or pitch of excitement and pleasure which is felt by both parties about the same time in normal and proper intercourse. This has the effect of relieving the nervous system, and when intercourse

is not too frequent, results in a benefit to the system. Premature withdrawal affects the female, because this proper and natural orgasm is not reached and the system is not relieved, and it affects the male because the orgasm is not perfect. At least experience proves that withdrawal is but little better than masturbation. Says Dr. Geo. M. Beard on this subject: "Of the unnatural forms of coitus the habit of premature withdrawal undoubtedly is the worst; but even that is practiced by some persons for years without any apparent injury, although in the case of the sensitive, the nervous and the weak, injury of a demonstrable character will result, provided the habit be carried to any great extent."

Withdrawal is not a certain preventive, since only a very small amount of semen may cause conception, even if it is placed only at the entrance of the vagina, and under the excitement of the occasion, a slight emission may take place before withdrawal.

Another unreliable and frequently very injurious practice is that of wearing the condom, or sheath for the penis. This consists of a thin rubber pouch drawn over the organ to prevent the semen from entering the vagina. It is not a sure preventive, because being necessarily made thin it is very easily torn. Besides it annuls sensibility and diminishes the pleasure.

Injections of cold water into the vagina with the hope of chilling and destroying, or at least washing out the semen is often practiced. This is injurious

to the female and sometimes actually dangerous, causing death. Besides it is by no means a sure preventive.

The insertion of a sponge or pad into the vagina to prevent the semen from entering the womb has been recommended and employed. The objections to this mode are, first, that it diminishes sensibility, and second, that the sponge is liable to become displaced and fail of its purpose.

THE SAFE WAY.

Some writers take the position that sexual intercourse should never be indulged in unless conception is desired. This is an extreme view and is not sanctioned by the best medical authorities. There is, however, no absolutely sure way of preventing conception except by refraining from the sexual act. But the liability to conceive is much greater just before and just after the monthly periods than at any other time. The cases where conception has taken place between the fourteenth and twentieth days after menstruation are rather rare. Hence, the period of comparative safety is somewhere near those limits. Conception is more likely to follow an intercourse occurring just after a monthly period than one occurring just before. Intercourse at the time farthest either way from these periods seems to be the least likely to cause conception. The time most likely to cause it is just after the cessation of a menstrual flow.

Mrs. A. B. Stockham states this question as follows: "It requires from eight to ten days for

the maturation and passage of the ovum through the oviducts and uterus. Hence, avoiding the sexual act absolutely during a period of ten or twelve days after the appearance of the menses, immunity from impregnation is insured in a state of health. Very frequent and intemperate indulgence after this in rare cases may develop another ovum, but will not where one's life is governed by moderation and the relation is participated in mutually by both parties. Disease and discord are sure to result if it is not a mutual relation."

Marian Harland (Mrs. Terhune) puts it thus: "If ever husband and wife should be agreed upon any subject, it is upon this. The veriest tyro in the laws governing reproduction now understands that the propitious period of fecundity is the fortnight immediately succeeding what we have denominated *the rhythmic check* (that is, menstruation)."

In view of these facts, if the times for intercourse be observed, an amount of indulgence consistent with temperance may be allowed with only a bare possibility of conception occurring too frequently.

In concluding this chapter I would summarize as follows: If a couple be well-mated, the woman well-formed and both parties in good health, there is no excuse for not having children. I have said in a former chapter that persons should be well-mated and only healthy and well-formed persons should marry. The number of children must depend upon circumstances, but there is such a thing as having too many children. Never dis-

obey nature's laws by trying to destroy the life you have been instrumental in starting. You will surely meet with punishment here, if not hereafter. Never use any preventive but the one I have described, that is abstaining from intercourse at the most susceptible times, the only natural preventive except entire continence.

Chapter VI.

SUPPOSE IT IS ?

THE NATURE OF FECUNDATION.

The semen of the male contains immense numbers of little bodies called spermatozoa. This is a big word, but it means simply "seed animals," so called, probably, from their resemblance to microscopic animalcules. These little bodies are oval in shape and have long tails, or projections, which have the power of motion. On a glass slide under a high power of the microscope these little bodies may be seen to move about with great rapidity. This motion is supposed to be an indication of their vitality and they are thought not to be capable of fecundation after these movements have ceased. Great cold will suspend their movements, but they will return when warmth is restored. These spermatozoa are not produced before the age of puberty, and become few in number or entirely disappear in extreme old age. There are some instances on record of very old men becoming the fathers of children.

Fecundation consists in the union of a greater or less number of these spermatozoa with the substance of the ovum, or egg, which is produced in the ovaries of the female and lodges in the womb, where it grows and develops into a new being, as

a consequence of this union. The term conception, as I have used it in this book, means the same as fecundation.

DURATION OF PREGNANCY.

When a female has conceived, in other words, when the ovum has been fecundated by union with the male elements, she is said to be pregnant, *enciente*, or in common language, "in a family way." The time in which she is in this condition, that is, the time between conception and the birth of the child, is called the period of gestation. Every female thinks she is competent to answer the question how long is this period. The answer will be nine months, but this is not strictly correct, since the time varies within considerable limits. Besides nine months is not a definite time. There are two kinds of months, the calendar and the lunar month. The former may be thirty-one, thirty, twenty-nine or twenty-eight days. Thus nine calendar months beginning with January, have in ordinary years 273 days, in leap-year 274 days, and nine calendar months beginning with March have 275 days. A lunar month is twenty-eight days. Nine lunar months is then 252 days.

The average duration of pregnancy is placed at ten lunar months or 280 days. But while this is the average, and the larger number of cases never vary much from it, there are some remarkable variations in the time in rare cases. There are a good many cases on record of women who have gone over 300 days. One case, supposed to be reliable,

is published as having gone 420 days. The shortest time known, and the child living at birth, is 175 days.

This is a question of much interest, since the honor of families, the rights of children and even the interest of nations may depend upon correct knowledge on this subject. The French nation has a law which makes a child, born within 300 days after the death or departure of the husband, or one born 180 days after marriage, a legitimate one. The law also provides that even if a child be born after a period of more than 300 days, it shall not necessarily be considered illegitimate.

A simple rule for calculating the time at which the period of gestation will terminate is as follows: Suppose the time of the termination of the last menstruation to be the 15th of May. Then count back three calendar months, which will correspond with the 15th of February. Now add seven days, and you will have the 22d day of February on which day the birth may be expected. According to this mode of calculating the short and the long months are taken as they come, and the seven days are added because that number represents the average difference in the time. This rule is sanctioned by the highest medical authorities.

PECULIARITIES OF PREGNANCY.

Twins are comparatively rare and are looked upon as a misfortune by most people. It is true that twins as a rule are less vigorous physically and mentally. There are more imbeciles among twins,

and bodily deformities are more common, than among single births. The disposition to bear twins seems to be hereditary to some extent. Sometimes the father and sometimes the mother seems to be the special cause of twins. Cases are known of certain women who have been married successively to several men and always had twins, while the same men with other wives had single births. The same peculiarity has been observed in men, certain men always fathering twins.

Cases of three, four and even five at a birth are known. Napheys refers to the following remarkable case: "A Russian was presented to the Empress in 1755 who had had two wives, the first of whom had borne him fifty-seven children in twenty-one confinements, the second thirty-three in thirteen confinements. All the confinements had been twins, triplets, or quadruplets." The birth of more than two at a time is uncommon. Out of 30,000 cases in a hospital at Paris, only four were treble births, and out of 48,000 in a London hospital only three occurred. When there are four or five at a birth the children rarely ever live. The woman is more likely to be delivered before the full time, and the children are imperfectly developed.

Twins are more common during the latter part of the child-bearing period. By far the greater number are born of women near the end of their child-bearing life. They are more common among the Irish than among the English.

There are some extremely rare cases where the ovum becomes impregnated in the ovaries and the

growth takes place there instead of in the womb. Also in other places outside of the womb, as in the Fallopian tubes, in the walls of the womb, or in the abdominal cavity. Such cases are necessarily fatal to the mother unless an operation be performed, and even then the chances for life are extremely small. It is comforting to know, however, that such cases do not occur perhaps as often as once in a hundred thousand times. Can a woman have children by two different men at the same time? Such cases have been known. In "Flint's Human Physiology" is a portrait of a mulatto woman holding one white child and one black one on her lap. She had lived in a white man's family as a servant, sleeping with a negro man at night. She denied having ever had sexual intercourse with a white man, but the white child had all the peculiarities of the white race except the shape of the nose, in which it resembles the mother. There are many such cases among animals. Female dogs have been known to give birth to pups of different breeds at the same time. Mares have been known to foal a horse and a mule colt within a few moments of each other.

More remarkable are those cases where another child was born a few weeks or months after the first one. In these cases, which are rare, yet well authenticated, there may have been two different conceptions, or there may have been twin conception and one of the twins failed to develop as rapidly as the other.

Why do I mention these peculiarities? Not to

frighten the reader, but simply as facts which possibly may be valuable acquisitions to the store of knowledge on these subjects. Suppose the virtue of a woman is called in question because she has given birth to a child in less than nine months after marriage, or after a nine months' separation from her husband. Is it not proper to know that such circumstances do not of themselves prove her guilt? Or again, suppose a woman give birth to a second child some weeks after the first. We should not jump to the conclusion that she has had commerce with two different men.

If twins appear in a family subsequent pregnancies ought in most cases to be avoided lest a numerous and weakly progeny be the result.

SIGNS OF PREGNANCY.

There are many signs by which persons know, or pretend to know, at an early stage that a woman is with child. There is not a single one of them which, when taken alone, is infallible. Other causes than pregnancy may produce similar symptoms. But by taking all the signs together we may after a short time be reasonably sure that conception has taken place. But no one can tell certainly until about the fifth month.

The sign most generally considered conclusive by wives is the cessation of the monthly periods. But there are many other causes which may disturb the regularity of the menstrual flow. Young women often miss their monthly sickness the first and even the second months after marriage, the

cause being found in the disturbance in the system due to the new and strange relations. It is well known that simply "taking cold" may prevent or delay the menstrual flow. On the other hand women sometimes have a slight show of menstrual blood for two or three months after the first impregnation. There are, moreover, rare cases of women who menstruate regularly during the whole period of gestation. Medical authors give instances of women who menstruate during their pregnancy and at no other time.

A very good sign, but not infallible, is the *morning sickness*, as it is called. Sometimes immediately after conception, but usually about the third or fourth week, the pregnant woman has frequent spells of nausea and occasional vomiting, generally in the morning after rising. It may occur at any time of the day, and is sometimes very distressing. It usually lasts until the third or fourth month, and returns again shortly before the close of the full time of pregnancy. This sickness is due in the first part of pregnancy to the disturbance of the nervous system, the stomach sympathizing with the womb, or what is called reflex action. In the latter part of pregnancy the nausea is caused by the womb enlarging and pressing up against the stomach. It is not a sure sign, because similar sickness may result from other causes, and there are some cases where it is almost or entirely absent during the whole of pregnancy.

Peculiar changes in the breasts are considered good signs of pregnancy. The rose-colored cir-

cles around the nipples become darker, and are covered with little elevations like pimples. This dark color is more marked in brunettes. The breast may become larger and firmer, and occasionally a sharp, stinging sensation is experienced. The nipples become more prominent and sometimes are sore. These changes begin to appear sometimes in two or three weeks, generally not until the third month, and sometimes not until near the close of gestation. The sign is not a sure one, since occasionally no changes ever occur in the breasts until confinement, and similar changes may occur from other causes.

Quickening is another and generally a very sure sign. This is a peculiar fluttering or jerking sensation, caused, it is believed, by the movements of the fœtus, or unborn child. Some writers, however, attribute it to the rising of the womb, others to contractions of the womb itself. Quickening occurs about the middle of pregnancy, sometimes a little earlier, sometimes later. In some cases it is never felt. In former times quickening was supposed to be an indication that the child in the womb was alive, or that life was just then imparted to it. People therefore considered it no crime to produce expulsion of the embryo before this period. But modern physiological teaching decides that the child is alive from the moment of conception.

Women are sometimes deceived by sensations resembling quickening, such as movements of gases in the bowels, or by dropsy in the abdomen. The case of Queen Mary is well known. In her

great anxiety to become a mother she imagined she felt the movements of a child. The fact was publicly proclaimed. The news was sent to foreign countries. There was great national rejoicing. The Bishop of London prayed in public that Heaven would make the child "beautiful, vigorous and witty." But, alas, the supposed quickening proved to be only a symptom of dropsy. She never bore a child.

For the first two months of pregnancy the abdomen is less prominent than usual, but about the third month there is a swelling out of the lower part of the belly. This swelling then diminishes somewhat, so that at the fourth month the abdomen appears smaller than at the third. From the fourth month to the close there is a gradual enlargement. The navel is at first drawn in, but toward the latter part it comes forward and may even protrude beyond the surface.

Enlargement of the abdomen is not of itself a certain sign, since dropsy or an accumulation of fat may produce the same appearance. A skillful physician, however, can generally tell by certain signs whether the enlargement be due to pregnancy or to other causes.

The foregoing are about all the signs which would be of value to any one not a physician. There are many peculiar changes which rarely occur, both in the physical and mental characters of women, during pregnancy. I will merely mention some of them here. It must be remembered that no two women are affected by pregnancy

exactly alike and the same woman may be affected differently during different pregnancies. The skin sometimes undergoes peculiar changes. Blotches of a reddish, yellow or brown color may appear, dark rings under the eyes, perspiration becomes more copious, or a peculiar dryness of the skin is experienced. Some hair may appear on the face which will disappear after confinement. There are sometimes peculiar, depraved appetites, desire for unnatural and strange articles of food, loss of appetite, excessive appetite, heart-burn, an excessive flow of saliva, toothache, sleepiness, pain in the side, palpitation of the heart, diarrhœa, costiveness, etc. Women who ordinarily are fretful and bad-tempered may become good-natured, and those who are ordinarily pleasant and gentle become passionate, jealous and disagreeable. All of these contradictory and peculiar symptoms may occur, not all at the same time, nor with the majority of women, but since they do occur it is well that my readers know the facts.

But is there any sure sign of pregnancy? We have seen that all the signs thus far given, may be from other causes and therefore fallacious. There are many cases where women have believed themselves pregnant up to the close of the proper time, and their symptoms have deceived their friends and even the physicians with the same belief. On the other hand, women have succeeded in making their friends and the physicians believe they were not pregnant up to the day of confinement. There is no certain indication of pregnancy until the fifth

month, when a practiced ear, by the aid of an instrument, can hear the beat of the child's heart through the walls of the abdomen. This is conclusive.

MISCARRIAGES.

The frequency of miscarriages among wives calls for special warning and caution at this stage of our discussion. Nearly two-fifths, on an average, of mothers miscarry before the age of thirty years, and it is estimated that nine-tenths of the married women miscarry some time during their child-bearing period. The danger is much greater during the latter part of this period. The first and last pregnancies are more apt to fail by miscarriage than any others. A woman who marries late in life is more apt to miscarry than one who marries earlier. It is more frequent also in the earlier months of pregnancy than in the later. It is very apt to happen about the sixth month.

The *causes* of miscarriage are many and various. Some women seem to have a predisposition to miscarry. It often becomes a kind of habit, one who miscarries once is very apt to again. Any violent excitement or exertion may cause miscarriage, as frights, excessive joy, anger, dancing, jumping over a fence or out of a carriage, riding horseback or in a wagon without springs over a rough road, lifting, having a tooth pulled, etc. Too much medicine which acts as a physic, as purgative pills, may cause miscarriage. Straining at stool when constipated, excessive sexual intercourse, existing diseases of the womb, smallpox,

or sometimes simply a general poor condition of health, may cause a woman to miscarry.

The results of miscarriage are more to be feared than is generally to be supposed. Diseases of the womb are very frequently caused by miscarriages. Not infrequently severe flooding accompanies a miscarriage, and in some cases death results before relief can be had. A woman should take all proper precautions during pregnancy to avoid if possible a miscarriage. If miscarriage is threatened a physician should be immediately sent for. Pain and flooding are the principal symptoms of threatened miscarriage. The hygienic and home treatment of miscarriage will be discussed in a succeeding chapter.

STERILITY.

Some women never become pregnant. They are said to be sterile or barren. If a woman, having used no means of prevention, does not give birth to a child within three years of marriage, the chances are thirteen to one that she will always be barren. There are cases of women, however, who are barren for many years and then bear children. Women who are married between twenty and twenty-four begin to bear children sooner than those married younger or older. If a woman marries late her child-bearing period will be extended later than if she had begun to bear children earlier.

Pregnancy is not apt to take place while a woman is nursing her child. Displacements and diseases

of the womb may prevent conception. In such cases medical treatment often cures sterility.

The woman is not always at fault. The man may be incapable of impregnating, although he may be in vigorous health. In some cases an incompatibility between husband and wife seems to be a cause of barrenness, for it frequently happens that a couple can have no children although each one may become parents with other partners. The case of Napoleon and Josephine is of this kind. Napoleon divorced Josephine because she bore him no heir. Josephine had borne children by a former husband, and Napoleon became the father of children with his second wife.

A woman is often accounted barren when a habit of early miscarriage is really the trouble. She miscarries and does not know it. A monthly sickness may be delayed a few days and then be more than usually painful and accompanied with an unusual flow. She has miscarried ; the embryo, then very minute, has passed away with the blood.

Chapter VII.

THE EXPECTED.

THE MOTHER'S INFLUENCE UPON THE UNBORN CHILD.

A great deal has been written upon this subject, yet but little is really known. Trall, Fowler, Cowan and Napheys are among the authors who are strong believers in the great influence a pregnant woman may by her thoughts and actions exert upon the physical and mental character of her unborn offspring. Of these authors, Napheys is the only one whose works have received the sanction of high authorities in medical science.

Many cases like the following are adduced to prove the point. It is said of the great artist Flaxman, that he took a great interest in drawing and sketching from his early childhood, and that his mother for months previous to his birth spent many hours each day trying to draw and in studying pictures. The mother of Napoleon I., it is said, while pregnant took a great interest in war, went with her husband in the army, and was constantly amid scenes of danger and bloodshed. Zerah Colburn, the wonderful mathematical prodigy, they say, owed his genius to the fact that his mother, though an uneducated woman, previous to his birth perplexed her mind very much calculating how to weave the threads in a complicated pattern.

Some of these writers tell us that women may

secure to their children almost any desired quality of mind by simply following out certain lines of thought and conduct during pregnancy. For example, if they wish the child to be a musician the mother must during pregnancy, especially during the latter months, try hard to learn music, to practice daily on some instrument and constantly turn her thoughts in that direction.

Says Dr. Napheys, upon this subject of education of the child in the womb: "The plastic brain of the fœtus is prompt to receive all impressions. It retains them and they become the characteristics of the child and of the man. Low spirits, violent passions, irritability, frivolity, in the pregnant woman leave indelible marks on the unborn child. So do their contraries; and thus it becomes of the utmost moment that during this period all that is cheerful, inspiring and elevating should surround the woman. Such emotions educate the child; they form its disposition, they shape its faculties, they create its mental and intellectual traits. Of all education this is the most momentous."

Children are not unfrequently born with certain peculiar discolorations of the skin, generally known as "mother's marks." These marks are fancied to have resemblances to certain objects, as strawberries, bunches of grapes, etc. It is a common notion that these marks, as well as deformities of any part of the body existing from birth are produced by mental impressions made upon the mother while the child was in the womb. It is commonly believed that if a woman have an in-

tense longing for certain articles of diet and is denied them that her child will be born with a mark resembling that object, or if she be frightened by some animal that her child will be deformed and resemble that animal in some way. Many remarkable cases of this kind are recorded, some in medical journals and some in works on physiology.

The following is the opinion of a reliable author on this question: "It has long been a question whether impressions made upon the nervous system of the mother can exert an influence upon the fœtus *in utero*. While many authors admit that violent emotions experienced by the mother may affect the nutrition and the general development of the fœtus, some writers of high authority deny that the imagination can have any influence in producing deformities. It must be admitted that many of the remarkable cases recorded in works upon physiology as instances of deformity due to the influence of the maternal mind are not reliable. It is often the case that when a child is born with a deformity the mother imagines she can explain it by some impression received during pregnancy, which she only recalls after she knows the child is deformed. Still there are cases which can not be doubted, but which, in the present state of our knowledge of development and the connection between the mother and the fœtus, we can not attempt to explain."—*Flint's Human Physiology*.

Dr. M. L. Holbrook says upon this subject: "There are many recorded cases of the occurrence of terrible experiences during pregnancy without

any ill results on the child. Cases even are recorded of the death of the mother and subsequent birth (though of course in a very short period) of a healthy child. And again, physicians have more than once instituted systematic and extensive inquiries for authentic instances of "mother's marks" without finding even one. Such was the well-known investigation of the celebrated English surgeon, Dr. William Hunter, who carried his observations through *two thousand consecutive cases* of childbirth at a lying-in hospital to which he was attached. In every one of these, as soon as the woman was delivered, he asked if she had been disappointed of anything she had longed for, and if so, what it was; also, if she had been suddenly shocked or surprised in any way, and how; or frightened by any unsightly or horrid object, and what. The answer in each case he regularly noted down, and he then inspected the child; and he never in any single instance met with a coincidence. He found blemishes where no cause was acknowledged, and found none where some cause was given; but absolutely nothing to support the belief."

Dr. Fisher, in the *American Journal of Insanity*, (Jan. 1870) states that for twenty years in 1,200 cases he had asked every woman if deformity was expected, a large majority expressed fears of such result, but out of this number only two cases of deformity occurred, and these could not be traced to any previous impression.

Says Dr. Reamy: "I have seen quite a number of so-called mother's marks and deformities of struc-

ture; I mean cases occurring in my own practice, but in every instance, so far as I can remember, the deformity startled the parents at the time of birth, being wholly unexpected. * * * On the other hand, in attendance upon more than 2,000 cases of labor, I have repeatedly witnessed the most intense mental solicitude on the part of parents, reaching in some cases, in the mother, a degree that was painful, lest the child should be born deformed, she having witnessed some horrible scene of blood, or of deformity, or been frightened during pregnancy, the fear burning into her very nature during the whole time; and yet I have not, in a single instance, under such circumstances, seen a child bearing the evidences of her fears."

I will only add, that in my own experience I have never met with a case of marking or deformity which could be connected with any mental state of the mother, but on the contrary have known cases where the mother had been badly frightened during her pregnancy, and the child was born as perfect in every way as children ordinarily are.

Although we have no positive evidence that the mind of the mother does affect the child in the womb, I have no doubt that in many cases it does. But whether the doctrine be true or not, there can be no harm in taking the proper precautions, and in trying experiments. Shocks to the nervous system, such as is produced by fright, are injurious to the health of the woman, if they do not affect the child, and care should be taken to avoid them. There can be no harm in a woman studying cer-

tain subjects, while pregnant, with the hope of influencing her offspring. If it has no effect upon the child it will at least benefit the mother. Nothing is so injurious to the mind and body as to have no objects of thought higher than mere eating and sleeping and keeping house.

A pregnant woman should be a happy woman. She should have something to occupy her mind, something to divert her mind from her condition. A happy frame of mind conduces greatly to perfect physical health and bodily vigor. She certainly needs this condition that she may supply the growing child with good blood for its nourishment.

It must be remembered that there is no nervous connection between the mother and the child in the womb. If the former does influence the latter it can only be through the nourishment supplied and that nourishment is the blood which circulates from the mother through the child and back again to the mother. Any cause, then, that would interfere with her nourishment would interfere with the nourishment of the child and this retard or warp its development.

A peculiar fact in this connection may be mentioned. A woman who has borne children to one man may have to a second husband children who resemble the first husband, especially in the color of the hair and eyes. A white woman who has borne children to a negro may afterwards have children by a white husband, these children resembling in some respects the negro race.

CAN THE SEX BE PREDICTED?

Is there a law governing or determining whether the child shall be male or female, or is it merely accidental? This is yet an unsettled question. Many theories have been advanced to explain the production of the sexes, but none of them seem to be satisfactory. One theory is that the right ovary in the female and the right testicle of the male produce male children, and the left ovary and testicle produce females. But this idea, although some experiments with animals seem to favor it, is without foundation in fact, for men with one testicle and women with but one ovary have been known to become parents of children of both sexes.

Another theory is that if sexual intercourse takes place during the first half of the first two weeks after menstruation the progeny will be female, if during the latter part of this period, male. This theory has many supporters. Stock breeders, it is said, have verified it in many cases, being able to produce males or females as they desire, by coupling the parents immediately after "heat" in the female if they desire females, and sometime after if males are desired.

Flint suggests that since more than one male germ is necessary to impregnate one female egg, that males may be produced when there is a greater number of these male germs, and females when there is a lesser number, but adds: "Such an idea is purely theoretical, and the question of the deter-

mination of sex presents, thus far, hardly the shadow of a satisfactory explanation."

I have stated elsewhere that after the fifth month the heart of the child in the womb could be heard to beat. It is said that the heart of the female child beats faster than that of the male. A physician with practiced ear and the aid of an instrument could at that time, upon this basis, predict the sex of the child.

HYGIENE OF PREGNANCY.

Pregnancy is not a diseased condition. On the contrary diseases are in many cases arrested for the time being by pregnancy. Many women are in an unusually fine state of health while in this condition. But it is an important period and in some sense a critical one, and the proper management of the diet, clothing, exercise, etc., has much to do with the future health of herself and child. To have healthy, well-formed children and to escape from the trials of a severe childbirth are objects certainly worth working for. Could all women be thoroughly impressed with the importance of taking great care of themselves during pregnancy, a vast amount of suffering and misery might be avoided.

It is my purpose to set down somewhat in detail the directions for the conduct of a pregnant female, as regards clothing, food, exercise, cleanliness, etc.

CLOTHING.

The ancient Spartans had a law which required pregnant females to wear loose dresses. Such a law to-day if enforced would be a greater benefit to the race than a law to prevent the sale of intoxicating liquors. Some women are so foolish as to attempt to conceal pregnancy in its earlier stages by tight lacing. This can not be done without causing suffering to the mother, and it may cause permanent injury to the child. If stays of any kind are used, they should be perfectly adapted to the figure and be very loose. They should not be worn at all during the last half of pregnancy. The clothing should be suspended from the shoulders and not from the hips. It is well to observe this at all times, but more especially during pregnancy. Clothing which may be perfectly comfortable at one hour of the day, may be too tight at another. This may be due to gases which are apt to accumulate in the bowels as a result of disturbance of digestion. Whenever a feeling of tightness occurs the clothes should be loosened, since it is very important that the womb be not in the least crowded.

In some cases during the latter months the abdomen may be supported by a band made in the shape of a half moon, having the broadest part in front and below, and the narrow part passing above the hips, and fastened to shoulder braces, at a point a little behind the center of the side.

Tight garters should never be worn. They are especially to be discountenanced in pregnancy, as

they are apt to produce enlargement of the veins of the legs. The clothing should also be loose about the breasts, as any pressure may increase their irritability or arrest their development. The "Mother Hubbard" style of dress, without a belt, is especially well adapted to a pregnant woman. Clothing should always be adapted to the state of the weather. A pregnant woman should be well protected from the cold, yet ought not to dress too warmly. Flannel drawers, rather than heavy skirts, should be worn in cold weather, since they are a better protection from cold air and have much less weight. If flannel is too irritating to be worn next the skin, drawers made of flannel lined with cotton may be worn.

DIET.

The diet of a pregnant woman should be generous, but excess in eating should at all times be avoided. During the first half of the time the quantity of food need not be greater than usual, but during the latter months the quantity should be increased a little, not by eating more at one meal, but by eating oftener. The morning sickness is often relieved by eating a little before rising. If a woman crave food in the night or between meals in the daytime a light luncheon will generally set well and do no harm. A variety of food from day to day is desirable. Plenty of ripe fruits and vegetables, with less bread and meat, is generally the best to keep the bowels regular. By carefully observing the effects of different kinds

of food upon the bowels, one can generally select the proper diet. The treatment of obstinate constipation will be discussed in a succeeding chapter. Fatty and highly salted or sweetened food often disagrees with pregnant females. In such cases these articles should be avoided. Sometimes, however, these articles agree better during pregnancy than at any other time, it being a remarkable fact that what is ordinarily very indigestible, sometimes is especially beneficial during pregnancy.

If the woman is feverish and irritable during the first months, the quantity of food should be less than usual. All highly stimulating foods and drinks in such cases should be avoided, such as highly salted and peppered meats, rich soups, strong tea or coffee, or alcoholic liquors of any kind. Such stimulating articles only increase the irritability and may be the cause of a miscarriage.

EXERCISE.

A pregnant woman can not be too careful how she exercises. Too much or too little exercise are alike injurious. Her own feelings are generally a good guide. She should not exercise until she is very tired at any time, and by all means she should avoid lifting, carrying heavy loads, riding in wagons without springs, or upon horseback, running, dancing and jumping. Long journeys ought not to be taken. Riding on railroad cars may prove highly injurious. Toward the latter

part of pregnancy she should be particularly careful about over-exercise.

A moderate amount of exercise through the whole period will tend very much toward lessening the difficulties of childbirth. Every woman should have some occupation that would daily engage her attention. Ordinary household work, provided she avoids the work which requires lifting or straining in any way, is very good. Running a sewing-machine, unless it be for a very short period at a time, is apt to prove dangerous. Sitting too long at a time in one position reading or engaged in needlework is not good, neither is standing long at a time. A woman should be active generally, yet careful at all times. It is good for a pregnant woman to lie down for an hour or more each day. If there is any bearing-down pain in the womb this is especially necessary. In the early months she will thus avoid miscarriage, and in the later the rest will be grateful on account of the increased weight of the womb. Sometimes there is a difficulty in lying down, the person feeling a sense of suffocation. In such cases she should rest propped up on pillows. Walking is good exercise, but long walks should not be taken.

Exercise should be, in such cases, adapted to the constitution of the individual. A delicate female should take only the most moderate exercise. One more robust may simply lessen somewhat her ordinary amount of exercise. The forenoon is the best time for exercise.

IMPORTANCE OF FRESH AIR.

It appears that among peoples who spend much of their time out of doors less difficulty is experienced in childbirth. A pregnant woman should be especially particular to get all the fresh air she can. Not only should her sleeping and living apartments be well ventilated, but she should spend much time out of doors, being careful, of course, always to protect herself from extremes of heat and cold and from dampness. An indoor life is calculated to make a woman nervous, over-sensitive and delicate, which conditions cause her to suffer more in childbed. Do not think because you can not go out for a long time that it is not worth while to go at all. Five or ten minutes spent walking out at two or three intervals during the day will be much better than not to go out at all. Even a walk once around the yard will be beneficial.

BATHING.

Dr. Holbrook says: "Bathing, like eating, should be agreeable. For healthy people and properly managed it is agreeable. It is an error to insist upon one particular mode of applying water to everybody alike. Strength, constitution, present physical condition, previously acquired habits, should all be considered. It would be inconsiderate, if not quackish, for instance, to prescribe a full bath in cold water, immediately upon getting out of bed, for everybody, men, women, children, sick or well, all alike."

In their advice upon this subject authors differ very much. One class of advisers would have pregnant women bathe frequently, using cool and even cold water, while others claim that the bath is injurious. Dr. Napheys thinks that women who have not been accustomed to bathing should not begin the practice during pregnancy, and that women of a lymphatic temperament and a relaxed habit of body are always injured by the bath.

When we find two extremes the middle road is the safest. Bathing in water of an agreeable temperature can not hurt any one if the bath be not prolonged and if proper precautions are taken to prevent a chill. Of course, a pregnant woman should keep up her daily sponge bath, for cleanliness sake, as advised for all persons in a former chapter. Towards the latter part of pregnancy a tepid sitz bath once a week or oftener may prove of benefit. What is a sitz bath? It is nothing more nor less than sitting down in a tub or other vessel of water for a given time. The duration should not be long, not more than five minutes. Just before going to bed is the best time for such a bath.

SLEEP.

A pregnant woman should retire early and get up late. She should have all the sleep she can get. She is furnishing blood for a new being. Plenty of sleep is very necessary for every one, but much more so for one who has the double duty of nourishing herself and another. During sleep the system recovers its powers which it loses when

awake. Sleep promotes digestion, and good digestion makes good blood. Sleep can do no harm. Of course, one in order to sleep soundly and well ought to exercise during the day and obey all the other laws of health. Medicines should not be taken to force sleep, unless under extreme conditions and then not without the advice of a physician. A tepid sponge bath just before retiring will often induce sleep.

A pregnant woman should not use high pillows. Indeed, it is a bad habit for any woman. If the shoulders are upon the pillow it throws the weight of the stomach and bowels more upon the womb. If the head is higher than the body it tends to obstruct the circulation of the blood. A pillow should be no higher than is sufficient to bring the head on a level with the shoulders when one is lying upon the side.

ATTENTION TO THE BOWELS.

I have elsewhere called attention to the dangers of retained excretions. It is dangerous at any time to neglect the daily evacuations of the bowels, but it is especially so in pregnancy. The diet of a pregnant woman should be largely chosen with this point in view. Medicines should be avoided, except in rare instances and then only some very mild purgatives which can be taken in broken doses should be given ; a little epsom salts or castor oil, if taken in half the regular dose and repeated several times, can do no harm, unless in cases where

the woman is peculiarly apt to miscarry. But better than medicine in most cases is the use of injections. Every family ought to have a rubber syringe which can be used by the patient herself. A half pint of warm water is usually sufficient. If not, a little salt or soap suds may be added. The injection should be held in for ten minutes or longer, if possible. If the person yield to the first desire only the water will come away, but if she wait a few minutes the water will have softened and loosened the material and a free discharge be secured. One should, however, avoid forming a habit of using the syringe.

ENGAGING A PHYSICIAN.

Although in the great majority of cases the physician can do nothing more than watch the progress of a case of labor and render a little assistance when the child is born, yet it is not advisable to dispense with his services altogether, since something *may* happen which would demand the services of a skillful physician. Although it may be but once in a thousand cases, you do not know but the one case out a thousand may be yours. It is not best to take risks. If, then, a doctor is to be called in, there are good reasons why he should be notified of the expected birth at least a month before the time. There are conditions which may exist and which the physician may remedy. He should know the history of the woman, as to her general health, the number of her confinements, her symp-

toms during pregnancy, and if there be anything unnatural in any way. It is the custom in some communities to engage the physician a month or two previous, and it should exist in all communities.

Chapter VIII.

THE ARRIVAL.

PAINLESS CHILDBIRTH.

It is a well-known fact that women of savage tribes do not suffer much nor have a tedious labor in childbirth as the most of the women in civilized countries do. An Indian woman on a march, when her time comes, will stop for an hour or so, give birth to a child, attend to it herself, place it on her back, and proceed on the journey. The reason why women of civilized countries suffer in childbirth is not, as some writers would have us believe, due altogether to their bad habits of life from one generation to another. This, no doubt, has much to do with it. Did all women dress properly at all times, take the proper amount of exercise in the open air, and pay more attention to diet and cleanliness, there would in the course of a few generations be much less suffering in childbirth, and the dangers of the pregnant state would be reduced to almost nothing. But one great reason why civilized women suffer more than savage, is because of their increased nervous sensibility. The changes which naturally take place in expelling the child from the womb, it would seem, must affect the nerves in such a way as to give some pain. But those who are sensitive and suffer much also enjoy much. The savage is incapable of suffering great

pain and also incapable of intense enjoyment. The lower you go in the scale of animal life, the less important is the nervous system, therefore the less capacity for either suffering or enjoyment, since both must come through the nerves. It is a mistake to suppose that a frog suffers as much when its leg is cut off as when a similar accident happens to a man. A horse would, under such circumstances, suffer far more than a frog, a savage than a horse, and a civilized white man or woman more than a savage.

The Rev. J. G. Wood, in his "Uncivilized Races," gives a number of instances of savages manifesting an indifference to pain. Among them is the following: Speaking of the Damaras, an African tribe, he says: "On one occasion a man had broken his leg, and the fractured limb had been put up in a splint. One day while the leg was being dressed, Mr. Baines heard a great shout of laughter, and found that a clumsy assistant had let the leg fall, and had rebroken the partially united bones, so that the leg was hanging with the foot twisted inward. Instead of being horrified at such an accident, they were all shouting with laughter at the abnormal shape of the limb, and no one seemed to think it a better joke, or laughed more heartily, than the injured man himself."

There are some cases, however, on record of women in civilized countries who had given birth to children without any pain whatever; and sometimes without any warning, the child has been expelled by one uncontrollable effort of the womb. A

physician of my acquaintance related to me the case of one of his patients who was delivered of a child on her way back from the well, a few yards from the house. She had perceived no symptoms of approaching labor, and was immediately taken with violent bearing-down sensations, and stooping down the child dropped upon the ground. She picked it up and carried it into the house. An old lady once told me that just before one of her children was born, she felt a little uneasy, and lying down on the bed, one violent contraction of the womb expelled the child.

The subject of painless parturition, or childbirth, has been discussed by various writers. Some go so far as to say that pain is entirely unnatural, and if proper care be taken there would be no pain. I think such is an extreme view. We have those who are enthusiastic advocates of water-cure in lessening the pains and dangers of childbirth. Says Fowler: "Its effects are magical in diminishing labor pains and dangers." This water-cure treatment consists mainly in taking daily sitz baths in tepid water for six weeks or more before the time of delivery, and, in some cases, of wearing wet bandages at night over the abdomen, together with certain regulations in diet, etc. Dr. Joel Shew is one of the greatest advocates of this plan. He says: "I require my patients to bathe daily, drink no tea or coffee to weaken their digestion, constipate their bowels, destroy relish for food, shatter their nervous system, and impair the soundness of natural and refreshing sleep; to dress so as

not to distort and debilitate their frames, and instead of remaining mostly within doors, according to the foolish customs of civil life, go regularly and often in the open air—thus gaining strength by means of these powerful and natural tonics, exercise, pure air and light."

Many, if not the majority, of physicians place but little confidence in the claims of water-cure enthusiasts. Their system has much good in it, but they err in claiming to do everything by it, and sometimes by applying a general principle in exceptional cases they do vastly more harm than good. Water is a powerful agent for good or evil in the treatment of disease, according as it is properly or improperly used.

If water produces a shock by its low temperature it does harm, as all shocks to the nervous system are more or less injurious. If water relaxes the system too much the nerves are weakened and injury is done. The relaxation is felt as a sensation of weakness and prostration. This is very apt to follow prolonged use of the tepid or warm bath. The local application of hot, cold or tepid water is rarely ever attended with evil results and is often beneficial where everything else fails. When a general bath is taken it should be in water of a temperature agreeable to the feeling, and not long continued.

All of life, from infancy to the hour of childbirth, should be one of preparation for that event, for it takes all of those years to perfect a female form and constitution. Yea, we must go further. The

influence of parents and ancestors for many generations may determine the question. Oliver Wendell Holmes once said that every disease could be cured if we would only begin in time, but in some cases we ought to begin two hundred years before birth. We may conclude then, that all the good advice, concerning proper living in every respect, has its bearing on determining the question of painless childbirth.

One cause of the very great suffering sometimes incident to childbirth is disease of the womb. A proper hygienic life during and previous to pregnancy will in most cases cure such diseases. If the womb is tender to pressure at all times, it is pretty good evidence of existing inflammation. A good physician should be consulted.

But is there anything specially which a woman may do during pregnancy, or can anything be done when the hour arrives to lessen the pains of childbirth? There are two agencies which have been particularly recommended, and for which much is claimed. The first is to regulate the diet of the woman for a few weeks at least before the close of pregnancy so that she partakes of but little or no bone-forming food. The second is the use of chloroform or ether. These two proposed special methods for doing away with much of the pain of childbirth I shall now discuss somewhat in detail.

Dr. Holbrook, in his little work entitled "Parturition Without Pain," discusses the method of diet in pregnancy somewhat in detail. It appears that in 1841 a pamphlet was printed in England

giving an account of an experiment tried by a chemist upon his wife, whose previous deliveries had been excessively painful, and it was feared she would not survive another. The result was very favorable. Others tried the experiment, and many successful cases were reported. The principle of this man's system I will give in his own language. He says: "In proportion as a woman subsists during pregnancy upon aliment which is free from earthy and bony matter will she avoid pain and danger in delivery, hence the more ripe fruit, acid fruit in particular, and the less of other kinds of food, but particularly of bread or pastry of any kind, is consumed, the less will be the danger and suffering of childbirth."

It is well known to physiologists that the child, a couple of months previous to birth, has, instead of bones, only soft cartilage, or gristle, and that the earthy or bony matter is deposited gradually, beginning before birth and continuing until nearly adult life. Also that the earthy, or bone matter comes from certain parts of the food. Some kinds of food contain more, some less of bone-forming material. Wheat bread and especially Graham bread, contains the most bone-forming material; corn, rye, oats, barley, beans and peas contain less of it than wheat. Potatoes not half as much, and the flesh of young animals not one-tenth as much. Rice, sago, tapioca, fish and eggs contain less than potatoes. But fruits, such as apples, pears, peaches, plums, cherries, strawberries, gooseberries, raspberries, blackberries, cranberries, huckleberries, cur-

rants, grapes, oranges, figs, lemons, dates, prunes, raisins, melons, contain on an average only one two-hundredth part as much bone-forming material as wheat breads. Such substances as sugar, honey, butter and vinegar contain no earthy matter. It is said, however, that salt, pepper, cinnamon, nutmeg, cloves, ginger, coffee, cocoa and liquorice contain almost as much as wheat. All the water we drink, except rain-water or distilled water, contains earthy matter.

It is claimed, then, that if a woman lives mostly on fruits and avoids wheat bread, that the child in the womb will have soft bones, and as a consequence, delivery will be easy. Dr. Holbrook recommends that women follow the fruit diet during the entire term of pregnancy. He claims that not only will it almost do away with the pains of childbirth but will much lessen the various symptoms which women may have during their pregnancy. Dr. Cowan recommends that the last two weeks of pregnancy the woman confine herself to a fruit diet.

Now, in regard to this proposed method of lessening the pain of childbirth, I have no experimental knowledge, but it seems reasonable, and there could be no harm in trying the experiment. Too much bread is usually eaten, any way. More fruits and watery vegetables in proportion to the bread and meat ought to be eaten by everybody, and more especially by pregnant females, because they are particularly prone to constipation, and a fruit and vegetable diet tends greatly to prevent that trouble.

With a view to lessening the great pain sometimes incident to delivery, many eminent authorities of late years have recommended the use of chloroform or ether. It was formerly thought that whatever would annul the labor-pain would stop the contractions of the womb, but it is now claimed that chloroform will destroy the pain while the contractions of the womb continue. Dr. Bedford says: "Anæsthetics (such as ether and chloroform) do not lessen and sometimes increase uterine (womb) contractions," and adds further, "under judicious administration, it may be affirmed that as a general rule these agents may be employed during parturition with safety to both mother and child." Many other excellent authorities have strongly advocated the use of chloroform, especially where the labor is lingering, and the pains seem to do no good.

The danger of chloroform is almost nothing, because an amount sufficient to produce unconsciousness is not required as in surgical operations. I would not recommend its use in easy labors, but only when the pains are severe and the progress is slow. It should never be administered except by a physician and never given to the extent of producing unconsciousness.

Dr. Holbrook thus summarizes the points which he makes upon painless childbirth: "Painless parturition may be secured by attention to the following points during pregnancy (besides correct previous bringing up, moral, mental and physical):

"Moderate healthful exercise, and avoidance of shocks, fatigue and over-exertion.

"Comfortable or at least quiet and patient mental condition, avoiding all bad tempers.

"Amusement and agreeable occupation as far as possible.

"Judicious use of bathing, particularly of the sitz bath.

"The fruit diet, and avoidance of unsuitable food, and of alcoholic, narcotic and other stimulants.

"Watchfulness and prompt treatment of the various ailments of the situation, should they appear.

"Kindness and indulgence by the patient's husband and friends.

"The use of chloroform, if required, at delivery; but only if administered and watched by a professional attendant."

PREPARATION FOR CONFINEMENT.

During the last few weeks of pregnancy the breasts may demand some attention. It is not uncommon for the nipples to become sunken or flattened as the breasts increase in size. This is due to a want of elasticity in the milk tubes. Nipple shields worn constantly may be used to advantage. A breast pump or a puppy has been applied in such cases to draw the nipple out, but there is danger of exciting the womb and producing premature labor, on the principle of sympathetic, or reflex action of the nervous system. In first pregnancies the nipples may be hardened by frequently gently rubbing them with the fingers and

bathing them once or twice a day with weak alum water. Borax water or tannic acid and linseed oil are good for tender nipples. This matter of the care of the nipples should be attended to before the child arrives, since a little doctoring in time may save a great deal of trouble.

To those who expect to hire a monthly nurse, for the hygienic period, we would say, it is best to select and engage one sometime previous to confinement, and have her come a week or more before the expected day. A married woman or a widow should be chosen, and, if possible, one who is gentle and kind, handy about the sick and who does not tattle. A woman who has tales to tell of women she has nursed, you may expect she will tell tales about you. Good nurses are scarce, and to be sure of one you must engage her early and expect to pay her a little more than common. A bad nurse is dear at any price.

The following articles, necessary in confinement, should be prepared and placed where they can easily and readily be obtained when needed:

1. *Clothing for the child.* It is not necessary here to specify the garments that need to be prepared. A piece of soft flannel from four to six inches wide and long enough to go one and a half times around the child's body as a *binder*, should be provided in addition to the usual child's clothing. The use of this band is almost universal, and it is recommended by good authority, yet some writers object to its use. The clothing of the child should never be starched.

2. A piece of soft linen or muslin for dressing the navel, some clean towels, a cake of fine toilet soap and a fine sponge, a paper of pins and some good strong linen thread may be put aside to be ready when wanted.

3. A bandage for the mother should be provided. This consists of a piece of muslin about a yard and a quarter in length and from twelve to eighteen inches in breadth. It should be made and fitted to the woman, when pregnancy is about half advanced. If made with a gore below so as to fit the shape of the person accurately it will be more comfortable and retain its place better.

4. For the bed there should be provided a piece of oilcloth, or rubber cloth a yard or more square, and some old comforts and sheets.

The method of using the above articles will be given under another head. They should be put by themselves in some convenient place, as during the excitement at the time they will be needed it may be difficult to find them.

SIGNS OF APPROACHING LABOR.

A few days before the beginning of labor the womb descends somewhat in the abdomen and the latter becomes a little smaller. The woman breathes easier because the pressure on the stomach and lungs is relieved. Feeling so much better, she may be inclined to take more exercise than usual. She should be very careful about this, as extra exertion at this time may induce labor too soon. This falling down of the womb is one of the earliest

signs of approaching labor. As a consequence, also, of the lowering of the womb, the woman may have very frequent desires to urinate.

Another sign is the increased fullness of the external parts, and an increased secretion of mucous amounting sometimes to a resemblance to the "whites," and requiring the wearing of a napkin. This is considered as showing a disposition to relaxation of the parts, and hence a sign of easy labor.

Towards the very last the mental condition of the woman may change. She may have a feeling of anxiety and become much depressed in spirits. This seems to be natural and should not be increased by allowing the mind to dwell upon the subject. Friends may do much harm at this stage by withholding proper words of encouragement, or by dropping discouraging remarks.

Sometimes there are false pains, even two weeks before delivery, and the woman mistakes them for actual labor pains. Doctors are not unfrequently sent for two weeks too soon. I know of one case in particular where a doctor went seven miles to attend a case of confinement, stayed over night, and in the morning concluding that labor had not begun, went home. The woman went about her usual work, and two weeks afterward another doctor was called, but the child was born before he arrived, labor having been unusually short.

LABOR—ITS CAUSE, SYMPTOMS AND DURATION.

The cause of labor is nothing more nor less than the contraction of the muscular fibers of the womb. What causes the womb to contract at a certain time we can not answer, any more than we can tell why an apple becomes ripe and loose on its stem at a certain time. The ancients thought that the child was the active agent in causing its own expulsion. Some thought it struggled to get out because it wanted food, others because it wanted air. The child is perfectly passive. A dead child is expelled as readily as a live one. Labor is also independent of the will of the mother. It has been known to take place even a day or two after the death of the mother.

The first symptom of actual labor is generally what is known as "the show." This is the discharge of the mucus which hitherto has plugged up the mouth of the womb, accompanied generally by a little blood. Sometimes before and sometimes several hours after this the "pains" will appear. The first pains are grinding or cutting in character, and appear irregularly, sometimes several hours apart. Sickness at the stomach sometimes comes on early in the labor and continues throughout. Shivering, not attended with sense of cold, may occur. There may be frequent desire to unload the bowels and bladder and vomiting may occur at first.

Labor pains are divided into two classes, "true pains" and "false pains." True labor pains are

produced by contractions of the womb. At first they are of a grinding or cutting character, but afterwards become of a "bearing down" nature. False labor pains are from various causes, as wind in the bowels, full bladder, spasmodic action due to nervous sensitiveness, diseases of the bladder, kidneys or ovaries. True pains may be distinguished from false by their apparent location. True pains are always referred to the back and loins, and seem to extend to the thighs. False pains are referred to the abdomen. Cramping of the legs and thighs is an occasional attendant on labor. This is less apt to occur if the patient change her position frequently during the first part of labor.

As the close of labor approaches the pains become more severe and more frequent. Usually just a little while before the child's head is expelled there is a gush of liquid from the mother. This is called the "breaking of the waters." It is a discharge of the liquid which is contained in the sac-like membrane enclosing the child. It rarely happens that this membrane is not ruptured, and the child is "born with a caul." Not unfrequently the waters break several hours before and sometimes several days before. There is then what is called a "dry labor," which is usually very tedious.

The head is the part which generally presents, and occasions the most difficulty. After the head is born, the body of the child is usually expelled very quickly.

The duration of labor varies so much that it is impossible to fix upon any time. What is called a

natural labor may vary from a few minutes to eighteen hours. The young woman, or to-be-mother, who reads this must not get the idea that the whole period of labor is a period of suffering and sickness. The time of actual suffering compared with the entire duration of labor is very short, since the intervals between pains is sometimes great, and always very much longer than the pains themselves, except toward the very last part, when the pains may come in pretty rapid succession, but then a few such pains usually puts an end to the labor.

The first labors of a woman are, as a rule, longer than subsequent ones. The time varies also with the sex of the child, being a little longer in the case of males. The size of the child also affects the time. Children over eight pounds, it is said, average about four hours longer in birth than those weighing less than eight pounds.

When a woman marries late in life the first labor is usually very tedious, but subsequent labors are as easy as if she had married earlier.

DUTY OF THE PATIENT DURING LABOR.

When labor has commenced, the woman may lie down, sit up, or walk around just as she may feel inclined. She will feel better to change her position frequently at first, but towards the last she will generally want to lie upon her back in the bed. The latter is the usual position in which delivery is accomplished in this country. In some countries

women have the habit of being delivered lying on the side, or on the hands and knees.

If the bowels have not moved freely shortly before labor begins, an injection of warm water should be taken to unload them. She should frequently empty the bladder also. Attention to these matters is of *great importance*. No false delicacy should prevent her from doing so. If the doctor, or any other person before whom she may feel embarrassed, be in the room, she should privately ask her nurse, or particular female attendant, to request them to leave the room for a few moments.

As soon as it is evident that labor is about to begin, the woman should dress herself for the occasion. A clean chemise or night-gown may be put on next to the body, and rolled up smoothly above the hips, that it may be pulled down afterward unsoiled. Over this she may put a petticoat and wrapper or dressing gown.

During the labor she will not care to eat and she should not allow herself to be persuaded by attendants to eat. She may, however, desire, and it will not do any harm, to drink a cup of warm tea or coffee when the regular meal time comes.

If a doctor is called, and I think one ought to be in nearly all cases, the woman should put her trust in him. He understands his business, and will do all that can be done by a doctor, and nothing more than is necessary. Doctors are carefully taught in medical colleges, and in their books, how to manage such cases. Do not pay any attention to the suggestions of old women who may be in

attendance, if their suggestions are contrary to what you have learned from this book, and from the doctor. There are yet many foolish notions among people in many parts of the country which have long ago been exploded by doctors and scientific men, who have made such things a study. Women may sometimes think that the physician is too officious and even object to his making the proper examination, (which is always conducted with the greatest delicacy, the patient never being exposed), and again they may think he does not do enough. Remember that in ninety-nine cases out of a hundred he is not at all needed, but when he is needed, he is needed badly, and you do not know but that case may be yours.

Do not be anxious about the result of labor. Remember that labor is a natural process, and it is only when some great deformity exists, or where some exceedingly rare case of unnatural presentation that there is any danger. It may be truly said that a woman is in no more danger in labor, than the inmates of a house are during a thunderstorm, or than persons are riding on the railroad cars. There are risks in every department of life, and all classes of people are liable to accidents or diseases which may take their lives.

In the first part of the labor, when the pains are grinding, she ought not to "bear down to her pains," as she may be advised by ignorant nurses. Towards the last, when the pains become bearing down in their nature, then she may bear down gently and thus assist a little in the expulsion of

the child. She ought never to bear down unless the pain is actually upon her, as it will do more harm than good.

Towards the last the pains may be very severe, and the woman be inclined to cry out. She should do so, as it tends to relieve her. Nurses may tell her that it will do her harm to cry out, but they are mistaken.

DUTY OF THE ATTENDANTS DURING LABOR.

The question as to who shall be present during the labor may as well be answered here. It is customary in this country for the husband and one or more married female friends and frequently for the mother of the woman to be present. The latter is generally objectionable, as her maternal anxiety may worry the patient. Yet it is well that she be in the house as the woman will feel better to know that she is near. There is no objection to the husband being present, but too many other persons need not and ought not to be in the room. Two women and the husband are enough beside the doctor.

As soon as it is known that labor is about to begin, the bed ought to be prepared. Remove all the clothes but the mattress. Upon this place a large piece of oil-cloth or other water-proof goods. Upon this place an old, soft comfort, and over the comfort a clean sheet.

Attendants should not act and speak as though some one were dying, but move about briskly and speak in ordinary tones. Conversation generally

should be on topics having no reference to sick persons, or to other cases of confinement, and always upon cheerful, not serious subjects. Anything that can be said to the patient which will tend to divert her mind from her condition, and direct it towards cheerful objects will be in order.

Towards the last constant attendance at the bedside is needed, as the pains come very frequent, and the woman will desire while a pain is on her, to hold the hand of an attendant. Sometimes a sheet is twisted up and looped around the bedpost for her to hold and brace herself during a pain. The patient often derives much comfort by having the small of her back held by an attendant. This should not be done with the naked hand, but a pillow should be placed between the hand and the back, and a gentle pressure exerted upward.

The room should not be kept too warm, and it should be well ventilated, but in such a manner as to avoid drafts upon the bed. Do not open a window where a current of air will pass over the bed.

In case the doctor is unavoidably absent, or one is not called, it is necessary for the attendants to perform certain duties which they will better understand when they have read the remainder of this chapter.

DUTY OF THE PHYSICIAN DURING LABOR.

I may state here that a physician who is at the same time attending cases of childbed fever, smallpox, measles, typhus fever, diphtheria, scarlet fever or erysipelas, ought not, for reasons which

will be given in another place, to attend upon women in confinement.

The doctor need not be sent for until the pains begin to be frequent, unless the waters should break in the early part of labor. It must be remembered that a doctor can only make an examination, and if the child be presenting right, it is his duty to let nature alone and simply watch the progress of the labor. He can not assist in any way in a natural labor, until at the very last.

Some women have the idea that the doctor can do much toward hurrying the matter along, by "taking a pain," as it is called. This "taking a pain" is nothing more than making an examination by inserting the two fingers of the right hand gently into the vagina and feeling the mouth of the womb to ascertain if it be dilating and if the child is presenting properly. In the first part of labor by making this examination occasionally, he learns whether the mouth of the womb is dilating, and from this knowledge may be able to make a rough guess as to the duration of labor. Later he can tell by this examination what part of the child is presenting, and thus learn whether it is a natural labor or not. If either the apex of the head, the face, the feet, or the buttocks present, no interference is necessary.

These examinations should be made as seldom as possible, as no good and possible harm can come from frequent examinations. The fingers should be greased with a little lard before passing them into the vagina.

The doctor need not be in the room with the patient in the early part of labor, except occasionally to note the progress of the labor. At the very last he should be at the bedside, for it is his duty to attend to the child.

I give these duties of the physician not as advice to any member of the profession at all, but that the woman may have a correct idea, and not be led to think that the physician is doing more or less than his duty. Also that in case the physician be absent, any attendant of ordinary intelligence may perform his duties.

ATTENTION TO THE CHILD.

As soon as the child's head is born the physician should ascertain whether the cord is around its neck as sometimes is the case. If so, it should be removed, or else the child is in danger of being strangled. The finger ought to be put into the mouth of the child to clean away any mucus, or membrane which might interfere with respiration. Until the body is born the head should be supported by the hand. As soon as the body is born the child should be brought out from under the clothes far enough for it to get plenty of air, and placed on its right side with the head removed from the discharges. The cord should not be tied until the infant is heard to cry.

The cord is tied in the following manner: A piece of strong linen thread is made doubled or trebled and tied around the cord with a double knot and tightly, at a distance of about two and a

half inches from the navel. Another piece of thread is tied about an inch beyond the first, that is, toward the mother. The cord is then to be cut with a pair of blunt pointed scissors half way between the two ligatures. Care should be taken not to clip off a finger of the child, as has been done by careless operators.

The child, being thus separated from the mother, should be wrapped in a warm blanket, old woolen shawl, or piece of flannel, taking care not to cover its face so that it can not breathe perfectly. It should then be put in a safe place while preparations are being made to wash and dress it. Do not place it in a chair where some one may without thinking sit down on it.

Should the infant fail to cry a smart tap on the buttocks will generally cause it to do so. You may then be sure it is all right. But should it be apparently dead, means should at once be taken to cause it to breathe. Sometimes a little cold water sprinkled in its face is all that is necessary. If this fail, a sudden plunge into water, blood warm, may start respiration. So long as there is pulsation in the cord, it ought not to be tied. The following method of restoration may be tried: "Place the infant on his face; turn the body gently, but completely on the side and a little beyond, and then on the face, alternately; repeating these measures deliberately, efficiently and perseveringly, fifteen times in the minute only."

ATTENTION TO THE MOTHER.

The placenta, or afterbirth, is a circular mass composed mainly of blood-vessels, to which the umbilical cord, or naval string of the child is attached. Before birth it lies closely attached to the inner wall of the womb, from which it derives blood, which is sent through a vein in the cord to the child, supplying it with nourishment. After the blood has circulated through the child it returns through two arteries in the cord back to the placenta, from which it passes back to the mother. Now, when the child is born, or shortly after, the placenta becomes detached from the womb, and the blood ceases to flow through the cord. The placenta then is no longer of any use, and the womb expels it as it did the child. This generally takes place in from fifteen minutes to a half hour after the birth of the child. Sometimes it comes away immediately, sometimes it may be retained for many hours or even weeks.

It is generally thought to be exceedingly dangerous to leave the afterbirth for any length of time in the womb, but there is no immediate danger, and it is better to leave it for awhile than attempt to remove it by force. There is a notion among people that it is not safe even to let go of the cord after it is severed from the child. I was once called to see a case in which the child was born before I arrived. I found one of the attendants sitting by the bedside holding the end of the cord which they had severed. She explained that she had always been told it

would not do to let go of the cord until the afterbirth was removed.

If the afterbirth does not come away of itself no severe pulling on the cord should be allowed, as it may break or tear loose. It often happens that the patient being exhausted by the labor, the womb does not seem inclined to contract sufficiently to expel the afterbirth. In such cases, time is the best remedy. Just wait awhile and it will come all right. Sometimes the hand of an attendant placed upon the belly, so as to grasp the womb, may cause contractions of the latter, which will expel the placenta. Placing the patient over a vessel of hot water for a few minutes has been known to be effectual. Only the most gentle pulling on the cord should be allowed. If, while pulling very gently on the cord, the woman be asked to cough several times, it may come away. If these simple means fail, and no physician be present, one should be sent for.

If it be not removed for three or four hours there is possible danger of blood-poisoning. There may be internal hemorrhage, the afterbirth plugging up the womb and keeping the blood in. This will be indicated by paleness and exhaustion of the patient. Send for a physician at once and in the meantime make attempts to remove the afterbirth.

As soon as the afterbirth has been removed the mother should be moved a little to one side of the bed, while the soiled clothes are removed and clean ones substituted. The external parts should be washed very gently with a soft cloth or sponge. This should be done under the bedclothes, so as not

to expose the parts to the air. The parts may be dried by a soft cloth carefully pushed against them, being careful not to rub so as to irritate them.

The bandage mentioned in a former part of the chapter may now be put on. It should be fastened with pins and only moderately tight. Some writers do not believe in the use of the bandage, but it is, I believe, an almost universal custom, and *good* authorities, such as Napheys and Chevasse, earnestly recommend it as tending to induce the belly to return to its original size. It is at least comfortable to the woman during the first two or three days. It is not used as much now as formerly.

The chemise, which until now has been rolled up around the waist, should be pulled down, and a napkin smoothly folded and laid under the hips to receive the discharges.

FURTHER ATTENTION TO THE CHILD.

There need be no hurry about washing the child. Some writers recommend that it be allowed to rest an hour or so, or even as long as twenty-four hours, before it is washed. When the mother has been attended to, as just described, it will be time enough to wash the child.

When a child is born its skin is covered with a peculiar substance, which must be removed. In order to remove it more readily and effectually the body should be first well rubbed with lard and then carefully washed with soap and water. It is best to grease only a part at a time and then wash that part while the remainder of the body is covered.

Be very careful not to get soap in the eyes of the child. Use a soft sponge or very soft cloth.

The next thing in order is to dress the navel string or umbilical cord. This is done as follows: Take a piece of soft muslin about five inches square, cut a hole near one corner, pass the cord through this hole, grease the cloth well and fold it over the cord. Mutton tallow is excellent for greasing the cloth. The binder, mentioned on a preceding page, should next be put on. This retains the dressing of the navel and protects the child's abdomen against cold. It should go once around the body and overlap in front and secured by three pins. It should not be made too tight, as there is danger of pushing the bowels, causing rupture.

The child may now be dressed completely and applied to the breast. If the nipple be sunken too much for the child to grasp it, a wide-mouthed bottle may be first filled with hot water, then emptied and immediately applied over it, and held there for a few minutes. As the bottle cools there will be a suction, which will draw out the nipple. A little sweetened milk applied to the nipple may tempt the child to take it, if it does not otherwise. It is very important that the child get the first milk of the mother, as it acts as a physic, removing from the bowels the *meconium*, as the material which is found there at birth is called.

The child should be kept for the first twenty-four hours as much as possible lying on the right side, as this favors the closing of the opening

between the right and left sides of the heart, through which the blood circulated before birth, but which now must go through the lungs to be purified. When put to nurse it should be placed on its right side and may lie on the arm of the mother.

In first pregnancies there is not apt to be much milk in the breasts for about three days, and the breasts may be swollen and tender, but the best relief for them is the nursing child. In such cases the child should have some nourishment. A teaspoonful of white sugar may be dissolved in half a teacup of boiling water and a teaspoonful of sweet cream added. A little of this may be given every two hours until the milk appears in the breasts.

A new-born babe ought to be fed or nursed regularly every two hours. If asleep it ought to be waked to be fed, since a healthy child, until three months old, should sleep most of the time. If its food agrees well it will go to sleep again very soon after being fed.

FURTHER ATTENTION TO THE MOTHER.

The woman should get perfect rest as soon as possible after delivery. To secure this, as soon as she is made comfortable by change of bed clothes and washing the external parts, as before described, the room should be kept quiet and visitors not allowed to enter for the first twenty-four hours. She should maintain the recumbent posture for several days not raising her shoulders nor sitting up in bed.

For the first four or five days her diet should be light, such as toast, with a little butter, tea, cracked wheat or oatmeal and milk. After this, when the danger of milk fever has passed, she should have a more generous diet, in fact almost anything that is agreeable and wholesome to any other person. The diet should be light at first so that the milk be not secreted too rapidly. In cases, however, where the woman is very feeble, she should have more stimulating food at first, but not in great quantity. Beef tea or chicken broth, free from fat, with light bread, will be good.

After the third day the woman's clothes and the sheets of the bed may be changed, and the woman given a tepid sponge bath. This should be done very carefully. The woman must not sit up, but let an attendant remove the clothes carefully by slipping them up and letting the woman simply turn over to get the arms out. Then let a part be exposed at a time and carefully sponged with a soft cloth and wiped dry. The sheet under the patient may be rolled up to her side, and the clean one rolled up half way and put in its place; then let the patient roll over off the old sheet and upon the new, which can then be straightened out on the other side. While the bathing and change of clothes is going on, the room should be warm and the windows all closed. As soon as she is comfortably fixed again the window, or windows, may be opened for ventilation.

For a couple of weeks after confinement there is a discharge from the vagina. This is natural, and

nothing need be done except to keep the external parts as clean as possible. Every four or five hours the napkin ought to be changed, and the parts washed with soap and water without exposing the patient to the air. It is very important that this should be done. If the parts are sore, a little sweet oil, goose grease, or some other soothing substance should be applied.

The bowels are apt to be constipated for some days after labor. This is caused by the pressure of the child upon the rectum and muscles of that region, causing temporary partial paralysis of the nerves. It is customary to give physic soon after confinement. In many cases it is given too soon, or when it is not needed. If the patient feel comfortable and have no pain in the lower part of the abdomen, she should not take physic, even if the bowels do not move. If they do not move of themselves in three days, an injection of warm water may be given on the fourth day. A little castor oil, citrate of magnesia, or epsom salts may be given on the sixth or seventh day if there is no further movement after the injection. This will usually be sufficient, and they will regulate themselves after this. No patent pills or heavy doses of physic should be given at any time.

It not unfrequently happens that the pressure of the child during labor has affected the passage to the bladder, and as a result there may be difficulty in passing the urine for some time after delivery. If the patient feels an inclination to pass urine and can not, the physician had better be sent for. He

can relieve the full bladder by passing a tube called a *catheter* into it. This operation is a very simple one, and is done without causing pain or exposing the patient.

It should be known that violent anger or grief, or any strong emotion, will injuriously affect the character of the milk secreted by the mother. The child partaking of milk thus affected may have diarrhœa, colic, fever or convulsions. Cases are on record of children dying in convulsions after having nursed while the mother was in a violent fit of anger, or excited by grief.

THE GETTING UP.

We often hear of women going about their usual work in a day or two after the birth of a child. There are no doubt some women who can do this without danger, but the number who can is small. Ordinarily, a woman should not get out of her bed, except for a few minutes at a time, for two weeks after confinement. The system needs time to recover its former condition. Perfect rest should be enjoined. Even after she gets up she should not resume her ordinary work for two weeks longer.

Among the laboring classes there are many who think they must get up and go to work about the ninth day. It is among these we find the most cases of diseases of the womb. It is mistaken economy for a woman to go to work soon after confinement. She will save in doctor's bills many times as much as she would make by her labor.

The woman should be very careful to protect her

person from cold, as the system is peculiarly sensitive at this time, and rheumatic affections are liable to be brought on by exposure within a few weeks after confinement.

LINGERING LABORS.

It sometimes happens that when everything is right, that is, the child is presenting in a natural manner, the labor is tedious. This may be because the child is unusually large, or because the pelvis of the mother is smaller than the average, yet capable of transmitting the child, or because the soft parts may be unusually tense.

In such cases the patient and attendants are apt to become discouraged and frightened even, thinking that something is wrong, and that the labors never will come to an end without danger to mother and child.

Remember that such cases are not unfrequent, and that nature will bring all around in time. The attendants should do everything they can to encourage the patient and divert her mind from her case. Do everything you can to gain time, for time is the element which cures in this case. The parts slowly relax, and every pain adds to the progress though it be ever so little. When the pelvis is small, the bones of the child's head being soft, are pressed together and have even been known to overlap each other, but so gradual is this process that the child is not injured. The head may appear very much out of shape when born,

but a few days will bring it all right, and no apprehension need be felt.

It is these lingering cases where the pains are great and do not seem to advance the progress much, that chloroform judiciously administered by a competent physician will do much toward lessening the suffering.

PECULIARITIES OF BABIES.

The average weight of male children at birth is about seven and one-third pounds; the average of female children is six and two-thirds pounds, and for both sexes about seven pounds. There is one case on record of a child weighing seventeen and one-half pounds at birth, the duration of labor being only four hours. Another, which weighed seventeen pounds and twelve ounces, but was delivered by instruments. Sometimes they weigh but three or four pounds and live and do well.

The average length of new born infants is about twenty inches, the male averaging an inch longer than the females.

The size of the child seems to be governed to some extent by the age of the mother. The average weights increase up to the twenty-fifth year, and diminish after the thirtieth year. The first child of a woman is always smaller at birth than children born afterward.

It may be interesting to know the sizes of the unborn child at different stages of its growth and development. Properly speaking, the human being is an *embryon* until the end of the fourth month of

pregnancy, after which it is called a *fœtus* until birth, after which it becomes an *infant*, which name is appropriate until two years of age, when childhood begins.

At the third week the embryon is from one-sixth to one-fourth of an inch in length. At the eighth week it is about an inch long. At the third month it is about two and one-half inches long and weighs about one ounce. At the end of the fourth month it becomes a fœtus and is from one to five inches long and weighs about five ounces. At the seventh month the fœtus is about fourteen inches long and weighs from two to three pounds.

The natural and usual position of the fœtus in the womb is with the head downward. This is probably because the head is the heaviest part. In cases of twins one may be with the head downward, the other with the head upward.

A curious, but well-established, fact may be mentioned in this connection. From the breasts of infants of both sexes there generally may be pressed out a fluid which differs but little from ordinary milk. The quantity is variable, from a few drops to two drachms. It is found at birth, or in two or three days after and continues two or three weeks, sometimes longer. The use of this milk is unknown.

In another place I made mention of the caul, or membrane which sometimes envelopes the child at birth. There were formerly curious superstitious notions entertained concerning it. It was considered not only as a very lucky circumstance for the

child itself, but it was believed that any one who possessed this membrane would be secure from danger and good fortune was sure to attend him. For this reason midwives sold the caul at enormous prices to lawyers, "as an especial means of making them eloquent," and to sailors as "an infallible preservative against drowning." I am not sure but a remnant of these superstitious beliefs still exist in portions of our country.

Chapter IX.

THE TENDER SHOOT.

INFANT MORTALITY.

Statistics show that out of one thousand children born one hundred and fifty die within the first year and one hundred and thirteen within the next four years. One-tenth of the children born die within one month of birth. More die in large cities than in the country or smaller towns.

There must be some preventable causes for much of this frightful mortality. Many children die from causes which may be traced to the parents. We can not expect, as a rule, healthy children from unhealthy or ill-matched parents. Children are frequently born with important internal organs imperfectly developed, due to some taint in the blood of father or mother, or some more remote ancestor. Or these weaknesses may be due to some great agitation of the nervous system of the mother during pregnancy or to imperfect nourishment of the mother. Such cases are only avoidable by observing the directions laid down in former chapters.

There are a great many causes of death which begin to operate only after birth, the large majority of which, there is good reason for believing, are avoidable. Many die from attempting to bring them up by hand. This is generally but not

always avoidable. Many die from the diseases peculiar to children, as scarlet fever, croup, etc., but all diseases are more fatal among children, because of the delicacy of their systems.

A very large proportion die from disorders of the digestive system, owing largely to improper feeding and nursing. Of 11,382 children under twelve years of age treated at the dispensary in New York City during three years, 3,243 had some affection of the organs of digestion. Dr. Ballard, of England, showed by statistics that in five years there were in that country 314,242 deaths of children under one year of age, and of this number 277,852 were caused by disorders of the digestive organs.

BATHING THE INFANT.

A baby should be washed all over daily in water of an agreeable temperature. To ascertain the proper temperature let the nurse put her bare elbow in the water, and whatever is not too hot nor too cold, as judged in this way, will be about right. If she decide upon the temperature by her hands, she may get the water too hot, because the hands are accustomed to bearing higher temperatures than any other part of the body. Never use strong soap. Castile soap or some mild toilet soap ought to be used. The brand known as "Ivory Soap" is excellent. If the washing be done every day as it ought to be, very little soap need be used unless the water is hard. Rain water ought to be used if possible to obtain it.

Ordinarily a small quantity of water and a soft

cloth or sponge are all that is necessary, but it is a good plan to give the child a complete immersion in a tub of water once a week. Care should be taken not to expose the body to drafts. In cold weather a part ought to be exposed at a time, and washed and wiped dry immediately, and while a tub bath is used the room ought to be tight and warm. After the child is dressed the room may be ventilated again.

The ears should be carefully wiped dry inside with a soft cloth. Care should be taken also to wipe the parts under the arms and about the genital organs dry. No soap should be allowed to remain upon the skin.

CLOTHING OF INFANTS.

Infants are very susceptible to the influence of cold. Statistics show that severely cold spells of weather are accompanied by increase in the death rate among infants. The body of the child should be kept warm by clothing, and by the vital heat of the mother or nurse rather than by a warm atmosphere. It is nonsense to talk about hardening children to the cold by insufficient protection. That was once a common idea, but is not believed now by sensible people.

The clothing should be of the kind which, at the same time it secures warmth, should secure lightness. Light, soft flannels are best next the skin, with muslin or calico for outer garments. When the long dress is exchanged for a short one, the feet and legs should be protected by soft woolen

stockings (or cotton ones in summer), which should extend above the knees. The clothes worn during the day should not be worn at night.

The clothes should fit loosely and easily and be cut with high necks and full length sleeves and be fastened by buttons or tape rather than by pins.

PURE AIR AND LIGHT FOR INFANTS.

Pure air is especially important for infants. Rooms should be well ventilated, and by well ventilated I mean that they should have free access of fresh outside air, and free exit of foul air with no currents or drafts. If there be an unavoidable draft anywhere the infant should be kept away from that part of the room.

Children born in summer should be carried out daily when the weather is dry and those born in winter should be taken out after two months on mild days. They should never be kept out long at a time, and should have extra clothing if the weather be at all chilly. Babies should not be taken upon long journeys in wagons or carriages in severe weather, no matter how well they may be wrapped.

They ought not to be carried out on wet days nor when the wind is very strong. Damp atmosphere is frequently a cause of lung diseases. A strong wind may cause the child to suspend breathing for a time and thus produce dangerous results. A mother or nurse ought to be careful about breathing directly in a child's face. It may inhale a considerable quantity of the air which has been

once breathed and which, of course, is unfit to be breathed again. Kissing of babies on the mouth is not good as you can not kiss them without breathing directly in their faces. Kiss a baby on the cheek or forehead, never on the mouth.

Light is indispensable to the health and development of children. The full glare of light in the face of very young babies is, however, injurious to their eyesight. They should not be brought suddenly to a bright window, or before a lamp. A thin veil should be worn, but not too close to the child's face, when out of doors, until it is at least four months old.

SLEEP OF INFANTS.

Infants should pass the greater part of day and night in sleep, and this they will do if they be in good health. The older they get the less sleep they will take, but until the sixth year they need at least twelve hours sleep at night, and from one to five or six hours in the daytime. It is not proper, therefore, to wake a child in the morning, or at any other time, except for good reasons.

Babies are not unfrequently killed by being overlain by their mother, and on this account some physicians have advised that they should never sleep in the bed with the mother. But, as Dr. Napheys observes, "it must be remembered that an infant keeps warm with difficulty even when well covered, and that contact with the mother's body is the best way of securing warmth." For this reason the baby should sleep with its mother.

Dr. Napheys then quotes the following rules, given by a physician of reputation, for preventing an infant from the accident of being overlain:

"Let the baby while asleep have plenty of room in the bed. Do not allow him to be too near, or, if this be unavoidable from the small size of the bed, let his face be turned to the opposite side. Let him lie fairly, either on his side or on his back. Be careful to ascertain that his mouth be not covered with the bedclothes. Do not smother his face with bedclothes, as a plentiful supply of air is as necessary as when he is awake. Never let him lie low in the bed. Let there be no pillow near the one his head is resting on, lest he roll to it and bury his head in it. Remember a young child has neither the strength nor the sense to get out of danger; and if he unfortunately either turn on his face or bury his head in a pillow that is near the chances are that he will be suffocated, more especially as these accidents usually occur at night, when the mother or the nurse is fast asleep. Never entrust him at night to a young, giddy or thoughtless servant. A foolish mother sometimes goes to sleep while allowing her child to continue sucking. The unconscious babe after a time loses the nipple and buries its head in the bedclothes. She awakes in the morning, finding to her horror a corpse by her side! A mother ought, therefore, never to go to sleep until her child has stopped sucking."

After the third month it matters little where the child sleeps, provided it has plenty of clothing to keep it warm and does not lie where there is a

draft. It should be remembered that a child upon a feather bed will be much warmer with the same amount of covering than one on a hard mattress. This should be taken into consideration when the covering is put on. Sometimes children are made entirely too warm by placing them on feather beds, even when the covering is light. A straw or shuck mattress with a soft comfort or blanket over it is better for any person to lie on, except in very cold weather.

The clothing of the child's bed should be frequently changed and aired. This is even more important with children than with adults, since they are more susceptible to foul exhalations and secretions.

A child should early be accustomed to sleeping alone in the dark. Children are not, as a rule, naturally afraid in the dark. They are made so by improper training of mothers and nurses.

It is an almost universal custom to rock babies to sleep. It is not necessary. If you do not begin it the child will not expect it. They quickly learn the habit and then it is difficult to break up. Sometimes, however, infants are very irritable on account of ill health and one must resort to almost every means to quiet them. Everybody knows that it is much easier "to spoil a child" than to train it properly. It is easier to give advice in this case than to follow it.

HABITS OF CLEANLINESS.

On this subject I wish to quote the words of Mrs. Alice B. Stockham, M. D.: "*Habits of cleanliness* can be taught every child. The clumsy diaper can be dispensed with by the time it is three or four months old. Let the mother practice holding out her baby immediately after nursing it, and it will easily be taught to urinate at this time and also have a passage from the bowels at a stated time in the morning and evening. The actual comfort secured to mother and child through this condition more than repays for the labor and patience in securing it. Teach your children to be cleanly. 'A dirty child is a mother's disgrace.' When a child begins to creep and walk the diaper must be pinned tight enough to be injurious in order to keep it in place, and then, too, the amount necessary at this time to absorb the secretions, spreads the legs apart. The bones being pliable actual deformity often results."

NURSING.

The first food of the child should be the mother's milk, and this should be the only nourishment for the first six months, and in most cases for the first year. There is no need of arguing this question. It is the universal testimony of scientific men and physicians. But, notwithstanding all the counsel of competent advisers and the results of experience, we find women who desire to shrink from the responsibility of nourishing their own children. Of course, the mother can not always nurse her own

child. There are often good physical reasons why she can not, or ought not. When she can not, the next best thing is to have the child nourished by a wet nurse. Where this is impossible, the only thing that is left to do is to feed them artificially prepared food, or as we generally say, "bring them up by hand." The foundling hospitals of the world are striking proofs of the inefficiency of the latter method. Statistics show that where these foundlings are wet-nursed the proportion of deaths is about one-third, and where they are fed by hand the proportion is from one-half to three-fourths.

WHEN NURSING IS IMPOSSIBLE AND WHEN IMPROPER.

Severe cases of sore nipples are but temporary hindrances to nursing. The condition of the nipples should be observed before confinement and measures taken, as designated in a former chapter, to prevent soreness. When this has been neglected or the measures have been ineffectual, it is necessary to nourish the infant artificially for a time. But after an infant has been fed for several days with a spoon or bottle it will often refuse to nurse. The cases, however, in which it is impossible to apply the child to the breast a few hours after delivery are not common. Treatment for ulcerated and fissured nipples will be given in a succeeding chapter.

If the mother have consumption in a rather advanced stage, or if she be very sick from any cause, she should not attempt to nurse her child.

A temporary weakness need not induce a mother to wean her child or procure a wet nurse. It is often possible by proper care and judicious doctoring to restore her strength while the child is nursing. Nor is it necessary in all kinds of sickness to take the child away from the breast. It is only where there is considerable exhaustion of the vital powers, or where there is danger of communicating the disease to the child. It should be remembered that milk from a mother who is so sick as to be unable to take nourishing food, lacks the properties capable of nourishing the child.

When there is inflammation of one of the breasts it is necessary to restrict the child to the other. When the inflammation disappears the first milk should be removed by a breast-pump and not given to the child.

It may be necessary in some cases where the mother is not in the best of health, yet not actually sick, to let the child nurse less frequently and feed it once or twice a day with artificially prepared food.

If it be necessary to give the mother medicine which would act through the milk upon the child (for it is well known that many medicines affect the quality of the milk), it will be proper to feed the child for a day or two on artificial food, while the milk is drawn off with a breast-pump and thrown away.

STATED TIMES FOR NURSING.

A baby may be nursed too often. It should not be given the breast every time it cries. It as frequently cries from being over-fed as from being hungry. "For the first month he should be suckled about every hour and a half; for the second month every two hours, gradually as he becomes older increasing the distance of time between until at length he has the breast about every four hours." It may be found best to vary somewhat from the rule here laid down, but as a general thing, I think it is about right. Says Dr. Chevasse: "It is surprising how soon an infant, at a very early age, may, by judicious management, be brought into good habits; it only requires, at first, a little determination and perseverance; therefore a nursing mother ought at once to commence by giving the child the breast at stated periods, and she should rigidly adhere to the times above recommended."

I have before me a little pamphlet entitled "How to Feed the Baby." The author, C. E. Page, M. D., gives the history of an experiment tried upon a baby somewhat as follows: The child was allowed to nurse but three times a day from the hour of its birth, was weaned at the age of four months, and at the age of nine months was taking daily one and one-third pints of cow's milk and nothing more. He claims that the child grew and thrived and never had a moment's sickness of any kind and was never cross and fretful. He says: "I do not expect that, because of my own successful experi-

ment—perfect and complete as it is in itself—everyone will be induced to adopt the system at once. My own faith is by no means based upon this one experiment, nor indeed is it by one iota increased thereby." He thinks the great cause of diseases in children is over-feeding. He says the fat they store up is an unnatural and diseased condition; that fat babies are not healthy babies; have not as much muscle, and are not as strong as lean ones; that if a child is allowed to eat but three times a day it will not take more than it ought to at one time, and if the habit is formed at the start, it will not desire food at other times.

He brings up a great deal of argument in support of these views, and claims to have seen the experiment tried in many other cases successfully. He does not recommend weaning the child so soon as he did in the case mentioned, but says he did that in order to ascertain by measure the proper daily ration. I give his views to my readers for what they are worth. I think that most writers and medical men will agree that babies are more often fed too much than too little. I am afraid, however, that if my readers try the plan of three meals a day for an infant they will be compelled by the cries of the child to abandon it.

I might give here the history of a baby now nine months old which I have had occasion to observe every day of her life. She was apparently *born hungry*, would cry and fret continually until a little food was given her, then she would become quiet for a short time. The mother's milk did not come

for about three days. She was put to the breast frequently, but seemed to get no satisfaction from the nursing. A little cream, warm water and very small quantity of sugar was given her, allowing her to suck it from a rag. When the mother's milk came she nursed five or six times in twenty-four hours, and had several rather severe spells of colic during the first three weeks, which were relieved by catnip tea and milk of asafœtida. After this she was allowed to nurse whenever she seemed to be hungry. She had no more spells of colic and was, everybody said, the best baby they ever saw. She never cried nor fretted, did not have to be rocked to sleep and would wake up and lay for a long time looking around, cooing and smiling. She is very fat and heavy, and everybody thinks she is the picture of perfect health.

It seems to be perfectly natural for children to eat oftener than adults. Of course they may become accustomed to only three meals a day, and so may adults become accustomed to but one meal a day, but whether this be the best is a question. I have tried the one meal, the two and the three-meal plan on myself, and find that the three-meal plan is the best. The frequency of eating is largely a matter of habit. The young of all sucking animals nurse frequently and are usually apparently fatter than the adults, certainly healthy. If babies are subject to frequent attacks of colic or are very fretful, and nursing does not seem to relieve, but rather increase the difficulty, by all means withhold food from them for considerable periods of time

and try other means of relieving or quieting them. Sometimes a few drops of warm water will satisfy the apparent craving for food. It is not the best plan to attempt to quiet a child with food unless you are pretty sure that the want of food is what is making it uneasy. In the case of the child I mentioned it was evidently the want of food that made her cry, and not having sufficient food for several days she nursed too much when the milk did come and thus brought on the colic. There are great differences in babies and the treatment suitable for one will not always do for another.

While plenty of suitable food is necessary to healthy growth it must be held in mind that a child will not starve in a day, nor even in two or three days if no food be taken in that time; so do not think you are saving its life by continually feeding it. You may in some cases save life by withholding food.

INFLUENCES AFFECTING THE QUANTITY AND CHARACTER OF THE MOTHER'S MILK

I have already hinted at the fact that mental states of the mother may affect the milk, also that medicines act upon the child through the milk. Especial care is therefore necessary in the first place, to prevent these violent emotions and passions, and to abstain from medicines; and in the second place to forbear nursing the child in case the first conditions can not be avoided.

The kind of solid food, provided it be sufficient in quantity, and the mother be healthy, does not

affect the character of the milk to any considerable extent. It is a fact, however, that certain articles, such as acids, and fermentable substances, when eaten by the mother, often disturb the digestive organs of the child, causing colic and bowel complaints, without effecting any change in the milk which can be recognized by chemical analysis.

The amount of liquid food taken by the mother affects the quantity and quality of the milk in a considerable degree. While nursing, the mother has an increased desire for water, and if she is not supplied with it in sufficient quantity, the milk will be diminished in quantity and impaired in quality.

Violent mental emotions often stop the secretion of milk for a short time entirely.

"The last drop of milk is the richest," is often said of the cow, and it is scientifically correct, but according to Flint this is not true of the woman.

If the milk be retained in the breasts beyond an ordinary period, it alters in character. The longer it is retained the weaker it becomes. The milk is the richer then the oftener it is removed. In those cases where the mother is all right and in good health, but the amount of milk does not seem to be sufficient for the child, it ought to be applied oftener to the breast. In cases where it is not thought best to allow the child to nurse for a short period, the milk ought to be drawn in the meantime and thrown away.

A woman is not apt to menstruate during the first nine months after pregnancy, and rarely ever

becomes pregnant again before the expiration of that time. Should a woman menstruate while nursing, the milk will usually become less in quantity, and changed in quality so as to affect the digestion of the child, causing colic and diarrhea. If conception take place while the woman is nursing, the milk is also affected in quantity and quality. When pregnancy is known to exist, it is a common custom to wean the child, and with apparently good reasons.

TOO MUCH OR TOO LITTLE MILK.

The quantity of milk furnished by a healthy woman varies much, but on an average it has been estimated at from two to three pints every twenty-four hours. The quantity increases with the growth of the child up to about the end of three months. A healthy child will consume about two and a half pints of milk in twenty-four hours.

There are occasional cases of women who have an excessive amount of milk. In some cases it oozes away constantly, keeping the clothing wet. The quality of the milk under such circumstances is poor and watery. A cloth wrung out of cold water and applied to the breasts, and diminishing the quantity of drink, are common remedies. In bad cases a good physician should be consulted. Sometimes the constant oozing away of milk is not from an over-supply, but from inability to retain the milk.

On the other hand there are many cases of woman who have habitually an insufficient quantity

of milk. Such cases are more numerous in cities among the poorly-fed and hard-worked classes. Indigestion may be a cause of insufficient secretion of milk. In many cases the flow may be increased by applying the child more frequently. Attention should be paid to the general health. Proper food in sufficient quantities, proper outdoor exercise, and fresh air will have a favorable influence. Alcoholic drinks, as ale or porter, are sometimes given to increase the flow of milk. This is not advisable, for although they do increase the quantity of milk, the effect upon the system of the mother and upon the child is injurious.

A little artificial food ought to be fed to the child every day in cases where the mother's milk is scanty. This brings us to the subject of artificial feeding, or—

BRINGING UP BY HAND.

When it is impossible for the mother to suckle her own child, and a wet nurse can not be procured, it becomes necessary to use some other food.

The milk of the cow seems to be the best adapted to the child, but it must not be given in a crude state. It is too strong and will not agree with the stomach. The following is given by a good authority as a substitute for mother's milk: New milk, the produce of *one healthy* cow, warm water, of each equal parts; table salt, a few grains; lump sugar, a sufficient quantity to slightly sweeten it. The milk itself ought not to be heated over the fire, but should be warmed by the water. The temper-

ature should be that of the mother's milk, which is from ninety to ninety-five degrees Fahrenheit.

There are many kinds of artificially prepared food for infants, among which arrowroot, flour, tapioca and other substances which contain a large percentage of starch, figure prominently. Now, it has been ascertained that up to six months of age the child can not digest starchy food, as the saliva which is necessary to convert the starch into sugar is not secreted in sufficient abundance. After the sixth month a small proportion of starchy food may be added to the milk. Then arrowroot, tapioca, baked flour and sago may be given in small quantities, gradually increasing them.

What will agree with one child often will not agree with another, and what will agree with the same child one time will not at another time. Artificially-fed infants generally get along well enough in the winter time, but during the hot weather of summer are more liable to diarrhœa, colic and other disturbances of digestion. It is necessary then to watch closely the effects of the food and lessen the quantity for a time. Sometimes a change from diluted milk, as given above, to cream, water and sugar is a good one.

The quantity of water added to the cow's milk may be gradually decreased until about the tenth month, pure milk may be given with the addition of a small amount of starchy food. A little animal food, as beef tea or meat broth of any kind may be given sometimes for a change, after the teeth have begun to appear. The effect should be

carefully watched, however, and if any disturbance of digestion result it should be at once discontinued. When the milk and water disagrees it sometimes happens that a little meat broth will prove beneficial. Eggs may sometimes be given, but they should be carefully cooked. The proper way is to place an egg in boiling water and set the vessel off the fire. In two minutes examine the egg by breaking the shell at one end. If the white is just turned to a milky consistence it is done. If the white is hard it should be rejected. A little of the white and yolk may be mixed and added to the milk and water preparation.

In trying any new kind of food a very minute quantity should first be added to the preparation of milk and water already used and then gradually increase it if no bad effects are observed, or if the bad symptoms already existing begin to disappear.

The child should be made to take its food slowly. Feeding with a spoon is not a good way. In the act of nursing the child not only gets its food slowly, but the saliva is mixed with it and digestion is more perfect as a consequence. A nursing bottle is the nearest approach to the natural method of feeding. But objection is made by many late authorities to the common white rubber nipple, because of the white lead that is used in the manufacture of the rubber. The lead gets into the system of the child and poisons it, they say. Whether this be so or not, it may be well to use something else. "Any glass bottle of a convenient shape and size, with a few folds of soft linen

pierced with a small hole, and adapted to the mouth in the form of a nipple, will answer every purpose." Mrs. Dr. Lozier says: "I have known a very good artificial nipple to be made of a fine sponge, with cambric linen covering it. A small quill stitched in thoroughly is passed through the center nearly to the linen cover, and by fitting the sponge over the top of a small-sized bottle it answers a good purpose."

It is very important that the bottle and artificial nipple be kept scrupulously clean. Every time after using they should be scalded out with hot water. It is well to keep two bottles, then one may be cleaned while the other is in use. It is best to form a habit of cleansing the bottle immediately after using.

Never give an infant alcoholic liquors, tea, coffee, chocolate, salty meats, pickles or highly spiced food of any kind, not even in the smallest quantities.

WEANING.

When the child is about a year old it should be weaned. The time of weaning should depend upon circumstances. Twelve months is about the average time. It may be best to wean a few months earlier or wait a month or two longer. It should not take place immediately preceding or during warm weather. If the mother's health is not good weaning should take place sooner, but if the mother gets sick in hot weather the child should not be weaned, but a wet nurse should if possible be obtained.

Weaning should be a gradual process, occupying several weeks. The amount of spoon food should gradually be increased and the amount of nursing gradually diminished. A little artificial food may be given at the age of six months and occasionally thereafter until the time of weaning, observing the directions for preparing artificial food given on the preceding pages. Solid food ought not to be given until the child has several grinder teeth.

After weaning the food of the child may be varied, but until two years of age good, fresh cow's milk should form a large proportion of the food. Fruits and green vegetables should be given in very small quantities at a time. The skins, seeds and other hard parts of fruits should be first removed. Many raw fruits, as apples, are apt to produce colic, because of the air carried into the stomach and the fermentation which may take place if digestion is not rapid and perfect. Care should be exercised in giving raw fruits, especially in warm weather. None but perfectly ripe and sound fruits should be given.

Children naturally desire sugar, even at an early age, and it is good for them if properly given. They may get too much at one time, causing colic and diarrhœa. Candy is sugar changed slightly by heat, and is often mixed with many injurious substances, such as white clay and various coloring matter, some of which is poisonous. It is often made of glucose or grape sugar, which is not as sweet as cane sugar. Instead, then, of giving children candy let them have occasionally a little

pure white sugar. But until the child is old enough to manage a lump of sugar without danger of getting choked the sugar had better be put into the milk or other food, or in the form of a "sugar-teat."

If the weaning be done gradually there will be little danger of trouble with the breasts. The "drying-up" of the milk may be hastened by rubbing the breasts once a day with a mixture of sweet oil and spirits of camphor. The mother should drink as little as possible during this time. The breasts should never be drawn, as this will increase the secretion of milk.

When it is desired to complete the weaning, that is when the child has been allowed the breast for the last time a good deal of trouble may be saved by putting a bitter substance of some kind upon the nipple which will create a disgust for it in the child. A very little quinine or aloes will do no possible harm to the child and will be effectual in completing the process of weaning.

TEETHING.

The teeth make their appearance at different periods in different children. They generally begin to appear at the age of seven months, sometimes as early as the fourth month, sometimes not until the eighth month. The lower teeth appear a little earlier than those of the upper jaw. There are some exceptional irregularities in the order in which the teeth appear, but usually it is about as follows:

Between six and eight months after birth four

middle front teeth appear, two above and two below. At the end of twelve months there are four more front teeth, one in each side, above and below. At the end of eighteen months there are four grinder or back teeth, one in each half of each jaw. At the end of two years there are four canines, or "eye-teeth" and "stomach teeth," and at the end of three years there are four more grinders. These constitute the twenty temporary or milk teeth.

There are said to be some very rare cases of children being born with teeth and also cases of persons who never cut any teeth. King Richard III., of England, it is said, had teeth when born. Shakespeare makes the Duke of York, Richard's nephew, say:

> "Marry, they say, my uncle grew so fast,
> That he could gnaw a crust at two hours old;
> 'Twas full two years ere I could get a tooth."

The permanent, or second set of teeth, begin to replace the others from the sixth to the eighth year, and all except the last grinders, or wisdom teeth, have usually appeared by the thirteenth year. The wisdom teeth come about from the seventeenth to the twenty-first year.

Healthy children rarely ever have much trouble in cutting their teeth. With some the irritation is so great as to cause various troubles of indigestion and sometimes convulsions. There is always more or less fretfulness, feverishness and thirst. Pressure upon the gums relieves to some degree the irritation, hence it is customary to give the child a rubber ring to bite. In some rare cases it may

be necessary to lance the gums. This can be done by any one. A sharp pocket knife will answer. Take hold of the gum with thumb and finger of the left hand and press the knife down until it grates on the tooth with the right hand. Says Sozinskey in his admirable work, "The Care and Culture of Children:" "There can be no valid objection presented against this operation. It causes little pain and generally affords relief speedily. If there is any tendency to convulsions, it is criminal to delay the performance of it one minute."

VACCINATION.

Says Dr. Napheys: "If observation and experience ever taught anything, they have taught the protective power of this operation against the most loathsome and one of the most fatal diseases that ever afflicted the human race. And that mother who is careless and indifferent in this matter, neglects for her children a means of preventing disfigurement and saving life, compared with which all other means are scarely worthy of mention."

The testimony of medical men in favor of vaccination is almost unanimous, and I will not stop here to argue the question. The child should be vaccinated at an early age if the health permit, within the first three months if possible. A reliable physician should be called upon to perform the operation, not that it is a difficult one, but he will have better opportunity of procuring pure and good virus, and can give the advice necessary in the case. Do not wait until there is small-pox in the

neighborhood, but when the child is about three months old, see that it is vaccinated. When the child is three years old have it vaccinated again. It is well to vaccinate about every five or six years through life. No matter if it did or did not "take" the first time. To be on the safe side, vaccinate often. When so simple an operation can, with almost absolute certainty, secure immunity from so loathsome and dangerous a disease, there is no excuse for not having it done.

EXERCISE FOR INFANTS.

The only exercise a very young infant gets is that obtained when it is picked up and carried about, and when it kicks with its legs and throws its arms as it lies on its back. It is a good plan to take the child from its cradle occasionally, place it on its back on a pillow, and carry it about the room. Until it is about three months old, it will not be able to maintain itself in a sitting posture. In carrying a child then before this power is acquired, its back ought to be supported.

The common practice of lifting babies high in the air, is not to be recommended. There is danger of letting them fall, besides it is necessary in doing this to grasp them very firmly, and this may injure the delicate body. Some persons go so far as to throw a baby up and catch it as it comes down. This is to be condemned. Brain diseases may be produced by the quick motion and by the concussion in falling, to say nothing of the danger of let-

ting the child slip through the hands and fall on the floor.

When the child is old enough to creep and walk it will usually take plenty of exercise if left to its own inclinations. It does not need to be taught to walk—it will teach itself. Only let it alone and keep articles which would injure it, if it fell against them, out of its way.

A child should never be lifted by taking hold of its arms. Dislocation of the shoulder and fracture of the collar bone have been produced by lifting children in this way. In case assistance is given in learning to walk, the child should not be held by the arms. The proper way to lift a child or support it when it is trying to walk, is by placing the hand on each side of the chest immediately beneath the armpits.

Objections have been made to perambulators, or baby carriages. It is claimed that they have a tendency to make a child crooked and round-shouldered. Perhaps if used too frequently and too long at a time there is danger, but I think if used properly they are a good thing. Babies enjoy riding in them, and they certainly are a great relief to mothers, as carrying a heavy baby is very fatiguing.

Chapter X.

BUDS AND BLOSSOMS.

BOYS AND GIRLS.

Both the boy and the girl are, or should be, objects of the mother's special care from infancy until they are past the age of puberty, which usually occurs about the fifteenth year. When I have treated the subject of the care of girls up to this age, I shall have arrived at the place of beginning, for there the girl becomes a woman, and it was at this point I began in Chapter III. This chapter will be devoted to a discussion of the care of youth from the age of infancy until they have become men and women.

Every mother should certainly be anxious that her children grow up to be noble men and women. The schools can do much, but parents, and especially the mother, can do more towards developing to its highest degree the germ of manhood which exists in each child. Children should not be allowed to grow up like weeds. They require constant watching and careful training. Time and money spent in this direction will prove a good investment. If you wish a child "to bring your gray hairs in sorrow to the grave." let him grow up under the influences of the streets, take no thought of his actions, and have no care of his education; but if you wish him to be the comfort

and solace of your old age, do all in you power while he is young "to train him up in the way he should go." Says Dr. Sozinskey: "Through the haphazard method of rearing children commonly followed, parents too often prepare for their own lips a cup fuller of bitterness than the waters of Marah, for to them children who are defective, in either their physical or mental nature, are more or less of a curse."

The mind and the body should be educated together. Both require constant attention. Intelligence and sound judgment are required to train children either physically or mentally. Do not be above receiving advice, then, from books. Send your children to school, but do not trust to the school-teacher to train them. Teachers do the best they can, but they have not the same opportunities that parents have. Work, if possible, in harmony with the teacher. In the following pages I have given some hints which may be of inestimable value if heeded. They are not my wisdom, but simply my statement of the wisdom of many who have been successful in the art of training and caring for children.

DIET OF THE YOUNG.

Children and youth should have plenty of wholesome, nourishing food. In our large cities we sometimes see examples of children who are poorly fed, the food being insufficient in quantity and poor in quality. Among this class we find many pecu-

liar diseases and deformities which are unknown in the country or among the well-fed population.

I do not believe children will eat too much if left to their own inclinations. They should not be prompted by parents, or enticed by improper luxuries. Never urge a child to eat. Place before him wholesome food, in sufficient quantity, and let him eat all he wants. If he does not want to eat, do not force food upon him either by advice or commands.

By wholesome food I mean what is generally wholesome for the adult members of the family. I would make an exception, however, of tea and coffee and all stronger drinks. No person should ever take stimulating drinks until after the age of puberty. I have known parents to offer babies tea and coffee, thus training them in a habit which they will find almost impossible to break off when older. I do not believe that tea and coffee are injurious to adults except to some persons, but that they are injurious to children is well established. Children do not need stimulating food. Hence, pickles, highly-spiced meats and other highly seasoned articles should not be placed before them. The simpler their food the better.

On the other hand, children should be provided with good, sweet cow's milk in abundance. Most children like to drink milk, and in most cases it agrees well with them. If good milk is provided, they will rarely ever desire tea or coffee. A child may take a "notion" to drink tea or coffee merely because he sees older persons drinking them, and

not because he likes their flavor. This same desire to imitate older persons leads boys into habits of smoking and chewing tobacco. One of the first things a child should be taught is not to do things simply because some one else does. A child should learn to know a child's place. If a firm stand is taken at once by the parents, little trouble need be anticipated. It is no crime, nor cruelty, to deny a child of that which you know will injure its health.

Children require very little meat, and an excessive quantity is injurious. As a general rule they do not like meat until after they are five years old. It should, therefore, never be urged upon them. The nitrogenous, or building-up food should be given more frequently in the form of milk and eggs than in the form of meats.

I have said children should not be enticed to eat more than a proper quantity by improper luxuries. Ripe, raw fruits, or fruits well cooked and sweetened with pure sugar, are not apt to be injurious, and may be allowed in any reasonable quantity. But pies, cakes and candies ought not to be given freely to children. Limit them to occasional indulgence, and then in small quantities. A child, like an adult, may eat a sufficient quantity of plain food and then be tempted by the taste to eat an extra quantity of cake and pie, and thus bring on various disturbances of the digestive organs.

Children should eat oftener than adults. In this respect some parents go to one extreme and some to another. In the one case they are allowed to "piece" continually, and usually the "pieces"

between meals consists of pieces of pie and cake. In the other, they are compelled to wait from one meal to another, and then perhaps on certain occasions, made to wait until the older members have eaten, thus making a very long period between meals. If a child gets hungry between the regular meals, he will ask for something to eat. It is cruel to tell him to wait an hour, which to him may seem a day. Unless it be a very short time before a meal, give him a piece of bread and butter with some fruit, or some bread and milk. Do not give him a cake or a piece of pie. If he is really hungry he will relish the plain food, if he is simply desirous of some luxury, he ought not to have it except at regular meal times. Sweetmeats, if used at all, should form a part of, rather than an addition to, a regular meal.

Children are apt to indulge too freely in fruits when they get them only occasionally. Good ripe fruits should be on the table at least one meal out of every three. If they have fruits frequently they are not apt to gorge themselves at any one time. Money spent in purchasing apples and other fruits is a good investment, for it may save many a doctor's bill. Boys and girls should not be allowed to eat green fruits. The best way to keep them from it is to furnish them with ripe ones.

Children should be taught to eat slowly. Most Americans eat too fast. It is a habit very difficult to break. We learn it in youth to a great extent. I remember when a child at certain times hurrying through with my meals in order to get the sooner

to play. Instead of being reprimanded for it, I was at other times scolded for not eating fast enough. Children are often inclined to talk while eating, and parents are usually inclined to hush them up at such times. They should not be scolded for talking while at their meals. The talking prevents their eating too fast. They should rather be encouraged to talk while eating. The meal time should be a time of general conversation between parents and children. The more talking the better the digestion. The conversation should be of a cheerful nature and not upon solemn subjects.

What I have said about the diet of children applies without any particular change to both boys and girls from two years of age up to fourteen or fifteen. It should be remembered, of course, that as children grow older their diet should approach more and more like that of adults in quantity and quality of food and frequency of eating. Girls will not eat as much as boys of the same age, and they do not require as much.

EXERCISE FOR CHILDREN.

Children are by nature busy creatures. Action is a part of their very existence. Girls need as much exercise as boys, but they are generally more restricted, and this is one of the reasons women are not generally as stout and robust as men. Children should never be restrained in their tendency to exercise their bodies.

If boys and girls are left to follow their own instincts they will take exercise enough. They need

cautioning only in regard to a few particulars. They should not sit on the damp ground or in a draft when warm with exercise, nor drink too freely of cold water. If a boy has been playing and has taken off his coat he should put it on when he sits down to rest. The danger of taking cold by being exposed to drafts when warm and not in motion should be impressed upon the minds of children. There are some rare cases of children, girls especially, exercising too severely. Girls have been known to rival each other in jumping a rope, for example, until one of them dies from the rupture of a blood vessel. There are some games and sports which may become injurious if indulged in too much. Jumping and wrestling are apt to strain the muscles or cause rupture. They should not be encouraged.

There are many kinds of work which boys and girls can do as well or better than adults, but it is wrong to demand the whole or even a greater part of a child's time during the working hours. Children compelled to work in factories or in other places where six or eight hours a day are occupied even in light labor, are usually stunted in body and mind. The young person has to grow and develop physically and mentally, and this can not take place properly under such conditions. Children should be taught to work, and a little work ought to be required of them each day, as soon as they are old enough, but the greater part of their time should be devoted to play and mental improvement. "All work and no play makes Jack a dull

boy," is as true as it is old. Let girls be "tom-boys" if they will. Let them romp. There is no impropriety in their doing that which will develop muscle and bone and perfect their physical systems generally.

Boys on farms should be taught to feed and care for animals and do a great many kinds of light work, but they should have their time also to go to school, to play and to amuse themselves with books, pictures, etc., in the house. Girls on the farm can be taught to do many kinds of work indoors and out, but they should not be compelled to drudge.

It is more difficult to manage boys and girls in town than in the country, because there is less to be done which they can do and the association of so many brings many evils. But even in town there are many little duties about the house and many errands to run with which both boys and girls can be employed a small portion of their time.

Parents often prefer to do work themselves because they think they can do it better and get through with it sooner than children would. They think it easier to do the work than to take the trouble to teach the child to do it. Such persons should remember that simply getting the work done is not the object, but the training of the child. A little work done each day by children is for their good in several ways. While they are engaged in it they are out of mischief. They are learning habits of work which will be of value to them as long as they live. They are learning how to do

work which they may be compelled to do when they grow older. They are developing their muscles and all the parts of their bodies by the exercise which they might not otherwise take.

Mothers, see that your children, both boys and girls, are taught to work and that they do a little, be it ever so little, work every day, but do not compel them to drudge from morning till night, as adults often must. Make almost any sacrifice rather than allow a young child to work all day from week to week in a factory.

HABITS OF CLEANLINESS SHOULD BE TAUGHT.

Children may be taught to hate dirt at a very early age. A child should be bathed every day by its mother or nurse, until it is old enough to bathe itself, and then a tub of water of agreeable temperature should be provided once a week in winter and two or three times a week in summer. Most children love to dabble in water. Let them have the privilege often.

Boys often stay too long in the water while "in swimming," and sometimes they get drowned, but these facts are no valid reasons for prohibiting them from bathing in the running streams and clean ponds and lakes. Boys should be taught some of the simplest facts in regard to bathing and frequently cautioned concerning the dangers of deep water, rapids, etc. A boy may learn to swim in water not deep enough to drown him. Small boys ought not to go bathing near where the water is deep unless accompanied by older and larger per-

sons. Swimming is a very desirable accomplishment. It not only affords a healthful exercise, but may often be the means of saving life.

The following rules for bathing were issued by the Royal Humane Society of England: "Avoid bathing within two hours after a meal. Avoid bathing when exhausted by fatigue or from any other cause. Avoid bathing when the body is cooling after perspiration. Avoid bathing altogether in the open air, if after having been a short time in the water there is a sense of chilliness with numbness of the hands and feet; but bathe when the body is warm, provided no time is lost getting into the water. Avoid chilling the body by sitting or standing undressed on the banks or in boats, after having been in the water. Avoid remaining too long in the water, but leave the water immediately there is the slightest feeling of chilliness. The vigorous and strong may bathe early in the morning on an empty stomach. The young and those who are weak had better bathe two or three hours after a meal. The best time for such is from two to three hours after breakfast. Those who are subject to attacks of giddiness or faintness, and those who suffer from palpitation or other sense of discomfort at the heart, should not bathe without first consulting their medical adviser."

What has been said in regard to change of clothing in Chapter II, applies to children as well as to adults. See that this is attended to. Have night-gowns or night-shirts for girls and boys to wear,

and see that they take off their underclothes on going to bed, and put on the night-garments.

HOW TO PREVENT CONSTIPATION.

Teach children to form a habit of regular daily attention to evacuation of the bowels. You can explain to them the necessity of regular evacuation to prevent constipation, and warn them of the danger of going too long without evacuations. Read again what is said on this head in Chapter II.

In another place I shall discuss the remedies for constipation when it amounts to a disease. I wish to impress here simply the great importance of teaching early habits of regularity as a means of life-long prevention of this source of many evils.

BED WETTING.

Children are often addicted to this. Sometimes it amounts to a disease. Frequently it is a habit. They should be made to pass urine before going to bed, and not allowed to drink large quantities of liquids late in the evening. Children can not retain the urine as long as adults, nor men as long as women. It is wrong to scold or punish children for wetting the bed. When the precautions here given will not prevent it, see what is said on this point in a following chapter. The treatment in such cases will there be given.

BAD HABITS.

Habits acquired in youth, whether good or bad, are rarely broken up in adult life, or, if broken up, it is with great effort. "Just as the twig is bent the tree is inclined," you know. The great importance then, of inculcating good and preventing the acquirement of bad habits in youth can not be overestimated.

The use of tobacco is easily learned, and a very difficult habit to break. It is a difficult matter to prevent your boys from associating with boys who smoke and chew. Boys learn readily all sorts of evil things from their companions. The most powerful teacher a boy can have is another boy, or a group of boys, but this teaching is powerful in most cases for evil and not for good. Boys ought to be taught at an early age the facts concerning the use of tobacco and spirituous liquors. They ought to know that while older persons are often not injured and sometimes appear benefited by moderate indulgence in tobacco and alcoholic liquors that the universal testimony of physicians and men of science is that these articles are very injurious to youth. The filthiness of the tobacco habit ought to be forcibly impressed upon the young minds. They ought to be told that nearly all older persons who use tobacco wish they had never begun the habit in youth, but having begun they find it almost impossible to break it off. Boys ten years old are not too young to receive such advice and instruction.

I can see no harm in doing what I have known parents to do, that is, offering to give their sons a certain sum of money when they come of age, provided they do not learn to use tobacco in that time. If they do not learn it before the age of twenty-one, they are not very apt to learn it afterward.

But the open habits of tobacco using, etc., are not so difficult to prevent as the secret habit of masturbation, or self-abuse. This is practiced by youths of both sexes. I do not believe, however, that it is so alarmingly prevalent as some writers would have us believe, and I know that many on arriving at a maturer age see the evil, and break themselves of the habit. Says Flint in his work on Theory and Practice of Medicine: "Many sensitive persons who have been addicted to self-abuse in early life, suffer greatly from the belief that their mental and physical powers have been irreparably injured. The evils, great as they sometimes are, are greatly exaggerated by popular works and lectures designed to excite fears for a mercenary end."

Many writers greatly exaggerate not only their statements of the prevalence of this vice, but the consequences which result from it. Whether these men have a mercenary end in view I have no right to say, but it is certain that the advertisements we constantly see in the newspapers of men who pretend to treat diseases which they claim to arise from this practice, are wonderfully exaggerated, and that the authors of them are filling their pockets with money thus drawn from young men whose fears have been unduly excited.

Masturbation, or self-abuse, consists in applying friction to the genital organs by the hand until they are unduly excited. It is more common among boys than among girls. The effects of this unnatural excitement are first manifest upon the general nervous system, and then indirectly upon the organs of digestion, circulation, etc. Insanity is often traced to this cause.

How do children learn this bad practice? In various ways. Sometimes as a result of not washing the whole body; frequently dirt accumulates upon the genital organs and causes an itching. This directs the child's attention towards the organs and the hand is at first used to give relief. The pleasurable feeling thus produced is kept up until a habit is formed. Sometimes ignorant servant girls who are left in charge of children teach them the practice to keep them quiet. More frequently the practice is learned from bad associates. Children in school teach it to each other.

I need not enumerate the symptoms by which a masturbator is supposed to be known. They are obscure, and the ordinary person and even the physician, often can not determine whether or no, the child is addicted to the vice. They are ashamed to acknowledge it in most cases, so that questioning is of little avail. It is a vice which does not produce bad effects immediately, but only when kept up for years does it show marked effects, and then the same symptoms may be produced by other causes, as by worms in the intestines or by indi-

gestion from improper food. Its effects differ in different individuals.

It is questionable whether it would be the proper thing to warn children of the habit before we are convinced that they are addicted to it. There are many who know nothing whatever about it, and of course are safe as long as they don't know. To tell them that there is such a thing, would, no doubt, in many cases, be equivalant to teaching them the practice. They might be told that it is wrong to handle those parts of the body without giving a reason why. Tell them that when they are older they will learn the reason why.

Bearing on this point, I quote an opinion of an eminent man, the Rev. Lyman Abbott. He says: "Our children ought to be taught by their parents its [the sexual passion's] sacred significance and its value. They ought not to be left to learn about it from often immoral and always ignorant companions. They ought not to be punished for falling into a habit of self-indulgence against which they have never been warned. This strange, mysterious desire, which always accompanies health and vigor and which prompts both to the purest love and the most beastial excesses, can not be eradicated, for God has planted it in man; it should be early directed by the child's natural guardian and teacher."

Among the indirect means of preventing this evil may be mentioned the following: Pay strict attention to cleanliness. See that the parts are kept clean from the earliest infancy. Employ no

ignorant servants. If necessary to leave a child long in the care of a servant, instruct the servant and show her the enormity of the offense of teaching your child such a habit. Such instruction, however, should be given cautiously. Don't anticipate the actions of the servant. Do not tell her directly that she must not teach the child so and so, but tell her to watch him and prevent any handling of the organs, and to be careful herself not to handle the child's organs, lest a habit be formed. Keep the boys off of the street as much as possible. Let them be as seldom as possible out of your sight, or out of sight of some older person. Observe the character of the girls who associate with your girls, and keep a close watch generally over their conduct. Have children sleep in separate beds and more especially be careful not to let your children visit the children of other families and stay all night with them. In general keep a close supervision over your children, at least, until they are twelve years old. These precautions will in most cases prevent the formation of the habit in early youth. Sometimes the habit is formed after the age of puberty. In such cases, little can be done to prevent the formation of the habit, but most young persons can then be forcibly impressed with the danger and be led by an effort of the will to break off the habit. But if children have been properly trained and guarded, have been furnished with plenty of harmless means of amusement, and have been made to do a small amount of work and study each day up to the age of puberty, there is

little danger of their ever becoming victims to this terrible vice. The best way to keep the imps of mischief and evil away is to put on guard the angels of industry. If children have plenty to do that is harmless, they will have little time or inclination to do that which is evil.

Try in every way possible to secure in your children good habits, such as punctuality, industry, truthfulness, neatness of dress, cleanliness of person, politeness, deference and respect for age. The way to do this is, in the first place, to set a good example. You must be yourself all that you would expect of your children. Frequent advice. frequently calling attention to their failures to observe proper manners, frequent commendation when they *do* what is right will in time secure the result. Begin early to train, and keep training all the way up from infancy to manhood. The results will amply pay the trouble.

SLEEPING.

I have elsewhere stated that two children ought not to sleep in the same bed. It may not always be practicable to follow this advice, but there are good reasons for giving it. If one has learned a bad habit, the other is almost sure to learn it. If one is diseased in any way, the healthy one may be affected. Besides, the sick one may be restless and uneasy and thus disturb the sleep of the well one.

There is a common notion that a child suffers if allowed to sleep with an old person, or that a weak

person will affect a stronger one if they sleep together. Whether there is any special influence exerted by one over the other, I can not say, but it is certain that when two very much unlike in strength, sleep together, one will suffer from too much clothing and the other from too little.

To sleep lying on the back is not a good habit. The abdominal organs press upon the large blood-vessels and check the circulation. Bad dreams and nightmares are often a consequence. If an infant be laid down on its side, rather than on its back, every time it goes to sleep, it is reasonable to suppose that a habit will be formed of sleeping on the side.

Children should be required to go to bed early, whether they get up early or not. They should not be roused from sound slumber if it is late in the morning, but if they are simply dozing, and it grows late in the day, they had better be made get up. They may form a mere habit of dozing long after the sun is up. This produces habits of laziness. It is true they should have a great deal of sleep, but we should aim to secure this during the hours of darkness, hence the propriety of going to bed early.

Children often take cold and thus bring on croup, sore throat, etc., by getting restless in the night and throwing off the bedclothes. The restlessness may be produced by being covered too warmly, or by eating too much before going to bed, or by other causes. It would be well to make night clothes for children in such a manner that if the bedclothes are thrown off they would not be exposed in any

part of the body to the air. A night-gown might be made all in one piece, just as though stockings, drawers and shirt were all in one and opened in front or back and secured by buttons. Such a garment made very loose will be very comfortable and may be the means of saving life by preventing the taking of colds. This is a hint worthy of consideration.

CARE OF THE TEETH.

I said nothing about the care of the teeth in the chapter on general hygiene, preferring to speak of it here, because if one does not begin to care for the teeth early in life there is little hope of keeping them in sound condition.

It is, to me, an unexplainable fact that teeth often begin to decay and ache before they get their growth. It seems to be true, that while some persons may take extra care of their teeth from the first, they will decay at an early age, while with others they will remain sound and perfect without any care up to old age. Writers have sought to explain why teeth decay among civilized nations. Some claim that it is because our food does not contain the elements for their nutrition. Others, that it is because we eat sweet food and sour food, and cold articles and hot articles, and do not keep them clean. Some writers tell us that savage nations always have sound teeth. This is not true. Many instances of decayed teeth are seen among savages. Others again, maintain that our teeth decay because we do not use them enough, our food being prepared by cooking and being finely

divided we do not need to masticate it much. It seems to be a law of nature that a part disused in time disappears or dwindles in size or becomes weaker.

But, notwithstanding, it is a fact that sometimes all that we can do is of no avail to prevent decay of the teeth, yet there is no doubt that a great cause of their decay is want of cleanliness. Particles of food left between the teeth decompose and act upon the enamel. Acids affect the enamel. If the teeth be brushed two or three times a day with a soft brush and water, much decay might be prevented.

Another cause is over-hot and over-cold drinks. These may cause the enamel to crack and allow the food to penetrate the inner substance, and cause its decay. Cracking nuts and biting thread with the teeth tend to crack and wear the enamel.

Children then, as soon as they get their second, or permanent set of teeth, should be taught to form a habit of cleaning them regularly every day, and should be warned against the danger of using their teeth for cracking nuts and biting hard substances. Impress upon their minds the advantages of having good sound teeth through life. Good teeth add to the beauty wonderfully, and who does not desire to escape the horrors of toothache? A stiff tooth-brush ought not to be used, as it injures the gums. Once in a great while the teeth may be polished by putting on the brush a little powdered charcoal. Avoid all tooth powders and other preparations which are sold for the purpose of cleaning the teeth.

EFFECTS OF RAPID GROWTH.

Says Dr. Fothergill, an eminent English physician: "Rapid growth is a great tax upon the system, the more so that it is not unseldom accompanied by loss of appetite and even a feverish condition. Under these circumstances the growth goes on at the expense of the material of the body; hence the listlessness, the rapid emaciation, the tendency to disease."

This writer thinks that consumption often originates at this period, and that we can not be too careful to see that children have good, easily digestible food, good air, warm clothing and be not taxed with labor while growing.

There is a belief among eminent authorities at present that consumption is caused often by want of proper proportions of fat in the food. Dr. Fothergill thinks children while growing should not be denied fats. Plenty of cow's milk, cream and all, since cream is fat, should form a large share of their food. Good fresh butter is a palatable and wholesome form of fat. Children should not be denied butter.

MENTAL CULTURE.

I said at the beginning of this chapter that parents should not trust to the teacher entirely to give the proper education to children. There is much that parents can do to supplement the teacher's work. The parents' part of mental education, moreover, should begin long before the ordinary school age. You may begin to educate a child

from the moment of birth, not only mentally, but morally and physically. I have given some hints in regard to its physical education in what has been said about the feeding, exercise, etc., of infants. The best moral education it can receive is to be taught obedience to parents and respect for the rights of others. An infant a few weeks old may manifest a willfulness of disposition and have fits of anger, which traits may be repressed or encouraged by parents. It begins to observe objects almost as soon as born, and it is then its mental education begins. The parents may aid very much here by furnishing the child at a very early age with a variety of playthings, for the child acquires its ideas of form by observing forms, and it learns to observe by observing.

The education at an early age should be largely of the nature of amusement. What is known as the kindergarten (garden of children) system of educating children is based upon this principle. A great deal may be done by parents from day to day, asking children questions about their playthings. The faculty of language is not only thus developed, but observation and memory are stimulated. The simple question, "What did you do to-day?" stimulates the child's memory, for his mind is at once set to work to recall the past. His answer educates in the use of language. If he mispronounces a word, correct him, and make him repeat it correctly.

The question, "What is this?" when you take up or point to some object is a means of educating

in language. When the child gets older the question, "How many?" may be asked, and still later, "What is the color?" "What is the shape?" of this or that object.

When should children be sent to school? It depends somewhat upon the strength of the child. I should say never before the age of six years, and in cases of very precocious and weakly children not before eight or nine. Children are often sent to school simply to get them out of the way at home. This is wrong. Going to school is almost a necessary evil. I say necessary evil, because there are many objections to the common mode of educating children together in school. The teachers are not always what they should be, the air of school-rooms is not the purest, the confinement so many hours at a time is not good for physical development, the child is in danger of learning much that is evil from bad schoolmates. These are some of the objections to school education. But on the other hand, children learn much in school they never would learn at home; they learn much by coming in contact with other children. A child who has never gone to school up to the age of eleven or twelve years will be very green and awkward. He must learn the ways of the world, and the school is the place. He must go into society sooner or later anyhow, and it is better that he be fortified by home training to withstand the temptations of society and be initiated into the world at an early date.

Parents might do much towards the school edu-

cation of their children by watching closely the progress they make in their studies and giving a little help here and there. The parent ought to know something of the teacher's mode of instruction and government. Schools should be visited. Teachers should be questioned and a mutual understanding ought to exist between parents and teachers. It ought to be much to the child's advantage to have educated parents, but often parents who have the knowledge and ability, leave all the instruction to the teacher. The father is usually away from home a good deal, and too busily engaged in his special work to pay any attention to his children. The mother is often too much engaged in visiting, in fancy work, in reading the last novel, or in some other less important business than training children. A great reform is needed here. People generally do not realize the great importance of rearing children properly. Men and women ought to live their lives over in their children. No pleasure ought to be greater than that of training and watching the development of their offspring. Every child has a right to an education. It is cruel to withhold it. If you can not train, or have your children trained, properly, you ought not to have children.

Where the need of jails and penitentiaries, of poor-houses, of criminal courts, if all children were properly trained? Think of it, parents; you are responsible in a large measure for whatever of crime and pauperism and suffering the next generation will experience.

As soon as the boys and girls are old enough to read, they should not be stinted in books and papers. The way to stimulate a desire to read and to learn is to provide plenty of material of the kind the child can comprehend. In these days of cheap books and papers there is no excuse for the ordinary family for not providing the children with material of this kind. No better investment could be made. Better wear plainer clothes, have less expensive furniture, buy less candy and other unnecessary luxuries than to stint your children in books and papers. Many a man spends for tobacco and cigars more than enough in a year to pay for all the books and periodicals his children would need. Here is an argument for the wife to use with her husband if he says he can not afford to buy books for his children. Many a woman puts more money in clothes than is really necessary to a neat and tidy appearance. Could not some of it be invested in material for the mental growth of the children?

Books and periodicals furnished in abundance afford not only a means of mental culture, but by making home pleasant and attractive, they keep boys off the streets and thus prove a means of moral culture. There are many intellectual games which amuse and instruct children, and are thus the means of keeping them at home, and of developing their minds.

There are many games in fact, with which grown people often waste much valuable time, and which ought to be the almost exclusive prerogative of children. Among these are checkers, chess, and

many games with cards. It does not look well to see a couple of big stout men sit down in a corner grocery or saloon and spend hours playing checkers. One would think they could find something more profitable to do and which would, at the same time, afford as much rest and recreation from their ordinary labors. But to see a couple of children anywhere from ten to fifteen years of age amusing themselves in this way on a rainy day in the house, seems eminently appropriate. They can not study all the time, the weather will not always permit them to play out of doors, they should not work all the time, and it is dangerous for them to be idle.

There is no necessity for teaching children games with ordinary playing cards, and there are many good people who have a holy horror of them: therefore, I would advise that checkers, chess, dominoes, backgammon and games with author, natural history, geography and literature cards be substituted for such games as euchre, cassino, whist, etc. A great deal may be learned, and at the same time much valuable information be imparted, by some of the new games with cards on the principles of the well known "authors."

Parents should use judgment in selecting playthings for children, boys especially. He is not wise who buys toy pistols, guns and firecrackers for boys. There is scarcely ever a Fourth of July or Christmas passes, that some boy is not killed or seriously injured by such playthings. There is no intellectual culture connected with using such playthings, and while there are so many harmless

modes of amusing, many of which at the same time afford a good intellectual drill, the former should be discarded.

Children who display a love and a talent for any special study, ought to be encouraged in that study in every way. Boys sometimes at an early age show a natural disposition to study animals. Do not repress their desire to collect specimens of insects, or bird's eggs. Instead of scolding them, buy them books on natural history. Does a boy show a disposition to use tools? Let him have tools. He will educate himself in a great measure, in that which he will be the best adapted for when a man.

I have stated that children should have a variety of playthings. I wish to dwell a little upon this subject. Anything which causes a child to think tends to develop his mind. Children are naturally busy-bodies. They must be thinking of what they are doing. Any kind of a toy almost may serve as a stimulus to thought. But children soon tire of one thing. They need frequent change of occupation. They may be greatly delighted with a certain toy and in a short time it ceases to interest them, but if something else is substituted for a time and they tire of that, they will return to the first with renewed interest. Hence, the necessity of a great variety of playthings to keep them constantly amused and occupied.

"But the expense of furnishing so many toys," says some one. I answer that costly toys are not needed. Children, in fact, are more often pleased

with what costs nothing at all than with the most costly objects. Any man with a little ingenuity can construct many little articles which will greatly delight children. A very young child will be interested in blocks of wood, clothes pins, a bunch of keys, paper weights, strong sea shells, spools or buckeyes on a string, a strap of leather, a slipper, a pasteboard box, etc., in fact any article which can not hurt the child and which the child can not break or tear, will amuse and instruct him for a time, and after he has gone the round, he will be amused again by the same objects. Even destructible articles may be given them, provided they are of no value and can not hurt the child, as old newspapers, advertising pictures and pamphlets. Short pieces of the smooth limbs of tree sawed and trimmed so that no sharp edges are left, make good playthings.

As the child gets older, corn cobs, sets of blocks of all sizes and shapes, bundles of twigs or sections of branches of trees, gourds, cards and pictures of all kinds, rag dolls, balls, marbles, animals made by putting sticks in potatoes to represent legs, ears, etc., and cheap metal and wooden toys may be furnished.

Nothing delights little girls more than to play keeping house, even if they have nothing more to represent a house than a few boards or brickbats laid around on the ground and a few old broken dishes for furniture. How easy for a father to make a small house, large enough for two or three children to get into. Let it be made of very thin

boards and in sections so that it can be taken apart and laid away. Three "walls" made of boards with small windows cut in them, and two pieces, or one, for a roof. These sections to be so constructed that they may be keyed together to make them hold in their places, could be made by any man with a little constructive talent. A mechanic could make one at a very small cost.

Now, I imagine some mother smiling as she reads this, but nevertheless I am convinced that children who have the advantages of a great variety of interesting playthings will develop more perfectly in body and mind, will be less trouble to parents, and that all necessary outlay of money and time in this direction will be amply rewarded.

Parents should observe that there is frequently a great difference mentally, not only between boys and girls, but between individuals of the same sex. Some learn very rapidly and are not inclined to take enough physical exercise. Such should not be urged to study, but should be encouraged to romp and play more. Others, again, are not inclined to mental exertion and need constant stimulation in that direction. Much may be done for this latter class by frequently calling attention to their books, asking questions as to their progress, and by praising their efforts.

Says Prof. Sizer: "Girls usually learn faster than boys, become excited by the praise bestowed upon their excellence in scholarship; hence the extra exertion of the brain and nervous system, and the extra sedentary habit which still closer appli-

cation to study involves, shatter their constitutions at a very early age. Your fat, awkward, red-faced girl, who loves the bracing breezes, enjoys fun and frolic, and likes to sport in the open air more than she likes books, is not likely to be injured by the above influences. If she be rightly trained her mind will ripen at sixteen, and at twenty she will be a good scholar. On the other hand, the little, delicate, susceptible girl with thin, sharp features, expanded forehead, large, intelligent eyes, with a strong endowment of the love of approbation, is the very one to be driven by praise and encouragement almost to madness in mental activity. She bends soul and body over her books, becomes a prodigy in education, and her friends, misguided teacher and all, lavish praises on her educational superiority, which serves still more to inflame her brain and add fuel to that fire which is consuming her vitality and preparing her for the tomb."

The mental powers of children are increased by telling them stories. All children delight to hear stories. The stories, of course, should be innocent; no blood and thunder tales of murders and robberies, but fairy tales and stories about animals and historical facts in the form of stories. When they get old enough to read, such books as "Grimm's German Stories" and "Anderson's Fairy Tales" may be put in their hands. The *Youth's Companion*, *St. Nicholas*, *Harper's Young People*, are among the periodicals which I would recommend for children old enough to read fluently. These periodicals are filled with good and pure literature adapted

especially to the wants of young people. They are filled with stories of an innocent nature and with scientific and historical facts, told in a simple manner. Pictures are another excellent means of educating the mind, and these periodicals contain the best efforts of the best artists in the line of picture-making for the young.

FRIGHTENING CHILDREN.

Never do it. Nothing can be worse for them. Never use fear as a means of discipline. Never punish a child by shutting him up in a dark room, or attempt to secure obedience by telling him that some bad man will get him, or that something terrible will happen. A child is naturally brave and has no sense of fear, unless it be taught him. Never scare children for fun. A recent writer has said, "it is like tickling them with a needle; it is all pain and no pleasure." An injury is wrought upon the delicate nervous system of the child by frights, and if they are scared frequently in early life they are apt to be cowards all their days.

CHILDREN AND MONEY.

Children should early learn the value of money. How can they learn its value unless they have the privilege of handling and using some of it? Small sums should be given children and let them buy some of their toys and playthings. If they make a bad investment let them abide by the consequences. They will do better next time and thus learn how to make purchases. Whenever possible

children should be made to appreciate the value of money by requiring them to earn it by doing some simple work. Give a boy a cent or a nickel for running an errand and he will appreciate the money much more than if simply given him, and will do the work more cheerfully and with greater alacrity. You may advise him as to how to spend it, but advise simply, do not command. If he spends it foolishly criticise him kindly. He will be more careful next time.

AGE OF PUBERTY.

There is very little difference physically between boys and girls, except in regard to the forms of the sexual organs, up to the age of ten years. Up to the age of eleven or twelve boys are taller and heavier on an average than girls. After ten years of age girls grow more rapidly than boys, and in two or three years surpass them in height and weight. Boys then gain, and become taller and heavier than girls. Shortly after the twelfth year boys and girls begin to differ considerably in physical and mental character. These differences have been given in Chapter I.

The period when the sexes begin to develop and show the wide difference between male and female and when the sexual organs become capable of fulfilling the end designed in their creation, is called the age of puberty. Then the boy becomes a man and the girl a woman. This change takes place gradually, and the time varies in different individuals and in different climates. In this lati-

tude it comes usually about the fifteenth year; a little earlier in hot climates and a little later in cold climates. It is also a little earlier in the female than in the male. A few cases of girls becoming pregnant at nine, ten and twelve years of age are recorded.

The period of puberty is marked in males by important physical changes. Hair begins to grow about the genital organs, under the arms, and beard appears on the face. The boy's shoulders get broader, his larynx enlarges, the vocal cords get longer, and as a consequence his voice has a lower pitch. The sexual organs increase in size. Semen is secreted by the testicles, and erections of the penis occur. Sometimes, in sleep, spontaneous emissions of semen occur, usually accompanied with voluptuous dreams. Young men are often much alarmed at this, especially if they have, in early boyhood, been guilty of self-abuse. They are too bashful to consult a physician, or speak of it to any one, and finding the advertisement of some quack doctor, or reading some of the works alluded to in the first part of this chapter, they imagine that they are ruined for life unless they proceed at once to doctor themselves. They should know that these emissions are, nearly always, natural and healthy, and nothing need be done, unless they occur oftener than once a week, or are followed by considerable depression. In case they are too frequent, or are attended with bad symptoms, the family physician should be consulted. The avoidance of a very soft bed and too much

covering, plenty of exercise, and the avoidance of anything likely to excite sexual passion, will do much toward preventing a too frequent occurrence of these emissions.

Mothers may not feel inclined to speak of such matters to their boys, but the boys ought to know it. There will be no harm in a boy of that age reading this book.

In the boy who now becomes a man, there are marked mental changes. He becomes more shy and bashful in the presence of the opposite sex, yet he begins to be attracted towards them. He is apt to be romantic in thought, and develop ambitious plans and ideas. In other words, he ceases to be a boy in mind, and begins to think and act more and more like a man. More might be said on this point, but I have only space to call attention to the fact that mothers should recognize this change in their boys, because their conduct towards them should be governed thereby. The boy is now a man, and he should be treated as a man, and not as a boy.

He has ideas of what is honorable and right, and his honor and sense of right can be appealed to should he stray from the path of duty. When yet a boy he could be made obey, without much reasoning. Now he must see the reason, or necessity for obeying. He now needs to be advised rather than commanded. Now is the time, provided a love of books has been created in him when a boy by proper training, when books will make a strong impression upon him. See that only the best liter-

ature falls in his way, remembering that you can only shut out the bad literature by putting in the good. If you are not well versed in a knowledge of the literature of the day, or have not a considerable acquaintance with books, ask the advice of some one who is thus posted.

The period of puberty, is, perhaps, in females more marked upon the mental than upon the physical nature, yet there are important changes in the body. The pelvis becomes considerably larger, fat appears more abundantly in all parts of the body, giving roundness and plumpness to the form. The breasts and hips especially show this enlargement. The external genital organs become larger, and hair appears around them as in the male. The womb becomes considerably larger, the ovaries enlarge, and the process known as menstruation begins. Menstruation will be discussed as a separate subject.

The mental changes which take place in the female at puberty, are best described in the language of another: "The once light-hearted girl inclines to reveries; she seeks solitude; her mother surprises her in causeless tears; her teacher discovers an unwonted inattention to her studies, a less retentive memory, a disinclination to mental labor; her father misses her accustomed playfulness; he, perhaps, is annoyed by her listlessness and inertia. What does it all mean? What is the matter with the girl?

"Mother, teacher, father, it is for you to know the answers to these questions. You have guarded

this girl through years of helpless infancy and thoughtless childhood. At the peril of her life, and of what is more value than life, do not now relax your vigilance. Every day the reaper Death reaps with his keen sickle the flowers of our land. The mothers weep, indeed; but little do they realize that it is because they have neglected to cherish them, as was their duty, that the Lord of Paradise has taken them back unto Himself."

The period of puberty in both males and females should not be hastened, but deferred as long as possible. As has been stated, the usual age is from fourteen to fifteen years, varying with certain conditions, some of which may be controlled. It is earlier in warm climates, and in those persons of nervous and bilious temperaments. These are influences, of course, we can not control. But habits of life have much to do with it, and these we can control to a great extent. An indoor life, sedentary habits, too much study, highly seasoned food, stimulating drinks, as tea, coffee and alcoholic liquors, irregularities in sleeping, and whatever stimulates the emotions, as reading sensational stories and papers, dancing, theater-going, much conversation on courtship, marriage, etc., all have a tendency to hasten the development of the sexual function. As a proof that the above influences are active we have only to note the fact that puberty occurs earlier in youths brought up in cities and in large towns than in those brought up in the country.

It is not a good sign to see an occurrence of puberty earlier than the usual average time. It

shows a weak and excitable constitution. Those who develop early, usually decay early.

With girls especially is this period a critical one, as most mothers know. By overtaxing their physical and mental powers the foundation for lifelong disease may be laid. Says Dr. Eastman, of Indianapolis: "I am asked, 'Why so many weakly girls?' I answer, why this buckram red-tape of our schools, which, like the sausage mill, is annihilating the identity of muscles and sinews brought within the revolution of their grinding cylinders. How cruel to overtax the brains of girls, at the critical age (between ten and fifteen), rendering them unfit for the physical duties of life, while their projecting shoulder-blades suggest the sprouting of angels' wings, and mark their progress toward the spirit-land."

It is at this period that seeds of consumption, scrofula, hereditary insanity or other taints of constitution seem to gain force by the new excitement of the system, and sometimes rapidly grow and develop, carrying the victim speedily to the grave. If the girl passes this period in safety she stands a fair chance of living many years. Too much care can not be taken to prevent exposure to the weather, or to other causes which would impair vitality, at this time. Some of the peculiar diseases incident to this period will be discussed in another chapter.

MENSTRUATION.

The term menstruation is applied to the periodical flow of blood, or a bloody fluid, from the womb. This fluid itself is called the *menses* or *catamenia*. All of these words are derived from a Greek word meaning month, and refer to the fact that this flow occurs naturally every twenty-eight days, which constitutes a lunar month. Many other words are used among the people to express the same idea. Among these are *monthlies*, *monthly sickness*, *courses*, *grannies*, *spells*, *periods* and *flowers*, but perhaps the most common way of expressing it is to use the phrase "become unwell."

Menstruation, physiologically, is nothing more nor less than the periodical ripening and casting off of an ovum, or egg, from ovary, attended with a discharge of a bloody fluid from the womb. In other words, it is the laying of eggs. If one of these eggs is fecundated by the male element it remains in the womb and is hatched into a new being. If not, it is cast off as waste matter. This egg is very small, not more than $\frac{1}{125}$ of an inch in length.

There is nothing strange about this when we know that all living beings come from eggs, or germs. A seed of a plant is an egg. Birds and many lower animals are hatched from eggs outside of the body of the parent, but man and most of the higher animals are developed from eggs hatched within the body of the parent. In birds, if the egg is not fecundated by the male before

it leaves the body of the female, it can not be hatched.

The question may be asked, if the higher animals other than man produce in the same way why don't they menstruate? To this we may answer, they do. All female mammals, or animals which produce their young alive, experience periodical excitements known as "heat," or "rut," and in monkeys there is at this time a slight discharge resembling the menses of the human female. This period of "heat" is simply the excitement produced by the ripening and throwing off of an egg, or eggs, although it is not usually attended with a flow of blood as in the human female.

The menstrual flow is not always the same in all women even within the limits of health, neither in time of appearance, time of continuance, or quantity of the discharge. Sometimes a periodical discharge of mucus from the genital organs precedes for a few months the regular menstrual flow. Sometimes, also, after the first regular menstruation the woman goes several months without another period and then comes the second flow, after which they become quite regular. In most cases it begins regularly every twenty-eighth day and lasts about three days, but sometimes the interval is twenty-seven days, sometimes thirty, and in some few cases each interval is two months. Sometimes the flow lasts four or five days, or even longer, and sometimes less than three days, and the women are seemingly in good health. As a rule these periods occur every month regularly from puberty

until what is known as the change of life, unless interrupted by pregnancy. This change of life, or *menopause*, as it is sometimes called, also varies in time, but usually it occurs between the ages of forty-five and fifty.

Parents are sometimes alarmed when their daughters arrive at the age of fifteen years, if the menses do not appear. So long as the girl seems in good health and spirits and natural in every other way there need be no alarm. Time will bring all right. As before stated, however, too great care can not be taken about this time. Hard study should be prohibited, plenty of sleep should be enjoined, gentle exercise only should be taken, but sufficient of that, and plenty of good nourishing food. The mother should prepare the mind of her daughter for the change which is about to occur. Serious results have been caused by ignorance on the part of the girl. Girls are sometimes badly frightened at the unexpected appearance of a bloody fluid from their genital organs, and imagine something awful has occurred. Ashamed to say anything about it to any one, they have been known to wade in cold water and wash themselves and their clothes and, in some instances, taking a cold which resulted in death. It is criminal for a mother not to explain this thing to her daughter. Besides endangering their lives, ignorance of this fact places girls in exceedingly embarrassing positions. It is true that in some communities young girls know much about these matters, having learned from their companions, but this is not the proper way

for them to get the information. Much that is evil is taught at the same time, and wrong ideas are often conveyed. If a mother is too timid to impart such instruction to her daughter, she should place before her books which will give the needed instruction, or request some married lady friend whom she can trust to give it.

If a woman be in good health her menses will usually be quite regular, to the very day and sometimes to the very hour. If they vary a few days, and no inconvenience is felt, there need be no alarm. Cold retards and heat hastens ovulation, hence in the spring the periods may come a little sooner, and in the fall a little later. No anxiety need be felt, either, if after they have appeared once they do not recur until the second or third month. Irregularities are not uncommon at first. So long as no symptoms of ill health occur there need be no alarm. If, on the contrary, there be headaches, pain in the back, fever, exhaustion, nausea, or nervousness, something should be done to bring on the courses. The treatment of such cases will be given in another chapter.

HYGIENE OF MENSTRUATION.

Menstruation in a state of perfect health is not attended with pain or any other great disturbance of the system. There are, however, few women who do not have more or less pain, fever and headache during their periods. In some it is attended with great pain. These cases will be noticed in the proper place. The point to be

noticed here, is the care of the person during the menstrual period. There is no doubt that many of the diseases of women are brought on by want of proper management at these times. During the whole time of the flow there should be rest of both body and mind and perfect protection from exposure. It is the opinion of the highest medical authorities that labor or exposure at these times is fruitful of much subsequent suffering. But here a proper regard for health seems to conflict directly with the necessities and customs of society. There are few comparatively who can afford to rest and protect themselves properly under the present conditions of society. What then shall be done? It is a problem which can only be solved completely by revolutionizing entirely the social customs of the day. I wish to devote a page or two to a discussion of this question. Dr. Edward H. Clarke, in two works, "Sex in Education" and "The Building of a Brain," has portrayed in a powerful manner the evils which result from improper management of the mind and body during the menstrual periods in girls. He shows conclusively that girls suffer more from attendance at school than boys and the sole or principal reason being, that while they have more ambition to excel in their studies than boys, at the same time they have not the physical endurance, caused by the periodical interruptions of the menstrual flow. In other words, the mental labor exacted from them is inconsistent with their physical ability during at least one week out of every four. While the body

is undergoing peculiar changes which make a drain upon the vitality, there should not be another drain imposed upon it, by great exercise of the mind. Rest of mind and body are necessary, while the function of ovulation is going on.

Dr. William A. Hammond, who is acknowledged as standing in the very front rank among the physicians and surgeons in the United States, wrote the following letter in reply to several questions asked by Dr. Clarke. I give the questions and letter in full:

"It falls to my lot to see a good many young ladies whose nervous systems are exhausted, and thus rendered irritable, by intense application to studies for which their minds are not suited. Only a few days ago a mother brought her daughter to me to be treated for spinal irritation, with all its accompanying nervous derangements; and I find, upon inquiry, that this girl of sixteen, who could not spell correctly, was compelled to study civil engineering and spherical trigonometry,—subjects not as likely to be of use to her as a knowledge of the language of Timbuctoo. In my opinion, schools such as the one this girl went to do more to unsex women than all the anomalies who prate about the right to vote, and to wear trousers. Now for your questions.

"'1. Is one sex more liable to suffer in health from attendance in school than the other?'

"Undoubtedly, every physician in a large city, who has had experience with school boys and girls, knows that the latter suffer more frequently and

severely. In country schools, where the attendance is only for a short time of the year, and for a few hours each day, and where the pupils have to walk two or more miles to get to school, the difference, though existing would probably be not so distinctly marked.

"'2. Does the advent of puberty increase the liability, and, if so, more in one sex than the other?'

"Puberty being a much more complex process in girls than in boys, the former are more liable to disease at this time; and this liability is increased by whatever tends still more to exhaust the nervous system, such as mental application or anxiety.

"I have repeatedly seen cases in which the flow of the menses had been suddenly stopped by the anxiety induced by the necessity of learning a school lesson.

"'3. In the education of girls, should any attention be paid to the catamenial week?'

"The utmost possible care. People who are very careful to avoid draughts of cold air when they are overheated, pay no attention whatever to their daughters at a time when the system is peculiarly liable to disease. I have known of cases in which girls menstruating, and wishing to go to balls, have been instructed by their mothers to stop the function by putting their feet in ice cold water; and in two of these cases epileptic convulsions were the result. A large number of the cases of epilepsy in women which come under my care are directly the result of menstrual disturbances, due to inattention and imprudence.

"'4. Is the nervous system any more liable to suffer from excessive study at puberty or during the catamenial week than other parts of the organism?'

"Yes. My experience is decidedly to this conclusion, and the results are hysteria, spinal irritation, chorea, epilepsy, catalepsy, neuralgia, wry neck *(torticollis)*, cerebral congestion, cerebral anæmia, nervous exhaustion and, occasionally, acute inflammation of the membrane of the brain." —*William A. Hammond.*

Dr. Clarke received similar replies from many leading physicians, and the same questions addressed to a large number of leading teachers throughout the country elicited replies the tenor of nearly all of which were that girls suffer from being compelled or allowed to go to school and work under the same conditions as boys.*

Now, I had always, until I came to consider this question from a physiological standpoint, been in favor of the co-education of the sexes through the entire school course. I am still in favor of boys and girls under twelve or thirteen years of age going to school together, but after this time the

* Since writing the above I have found an article by Dr. Mary Putnam Jacobi, the eminent lady physician of New York City, in which she takes grounds opposed to the views of Dr. Clarke. She thinks his conclusions are somewhat forced; that the statements he makes are somewhat exaggerated; that statistics may be misleading and are of little value unless made on a very large scale. She says that her own observations have been different from the statistics he gives. Here, then, we have two eminent authorities differing materially in their views. I am inclined to agree in the main with Dr. Clarke. In such cases it is at least wise to be cautious. Let the daughters be closely watched.

differences in the physical natures of the two are so great that I seriously doubt the propriety of educating them in the same classes.

From a moral standpoint it is better to educate the sexes together, because the association of young men and women tends greatly to the benefit of both, a question which I can not stop to discuss here, but from a physiological standpoint it is not desirable for the reasons given.

The demands of society are such that it is scarcely possible for a married woman or a maiden who has passed the school age, to act precisely as she should during her menstrual periods, but I would urge upon all women who may read this book to see to it that they do no heavy work, either physically or mentally, and that they stay within doors, or at least close to home, during this period. This is more especially to be enjoined upon those who suffer greatly at these times.

Chapter XI.

SOME OF THE ILLS OF WOMEN.

SEX AND DISEASE.

As almost every one knows, there are certain diseases peculiar to each sex, others common to both, and still others which are liable to afflict one sex more than the other. Those of the first class are due to differences in physical structure, those of the last class mainly to differences in occupation and habits of life. Women are liable to more different diseases than men, for they may have nearly all that men may have and many which men can not have, yet in spite of this fact women stand as good a chance in the race for life, take it altogether, as men. Women are more often sick than men, but their sicknesses are not so often fatal. From the nature of their occupations they are less liable to death from accident or intentional violence.

A large proportion of the diseases of females might be prevented if women could be made to follow hygienic laws. A considerable proportion of the regular medical profession and a large army of quacks thrive by treating, or pretending to treat, the preventable diseases of women alone. Were directions similar to those given in this book followed for several generations of women, the occupations of a large number of physicians would be gone.

I propose in this chapter to notice briefly some of the more common diseases of women. I shall point out the causes, the principal symptoms, and give a simple home treatment, but I do not wish it to be understood that this book is to usurp the place of the regular family physician. A good home doctor book ought to aid rather than interfere with the intelligent physician's work, by rendering his advice and medicine more effectual.

The prescriptions here given are standard ones in the medical profession, and in nearly all cases can be filled by any common druggist. They are also mild and comparatively harmless, so that it is not likely that any one will do more harm than good with them. There are many medicines which are very valuable yet comparatively harmless, others of value must be used with caution. I would not advise the use of the latter class, unless given by a reliable physician.

CONSTIPATION.

I place this first on the list of diseases of women, because it is not only one of the most easily preventible, but because it is one of the most common and most liable to cause other diseases. It is more common among women than among men for various reasons.

The principal cause of constipation in both sexes is the neglect to attend regularly to the demands of nature. Women are more liable to neglect this than men, and one of the principal reasons of this is that the majority of water-closets are repulsive,

either from insecurity from observation or from filth and bad odors. In a pamphlet written by a leading physician of Indianapolis, Dr. Joseph Eastman, I find the following quoted from Prof. Goodell: "Where in the country, and for that matter in cities also, is not to be found the privy, made up of rough boards rudely spiked together, with cracks wide enough to destroy all privacy; with a door without a bolt, and generally hanging by one hinge; with a crescent-shaped hole for a window; and with its sole article of furniture a barrel of rasping corncobs? When is it even sheltered from the rude blasts of winter, or not poisoned by noisome stench, acrid vapors, and unclean flies? After such an unsightly but truthful picture, can we wonder that the calls of nature are looked upon as grievous dispensations of Providence, hateful duties which are to be put off until driven to them by sheer necessity, which knows no law?" The writer adds: "The title of doctor means teacher, and no feeling of delicacy should deter us from teaching, whenever occasion presents, that water-closets should be so arranged as to invite rather than repel."

Another cause of constipation in women is their want of exercise. This can not be said of the majority of women perhaps, but it is true of a large number, especially in cities. They sit too much on sofas and cushioned chairs. A frequent change from a sitting to a standing posture, and frequent movements of the body to give the abdominal muscles exercise and thus aid in carrying the material of the bowels downward is necessary.

A large number of persons of both sexes bring on constipation by not eating a variety of food, and by eating too much bread and meat, and not enough of watery vegetables and fruits. In another chapter will be given the properties of the different foods as to the effect on the bowels.

Constipation is very apt to be a condition of the pregnant state. The pressure of the enlarged womb in some degree paralyzes the intestines and lessens their size. The liver is apt to be torpid from the disturbances of pregnancy, and this is another cause, since bile is a natural purgative.

There are many remedies for constipation, some being more effectual on some persons, and some on others. The main point is to avoid using any strongly purgative medicines. Medicines should be used only as a last resort, and then only the mildest, and these should be used with caution. After trying a diet consisting largely of fruits and watery vegetables for a few days, if no beneficial results are obtained, resort must be had to medicines.

If the patient has gone several days without action of the bowels, it is necessary to do something to bring on an action, and then try to keep them open. A syringe ought to be in every family, but as I have stated in another place, one should not use it too much, lest a habit be formed of moving the bowels in that way. But a half pint of tepid water with a little salt or soap suds, will usually start an action, then if a very mild physic, as a small dose of castor oil, or epsom salts, be

taken, and this followed up by a loosening diet and strict attention to regularly visiting the water-closet, most cases will be brought right. I have found that a teaspoonful of cream of tartar with a little sugar stirred in a glass of water and drank every day, for several days, will often produce good results.

Sometimes very simple remedies are effectual, as drinking every evening a glass of water in which a tablespoonful of Indian corn meal, or wheat bran, has been stirred. Eating an apple or an orange before breakfast each morning is sometimes sufficient. Sometimes one or two glasses of cold water drank before breakfast will be effectual. Kneading the abdomen with the hands every day for a few minutes is good. A cloth wrung out of warm or hot water and applied to the abdomen over night has been recommended. The cloth should be secured in place by a dry one over it, going around the waist, and should be worn every night for a week or more.

If the bowels have not had a movement for a long time, the material becomes so compacted that sometimes even a syringe will do no good, and it is necessary to use a scoop to dig out the impacted material. However, if one persists in the use of the syringe it is rarely necessary to resort to the scooping process. A small amount of liquid may be injected and kept in by an effort of the patient, and in ten or fifteen minutes a little more may be injected, and retained as long as possible, and then if this comes away and brings nothing, inject some

more, and keep this up a half dozen times. The liquid softens gradually the impacted material, and after a while success will follow. Never give physic in cases of this kind until an action has been secured by the syringe, and then only the mildest kinds.

There are sold in bulk in most drug stores what are called "Improved Compound Cathartic Pills." From two to four are said to be a purgative dose. If one only be taken every evening for four or five days, good results will follow. Never use patent pills. The pills I here mention are sanctioned by the regular medical profession, and are no secret, their composition being given. The following makes a good pill for constipation:

Rhubarb, castile soap and compound extract of colocynth, each half a drachm. Mix and divide into twenty pills. Take one each day or each alternate day.

Here is another prescription which is very safe and reliable:

Powdered turkey rhubarb and bicarbonate of potassa, of each one drachm. Triturate thoroughly in a mortar and divide into twelve powders. Take one each day.

Almost any druggist can prepare these presciptions. If he can not fill the one, use the other.

But, I repeat, do not use medicine if you can get along without it. Entirely too much purgative medicine is used. Many men have become rich manufacturing and selling purgative pills, and

thousands are every year making themselves worse by using them.

The habit of straining at stool is a very injurious one. Piles and prolapsus ani, or protrusion of the bowel, may be caused by inordinate efforts at stool.

DIARRHŒA.

This is more often a symptom or condition of other diseases than a disease of itself, but it sometimes requires especial treatment. There are many causes of extreme looseness of the bowels. It is occasionally a condition of pregnancy. It is often a result of constipation. The hardened material of the bowels produces an irritation which causes the diarrhœa. Sometimes it is the result of undigested food.

The important point in treatment of diarrhœa is, that it should not, in most cases, be too quickly checked. As a condition of some diseases it ought not to be checked at all, as is generally the case in typhoid fever. When it is caused by undigested food a physic will generally cure it by removing the irritating cause. Here, as in constipation, much may be done by proper attention to diet. Vegetables and fruits should for a time be abstained from. Boiled rice, eaten with milk, is excellent. Boiled milk is also good.

A diarrhœa may be caused by getting thoroughly chilled or by taking cold from a sudden lowering of the body temperature. The blood in such cases recedes from the surface. The feet should be put in warm water, if they are cold, and warm fomen-

tations may be applied to the abdomen. Ginger tea or any warm stimulating drink will cause the blood to diffuse to the surface, and prove beneficial.

The following prescription may be found useful in summer diarrhœa:

Aromatic syrup of rhubarb, half a fluid ounce; magnesia, fifteen grains; cinnamon water and camphor water, of each two fluid drachms. Mix, take in two doses three hours apart. In severe cases a physician should be called.

DEVIATIONS OF MENSTRUATION.

Proper menstruation, about every twenty-eight days, unless interrupted by pregnancy, is necessary to the health of the female from about fifteen to forty-five years of age, hence any considerable deviation from the natural condition must be treated as a disease. There are three long words which are used by physicians to express the principal deviations from normal menstruation. They are *amenorrhea*, *dysmenorrhea* and *menorrhagia*. The first applies to either the non-appearance, the suppression or the retention of the menstrual flow, the second applies to painful menstruation, the third to excessive menstruation.

If in a female who has been menstruating regularly the menses do not appear at the regular time she has either conceived or there has been some disturbance of the system, as taking cold, which has caused their suppression. Many times if pregnancy does not exist and nothing be done the menses will appear in a few days after the expected

time. Sometimes slight causes, as fright or mental excitement of any kind, may delay them for a short time. Slight delays, if there be no fever, headache or other disturbance of the system, do not call for treatment.

If, however, there be marked disturbances of the system, as indicated by flushed face, strong pulse, headache, pain in the side and back, nausea, loss of appetite, or sense of exhaustion, steps should be taken to bring on the flow. Usually soaking the feet in hot water with a little mustard in it, and drinking a half pint or more of ginger tea, and a mild physic will bring all right. A warm hip bath and warm poultices to the breasts should be used in case the menses had appeared and from taking cold they had suddenly stopped, also a physic should be given. Castor oil, epsom salts, senna tea and citrate of magnesia are all mild purgatives if not given in very large doses, and any one of them may be used.

Read again what is said concerning menstruation in the preceding chapter.

Dysmenorrhea, or painful menstruation, is a very common trouble. The causes seem to be of two general kinds, physiological and mechanical. In the former case the nervous system and the circulation seem to be at fault, as a result of improper living in many ways. In the latter case there is some obstruction at the mouth of the womb, generally caused by displacement of that organ.

In the first kind the symptoms are about as follows: Before the time for the flow the patient

feels indisposed, with pain in the back, headache sometimes, and later by pains in the region of the womb similar to labor pains. The womb seems to be swollen and heavy, the pain being somewhat relieved by pressure of the hand over the abdomen. Sometimes the pain is of the nature of neuralgia, and some authors describe a neuralgic dysmenorrhea. Sometimes a membranous cast of the inside of the womb comes away in fragments. This is called membranous dysmenorrhea.

Where the cause is obstruction at the mouth of the womb, the symptoms do not differ greatly from those already described. The pain seems to be more in one place, and is apt to be spasmodic, as the blood may collect in the womb, and can only be expelled by vigorous contractions of that organ causing pain, and when the blood is forced out the pain ceases, until the womb fills up again.

Whatever be the cause of painful menstruation, the woman subject to it should avoid being on her feet much for a day or two before the expected time begins, and remain quiet. Cloths wrung out of hot water and placed over the abdomen will often give much relief. The following prescription is simple, and has been found excellent:

Spirits of camphor, one fluid drachm; paregoric, two fluid drachms; tincture of ginger, half a fluid drachm; compound spirit of lavender, half a fluid ounce; water enough to make two fluid ounces. Mix, and take a dessert spoonful every hour or two.

Injections of hot water into the vagina have been recommended. No medicine seems to have any

effect in preventing the recurrence of painful menstruation. Strict attention to all the laws of health will tend to modify the attacks very much. Many women have painful menstruation until they become pregnant, and have no trouble afterwards. One thing should be avoided certainly, and that is the use of opium or morphine on such occasions, if for no other reason than the danger of contracting a habit of using these drugs, a habit more to be dreaded than the habit of using intoxicating liquors.

Menorrhagia, or excessive menstruation, means that the amount of discharge is too great, or that it continues too long, or that the flow occurs oftener than usual. Sometimes all of these conditions are present. The causes are various. Sometimes it is attributable to over-excitement of the sexual organs. Some women have what is called a *hemorrhagic diathesis*, that is, a peculiar constitutional tendency to bleeding, due to thinness of the blood. Standing too much upon the feet about the time of menstruation, may tend to increase the flow by determining the blood to the pelvis. General weakness and relaxation of the system, brought on by over-work or other causes, may produce it.

The menstrual fluid is blood mixed with the mucus of the vagina. This mucus prevents the blood from clotting, unless there be an unusual amount of blood. The presence, then, of clots in the discharge indicates an unusual amount of blood. Sometimes this blood comes from humors or ulcers in the womb, and is not properly menstrual blood,

which merely oozes out of the lining of the womb, from ruptures in the minute blood vessels.

The loss of blood by profuse menstruation produces symptoms similar to the loss of blood from any other cause. There is a paleness, exhaustion, probably headache, and other nervous symptoms.

The patient should be kept quiet in bed. Warm drinks should be avoided and the room kept moderately cool. The feet and legs below the knees should be kept warm. The hands and arms should also be kept warm, that the blood may be drawn away from the region of the womb. Cloths wrung out of hot water may be applied to the feet and hands and frequently changed. Some recommend cloths wrung out of cold water to be applied to the abdomen. Cold lemonade, slightly sweetened, may be drank. A hot brick or bottle of hot water applied to the small of the back has been known to check profuse menstruation.

If these simple measures fail and the discharge of blood be considerable, a competent physician should be sent for. Of course it is not necessary to check the flow entirely, but to bring it within proper bounds. If the flow has continued only moderately, but longer than the usual time, or if the amount is very great, accompanied with clots, and the woman feels weak and exhausted, then measures should be taken as above, before a doctor is sent for.

Occasionally there occurs what is known as vicarious menstruation. The blood, instead of coming from the womb, may come from various

parts of the body. There may be, instead of the ordinary menstrual flow, an oozing of blood from the mucous membrane lining the nose, lungs, stomach, bowels or bladder. It has been known to flow from the eyes, ears, gums, armpits, nipples, from old scars, ulcers, tumors, and from the surface of the skin generally. Usually, however, the vicarious flow is from the stomach or lungs. This curious and apparently alarming phenomena is more apt to occur in nervous women in delicate health. It rarely, if ever, is dangerous. Nothing need be done except to bathe the feet in warm water, and put warm applications to the small of the back, unless the flow is excessive, in which case a physician should be called.

THE WHITES.

This is the most common name of a disorder which probably afflicts every woman more or less, at some time in her life. The medical names are *leucorrhea* and *fluor albus*, both terms meaning a flow of a whitish substance. The discharge varies much in consistence and appearance, and may come from the womb, or from the vagina.

The general cause is irritation of the organs, followed by relaxation. Falling of the womb is often a cause of it. It is sometimes only a local symptom or expression of a general weakness of the entire system. It is apt to be common in those who have suffered many miscarriages, or have borne many children. Pessaries, or supports intended to keep up the womb, by their irritation, will, sooner

or later, produce it. Habitual constipation and piles are sometimes a cause. It is a not unfrequent accompaniment of pregnancy.

When the discharge is great and long continued, the patient becomes weak and loses flesh, the complexion gets dingy, and dark circles may appear under the eyes, all indicating general debility.

As to treatment, more can be done by attention to the general health than by local applications. Injections of astringent substances generally give only temporary relief. When the flow is excessive an injection into the vagina of one or the other of the following mixtures may be given:

1. Alum, two drachms; water, eight fluid ounces; dissolve. Inject once or twice daily.

2. Tannic acid, one ounce; glycerine, four fluid ounces; mix, and dissolve by a gentle heat. Inject daily.

If the woman be pale and weak from the discharge, a tonic like the following may be given:

Tincture of chloride of iron, three fluid drachms; dilute phosphoric acid, half a fluid ounce; syrup of lemons, three fluid ounces. Mix. Dose, a dessert spoonful once or twice daily. This is very agreeable to the taste and a good general tonic.

Pregnant women troubled with whites should avoid sexual intercourse, take plenty of rest in a recumbent posture, and a warm hip bath occasionally.

Strict attention to cleanliness should in all cases be enjoined. The discharges are sometimes irritating to the external parts, and may be the cause

of other troubles. It may be the cause of disease in the man if sexual intercourse is had at this time.

ITCHING OF THE EXTERNAL GENITAL ORGANS.

This is, in medical language, *pruritus of the vulva*. It is not strictly a disease, but may be a symptom of a nervous disorder, or a result of uncleanliness, or in some cases it may be caused by parasites, either the body louse, the crab louse, which attaches itself exclusively to these parts, or the common itch mite. This itching may occur in pregnancy and become very troublesome.

In many cases the itching is only slight, or only felt after exertion, in warm weather, or after getting warm in bed, or before a fire. Sometimes the itching is so great that the person is almost crazed, and can not resist the desire to scratch and rub the parts. This gives only temporary relief and exaggerates the trouble if continued.

If it is caused by uncleanliness, an abundant use of castile soap and water will be sufficient in a few days to effect a cure. If due to parasites, the first two mentioned may be destroyed by dusting the parts with a mixture of equal parts of calomel and pulverized white sugar; if to the itch mite, it may be destroyed by an application of sulphur and lard. The parts should afterwards be well washed with soap and water.

Frequent warm hip baths are advisable when the itching is an accompaniment of pregnancy

NEURALGIA.

The word neuralgia means *nerve-pain*. It consists in a pain in the nerve without inflammation of other parts. It is not a disorder peculiar to women, but women being more sensitive, are, perhaps, more inclined to it than men. At any rate, they seem to suffer more intensely. Neuralgia may affect any part of the body, and different names are given sometimes, when it affects different parts. Thus *tic douloureux* is neuralgia of the face; *hemi-crania*, or *migraine*, is neuralgia affecting one side of the head; *sciatica*, neuralgia of the hip and thigh; *gastrodynia*, neuralgia of the stomach; *angina pectoris* is chiefly neuralgia of the heart. Tooth-ache is sometimes purely neuralgia, sometimes simply the pain produced by exposure of the nerve of the tooth to the air, or it may be pain from inflammation of the jaw bone or root of the tooth.

The causes of neuralgia are various. Savage people rarely, if ever, have it, partly, perhaps, because of their out-door life, but mainly, I think, because of the less development of their nervous systems. Exposure to cold winds without sufficient clothing will undoubtedly produce it in persons who live mainly in-door lives. It may be due to bad condition of the blood owing to indigestion, want of exercise, constipation, and various other causes. It is often an accompaniment of the pregnant state. Overwork, mental worry, or anything that brings on a weakened state of the system may produce it.

Hot applications will in most ordinary cases give

relief. These should always be tried first. A hot brick wrapped in flannel, a sack of hot salt or a bottle of hot water may be held against the part. I think moist heat better than dry, hence I would prefer the following: Wet a cloth thoroughly and hold it for a moment or two against a hot stove, then immediately apply it to the part, repeating the operation several times.

Mustard draughts often afford relief. Electricity has been used with good results. A piece of paper saturated with chloroform and laid over the part is often efficient. The Chinese, it is said, use oil of peppermint applied to the part. Half of a cut lemon applied to the part has been known to give relief promptly.

I would not advise women to take medicine internally for neuralgia without the advice of a competent physician, and not then until he had made a thorough examination to find out the exact condition of the system. It is not sufficient that you send to a doctor asking for medicine for neuralgia. He should see and examine before he prescribes. By all means do not fall into the habit of using morphine, laudanum or opium to relieve the pain

SICK HEADACHE.

This name is applied to a pain in the forehead and through the temples, accompanied by sickness at the stomach and vomiting. Dr. Hartshorn says of it: "Sick headache is mainly a neurosis (nervous disease), and yet the pain is not always of a neuralgic character. In some persons a hereditary

proclivity to it appears. Certain women, especially, are subject to attacks every one, two or three weeks (though seldom at regular intervals) from puberty to cessation of menses. Relief of such attacks by treatment is often difficult to obtain. Early retirement to bed is mostly requisite."

Much may be done for this trouble by a strict hygienic life. Strict attention to the bowels is necessary. Constipation should never be allowed. The woman should be careful to avoid getting much fatigued. Care in eating—never to overload the stomach is also important. The pain may often be much alleviated by having some one rub and gently pat the head and comb and brush the hair. Vomiting generally gives relief in an attack. If one feels very much nauseated the vomiting and consequent relief may be hastened by drinking a large quantity of warm water or water and salt. It is much easier to vomit when the stomach is full than when it is nearly empty. The straining is not so great and greater relief follows. If the feet are at all cold, they should be put in hot water. Cloths wrung out of hot water may be applied to the stomach in severe attacks.

FAINTING.

During pregnancy women especially those with the first child, are apt to have occasional spells of fainting. It may be only a temporary feeling of faintness, without loss of consciousness, or it may amount to complete loss of consciousness. It is not so alarming as it would seem, although fatal results

have occurred. If the woman be long unconscious the supply of blood is cut off from the child in the womb, and it may perish in consequence. It occurs in some woman but seldom, and the spells are very light; in others it may occur frequently and be very profound. Women who are known to be subject to these fainting spells should not be left entirely alone, as they may come on without any warning, and if something is not done serious results may follow.

The treatment is simple and almost always successful, if resorted to promptly. The patient should never be raised up. The body should lie in a horizontal position on the back, the clothing loosened about the neck and chest, a little cold water sprinkled on the face and some hartshorn or smelling salts held to the nose. A few drops of brandy or whisky may be given. If the fainting does not amount to actual unconsciousness, nothing need be done except that the woman when feeling faint should immediately lie down.

DISPLACEMENTS OF THE WOMB.

The womb is so arranged in the pelvis that it is free to move up or down or sideways. It is suspended by ligaments, partly, and partly supported by the vagina, bladder and rectum. It floats, as it were, in the pelvic cavity, in the midst of the other organs. It undergoes remarkable changes during pregnancy, and returns to nearly its original condition. In the virgin it weighs only about an ounce, and at the end of pregnancy it weighs

two pounds without its contents. It is forced down slightly by a cough or a sneeze, and moves up and down a little at every breath. The bladder, when full, pushes it backward, and the rectum, when full, pushes it forward. Tight clothing around the waist forces the bowels down upon it, and pushes it down or tends to bend it forward, backward, or sideways upon itself.

The womb being thus easily moved, it is not strange that such causes as unnatural pressure by clothing from without, pressure by full bladder and rectum from within, and sudden jars and shocks to the whole body, accompanied with general weakness of the system, brought on by bad living, would tend to produce serious displacements. The principal kinds of displacements are *prolapsus*, *anteversion* and *retroversion*. The first means a falling down of the womb; the second, a falling of the womb forward; the third, falling of the womb backward. When the womb is bent or doubled on itself forward it is called *anteflexion*, and when folded backward it is called *retroflexion*. Sometimes the womb falls so low as to turn itself completely inside out, as a pocket in a coat may be turned inside out. This is called *inversion*.

During pregnancy the womb, as we have seen, grows rapidly in size. It not only becomes a large sac, or pouch, but its walls become much thicker, so that it contains about twenty-four times as much tissue as before. This increase in size is called *evolution*. After the birth of the child there is a remarkable decrease, and in five or six weeks it

has been reduced to nearly its original size. The decrease is called *involution*. But sometimes this change ceases before it has diminished to the proper size and it remains permanently quite large. This is called *sub-involution*. It is caused usually by the woman getting up too soon and going to work after delivery. This condition causes often great distress and many subsequent troubles. Again, the womb may continue to grow smaller after it has reached the proper size. This is called *super-involution*. This affects the general health, and produces a condition similar to old age.

I can not enter here into a full discussion of the displacements of the womb. I could not give directions for home treatment that would avail very much. I have named and briefly described some of these displacements, more to impress upon the reader the importance of exercising great care in preventing their occurrence than with the hope of laying down a satisfactory treatment. But a few points may be noticed in connection with the symptoms and treatment of some of the forms of displacement. In all severe cases a competent physician should be consulted and his directions followed to the letter.

When the womb has been displaced suddenly by violence of any kind there is always severe pain in that region, sometimes accompanied by fainting, flooding or vomiting. When it has left its position by degrees the symptoms are not strongly marked, the organs gradually becoming accustomed to their new positions. In falling of the womb there are

apt to be dragging pains in the small of the back, with obstinate constipation, the patient having a desire to evacuate the bowels without success. The bladder may be much affected, making urination difficult. The "whites" is a frequent symptom, and sometimes profuse menstruation. The patient feels as if the contents of the pelvis were constantly about to escape downwards. All of these symptoms are generally relieved by lying down and increased by exercise in the erect position.

The most essential point in treatment of falling of the womb is to remove all weight of clothing from the hips and abdomen. The clothes should be suspended entirely from the shoulders by fastening them to a waist or by suspenders. A bandage made to fit the shape of the abdomen will afford great relief, but if worn long will do harm, because it relieves the abdominal muscles of their proper work, and as a consequence they degenerate from non-use and lose their power.

By lying down and elevating the hips the womb will slip back to its right place. Then put on the bandage and wear it for a short time in the erect position. Once each day apply passive exercise as follows: Let the patient lie upon her back with her feet drawn up. Let another person then knead and rub the abdomen with the hands, very gently at first, especially if there be tenderness. The force can be increased as the patient is able to bear it. This exercise should continue from five to fifteen minutes—not so long at first. In the course of a few weeks the abdominal muscles will have

acquired more strength and then the bandage should be no longer used, except when the woman is about to exert herself very much with work which requires her to be on her feet, then it may be put on for a short time. Much benefit may be derived from exercise of the legs while the patient lies on her back. Let her bend them upon the body and straighten them out again a number of times. Also when the legs are drawn up let an assistant hold the knees apart while the patient makes an effort to draw them together. These movements tend to strengthen the muscles of the lower part of the abdomen.

The patient should avoid being on the feet long at a time, and take great care to live hygienically as to diet, bathing, exercise, etc. It must be remembered that a cure depends much upon the restoration and maintenance of strength and vigor of the entire body. Anything that will improve the general health will aid in curing all cases of womb displacement.

When the womb has fallen forward, it rests upon the bladder and causes frequent desire to make water and a feeling of oppression in that part. Painful menstruation and sterility are common results of this kind of displacement. The womb, in this case, may usually be replaced by the patient herself, by lying upon her back and pressing firmly upon the belly just above the pubes, or at the lowest point of the abomen. It may be retained in place by a bandage having a pad pressing upon this part. The same precautions in regard to use of a

bandage as given in falling of the womb should be taken here. The passive and active exercise and other means there suggested may be used.

In backward displacement the symptoms will generally be more in connection with the lower bowel. Constipation will be a result, yet there will be frequent desires to move the bowels without success. The menses may or may not be disturbed. I shall not attempt to describe any special treatment for this form of displacement. The measures for improving the general health should be employed, and if the symptoms are severe, a good physician should be consulted.

HYSTERIA.

This is the medical term for a peculiar disease which manifests itself in a great variety of ways. The name hysteria is from a Greek word meaning womb, and was so given by the old physicians, because they thought disease of the womb was always the cause of it. Common people called it "hysterics," and there is a widespread notion that it is not a disease at all, but that the patients pretend only to the symptoms they exhibit. Hence, many people are offended if told that they have hysterics. It is as truly a disease as is neuralgia, but it is not always a disease of the body. Sometimes it is a disease of the body, sometimes of the mind, and often of both.

What is called a "fit of hysterics" may vary from mere uncontrollable laughter or crying, to a severe paroxysm, resembling an epileptic fit. Some-

times it is preceded by a sensation like that of a ball rising in the throat. This has been called the "globus hystericus." Physical hysteria, or hysteria of the body, is, according to Dr. Beard, a disease of debility, and usually the result of some disorder of the sexual organs, along with a peculiar sensitiveness of the nervous system, or a weak condition of the blood; and mental hysteria, or hysteria of the mind, is the result of some influence upon the emotions, and is a disease of the strong, full-blooded, non-nervous people.

The symptoms are so various that it would not be practicable to attempt to give them here. No two persons are affected alike. It is, however, important that one be able to distinguish a hysteric fit from an epileptic convulsion. There is not complete unconsciousness in hysteria, but there is in epilepsy. The attacks in epilepsy are more sudden; there is foaming at the mouth, biting of the tongue and difficult breathing, all of which are absent in hysteria.

These hysteric fits, when severe, often occasion great alarm, not only to the friends, but often to the physician when he does not understand their nature; but they are comparatively harmless. Often threats or propositions to resort to severe measures, as cutting off the hair or touching her with a red-hot iron made in the presence of the patient will arouse her, although she seem to be unconscious.

Women between the ages of fifteen and thirty are most liable to them. It is rare after the child-bearing period or before puberty. Women are the

common subjects, but there are occasional cases of hysteria among men.

Since it is difficult for one not acquainted with this disease to tell what is the matter, an experienced physician should be called when a peculiar fit of any kind occurs for the first time. The old physician who has seen many similar cases can assure the friends that the patient is in no danger, provided he is convinced that it is a case of hysteria.

Much exercise in the open air is very important for persons subject to hysteria. Mental excitement should be avoided. Regular employment of some kind ought to be enjoined. Reading exciting stories is not good for such persons.

NERVOUSNESS.

Under this heading I wish to say a few words about a peculiar condition, which may hardly be called a disease, yet it is so widely prevalent and is the source of so much suffering, that it merits a special notice in a work of this kind.

What is commonly called nervousness is more properly nervelessness, that is, in a certain sense a want of nerve power or force. It is not a want of nerve activity ; this is, at times at least, increased, but it is a feebleness or instability of the reserve nerve force which may be said to be the power behind all the actions of the system. It has been properly termed *neurasthenia*, a word which literally means "nerve weakness." The nerves are easily excited to activity. In other words, they are irritable.

Now, since all the actions of the body, as circulation, digestion, etc., go on through the agency of the nerves, this irritability may produce many and various effects upon the body. Dr. Beard classifies the kinds of nervousness as follows: (1). Brain exhaustion, in which there may be sleeplessness, depression, morbid fears and impulses, feeling of fullness in the head, headaches, impairment of memory, inability to mental work, and lessening of will power. (2). Spinal exhaustion, which may be complicated with the other kinds, but specially known by tenderness and aching in the back, depression and indigestion. (3). Nervous dyspepsia, where the irritability is mainly in the stomach. (4). Sexual exhaustion, in which the sexual organs, and through them almost every part of the system, is affected. (5). Traumatic exhaustion, that is, nervousness from some severe injury or shock. (6). Hemi-exhaustion, where only the nerves of one side of the body are affected. (7). Hysterical exhaustion, which I have noticed under the head of Hysteria.

Nervousness is peculiarly characteristic of Americans. There are many reasons for believing this. It is well known to physicians that less medicine is required to produce the same effect upon Americans than upon any foreigners. It is known to all that intoxicating liquors and tobacco affect Americans more than foreigners. The American people are handsomer, that is, they have more intellectual and refined appearance, as a rule, and this is the basis of beauty. They do more mental work, and

do it in less time. Our women suffer more in childbirth. All these, and many more facts, go to show that we are a people of sensitive nerves, or that nervousness is the great peculiarity of our people. I draw these points from a work entitled "American Nervousness," by Dr. Geo. M. Beard. He is a scientific thinker and observer, and his arguments in that work are strong and conclusive.

But what is the practical bearing of this subject of nervousness. It is this: Knowing that as a people we are peculiarly sensitive, we may avoid much suffering by a more strict attention to hygienic rules. We need to take more care of ourselves, because we are more delicately constructed. A high-bred American woman should not be expected to do the work of an Irish or German emigrant. I see, almost every day, an Irish woman, in all kinds of weather, going around town with two great buckets full of swill which she has gathered up from the back doors of houses, and carrying them three or four blocks to her home to feed her pigs. She appears healthy and strong. My wife could not do that, though she is just as healthy, and will live, in all probability, to be just as old.

This nervousness does not shorten life, but makes life full of suffering for some persons. Those persons who have sensitive nerves, though they suffer much, enjoy much; but if they took proper care of themselves they might enjoy as much and suffer a good deal less. Much of the suffering in this world is through fear of what may be the result of a disease or diseased condition. People should

have more knowledge of their physical and mental natures, which a study of physiology and hygiene would give them.

Much of the great mental work of the world has been done by men and women who were what may be called nervous people. They had only a small capital of reserve nerve force. George Eliot, Herbert Spencer, Jonathan Edwards, Kant, Schiller, Bacon, Darwin, and many others might be cited as examples. Dr. Beard states an undeniable fact when he says: "The Indian squaw, sitting in front of her wigwam, keeps almost all of her force in reserve; the slow and easy drudgery of the savage domestic life in the open air—unblessed and uncursed by the exhausting sentiment of love; without reading or writing or calculating; without past or future, and only a dull present—never calls for the full quota of her available force; the larger part is always lying on its arms.

"The sensitive white woman—prëminently the American woman, with small inherited endowment of force; living indoors; torn and crossed by happy or unhappy love; subsisting on fiction, journals, receptions; waylaid at all hours by the cruelest of robbers, worry and ambition, that seize the last unit of her force—can never hold a powerful reserve, but must live and does live, in a physical sense, from hand to mouth, giving out quite as fast as she takes in—much faster oftentimes—and needing long periods of rest before and after any important campaign, and yet living as long as her Indian sister—much longer it may be—and bearing

age far better, and carrying the affections and feelings of youth into the decline of life."

MISCARRIAGES.

Having spoken of the causes and the dangers of miscarriage in another chapter, I have here to speak only of the symptoms and treatment. As before stated, the principal symptoms are pain and flooding. Pain is nearly always an accompaniment. In early miscarriages it may not be greater than often accompanies menstruation.

When pregnancy is more advanced there may be a chill followed by fever, rapid pulse, thirst, restlessness and sometimes sickness at the stomach and vomiting. Occasionally there is palpitation of the heart, coldness of the hands and feet, dimness of vision and an uneasy feeling in the lower part of the abdomen. Pain in the back and in the bladder are often symptoms. The breasts may be observed to become shrunken. The pains will be after awhile periodical and accompanied by more or less hemorrhage. In early miscarriages the ovum is usually expelled entire. In later miscarriages the membranes are ruptured, the fœtus expelled first and then the membranes and afterbirth. The latter often remains firmly attached to the womb for a varying period. Sometimes, after the fœtus is expelled, the pains cease and the woman may suppose all is well, but after a time, it may be several days, the pains return and usually with a great deal of hemorrhage. The afterbirth may undergo putrefaction and come

away in bits with dark and bad-smelling discharges. Blood-poisoning may occur by the absorption of the putrefied material.

In the treatment of threatened miscarriage we must try to prevent it if possible; if not, to conduct the patient safely through. In those women who are in the habit of miscarrying at about the same stage of pregnancy great care should be taken when that time arrives, that the woman do nothing that might cause action in the womb. She should lie down much of the time and avoid all excitement of whatever kind. The probable causes of former miscarriages should be inquired into and avoided if possible.

If pains and hemorrhage have actually commenced, often the miscarriage may be prevented by maintaining perfect quiet of both body and mind. The woman should at once take to her bed, lie on her back and not be covered too warmly. Her food should be of the lightest and most easily digestible, and all stimulants and hot drinks be avoided. A physician should be called and the case plainly stated to him. He may be able to give something to quiet the contractions of the womb. The extremities should be kept warm. If the feet are cold a warm iron or brick should be placed against them.

When the hemorrhage is great and the pains increase in frequency and severity, and there is a discharge of the waters, with dilation of the mouth of the womb, we know the fœtus can not be saved, and the attention should be directed towards favor-

ing its expulsion. Sometimes the fœtus may be felt in the vagina, and can be hooked down with the finger. These cases should not be trusted in the hands of persons unskilled in diseases of women. Hence I will omit any further discussion, turning the cases over to the family physician, and end by quoting the following from Dr. Theophilus Parvin, concerning the after-treatment: "The patient should remain in bed at least a week after a miscarriage, for many a woman becomes a permanent invalid from neglect of proper care at this time."

HEMORRHAGE AFTER DELIVERY.

When everything has progressed in a satisfactory manner until the birth of the child we have good grounds for believing that no subsequent difficulty will arise. But there are rare cases in which the womb does not contract, as it should. This contraction closes the mouths of the blood vessels and prevents any serious hemorrhage. Sometimes women of little strength usually, develop an enormous degree of strength under temporary excitement, but afterwards relapse into a condition of total prostration. Sometimes enormous power is exerted by the uterus in expelling the child, and as soon as this is accomplished it falls into a condition of inertia, and is unable to contract sufficiently to close the vessels. In such cases death may ensue from rapid loss of blood.

There is a great difference in individuals as to the amount of blood they may lose without danger. Some can lose a great quantity, others compara-

tively very little. The bleeding may be external or internal. The mouth of the womb being closed up by a clot or a portion of the afterbirth, may keep the blood in the womb. It is, of course, lost to the woman when it flows internally.

The physician should remain for at least an hour after the birth of the child to attend to any case of this kind which might occur. Various means have been used to stop flooding. Physicians generally rely upon cold applications to the lower part of the abdomen, injections of cold water, and the administration of ergot, which causes contractions of womb. Of late years many physicians use injections of hot water (115 to 120 degrees Fahrenheit). Hot and cold water have the same effect in stopping hemorrhage, but warm or tepid water has an opposite effect, that of relaxation. I think cold applications are objectionable, because they are apt to chill the body even when applied locally. The remedies recommended for profuse menstruation are applicable here. I would not recommend ergot to be given unless it be administered by a physician. But whatever is done should be done quickly, if the flooding be copious and exhaustion is apparent in the patient.

CHILDBED FEVER.

This is truly a dreaded disease, but happily much may be done to prevent its occurrence, and physicians have learned better how to treat it of late years, so that the mortality from it is not so great as in the past.

As to the causes, there is much difference of opinion. From the fact that it occurs most frequently in cities and towns and in hospitals, especially in those hospitals which have surgical patients in the same building, and from the fact that many cases often happen in the same neighborhood among patients attended by the same physician, it is believed by some that it is a contagious disease, and may be communicated by the physician from one patient to another. Evidence seems to be in favor of the view that erysipelas, typhus fever, smallpox, measles, scarlet fever, diphtheria and some other diseases furnish a peculiar poison, which, if it enter the system of a woman just after delivery, will produce the disease known as puerpal, or childbed fever. This is denied by some good authorities, but believed by many equally as good. The latter class advise that special precautions be taken by physicians. If they have been attending cases of any of these diseases, they should not immediately undertake to wait upon cases of confinement. Several physicians in Philadelphia decline all cases of confinement under circumstances of this kind. It is believed that it may also be conveyed by the doctor from one patient suffering from it, to another woman whom he may attend in confinement. Dr. Wark advises that a physician who had attended a case of childbed fever, should not attend a case of confinement inside of three months, and should take great pains in the meantime to purify his clothes and body by washing and the free use of disinfectants.

As a means of prevention it is of great importance that the womb contract and be emptied of its contents soon after the child is born, and that the vagina be washed out by an injection of lime water, or weakened solution of carbolic acid.

The disease usually begins about the second day after delivery, rarely later than the fourth day. The earlier it begins, the more dangerous it is likely to be. A chill of greater or less severity usually is the first symptom. The patient is depressed and anxious; the pulse is frequent and weak. Perspiration is often copious, but it does not lessen the fever. The discharge from the vagina (lochia) is almost if not entirely checked. The milk becomes scant or disappears in the breasts. Great pain is felt in the lower part of the abdomen, spreading over the whole region, and frequently so great that the weight of the bedclothes can not be borne. The abdomen swells and becomes tight like a drum.

A good physician should be called at the very first indication of the fever. I shall not attempt to give any treatment here. I introduce the subject that my readers may be aware of the dangers of this disease, and be stimulated to greater exertion in preventing it and in calling in medical aid in time, should it unavoidably occur.

SLEEPLESSNESS.

This is not properly a disease, but a condition resulting from some disturbance to the natural actions of the system. It may be a symptom of many

diseases, and it often occurs in pregnancy. I introduce the subject here because many people resort to drugs in such cases, and do themselves vastly more harm than good. This is written, then, in a spirit of warning as to what not to do, rather than as advice as to what to do.

If sleep has been less than usual for several days or weeks, more serious symptoms are sure to follow. Sleep is as necessary as food to keep the body in a proper condition. The person who has lost sleep to any great extent becomes irritable in body and mind, the appetite fails, the pulse becomes more frequent, the strength diminishes, and serious diseases may be the final result. A person may sleep much, yet the sleep be so interrupted by frightful dreams that it is not refreshing.

Drugs, except the mildest, should never be used to procure sleep unless in extreme cases of disease, and then only under the advice of a competent physician. There are many simple remedies which are often sufficient, and they should be tried first. A heavy meal eaten late before retiring is often the cause of sleeplessness, or of frightful dreams, but we must not conclude that eating shortly before going to bed will prevent sleep. On the contrary a small quantity of food before retiring often is very effective in inducing sleep.

A warm bath taken before retiring is very often the most efficient. Gentle exercise in the open air is an excellent remedy for sleeplessness. Rubbing the body with the hands, and stroking the hair has a good effect. Sitting before an open fire will often

make persons sleepy. They should retire to a warm bed as soon as possible after they begin to feel sleepy. Too much warmth, or too little prevents sleep. The amount of covering should be carefully regulated to suit the temperature of the room. The feet should be warm on retiring. A warm brick or iron to the feet will often aid much in securing sleep.

A proper condition of the mind has much to do with sleeping. We can, in a great measure, by efforts of the will, control the mind so as to induce sleep. We can not stop thinking by an effort of the will, but we can try to think of other things, and thus turn the mind into other channels. Persons are often kept awake thinking over some event of the past day, or over some past trouble, or about the future. So long as the mind is intent upon one subject, it is difficult to go to sleep, but if we allow the mind to wander, we soon go to sleep. We can make the mind wander by trying to think of many different things. Allow one subject to suggest another, and this another, and so on, and presently you will be asleep.

Tea or coffee ought not to be drank within two hours of bedtime, as they tend to wakefulness. If medicines are used, and they should not be until all simple means fail, only the mildest of those which tend to produce sleep should be given. The following prescription may be used:

Bromide of potassium, one-half ounce; glycerine, one-half ounce; cinnamon water, two ounces. Mix. Take one dessert spoonful in water before

retiring. If no effect, another dose in an hour afterwards may be given.

Even the mildest medicines should not be given for any lengthened period, nor in large doses.

GATHERED BREASTS.

This most troublesome affection may occur at any time during the nursing period, but is most frequent shortly after childbirth. It is more common after the first confinement. Women who are delicate, and particularly those who are scrofulous, are most subject to it.

The causes are various. A blow or a fall may incite inflammation. Exposure to cold, great mental excitement, over-eating, and undue accumulation of milk, may be causes. The latter is, perhaps, the most common cause. The child should be put early to the breast, as before stated, and when the child can not take enough of the milk, the breasts should be drawn by a breast pump. Often a woman goes away visiting, or to a party, leaving her child at home for a long time. The milk accumulates to an undue degree, and inflamtion is the result. Thus the mother's neglect of maternal duty is punished. Sore nipples often leads the mother to avoid putting the child to the breast as often as she ought. Says Dr. Napheys: "No nursing mother is safe whose breasts are not properly and daily emptied. If this can not be done by the child, another infant should be applied, or a small puppy, either of which expedients is preferable to a breast pump, which, however, is

much better than nothing. If the tender or chapped condition of the nipples interferes with free nursing this condition must be promptly remedied."

The first point in treatment is to keep the breasts as nearly empty as possible. At the very beginning the breasts may be rubbed with camphor and olive oil. This will do much toward assisting the flow of milk toward the nipple. When the breast has become very tender and sore like a boil, then rubbing will do more harm than good. A poultice of slippery elm or flaxseed should be applied and kept moist by frequent wetting with warm water.

The breast should be supported in a sling made by passing a handkerchief under it and tying around the neck. The bowels should be moved by some quick purgative, as cream of tartar or citrate of magnesia. If an abcess forms, a physician should be called, who will advise its opening with a lancet. This is the best course to pursue, since if the pus is allowed to accumulate until it breaks through the skin, there will be much more suffering and the healing will be delayed and perhaps an unsightly scar be left. An abcess is very much of the nature of a boil and should be treated accordingly.

SORE NIPPLES.

If the directions given in a preceding chapter be strictly followed there will be little danger of sore nipples. A nipple shield should be used when the child nurses. Says Dr. Wark: "The nipples of the shields usually sold are too deep and the mother suffers as much pain and injury when the

nipple is drawn into the shield as when it is pulled naked into the child's mouth. To prevent this the nipple of the shield should be made shallow enough to fit the mother's nipple by placing in it a bit of soft sponge, which should be carefully removed and cleansed every time it has been used, then placed in clean water until it be required on a subsequent occasion."

Treat the inflammation with poultices of slippery elm bark. After the inflammation has lessened, the following preparation will do much toward restoring the natural condition.

Take mutton suet, one ounce; balsam of Peru, two drachms; glycerine, one drachm; honey, one drachm. Melt the suet with gentle heat, add the other ingredients and thoroughly mix. Apply a little of the mixture to the nipples each time after the child nurses.

MILK LEG.

This term has been applied to a peculiar inflammation of the lower extremities from an erroneous notion that in some way the milk was diverted from the breasts to the limbs, causing the white swelling. The medical term is *phlegmasia dolens*. It occurs usually from ten days to two weeks after confinement, and is much more apt to occur in women who have borne several children. It is more frequent in women of delicate constitutions. It rarely occurs in women who are not pregnant, and has been observed in a few cases in men. Women who have had copious hemorrhages either before,

during, or after labor, are very liable to it. It is very apt to occur after an abortion.

The first symptoms are usually uneasiness, chills, headache, frequent pulse, pains in the groins, and then in the leg. Soon the limb swells, becomes hot, whitish and shining. Sometimes the attacks are so slight that it can not be distinguished from an ordinary local dropsy. The limb is stiff and without power to move. The flow of milk, and discharges from the vagina become lessened or cease. There is general fever and thirst, with sleeplessness.

The disease is seldom fatal, and runs its course in two or three weeks. Treatment should be directed largely to improving the general strength if that seems to be low. Perfect cleanliness is important. The vagina should be washed out every day by an injection of warm water, to every two quarts of which has been added two drachms of carbolic acid. The bowels should be moved by a gentle purgative as cream of tartar. If the patient be very weak, an injection into the rectum of salt water and mucilage of slippery elm bark may be given to move the bowels. The diet should be nutritious and stimulating, chicken broth, beef tea, egg-nog, etc., being excellent.

The affected limb should be bathed with turpentine, and wrapped in flannels wrung out of hot water.

VARICOSE VEINS.

This means a distended or knotted condition of the veins. It occurs most frequently in the veins of the legs. Women who have borne several children are most liable to it during pregnancy. Tight garters and tight corsets tend to cause and increase this condition.

The patient should keep the recumbent position as much as possible. The feet should be supported when seated. By lying for a time with the feet elevated above the level of the hips, the blood will flow out of the veins and reduce the distension. Then an elastic stocking, to be procured through any druggist, should be put on and worn.

MORNING SICKNESS.

This usual accompaniment of pregnancy sometimes becomes so excessive as to call for special treatment. In ordinary cases the nausea is often relieved or prevented by simple measures, as washing the hands and face in cold water; drinking a cup of coffee or a glass of milk and eating a crust of bread or a cracker before getting out of bed in the morning, and then remaining quiet in bed for fifteen or twenty minutes; frequently taking rests during the day in a half recumbent posture, especially after meals.

Emptiness of the stomach seems to be a condition favorable to the nausea. A pregnant woman, during the first three months, should not allow herself to get hungry, but yet should be very careful

not to eat too much at a time. Lemon juice is an efficient remedy for some women. The acids of most fruits are generally good. A strong effort of the will, an effort to think of something else than the feeling in the stomach, will often be effectual in relieving the nausea.

Sometimes the nausea and vomiting continues during the whole day, and is very distressing. In such cases there is usually some disordered condition of the digestive organs. The effect of different articles of diet should be carefully observed, and if any one seems to be the cause of the distress, it should be avoided. There are some cases, however, which seem to be entirely due to increased reflex action of the nervous system. In such cases bromide of potassium is highly recommended as a quieter of the reflex nerve centers. The following prescription may be used:

Take bromide of potassium, two drachms; cinnamon water, three fluid ounces. The latter dissolves the former. A dessert spoonful of the solution may be taken two or three times a day.

GREEN SICKNESS.

This is the common name of what doctors call *chlorosis*, which is from a Greek word meaning greenness. It is so named from one of its most common symptoms, a peculiar pale and greenish tinge to the complexion. It rarely occurs except at or very near the age of puberty. Authors differ as to its real nature. Some think it is simply an

impoverished condition of the blood, others regard it as a disease of the nervous system.

The symptoms are about as follows: There is a peculiar waxy, yellowish or greenish color in the face, the lips are nearly colorless and the tongue often pale. The feet and face sometimes swell and a dark circle may appear under each eye. There is weakness, nervousness and palpitation of the heart. Ringing in the ears and disturbed sleep are common. There is more or less impairment of digestion, and a morbid or depraved appetite is often present, as for chalk, slate pencils, clay, or in some cases for strong acids. There may be neuralgia of the abdominal walls. Menstruation is either absent or irregular and painful. The temperature is usually lower than natural.

The treatment should be mainly hygienic. If proper hygienic measures have been taken with the girl just before and during the time of puberty there is little danger of it occurring, but if it does occur, there should be special attention to good diet, bathing, change of air and scene, cheerful company and light exercise in the open air. The girl should be taken from school if any of the symptoms of this disorder appear, and her condition carefully inquired into. The food should be nourishing, yet easily digestible. The girl should be warmly clothed.

Such tonics as quinine and iron are good, but a physician should direct their use.

"CHANGE OF LIFE."

Menstruation usually ceases between the ages of forty-five and fifty. There are instances where women menstruate up to the sixtieth year and even past that age; and again, of others whose menses stopped at the age of twenty-eight years. This period is called by the common people the "change of life," by scientific men the *menopause*. Although a perfectly natural process and not a disease in itself, it is frequently attended with grave conditions, so that middle-aged women usually dread this period. Statistics, however, show that no more females die between the ages of forty and fifty than between the ages of ten and twenty, and that men are about as apt to die at this age as women. Moreover, if a woman passes this period in safety, her chances of reaching a hundred years are much greater than that of men.

In a woman of vigorous constitution menstruation will most likely cease between the ages of forty-five and fifty, the discharges becoming less and less at each period until they cease altogether. The woman then will very likely gain in flesh. They sometimes become very corpulent after this period. Sometimes the menses will return a few times after an intermission of a month or two.

In delicate women there may be a variety of disorders, more or less severe. There may be a condition very similar to the green sickness of girls at puberty. In fact, many of the dangers which beset the period of puberty are likely to be again prom-

inent. Many women suffer from what are called "hot flashes." The face and neck are at times suffused with blood and there is a feeling of fullness and giddiness in the head. These flushes are followed by chills and perhaps faintness and cold perspiration.

Sometimes the woman's mind is affected so that she imagines she has various diseases. If she has palpitation of the heart, which is sometimes a symptom, she imagines she has some disease of that organ, and that she will some day drop dead suddenly. If she has a sore breast, she thinks she is going to have a cancer that will end her days with terrible suffering. Sometimes a condition resembling insanity is present. These mental effects soon pass away, however, and the woman is then mentally stronger than ever before. She grows more masculine in physical and mental character, and as Dr. Tilt expresses it, "the change of life does not give talents, but it often imparts a firmness of purpose to bring out effectively those that are possessed, whether it be to govern a household, to preside in a drawing-room, or to thread and unravel political entanglements."

Those women usually suffer most at the menopause who have had painful menstrual periods, or have suffered several abortions or unnatural labors, also those who may have had displacements and diseases of the womb, or have been prostrated by repeated attacks of fevers or other diseases. There seems to be difference in women of different temperaments. Those of the lymphatic temperament

usually have the easiest time. Those of the nervous temperament suffer most. Women of the sanguine temperament are more liable to severe hemorrhages and to the head symptoms. Those of the bilious temperament are more likely to have troubles with the stomach and liver.

In nearly all cases the sexual passion disappears with the change of life, but there are occasional cases where it is greatly increased. This is to be regarded as a dangerous symptom. There is likely disease of the womb or ovaries, or an unnatural excitability. Sexual intercourse at such times may result seriously. Medical treatment is not usually demanded, but it is very important that the woman take especial care to protect herself from cold and wet and to avoid over-exertion physically or mentally. When complications arise they should be treated by a competent physician according to their nature.

Chapter XII.

HOME TREATMENT OF SOME OF THE DISEASES OF CHILDREN.

INTRODUCTORY REMARKS.

Every mother should have some knowledge of the nature and symptoms of the common diseases of children, that she may be able to recognize the need and call in time the assistance of a physician who has made a special study of disease. Says Dr. Sozinskey: "The mother or attendant who has the charge of a suffering child, should realize that she has a weighty responsibility resting on her, that she has a duty to perform, the right discharge of which calls for knowledge, practical skill and faithfulness. To the ignorance, want of tact, and negligence of those to whom are given the grave trust of bringing up the young, may be attributed a considerable percentage of the deaths which occur in early life. Instructed, discerning eyes should watch over them from birth so carefully that disease can not develop unrecognized, for timely action only, as a rule, can be effective, either in warding off illness or in removing it."

It is not necessary that mothers have the knowledge of a physician or be ambitious to become doctors, but simply a knowledge of the more common symptoms and remedies of the most common diseases. Indeed, a pretension to medical skill

may be the cause of much trouble, by leading to delay in calling in one more competent to deal with the case. A mother should use her knowledge of diseases not to enable her to dispense with the services of a phyician, but to aid him in averting the dangers which may beset her children.

Children should be closely observed by those who have charge of them, and any departure from health at once inquired into. There are some insidious diseases, which, if observed and taken in time, may be cured, but if allowed to get a certain start, will baffle the skill of the best practitioners.

It should be borne in mind that children are very much like animals; we can not tell so easily what is the matter with them as we can in the case of grown people. They may make a great to do over a slight ailment, and show very little indications of a more serious malady; as for example, a child may cry and complain much when it has a slight attack of colic, which is not usually serious, and scarcely show any symptoms to the ordinary observer when it has the dreaded membranous croup or diphtheria, until the disease has progressed considerably, and is perhaps beyond the reach of medical skill. Close observation, then, is necessary to detect departures from the healthy standard. This faculty a mother should cultivate.

I do not believe in dosing children for every slight ailment, nor in sending for a doctor every time one cries from pain, but it is better to be a little over-anxious than too careless. I have known parents to send for a doctor in the night when there

was only a slight convulsion from worms in the intestines, the doctor arriving only to find the child in a peaceful sleep, and as well as usual. On the other hand, I have known parents to neglect sending for a doctor, when the child had been observed to breathe more and more rapidly for a day or two, and when the doctor at last was called, it was too late. Membranous croup had progressed so far that no human skill could save the little patient. Good judgment is required of those who have the care of these tender shoots, and a little knowledge of disease will materially aid in deciding upon what to do in such cases.

CROUP.

Croup is essentially a disease of childhood. It usually occurs between the ages of one and ten years, rarely a little earlier or later. Those who have had it once are likely to have it again. It seems to run in certain families. Fleshy children, with fair skin, are most liable to it.

There are two varieties recognized by physicians generally; the spasmodic, nervous or false croup, and the membranous, inflammatory, or true croup. These differ considerably. A pure case of either kind is rare, one generally having some of the characteristics of the other.

The first kind consists in a spasmodic closure of the entrance to the windpipe, shutting off to a greater or less degree the air to the lungs. The child may go to bed apparently all right, and waken about midnight with a ringing cough, and

a struggle for breath. If not relieved in some way, it may die for want of air. Sometimes relief comes without treatment. Being relieved, the child will usually go to sleep and appear all right the following day. The attack may occur for several nights in succession. This variety, when not complicated, seems to be purely a nervous disease, and is unattended with perceptible inflammation. But it rarely occurs in a pure form. There is nearly always some inflammation, and the choking is due partly to the thickening of the mucous membrane and phlegm, as well as to the spasm.

The remedies for this variety should be at hand, as assistance is needed at once, and there is rarely time to send for a doctor. Anything that will relax the system and produce vomiting without danger of interfering with other functions of the body, is admissible in this form of the disease. A warm bath is often sufficient. Wrapping the child in a sheet wrung out of hot water and covering it up well with blankets is good. At the same time something should be given to produce vomiting. For this purpose various articles have been used, and are recommended by good authorities, as ipecac, lobelia, alum and tartar emetic. Perhaps there is nothing better than syrup of lobelia. A bottle should be prepared and kept in the house ready for use. Any druggist can fill the following prescription:

Take tincture lobelia, four drachms; simple syrup, sufficient quantity to make four ounces. Mix. Give a half teaspoonful the moment the

difficult breathing begins, and repeat in fifteen minutes if vomiting is not excited or relief does not come. Prepare the warm bath as soon as possible after giving the first dose.

Syrup of onions is an excellent remedy to produce vomiting in croup. It has also a soothing influence. It is easily made as follows: Slice a large onion in a pan; pour on about three tablespoonsful of water, add a teaspoonful of sugar and let boil one minute. Drain off in a cup. Use freely.

The membranous variety of croup is a very dangerous disease. Its coming is insidious. There may be but slight hoarseness and difficulty of breathing for several days before severe symptoms set in. This increase in the difficulty of breathing is so gradual that it may not be noticed. The little one breathes more rapidly than usual and if attention is not called to the child no notice may be taken of its breathing. This fact ought to be known to every mother, and her children closely observed. The child may play and appear all right, while at the same time the disease is making progress.

As the breathing becomes more labored a peculiar noise is heard at each respiration. It can not be mistaken if once heard. The best way to describe it is to call it a croupy sound, as there is nothing else just like it. A loose, rattling cough may appear and the body show signs of fever. The material thrown out in the windpipe becomes organized and a false membrane is formed. This

with the spasmodic action which is nearly always present, closes the windpipe gradually and death may result unless there is a change which may remove the obstruction. Sometimes the membrane is coughed up in the form of a tube, or cast of a portion of the windpipe. Or it may be dissolved or absorbed. In some cases, probably no membrane is formed, the closure being due to spasmodic action and phlegm. I treated one case which terminated fatally, where the patient breathed for four days so loudly that she could be heard in all parts of the house, even when two doors intervened. No one thought she could live after the breathing became thus difficult. A great deal of phlegm appeared to gather and was coughed loose to be swallowed.

As in spasmodic croup, the treatment should begin early and be energetic. No doubt the reason there are so many fatal cases of membranous croup is because treatment is not begun in time. A physician should be sent for upon the earliest indication of the disease. But much may be done to aid the physician. The room should be warm, and the air moist. Some water should be kept on the stove in an open vessel that the steam may moisten the air. Let the patient inhale steam made by pouring hot water upon unslacked lime. It is claimed by some good authorities that lime has the power of dissolving the membrane. This will do no harm if it does no good. Moist air is more soothing to the air passages than dry air.

A sponge or cloth dipped in hot water and ap-

plied to the outside of the throat, and frequently changed, is recommended. A dose or two of some mild physic, as castor oil, citrate of magnesia, or cream of tartar, should be given at the very first.

The warm bath, either by sponging the body with a cloth and very warm water and rubbing dry with a towel, or wrapping the patient in a sheet wrung out of hot water for ten or fifteen minutes, or by immersing in warm water, will always aid and may be given once or twice a day.

The above are all simple measures which may be used whether recommended by the doctor or not. If he is a competent physician he will not object to them, and perhaps recommend some one or more of these measures. In bathing, care should be taken, as in all other cases, not to expose the body of the child to cold drafts of air. The room should be closed when the bath is in progress, and windows opened when it is through, taking care to keep the child well covered and out of direct drafts if the weather is cold.

It is all-important that the very first symptoms of croup be attended to. In my own experience, I have found a relaxing substance applied to the throat and breast to be beneficial in the earliest stages. For this purpose I have recommended an ointment made as follows: Take pulverized lobelia seed, one drachm; mix thoroughly with one ounce of lard. Rub well on throat and breast in every case of difficult breathing and rattling in the throat. You can buy the pulverized lobelia seed at any drug store and mix it with the lard yourself. Pre-

pare some of this ointment and keep in a wide-mouthed bottle, well stopped.

DIPHTHERIA.

This disease, also called putrid sore throat, is not confined to children, but often affects adults. It is of several varieties.

Simple diphtheria begins with a general depression, slight soreness in the throat and a swelling of the lymphatic glands behind the jaw. There is some fever and headache, with furred tongue, constipation and difficulty of swallowing. The back part of the mouth appears red or purplish and swollen. Often as early as the second or third day may be seen whitish or yellowish-white membranous deposits upon the tonsils. These symptoms continue from five to nine days, when, in favorable cases, convalescence begins. This variety is not very dangerous.

The *croupous* form is the most common among children. It seems most apt to follow measles or scarlet fever. This kind begins about the same as the simple diphtheria, but soon the symptoms of croup appear. There is difficult breathing, cough and hoarseness. Death may follow from suffocation as in the croup. This form is very dangerous.

The *ulcerative* variety is not common and need not be described here.

The malignant form of diphtheria is very fatal. The symptoms are severe from the first. Intense headache, frequently with vomiting, and hemorrhage from the nose, mouth, stomach, or rectum.

The glands of the neck are greatly swollen, and swallowing is almost impossible. The back part of the mouth is covered with a thick, leathery deposit, at first yellowish, but soon becoming dark, almost black, and giving an offensive odor. Such cases usually die in spite of all treatment.

Physicians are not exactly agreed as to the cause and real nature of diphtheria. It is generally believed to be a specific disease, that is, from some peculiar poison which acts upon the blood, and manifests itself locally in the throat. Some high authorities have claimed the constant occurrence of microscopic organisms called bacteria in the throat in diphtheria. The disease has been produced in rabbits by inserting into their blood the material from the throat of a patient affected with it. If this view of the matter be correct, diphtheria is a contagious, or infectious disease, and somewhat similar in nature to smallpox, yellow fever, etc. This much is known, that physicians who have attended cases of diphtheria have contracted it, and the disease often goes through a whole family, affecting every member, and sometimes breaks out in communities. Princess Alice, of Hesse, caught the disease by kissing her sick child. It is supposed that the disease which caused the deaths of Washington and the Empress Josephine was diphtheria, not so much being known at that time as now concerning it.

Children are much more liable to the disease than adults. Places where many people are crowded

together, and there is much filth, seem to be most favorable for its development.

In the treatment great differences of opinion are held, probably because no treatment yet discovered is satisfactory in severe cases. Chlorate of potash, a medicine which has become very common of late years, is largely used, and is very good, if used early and freely. The following prescription may be used in cases of suspected diphtheria:

Take chlorate of potash, two and one-half drachms; peppermint water, four fluid ounces; dissolve. Take a teaspoonful every three hours for a child under ten years, increasing the dose for older persons.

The following is also highly recommended:

Take chlorate of potash, two drachms; tincture of chloride of iron, one fluid drachm; simple syrup and peppermint water, each two fluid ounces; mix. Dose for children, a teaspoonful every three hours.

Local applications are regarded by most physicians as of great importance. Flannel wrung out of hot water to which vinegar has been added in equal amount, and applied around the neck will give some relief. Sulphur blown through a quill upon the patches of deposit in the throat has been recommended.

A good physician should be called in, but there will be no harm in using the means here suggested in addition to his treatment. The chlorate of potash mixture ought to be given before the doctor is called, on the first complaint of a sore throat.

WORMS.

There are about thirty species of worms which have been known to inhabit the human body. Many of these are rare, and some are confined to certain parts of the world only. Different species inhabit different parts of the body. It is only those which are found in the intestines of which I need to speak here. These are of two principal kinds, the flat or tape worms and the round worms.

Tape worms are rather rare and rarely more than one inhabits the same person at the same time. Their history is peculiar. The animal is composed of many joints. In some of these joints eggs are produced. These joints break off and come away, a few at a time, with the discharges. These joints may be eaten by pigs. If they are the eggs hatch in the stomachs of these animals and the young worms make their way to the muscles, where they become encysted, that is, enclosed in a lime-like substance, and remain dormant until the flesh of the pig is eaten by man, when they develop in his stomach and intestines into tape worms. The meat of the pig which contains these cysts is called "measly pork." They can be seen as minute white specks. Thorough cooking kills the worms.

The symptoms of tape worm are emaciation, depression of spirits, nervousness, disordered stomach, a tendency to diarrhœa, uneasiness and pain in the abdomen, itching of the nose and anus. But all of these symptoms may be produced by

other causes, so that the only conclusive proof that there is a tape worm is the presence of joints of it in the discharges.

The remedies are various. Turpentine is effectual, but has a peculiar intoxicating effect upon some persons. Pumpkin seeds are said to be quite efficient in removing them.

Though tape worms are rather rare, they might be almost unknown if all meat that is eaten was thoroughly cooked. One species of tape worm is found in the immature state in mutton and beef, so that one should not only avoid raw pork, but raw beef and mutton. This applies not only to the prevention of tape worm, but to other parasites, especially the trichina, which sometimes proves as fatal.

Children are more especially apt to be troubled with species of round worms. Of these there are two principal kinds, the lumbricoid, or white worms, and the thread or seat worms. The former are from five to fifteen inches long, and taper to a point at both ends. It is the commonest of body worms. It inhabits mostly the small intestines, but may come up into the stomach, and even into the throat, and one case is recorded of one getting into the middle ear.

These worms may exist in numbers in the intestine, and causes great irritation. When they get into the stomach nausea and vomiting may occur and the worms be thrown up. As in the case of tape worm, no positive evidence of their existence is known until they appear in the discharges. If

one or more be discharged there is good reason to think there may be more. It is supposed that these worms grow from eggs which get into the body through water which is drank or are taken in with vegetables. Among the symptoms which these worms produce are itching at the nose, grinding the teeth during sleep, bad or irregular appetite, and swelling of the abdomen. Convulsions are often produced by worms and even spasmodic croup. They have been known to ascend the esophagus and get into the windpipe, producing death by suffocation.

The most certain remedy is santonin, but it must be used with care ; not more than half a grain once or twice a day should ever be given a child. A purgative should be given at the same time with whatever remedy used. Pink root and senna tea are common remedies. Children are often dosed for worms when no worms exist. Unless pretty certain that they do exist, medicines for worms should not be given.

The seat and thread worms are only about an eighth of an inch in length. They inhabit the rectum, or lower bowel, and may exist in great numbers. They cause itching and restlessness. Injections of lime water will destroy them.

COLIC.

By colic is generally meant severe pain in some part of the abdominal region. It is rather a symptom than a disease. There are several varieties. The only one which I need to speak of here

is that most common in children, and especially in infants. It is known as flatulent or wind colic, the pain being caused by the distention of gases accumulating in the bowels and stomach. It is usually caused in infants by over-feeding. More food is taken than can digest and gases are formed by the fermentation of the undigested food. It is often caused in older children by eating green fruits, or a large quantity of fruits of any kind. Apples are very wholesome for children if eaten ripe and in moderate quantities at a time, but unripe and imperfect fruit and a gorge of them will produce sometimes very distressing symptoms.

If we know the colic to have been produced by an overloaded stomach or from very unwholesome food, the first thing to be done is to give a prompt emetic; a teaspoonful of mustard in a little warm water will answer. This, however, can not well be given to an infant. Warm applications to the abdomen are always beneficial. Kneading the bowels with the hands, as one would knead bread, is good. A mild physic, as castor oil, should be given if the pain is not speedily relieved. There is often an acid condition of the stomach. A little magnesia or lime water should be given. It will do no harm if it is not needed. Essence of peppermint, essence of cinnamon and tincture or extract of ginger are good to tone up the bowels and give relief to the pain.

If the physic does not operate in about four hours and the pain be not completely relieved, an injec-

tion of warm water and soap or salt and water should be given.

In very young infants attacks of colic may usually be relieved by very simple measures. Warm applications to the abdomen and a few drops of essence of peppermint on a little sugar will usually give relief. Much dosing of very young infants should be avoided. Great care should be taken to prevent colic in infants. Never over-feed, keep the bowels regular; don't allow a day to pass without one or more movements of the bowels. A little lime water added occasionally to the milk of artificially-fed infants will correct the acid condition of the stomach.

CONVULSIONS.

Convulsions, or fits as they are commonly called, are always alarming to people, no matter from what cause, although not necessarily dangerous. They may accompany teething, indigestion, whooping cough, worms, fevers, and many other affections. Sometimes the fit comes on without any preliminary symptom, but usually there is restlessness in sleep, a rolling of the head, twitching of the limbs, clenching of the fists, and a snore-like breathing. The convulsion consist in involuntary muscular movements, rolling of the eyes, drawing back of the head, and frothing at the mouth.

The mother and attendants must not get frightened and lose their wits, for whatever is to be done must be done quickly. Children rarely die in the first convulsion, and the patient may be saved from subsequent ones by prompt treatment. Put the

child into water as hot as can be borne as soon as possible. If the water is ready you need not wait to take off its clothes. Let it remain in the water until a change takes place. If not a sufficient amount of water be at hand to immerse the child in, pour hot water down the back of its neck. Wrap in warm blankets as soon as taken from the bath. Send for a physician that he may ascertain the cause of the convulsions and prescribe against a return of them.

CHOLERA INFANTUM.

This complaint is more frequently called *summer complaint.* It is very fatal, especially in young children in large cities during the hot weather. It seems to be produced by the extreme heat, combined with the poisons which are apt to affect the atmosphere of towns and cities. In New York and Philadelphia the prevalence and mortality from it increased as the thermometer rose above ninety degrees Fahrenheit in the shade. In the hottest week in July, 1866, over 1,200 children died in New York City from this disease.

The symptoms are diarrhœa, vomiting, debility, refusal of food and sometimes stupor. At first the head may be hot and the abdomen swollen, but coldness and emaciation follows as the disease progresses. Sometimes death results very soon from brain trouble; in other cases the patient is gradually weakened by the diarrhœa and inability to appropriate nourishment.

It rarely occurs in children after the second year.

The teething period is most liable to be the time of the attack.

If a child is taken with diarrhœa and vomiting, and the head be hot, a physician should be sent for at once. In the meantime clothes wrung out of cool water should be applied to the head and a mustard plaster to the abdomen. Follow the doctor's directions as to diet, etc., to the letter. Insist that he sees the patient often until the danger be past.

THRUSH AND CANKER OF THE MOUTH.

Thrush, or "*white mouth*," is very common among infants, but is rarely serious. After a day or two of inflammation of the mouth, with some fever, and, perhaps, nausea and diarrhea, there appear a number of small whitish points, like specks of curdled milk, on the tongue and within the mouth. The trouble may last two or three weeks or longer. It is thought to be a minute vegetable growth.

Canker of the mouth is a kind of ulceration which is most common in children from two to six years of age. It begins on the cheeks, gums or lining of the lips, and may reach the back part of the mouth. The ulcer is grayish, or yellowish-white with an inflamed border. It is quite painful. The saliva flows very freely. There is often fever, and the breath is offensive. It may last several weeks, or even months. It is rarely fatal.

Chlorate of potash is a valuable remedy in both these cases. Dissolve as much as will in a little water, and give a half teaspoonful several times a day. Some mild physic had best be given. If the

child is feeble, a doctor had better be called, that he may prescribe tonic treatment.

"NIGHT TERRORS."

I extract the following description and treatment of this condition from Dr. Hartshorne's "Essentials of the Principles and Practice of Medicine:"

"Dr. C. West gives the following description of an attack, which is not very uncommon, occurring in infants or children under ten years of age:

"A child who has gone to bed apparently well, and who has slept soundly for a short time, awakes suddenly in great terror, and with a loud and piercing cry. The child will be found sitting up in its bed, crying out as if in an agony of fear, 'Oh, dear! oh, dear! take it away! father! mother!' while terror is depicted on its countenance, and it does not recognize its parents, who, alarmed by its shrieks, have come into its room, but seems wholly occupied with the fearful impression that has aroused it from sleep. In from ten minutes to half an hour, as the terror abates, it may become quiet at once and fall asleep; but frequently it bursts into a fit of passionate weeping, and sobs itself to rest in its mother's arms. In some instances a quantity of limpid urine is voided as the fit passes off, but this occurrence is by no means constant. Usually the remainder of the night is passed in tolerably sound sleep; two attacks do not occur in the same night. Seizures of this kind may come on in a great variety of circumstances, and according to the cause whence they have arisen, may con-

tinue to return for many weeks together, or may occur but a few times. As far as I have had the opportunity of judging, they are never the indications of primary mischief in the brain, but are always associated with some disturbance of the intestinal canal, and more or less obvious gastric disorder. In the majority of cases constipation of the bowels exists."

"My experience with such cases confirms that of Dr. West, as indicating that these attacks do not prove disease of the brain. But the nervous system of a child so affected must be morbidly susceptible; and signs of indigestion, constipation, or irritation of the bowels are not always present.

"During the attack the child should be at once gently lifted up from the bed and either carried for a few moments or laid down in a different position. Washing the face softly with a rag dipped in cool or cold water may arouse thoroughly. If any medicine be suitable, it will be a teaspoonful or two of camphor water. Care is needed to *prevent* the attacks. *Violent exercise* and mental *excitement* are almost as apt to bring them on as indigestion or constipation. The bowels should, however, be kept open, as by fluid extract of rhubarb or senna, etc. Bromide of potassium is advised by Dr. S. Ringer in obstinate recurrent attacks. Some practitioners prefer chloral in from three to six grain doses. To promote tranquil sleep some one should remain with the child, if timid, for awhile after it goes to bed; or a light should be left burning low. A child liable to night terrors ought to be allowed

to finish its morning sleep undisturbed. Abundance of sleep is sedative to an over-excitable brain. Neglect of such precautions may convert a mere transitory functional disturbance into a serious attack of brain disease."

BED WETTING (ENURESIS).

Children sometimes have an inability to retain the urine long at a time, generally due to a weakness of the nervous system. Much can be done to prevent bed wetting by withholding liquids, except in very small quantities, for some hours before bedtime, and by taking the child up to urinate after two or three hours sleep. The following prescription is said to be excellent:

Take benzoic acid, two drachms; cinnamon water, six fluid ounces. Mix. Take a teaspoonful three times a day.

Bromide of potassium may be given in small doses to very excitable children. A quantity equal to half the bulk of a grain of Indian corn may be dissolved in a little water and given just before going to bed.

EARACHE.

This is rather common in children, and may be caused by inflammation, or be entirely neuralgic. When there is inflammation there is considerable pain in the ear, and soreness on pressure behind the ear and in the opening. After a day or two relief is given by a discharge of pus from the ear.

Earache may generally be relieved by dropping

into the ear three or four drops of olive or almond oil, with one or two drops of laudanum. When there is a discharge, the ear should be syringed out with soapsuds made of castile soap and warm water. Care should be taken not to use force in injecting the liquid. Turning the head to one side and pouring the liquid in with a spoon is just as good, the patient turning the head to allow it to run out again.

CONTAGIOUS DISEASES.

It is not my purpose to speak at length of smallpox, measles, scarlet fever, mumps, chicken-pox, and whooping-cough, but there are a few facts concerning each of these diseases which ought to be known to every mother.

First of all I would say, no matter how simple the disease, I would never advise mothers to expose their children to it, as some do on the ground that it is better to have the disease when young, and that the chances are great that they will have it some time in life.

If proper hygienic measures have been adopted in a family the milder of the above named diseases, as measles, chicken-pox, mumps and whooping-cough, will not be severe anytime in life; and, as to smallpox, if proper attention is given to vaccination, as suggested in a previous chapter, little need be feared from that. As to scarlet fever, the disease is dangerous at any time, and great care should be taken to avoid it. Moreover, it is not very com-

mon, and the large majority go through life without ever taking it.

Smallpox or *variola*, is the most certainly contagious of all the so-called contagious diseases. The period of incubation, that is, the time between exposure to the disease and its beginning, is about twelve days. The symptoms begin much like those of an ordinary fever, and unless the disease is in the vicinity, it is difficult for the physician to decide as to its nature, until the eruption occurs. This appears about the third day of the attack.

In the large majority of cases it does not occur a second time. It is said to have occurred in the same person three and even five times. Louis XV died of a second attack.

If a person has been effectually vaccinated the liability to an attack is almost removed. If it does occur it is very much modified in severity and is then known as varioloid (variola, or smallpox like.) It was formerly a custom to inoculate for smallpox, that is, they gave the disease to the person by inserting the virus into his blood, the result being smallpox in a somewhat modified form.

There may be some who do not know the nature of vaccination. I will explain briefly. *Vaccinia*, or cowpox, is the name of a disease affecting cattle. It was known more than a hundred years ago that cowpox was sometimes communicated from the cow to man, and it was a common notion that if a person once had cowpox he would never have smallpox. This led Edward Jenner, an Englishman, to investigate the nature of cowpox. He

made many experiments and learned that cowpox could be communicated to man by inserting into his blood a small portion of the virus or matter from the eruption on the cow, and that it could then be continued from one individual to another by successive transmissions in the same manner, and that in some way it effected a change in the condition of the individual so that he was not liable to take smallpox. When the virus from a smallpox patient is inserted into a healthy cow the animal is affected with cowpox and the virus thus obtained is used for vaccination. It is generally the custom now to vaccinate with virus obtained directly from the cow and not from arm to arm.

Chickenpox, or *varicella*, is a very mild disease resembling varioloid. After a period of incubation of four or five days pimples form here and there over the body. There is very little fever and no danger to life. It is only necessary to avoid exposure to cold and to keep the bowels regular. It seldom affects adults.

Measles is a very common disease. It begins in from ten to fifteen days after exposure to the contagion. There is slight fever and depression, with the symptoms of a cold in the head, running at the nose, redness and watering of the eyes, and a cough. About four days after the beginning of the fever the eruption appears. It is not so bright in color as scarlet fever. In about seven days the eruption disappears.

It is rarely fatal when not complicated with other diseases, except in very young children. Some-

times the attacks are so mild that an observer would scarcely know there was anything more than a common cold. It sometimes occurs the second time.

Scarcely any treatment is necessary except to take care to avoid exposure, and to keep the bowels open. Active purgatives should be avoided. Let the patient drink plenty of liquids of any kind that are agreeable, either hot or cold. The eyes are apt to be weak for some days. The patient should not read or do work which requires close attention during convalescence.

Whooping-cough is purely a contagious disease. It is most common in young children, but adults may have it. It seldom occurs the second time. It begins about six days after exposure to the contagion. There is some fever, and a spasmodic cough. For hours at a time the patient may be apparently as well as ever, when suddenly he begins to cough violently for several seconds or minutes. The cough is peculiar, consisting of several short efforts at expelling the air from the lungs, and then a drawing in of the air through a contracted glottis, making a whooping sound, whence the name of the disease. This whooping is, however, not always present, but the coughing is always paroxysmal, that is, by spells. Vomiting often occurs during the coughing spells. The spells of coughing are sometimes so severe as to threaten death by exhaustion, but such cases are rare.

The disease seldom lasts longer than six weeks, but may continue three or four months, or even a

year. Unless complicated with some other disease as pneumonia, it is rarely dangerous.

Mild cases need no treatment, except to avoid exposure to dampness and cold. When there is no fever, the child need not be kept in the house during mild weather. He will cough less if allowed to spend much time in the open air. Some kind of cough syrup may be given if the cough is tight and little phlegm appears. In severe cases, the following prescription may be used:

Take syrup of ipecac, two and one-half fluid drachms; syrup of squills, three fluid drachms; mixture of assafœtida, enough to make two fluid ounces. Give one or two teaspoonfuls not oftener than every three hours. The mixture of assafœtida is made by rubbing one drachm of assafœtida gradually with four ounces of water until thoroughly mixed, then adding two fluid ounces of syrup of ginger.

Mumps, or *parotitis*, is generally a very mild disease and lasts but a few days. The parotid gland, located in front of, and a little below, the ear, swells and becomes hot and painful. There may be considerable inconvenience in swallowing. This is particularly noticed in taking some sour substance, as a pickle, in the mouth. One or both sides may be affected, and sometimes there is considerable fever, with delirium, and great swelling of the sides of the face.

The disease is never dangerous, unless, as sometimes occurs, there is a change of the inflammation to another part. This occasionally happens. It

changes to the breasts in the female, and to the testicles in the male. There are some rare cases where it changes to the brain, and death is said to have resulted.

Care to avoid cold and dampness is important. A change of the disease is more likely to take place if the patient becomes chilled. A poultice of flax seed may be applied to the jaw in severe cases, and a mild physic be given.

Scarlet fever, or *scarlatina*, is to be dreaded, as its results are very uncertain. There are three recognized varieties. The first, or simple variety, is the least dangerous, a majority of cases getting well. The second, or *anginose* (choking) variety, is more serious, and in the third, or malignant (violent, bad) variety, recovery is the exception.

It affects children mostly, but seldom occurs in infants under three months old. It is generally considered contagious, but many who are exposed to it do not take it, and it sometimes occurs where its cause can not be found, there being no cases in the neighborhood. Sometimes one child in a family of children will get it, and the others escape, and sometimes all but one of the family of several children will have it. I once treated a genuine case of scarlet fever in a family of four small children, where all lived in one room. There were no cases of the disease within ten miles. The child recovered, and none of the others took the disease.

It begins usually about five days after exposure to its cause. There is usually headache, pains in

the back and limbs, with some fever and soreness of the throat. On the second day the eruption appears on the face and neck, and gradually spreads over the whole body. It differs from measles in the eruption appearing sooner, being of a brighter red color, and not in patches, and not attended with symptoms of cold in the head, but with sore throat. On the appearance of such symptoms a physician should be sent for at once. If there are cases in the neighborhood great care should be taken not to expose children to the contagion, and a doctor should be called on the first appearance of a sore throat, and complaint of headache and pains in the back and limbs.

Chapter XIII.

WHAT TO DO IN EMERGENCIES.

PRESENCE OF MIND.

The person who can keep cool and take things deliberately will be of the most service to the suffering in all cases of accidents and in every trying emergency. There is no use of screaming, rushing around wildly, and giving expression to feelings of horror and pity. This will excite the patient, and those who are trying to be calm and aid the sufferer. This art of keeping cool under trying circumstances can be cultivated by every one. It is a power to be proud of, as life may sometimes depend upon it. Physicians are often accused of being hard-hearted, simply because they have cultivated the habit of controlling their feelings. You had better run the risk of being called hard-hearted than to be so excitable as to be of more harm than good in trying cases.

Says Dr. Hope: "Every one knows that all have not the same gifts, all have not the same strength of nerve. Most people have naturally a feeling of dread and of nervous horror at the sight of blood, and this is quite natural; for blood always suggests to the mind suffering or death. Still, much can be done by mere force of will, determination, facing the thing bravely. Not that we should be hard-hearted and have no sympathy with our

fellow-creatures when suffering. But by a determination to conquer one's self, in plain language, to make one's self go through it, this can be done, and is done by hundreds every day."

The first and most important thing, then, in all cases of accident is presence of mind or self-control.

PAIN.

Pain is not entirely an evil, as we might, at first thought, be ready to say. If it were not for pain we would take no care of ourselves. Nature warns us when we violate her laws. If a child puts its hand in the fire the pain compels it to take it away before it has time to produce serious injury. In using tools we might seriously injure ourselves and not know it if the pain did not warn us. Many similar illustrations might be given. It should be remembered, however, that the pain is not always proportionate to the extent of the injury or severity of the disease. Extensive wounds and fatal diseases are not often attended with much pain, while very simple affections and slight injuries are accompanied by severe pain.

There is a great difference in different persons in respect to the power of enduring pain. Some do not actually suffer as much as others because their nervous systems are not so highly developed. But among those who actually feel great pain there is much difference. Sometimes the stoutest men are ready to cry out at the slightest pain, while there are many delicately organized women who may suffer the most excruciating pangs without a

murmur. There are two reasons for this. First, frequent occurence of pain accustoms persons to it and they learn to bear it with patience; secondly, an effort of the will, which may be cultivated in this respect, will enable persons not only to resist the inclination to cry out at pain, but will do much towards alleviating its severity. Women usually suffer more than men and are more patient under suffering. Children cry out at the slightest twinge of pain, while adults generally repress their inclinations with little difficulty. People who have been sick a great deal, complain less when suffering than those who have seldom had to undergo suffering.

A child may be made to forget its pain to a great extent by amusing it with toys, pictures, etc. How quickly the child stops crying when its mother or some sympathizing person takes it, talks soothingly and carries it around. One should, however, be certain that the child is crying from real pain. Children often cry from anger or mere fretfulness, when there is no pain. A close observer will generally be able to tell whether the child is really suffering. It should be remembered that crying is nature's safety valve for emotion and should not be suppressed by force. It is really wicked to compel a child to quit crying by threats or punishment.

A MEDICINE CHEST.

In many cases of sickness and accident it is very important that no time be lost. A very simple remedy, if applied at the right time, may save a

life, or at least much subsequent suffering. A medicine chest, or more properly named, an emergency chest, should be kept in every family.

Get a box with a lock and key. Place it out of the way of children, but where it can be found in a moment's notice. Place in it some long strips of old linen, calico and flannel, which must be clean and dry. Some court plaster and a little lint, which is obtained by scraping a linen towel with a knife. A small pair of scissors, a paper of pins, two or three needles ready threaded and some wrapping twine. All of these articles may be put by themselves in a small pasteboard box. A little common salt and a lump of alum. The following articles should be kept in well-stopped bottles: Castor oil, linseed oil, sweet oil, alcohol or good wine or brandy, tincture of Jamaica ginger, epsom salts, carbonate of soda, ground mustard, some good cider vinegar, lime water, syrup of ipecac or lobelia, essence of peppermint.

Although the uses of most of these articles have been or will be mentioned in this book, I will here repeat the uses of each in order. The strips of linen, calico and flannel, will be useful in burns and scalds, and in bandaging wounds. The court plaster in slight wounds, and the lint in stopping blood, or in dressing sores. The scissors, pins, needles and thread, and twine, will come useful in many ways, especially in dressing wounds. The salt and mustard to be used in producing quick vomiting in cases of poisoning. The alum, syrup of ipecac and lobelia, may be used in producing

vomiting in croup. The castor oil, sweet oil and epsom salts, in producing quick action of the bowels. The ginger, peppermint essence and alcohol, or brandy, in cramping of the stomach, colic, and where a quick stimulant is desired. The vinegar and carbonate of soda are useful in cases of poisoning. The linseed oil and lime water in cases of burns and scalds. The lime water is made by simply dropping a lump of quick lime in cold water, letting it stand until all action has ceased and it has settled, and pouring off the clear liquid. The tincture of ginger may be bought at the drug store under that name, or what is called extract of Jamaica ginger will answer the same purpose.

In regard to the quantities of these articles, I will say that not more than an ounce of each need be provided, except in case of the lime water and vinegar. Three or four ounces of these will be sufficient. The solid articles may be put in wide mouthed bottles, as old quinine bottles which may be obtained of druggists or physicians. As soon as possible after one of the articles has been used its place should be filled with a fresh supply. Have every bottle plainly labeled.

Now, I imagine I hear some one saying, "This sounds very well in a book, but is not meant to be carried out." I will simply say that the wise man carries his umbrella on a fair day and the one who is always prepared is prepared when an emergency occurs. How often are we advised to give a certain remedy in poisoning, for example, when, no matter how common the article, it is not to be found in the

house, or if in the house it is in some out-of-the-way place where no one can find it without considerable search. Families are apt to be out of ginger, soda, etc.; the scissors get misplaced, needles and pins can not be found when wanted, etc.; but if all these articles are always found in one particular place there is no danger of delay from such causes.

I would urge the importance of these preparations more especially to people living in the country, for town people have near neighbors and drug stores, and doctors are within easy reach.

BURNS AND SCALDS.

The first thing to learn is how to avoid accidents from fire. Children should be taught the importance of being careful about handling fire. A light or fire should never be taken near vessels containing kerosene, gasoline or other inflammable oils. Lamps should be kept well filled and never filled while burning, nor within four feet of light or fire. Never pour oil on a fire. If you do use oil for kindling fires first put a little on the fuel and then take the vessel to a safe distance before applying the match. Do not stand over it. Matches should be kept where mice or children can not get at them. A tin box nailed high up on the wall away from articles of furniture is the best place.

Gasoline or vapor stoves are coming much into use. Many persons are afraid to use them. They are as harmless as wood or coal stoves, if the rules given above are observed. One can not explode

by simply using it. It is only when some careless or ignorant person attempts to fill it while it is lighted or brings a light near the vessel containing the oil that accidents occur.

Ether, alcohol, chloroform, spirits of camphor, turpentine, benzine, sunlight oil, and many others not in common use, are more or less easily converted into vapor, and their vapors mixed with air are explosive, the same as the vapors of kerosene and gasoline. Be careful of handling such substances near a fire or light. Even common grease, as lard or tallow, is sometimes dangerous when large quantities are spilled over a stove or very near the fire. Place no confidence in men who pretend to sell non-explosive oils. In fact, no oil or liquid is explosive and does not in itself burn, but the heat converts a portion of it into vapor, and this vapor burns, quietly if not mixed with air, but explodes if first mixed with air. Some oils vaporize at much lower temperatures than others, hence, are more dangerous to handle. It should be remembered that all inflammable substances are dangerous when proper care is not taken. The illuminating gas burned in towns and cities is explosive when mixed with air. A gas jet must never be blown out, but turned out.

When a fire breaks out try to keep calm and not get excited. Go to work to put out the fire and call for help at the same time, but while you work *think* what you are doing. There is some truth in the stories we hear of people throwing looking-glasses out of the up-stairs window and carrying

the feather bed down carefully. If your clothes get on fire do not run about, but lie down and roll over, trying to smother the flames, or seize the first cloth, garment, bed quilt, table cover, carpet, or anything of the kind, and wrap yourself in it. If obliged to pass through fire or smoke wet a cloth and put it over the face and head. Take a full breath before you start and stoop low.

If oil is spilled upon a wooden surface and the vapor gets on fire, the most of the oil will be consumed without burning the wood. The fire in such a case will be more easily extinguished after it has burned a little while than at first. The best plan is to throw a cloth over it. Never throw water upon burning oil. It only spreads the flame and increases it. If obliged to handle phosphorus do so with wet fingers or under water. Sodium and potassium are two substances which, on the contrary, must not be touched with wet fingers or you will get burned.

In the treatment of burns and scalds, the first thing necessary is to exclude the air, for air is irritating to any part where it does not come naturally. In all burns of any extent, the epidermis of the skin, which is insensible and protects the sensitive parts beneath, is destroyed, and the parts are exposed to the air. Water is always soothing to a burn, because it excludes air. Wet applications are never out of place. Oils which are not stimulating are sometimes better. One of the best for this purpose is linseed oil, and lime water is recom-

mended by the best of authorities. A piece of soft flannel should be laid over it.

If a burn or scald be over an extensive surface and severe, a doctor should at once be sent for. When the injured surface is great, death may result from the shock. There is, in such cases, very little pain, and persons may be deceived into the belief that the injury is slight. The newspaper statements like the following are not true: "After enduring untold agony for some hours, death relieved him of his sufferings." If the burn be extensive enough to cause death in a short time, the death is from the shock to the nervous system, and there is very little or no pain. Sometimes a burn or scald over a great surface does not produce a shock sufficient to cause death, but by reflex action of the nervous system causes inflammation of some internal organ.

If a person has been badly burned, great care should be used in removing the clothes. They should not be pulled or dragged off, but cut loose with knife or scissors so completely that they will fall off. If any part stick to the body it should not be removed.

WOUNDS AND BLEEDING.

Some persons are frightened at the first sight of blood. This fear should be overcome by persistent effort of the will. A wound may be very slight, a mere scratch, and the bleeding be profuse, making it seem of frightful severity. Again, a wound may be a fatal one and there be little bleeding, and a small extent of surface broken, so that it may ap-

pear slight. Therefore, always examine a wound closely before you make up your mind about it.

First, observe the *color* of the blood. If it be bright red, it is from the injury of an artery. If darker, of a vein. This is, however, not a very good test, since there is little difference between the color of the blood in the veins and arteries. The *manner* of the flow tells more. If the blood seems to flow steadily, only veins, or at least very small arteries are injured, and the danger is not apt to be so great. If the blood flows by *spurts*, there are one or more arteries injured, and the bleeding may be severe. Send for a physician, but in the meantime do not be idle. If the wound be in the arm or leg, take a handkerchief, or any piece of goods of a similar size, tie it loosely around the limb above the wound, and placing a stick through the loop twist it as tight as you can. If this does not stop the flow, take another piece of cloth, wad it up, and put it on the wound, and twist another handkerchief around the limb.

If the wound does not appear to be deep, and only small vessels injured, there are many substances which will stop the flow of blood. Cotton, cobwebs, or lint scraped from a towel, a little pounded alum, or if nothing else, a handful of dry earth may be used. Many a life has been saved on the battle-field, by cramming a wound with earth.

Bleeding from slight wounds may often be arrested by simply plunging the part into cold water or by bandaging the wound tightly while the blood

is flowing. Warm or lukewarm water should never be put on a wound while it is bleeding; use either cold or hot water. Slight wounds about the head and face usually bleed freely, but are rarely dangerous.

Some persons have a peculiar tendency to bleed freely from slight causes. The extraction of a tooth has caused serious hemorrhage. Persons knowing themselves to have such a tendency should warn the dentist, that he may be prepared to stop the bleeding.

Nose bleeding is serious sometimes. Bathing the face and neck in cold water, holding the arms above the head, pouring a solution of alum into the nostrils are usually efficient. If these measures have failed, send for a physician. He may be obliged to plug the nostrils. If this is not done properly, more harm than good will result.

Arteries may be felt pulsating in the following places where they come near the surface: (1) At the wrist next the thumb; (2) on each side of the neck in front; (3) upon the temples in front of the ear; (4) upon the lower jaw half way between the chin and the ear; (5) by holding the corner of the upper lip between thumb and finger; (6) by holding the lower lip in same manner; (7) in the armpits; (8) at bend of elbow; (9) behind the knee; (10) upon the thigh just below the groin. Every one should know the location of these arteries, as occasions may come when by pressing with thumb and fingers, or by a bandage at one of these places,

the flow of blood may be checked until surgical aid could arrive.

If a fish hook gets into the flesh push it on through, if necessary, breaking off the head. Do not attempt to pull it out the way it went in. If a wound is made with a sharp knife, it may often be made to heal up quickly with scarcely any inflammation, by tying it up tightly in a rag in the blood so that the separated parts come close together, and leaving the bandage on for four or five days. If it becomes painful, holding it in warm water a little while without undoing the bandage and then putting some grease or oil of some kind on the outside of the rag, tying another one over it to retain the grease. Remember that air is always irritating to raw surfaces, and anything that will exclude the air and keep the parts soft so that the blood may circulate freely will facilitate the healing. Wounds made beneath the skin when the skin is only slightly cut or broken usually heal rapidly.

When a person spits blood it is not necessarily from the lungs, it may be from the mouth, pharynx, or stomach. If from the lungs, pharynx, or mouth, it will be of a bright red color. If from the stomach it will be dark and mixed with particles of food. In any case give a little vinegar or lemon juice and a little cold water or bits of ice, and consult a physician.

If a wound is made by broken glass or splinters of wood, it should be carefully examined before the parts are closed and held by a bandage, as

there may be particles of foreign matter remaining in the wound.

BROKEN BONES, DISLOCATIONS AND SPRAINS.

A broken bone may be known by the person not being able to raise the limb, by its bending where it ought not and by the pain and swelling, and by hearing the broken ends grate on each other when the parts are moved. The bones of a child's arm may be partly bent and partly broken, making a crook in the limb.

Place the patient in as easy a position as possible, apply wet cloths to the part and send for a physician. In case of a broken thigh, the spasms of the muscles sometimes draw the broken bone out of place and cause intense pain. If the doctor is long in coming much relief may be given in the meantime by tying a bandage round the ankle, crossing it over the instep and bringing the ends together under the foot and tying to this a weight of about eight pounds, letting it hang over the foot of the bed so as to draw the leg down.

Dislocations of bones may generally be known by the unnatural appearance of the parts, by the pain and the inability to make all the usual movements of the limb. Sometimes it is difficult to distinguish a fracture from a dislocation, or there may be both a dislocation and a fracture. It is not generally best to attempt to replace a dislocated bone, without sending for a physician, since one should be absolutely sure that there is no fracture before

pulling on the limb, and that the bone be properly put back in place.

The lower jaw is sometimes dislocated in the act of yawning. In such a case the mouth is fixed wide open, and the person can not speak. Wrap a cloth around each thumb, or put on thick gloves, and place the thumbs far back upon the grinder teeth, and press downward and backward till you feel the jaw slip into place.

Sprains are often more serious than fractures or dislocations. They are very painful, and a long time in getting well if severe. The best thing to do is to keep the limb quiet, and apply warm and moist applications. Warm vinegar and a flannel cloth are as good as anything. The parts should not hang down. Much pain and swelling may be avoided by keeping the limb in a horizontal position. The limb should be brought into use gradually after the pain and swelling disappear. Long continued exertion will bring back the symptoms.

DROWNING.

The human body is a little lighter than water, when the lungs contain the ordinary amount of air. If persons who are thrown into the water would only have the presence of mind to try simply to keep the nostrils out of the water and breathe naturally, allowing all other parts of the body to sink as low as they will, they would never drown. You can not drown a cat, a dog, or any other land animal by simply throwing it in water. Even kittens a day old can swim. Man is the only animal that

has *to learn* to swim, and it is simply because he loses his presence of mind. The swimming of a cat or dog consists in simply making the same motions in the water that it does on the land, and in keeping its nose above water. If a man would do the same, and not get scared, he would swim as easily. Getting frightened he draws water into his lungs, and this expels the air, or he exhausts himself in frantic efforts to keep his body on top of the water.

It is not good policy even for a good swimmer to go in bathing *alone* in deep water, for he may be attacked with "cramps" and become helpless. One should inspire quickly, and expire slowly when in the water.

Persons apparently dead from drowning have been restored to life by patiently working with them in the proper manner. The English Life Boat Association issued a circular giving directions for restoring the drowned. I give a condensed statement of their plans.

Remove all clothing from the face, neck, and chest. Place the patient on the face with one arm under his forehead. In this position the tongue will fall forward, and the water escape more freely. If breathing begins, proceed at once to restore warmth. Apply hot flannels, or other cloths over the stomach, between the thighs, and to the soles of the feet. Give a little brandy, wine, or strong coffee. Rub the body and limbs vigorously with the bare hands.

If breathing be not restored, or if it be very slight,

turn the patient on the side, support the head, and tickle the throat and nostrils with a feather, at the same time rub the face and chest, and dash water on them. If this does not succeed imitate the natural act of breathing as follows: Replace the patient on the face, supporting the chest on a folded coat or something of the kind, then turn the body gently on the side and a little beyond, then back again, repeating this several times a minute, occasionally varying the side. Every time the body is placed upon the face make gentle pressure between the shoulder blades. Let some one be rubbing the feet and limbs with dry cloths to restore warmth.

If no result in five minutes of this kind of work, place the body on the back, supporting the head and shoulders on the folded coat. Draw forward the tongue and cleanse the mouth and nostrils. The tongue may be held forward by an elastic band, or a string tied under the chin. Stand at the patient's head, grasp the arms just above the elbows, and draw them gently upward above the head and keep them there for about two seconds. This draws the air into the lungs. Then turn the arms down, and press them firmly against the sides of the chest. This presses the air out of the lungs. Repeat this process about fifteen times in a minute, until a spontaneous effort to breathe is perceived. Then proceed to produce warmth in the manner before described. Cases are on record of persons recovering after six hours of suspended animation. One should not, therefore, be discouraged if no

apparently good results appear in three or four hours of such work.

FREEZING.

When a person is stupefied from the effects of extreme cold, do not take him into a warm room at once, but wrap him in blankets, remove clothes, if wet, and rub the skin thoroughly, especially at the extremities, and give a little warm tea, coffee, or weakened wine. Make him move about if you can; if not, bend and move the limbs to arouse the circulation.

The extremities, as the hands, feet, nose and ears, are often frozen before the person is aware of it. The parts become very white. When such is the case, rub with snow, or bathe in cold water, and keep away from the fire. Apply sweet oil or lard and wrap in flannel. Rub the parts carefully if they are frozen stiff, as injury may be done.

Extreme cold produces a feeling of drowsiness. To yield, and to go to sleep under the circumstances, is certain death. This feeling should be resisted by exercise and force of the will

BITES OF SNAKES AND DOGS.

The bite of a rattlesnake does not always kill, even when no remedies are given. The danger from bites of serpents of any kind, as well as from insects, depends upon various circumstances. In the case of many reptiles the bite is more virulent some times of the year than others. Much depends upon the condition of the person bitten. The bite

of a spider, and even of a fly have been known to cause death, while there have been recoveries from the bites of the most poisonous reptiles known.

If bitten by a poisonous reptile, tie a string tightly above the wound, and suck the wound, if the mouth be not sore. Give plenty of alcohol and water, or whisky, brandy, or other liquor containing much alcohol. Cauterizing the wound with a red-hot iron may be tried. This is not a very painful operation.

For the bite of a dog or other animal supposed to be mad, apply the same remedies, except the use of the spirits. The animal should not be killed, if he can be secured with safety, because he may not really have been mad, and no one knowing otherwise, the fear of hydrophobia, even where there is no danger, may affect the patient seriously.

An eminent French scientist is at this time experimenting to find out a remedy for the prevention of hydrophobia. He has been for a number of years experimenting with a view of discovering a method of preventing, or lessening the virulence of all contagious diseases, on a principle similar to that of vaccination. There is reason for entertaining hopes of success in this line, but it will be many years, probably, before the world will see the benefits.

DANGERS FROM FOUL AIR, ETC.

Old wells, cisterns, sewers and sometimes mines, contain what is known as "damps," or "choke damp." This is carbonic acid gas, which will suffocate a person, destroying life in a manner similar

to drowning. Before entering a place of this kind, a lighted candle should be lowered. If the candle continues to burn, there is perfect safety. It may be driven out of a well or cistern by lowering a large kettle containing burning straw or shavings. This creates an upward current of air, which draws it out. This operation may have to be repeated many times.

The illuminating gas burned in cities and towns is suffocating as well as explosive. I repeat here what was said under the head of burns and scalds. *Never blow out a gas jet, but turn it out.* A lamp of any kind gives off a small amount of carbonic acid gas in burning, therefore rooms should be well ventilated where lamps are lighted. A coal oil lamp when turned low does not consume all the gas which it generates from the oil. Hence to the carbonic acid gas will be added another kind, which is just as incapable of being respired. Never leave a lamp turned down at night. Let it burn at full height or put it out. If you must leave a lamp burning it is best to get a very small lamp.

Charcoal burned in a room, without a flue to carry of the gas, is dangerous. It generates carbonic acid gas.

To recapitulate, there are two principal kinds of gases which may affect the atmosphere which we may enter. Both of these will produce suffocation if sufficient in quantity, but one kind, the carbonic acid gas, will extinguish fire; the other kind (such as is produced from evaporated oils and the illuminating gas), is inflammable when fire is brought

near, and explosive if mixed with air. The inflammable gases are usually known by their peculiar odor. Carbonic acid gas, unless mixed with another kind, is odorless.

If a person has been exposed to suffocating gases the treatment should be the same as that required to restore from drowning.

POISONS AND POISONING.

When poison has been swallowed there is no time to be lost. A doctor should be immediately sent for, and in the meantime something should be done, either to neutralize the poison or cause its ejection from the stomach. If the nature of the poison be known it may in some cases be proper to attempt to neutralize it at once by giving other substances which form with it harmless chemical compounds, but the best plan generally is to give, the first thing, something that will produce vomiting. The quickest emetic is a teaspoonful of ground mustard in half a pint of warm water. Salt and warm water, soap suds, alum and warm water or simply large quantities of luke warm water. In case these fail or be not at hand vomiting may be induced by pushing the finger down the throat as far as possible. If nothing but cold water be at hand drink copiously of it, and push the finger down the throat.

After producing vomiting, or at the same time you are trying to produce it, give the proper antidote if one is known. Some poisons have no special antidote. As general antidotes in such

cases any oily or mucilaginous substances should be given, such as oil or grease of any kind, cream, milk, white of egg, flour and water, or starch. These substances save by preventing the absorption of the poison. Oils or grease should not be given in case of phosphorus poisoning. This is one exception.

I give the most common poisons and their antidotes in alphabetical order for ready reference. This table can be used of course only when the name of the poison is known to the attendants. I have given all of the names in common use. To save repetition I have made frequent cross-references. Do not fail to make use of them.

Acetic Acid.—See *Acids.*

Acids.—A class of substances known by a *sour* taste, and chemically opposed to alkalies. The common dangerous acids are *sulphuric acid (oil of vitriol)*, *nitric acid (aqua fortis)*, *hydrochloric acid (muriatic acid)*, *acetic acid* and *oxalic acid.* The antidotes are the harmless alkalies, as powdered chalk, magnesia, soap and lime water. If nothing else be at hand, scrape the plastered wall, put the scrapings in water and drink the mixture.

Acetate of Lead.—See *Lead.*

Alkalies.—A class of substances known by their acrid or bitter taste, a *soapy feel*, and chemically opposed to acids. The common poisons among the alkalies are *concentrated lye*, *potash*, *sal soda* and *ammonia (hartshorn).* Acids are the chemical antidotes, but as many of the acids are themselves poisonous, only certain ones should be used. Vin-

egar, lemon juice, sour milk and sour cider are about the only available harmless acids. Use these freely.

Ammonia.—See *Alkalies.*

Antimony—May have been taken in the form of *tartar emetic* or of *black antimony.* Give plenty of strong tea of oak bark, elm bark, currant or blackberry leaves.

Aqua Fortis.—See *Acids.*

Arsenic—May have been taken in the form of *Paris green* or *ratsbane (white arsenic).* Iron is its chemical antidote, but no convenient form of it will probably be at hand. Give milk and raw egg, or lime water or flour and water.

Bateman's Drops.—See *Opium.*

Bedbug Poison.—See *Mercury.*

Blue Mass or *Blue Pill.*—See *Mercury.*

Calomel.—See *Mercury.*

Carbolic Acid and *Creosote.*—Differing from the common acids. Give sweet oil or castor oil and a mixture of lime, sugar and water.

Chloroform, *Ether* and *Chloral.*—The first two are generally inhaled. Dash cold water in the face, suspend patient by the legs for a few moments. Practice artificial respiration, as for drowned persons.

Chloral.—See *Chloroform.*

Chloride of Zinc.—See *Zinc.*

Concentrated Lye.—See *Alkalies.*

Copperas—See *Iron.*

Copper—May have been taken in the form of *blue vitriol (blue stone)*, *verdigris*, food cooked in

copper vessels, "greened pickles." Give milk and white of eggs, and strong tea. Do not give acids.

Creosote.—See *Carbolic Acid.*

Cyanide of Potassium.—See *Prussic Acid.*

Dog Button.—See *Strychnia.*

Green Vitriol.—See *Iron.*

"*Greened Pickles.*"—See *Copper.*

Hartshorn.—See *Alkalies.*

Hydrochloric Acid.—See *Acids.*

Iodine.—Give large quantities of starch and water or flour and water.

Iron—May have been taken in the form of *sulphate of iron (copperas*, or *green vitriol).* Give magnesia, or carbonate of soda and water.

Laudanum.—See *Opium.*

Lead.—In the forms of *acetate of lead*, or *sugar of lead; white lead*, or *white paint; red lead*, or *red paint.* Give epsom salts, two ounces in a pint of water, a wine glass full every ten minutes until it operates freely. Painters and others who work with these substances are often slowly poisoned, causing what is called "lead colic," attended with loss of power in the limbs, noticable in the wrists. Send for a physician.

Lunar Caustic.—See *Silver.*

Lye.—See *Alkalies.*

Matches.—See *Phosphorus.*

Mercury.—In the form of *calomel; corrosive sublimate*, or "*bedbug poison;*" *red precipitate; vermilion; blue mass*, or *blue pill.* Give white of eggs freely, or flour and water, or milk, or linseed oil.

Morphine.—See *Opium.*

Muriatic Acid. See *Acids.*

Nitric Acid.—See *Acids.*

Nitrate of Silver.—See *Silver.*

Opium.—In the form of *laudanum*, or *tincture of opium; paregoric; Bateman's drops; soothing syrup; poppy seeds, morphine*, etc. Give plenty of strong coffee, put mustard plasters on calves of legs; keep the patient roused by dashing cold water in the face and beating soles of feet.

Oxalic Acid.—See *Acids.*

Oxide of Zinc.—See *Zinc.*

Paregoric.—See *Opium.*

Paris Green.—See *Arsenic.*

Phosphorus.—In the form of *matches, rat poison*, etc. Give magnesia, chalk or whiting with warm water. Give no oil, or fat of any kind.

Poppy Seeds.—See *Opium.*

Potash.—See *Alkalies.*

Prussic Acid and Cyanide of Potassium.—Very powerful poison. Little hope of saving patient. Give a teaspoonful of hartshorn in a pint of water. Dash water in the face. Give stimulants.

Ratsbane.—See *Arsenic.*

Rat Poison.—See *Phosphorus* and *Strychina.*

Red Precipitate.—See *Mercury.*

Red Lead.—See *Lead.*

Saltpeter.—Give flour and water or linseed oil.

Sal Soda.—See *Alkalies.*

Soothing Syrup.—See *Opium.*

Silver.—In the form of *nitrate of silver*, or *lunar*

caustic. Give salt and water freely. Then castor oil and flaxseed tea.

Strychnia.—in the form of *rat poison; nux vomica*, or *dog button*, or *strychnine*. Convulsions are produced and the body bent backward. Give flaxseed tea. Keep quiet and darken the room. Give belladonna or opium, under medical advice.

Sugar of Lead.—See *Lead*.

Sulphuric Acid.—See *Acids*.

Sulphate of Iron.—See *Iron*.

Sulphate of Copper.—See *Copper*.

Sulphate of Zinc.—See *Zinc*.

Tartar Emetic.—See *Antimony*.

Verdigris.—See *Copper*.

Vermilion.—See *Mercury*.

Vitriol, Oil of.—See *Acids*.

Vitriol, Green.—See *Iron*.

Vitriol, White.—See *Zinc*.

Vitriol, Blue.—See *Copper*.

White Lead.—See *Lead*.

Zinc.—In the form of *chloride of zinc, white vitriol*, or *sulphate of zinc*, or *oxide of zinc*. Give milk, or magnesia, or chalk and raw eggs.

All poisonous articles should be plainly labeled and kept out of reach of children.

SUNSTROKE.

This is a sudden prostration caused by long exposure to excessive heat, when the system is weakened by fatigue or other causes. It may occur with men who work in the house as well as those who are in the sun. Most cases occur in the

large cities. It is most common in men who are addicted to drink.

It begins usually with dizziness or pain in the head, disturbed vision and labored breathing, followed by unconsciousness. Sometimes it is very sudden, like a stroke of apoplexy. Carry the patient to the nearest cool, shady place. Don't take time to carry him far to a house. Loosen clothes about neck and waist. Let him lie with the head a little raised. Apply wet cloths to the head and turpentine or mustard to the legs and soles of the feet. Send for a doctor at once.

SUDDEN CHILDBIRTH.

While the cases are exceedingly rare in which a woman may be taken with labor pains without warning which result in birth of the child before she can get to a bed or call assistance, yet they do sometimes occur. There should be no cause for alarm, either to the mother or other person who may be present. If the child cry vigorously proceed to tie and cut the cord. This is a very simple operation. Proceed according to the directions given in Chapter VIII. Lay the child on its right side, and wrap it up warmly, leaving its face uncovered. It will get along well enough. The only danger is of flooding in the mother. This is not very likely to occur. See what is said on this subject in Chapter XI.

A woman should not be left entirely alone during the last weeks of pregnancy.

RUNAWAYS AND PANICS.

It is safer in all runaways to remain in the vehicle until thrown out or the horse stops than to jump out while the horse is running—the vehicle breaks the force of the final stop. In driving if a horse tries to run away it is better to try to keep him in the middle of the road, if he can not be stopped, than to attempt to turn him to one side. He will soon become exhausted and stop or slow up, while if you turn him the vehicle may be upset and broken and you be thrown out violently.

If in a public building while there is a panic it is safer to keep your seat and try to prevent others from running over you. Even in case the building be on fire your chances of escape are much better if you are free from the crowd.

OBJECTS SWALLOWED.

If a child has swallowed a coin, button, or other small object do not be alarmed. They will generally pass through the intestines without harm. Keep the bowels open by gentle purgatives. Pins and needles which are swallowed often make their way through the tissues without pain or injury and escape through the skin years afterward.

OBJECTS IN THE NOSE AND EAR.

I have known mothers to be very badly frightened because a cherry seed, a pea, a bean, or something of the kind, had gotten into the ear or nose of a child. There is no need of alarm.

Hasty attempts to remove them generally result in pushing them farther in. A small object may often be dislodged from the nostril by closing the other nostril and having another person blow forcibly into the mouth. Sometimes they may be expelled by making the child take a full breath, closing the other nostril and the mouth with the hands, and striking him a sharp blow on the back. If these measures will not answer compress the nostrils above it to prevent it from going further and try to hook it down with a hair pin or bent wire. Call a physician if this fails, and keep the child, in the meantime, quiet.

Bodies may be removed from the ear by taking the child's head between the knees, face downward, and with a small syringe injecting a stream of warm water into the ear, holding the nozzle of the syringe outside so as to allow the object to come out with the water. If this fails call a physician. There is no immediate danger. In fact, I have known objects to remain for years in the ear without causing any apparent harm. An insect that gets into the ear may be killed and brought out by pouring in a little oil of any kind.

OBJECTS IN THE EYE.

Do not allow the child to rub the eyes. Take hold of the eyelid with thumb and finger and hold it open a moment or two, while the child forcibly blows its nose. This is often sufficient to dislodge the particle of dirt. If this fails, turn the lid over a knitting-needle or something of the kind, and

look for the object. Remove it by touching with the corner of a handkerchief.

FAINTING, ETC.

Never raise a fainting person. Let the body lie straight. The blood has left the head and the prone position favors its return. If one faints in a chair seize the back of the chair and pull it down until the head is on a level with the feet or lower. There may be recovery before the upright position is regained. Loosen the clothing and sprinkle cold water in the face. Keep away the crowd. Fresh air is of great importance.

In a fit of apoplexy, however, the blood flows to the head. It is not always possible to tell when a person falls apparently dead, what the nature of the fit is. Apoplexy is not very common and occurs more frequently in middle-aged and old people and those with short, thick necks and heavy build. The attack is usually very sudden, a "stroke" literally. The face is apt to be flushed. In ordinary fainting the face is pale.

An apoplectic should be raised, the clothing loosened and a doctor sent for at once. Frequently death is almost instantaneous, and there are few cases in which anything more can be done than is here recommended.

If a man is found lying apparently dead he has probably fallen in a fit of apoplexy or is dead drunk. The smell of liquor will often prove the latter.

CHOKING.

Bits of bone or meat, or other substances, sometimes become fixed in the throat, producing suffocation or troublesome cough. In most cases a smart blow on the back between the shoulders will cause the substance to fly out. If this does not avail look into the throat, and if the object can be seen, get hold of it with the thumb and finger, or use a blunt-pointed pair of scissors as a pair of forceps. If this does not succeed, take a pewter or silver tablespoon, bend it a little and push the handle down the throat, keeping it well back. Send for a doctor if there be one near. If the substance be small and the person can swallow give some dry bread or potato and a drink of water after it. If this does not answer give an emetic of mustard and warm water or any other emetic you may have handy.

TOOTHACHE.

If there is a cavity in the tooth most cases will be cured quickly by inserting a little plug of cotton or lint saturated with clove oil, carbolic acid, or creosote. Be careful in using these articles, especially the two latter, and not get them spread over the surface of the mouth. Sometimes a little cayenne pepper or camphor inserted into the cavity will stop the aching. Laudanum is often efficient. If the pain is in teeth apparently sound, or distributed in several teeth apply the remedies given under the head of neuralgia, as treated in a former chapter.

BOILS, CARBUNCLES AND FELONS.

A boil is a single lump or tumor under the skin containing either soft matter or a hard substance called a core. Whenever this is discharged it heals promptly. Sometimes there is a succession of them.

A carbuncle is larger and has several openings like the cells of a honeycomb. It is extremely painful. Any soft, moist application will promote the discharge of the matter. A poultice of bread and milk is as good as anything.

A felon, or whitlow, is a gathering next the bone in some part of the hand, the matter being confined by the tough ligaments and membranes, causing intense pain. It should be opened at an early stage by cutting down to the bone with a sharp knife. By this simple operation, which causes but momentary pain, days of intense suffering may be prevented, and perhaps the loss of a joint or two of the finger.

INGROWING TOE NAIL.

The pressure of tight shoes often causes the edges of the toe nail to cut into the flesh causing great suffering. If the case is not of too long standing it may be cured by scraping the rounded part of the nail very thin with a piece of broken glass. This weakens this portion and makes the nail grow flatter and wider. Severe cases of long standing require a surgical operation.

MISCELLANEOUS EMERGENCIES.

If a person has been struck by *lightning* strip the body and dash with cold water. Wipe dry and put in bed, with hot applications to the feet and stomach, and employ artificial respiration, as in drowning. Give a little brandy or other stimulant, if the patient can be made to swallow. These means may save a life, since all lightning strokes are not fatal.

In an *epileptic fit* bystanders can do nothing more than to keep the person out of reach of articles which would injure him, and to loosen the clothing about the neck.

Persons who have attempted suicide by *hanging*, are often only suffocated, and may be restored by the same means used in restoring the drowned.

In assisting persons who have *broken through ice* get, if possible, a long pole or board and push it towards them. This distributes the weight of the body on the ice.

Shock or *collapse* from any cause, as from lightning, powerful electric battery, cold water, burns or scalds, etc., are to be treated similar to ordinary fainting. Let the patient keep the lying-down position, throw a little cold water in the face at first, put warm applications to the feet and stomach and give stimulants.

Chapter XIV.

CARE OF THE SICK.

IMPORTANCE OF GOOD NURSING.

It is a common saying that good nursing is half the battle against disease. Physicians are often blamed for unsuccessful treatment when the fault lay entirely with the attendants who would not, or could not, carry out his orders. There are comparatively few good nurses. There are plenty of the kind who are ignorant, careless, cruel, slovenly, and dishonest, and some who may combine all these qualities.

The ignorant nurse is a dangerous character, because although she may do everything the doctor directs faithfully, yet there will be contingencies arise in the doctor's absence, and which he could not possibly have forseen, which will call for the exercise of knowledge and skill on the part of the attendant, and sometimes it will be necessary to go contrary to the doctor's orders.

The careless nurse is even more dangerous than the ignorant one. The very thing upon which the patient's life depends, the careless nurse may neglect to do.

The cruel nurse uses rough language in the presence of the patient, gets out of patience, makes loud and unnecessary noise, and in various ways does the sick person more harm than good.

The slovenly nurse is not careful of her own appearance, does not keep the room clean, leaves medicines and other articles standing around in sight of the patient, and in the way, and renders herself disagreeable generally.

The dishonest nurse will substitute her own medicines for those left by the doctor, or give something recommended by the old women of the neighborhood, or wilfully withhold the doctor's medicines, or neglect to carry out the doctor's directions as to bathing, diet, etc., and then lie to him when he questions her about the matter.

THE QUALITIES OF A GOOD NURSE.

The qualities of a good nurse are, cleanliness, firmness, gentleness, honesty, patience, and good common sense. She needs some general knowledge of physiology and hygiene, and of the nature and actions of medicines. I speak as though women were the only good nurses, and, as a general rule, they are best adapted to that kind of work, but sometimes the superior strength of a man is necessary in lifting patients and attending to matters in case of an emergency. An affectionate husband will usually make a better nurse for his wife than any woman would.

CONDUCT IN THE SICK ROOM.

Never whisper. If you have anything to say, say it in a natural tone of voice or not at all. Whispering and subdued noises annoy a patient. He can not hear what is said, yet knows that you

are talking and desires to hear. If you want to talk about anything you don't wish the patient to hear go into another room. While it is generally important to keep the room quiet, you may keep it *too* quiet. When a person is sleeping it is not always the loud noise that awakes him, but the unusual noises.

Be cheerful. There is time enough to cry and look sad after the patient is dead. "As long as there is life, there is hope," and if you can put on a cheerful though sympathetic expression the patient may be benefited, but if your countenance be very sad and you give way to moans and cries you may do much harm by frightening the patient. It is your duty to do all you can to cheer the patient. In talking to a sick person sit or stand where he can see you without turning his head.

THE NURSE AND THE DOCTOR.

The nurse and the doctor should act in unison. The nurse should consider herself privileged to ask the doctor's opinion on any question and make suggestions to him. If she does this in the proper spirit no doctor of good sense will be offended. If she shows a real desire to learn he will take pleasure in instructing her. The doctor may not happen to think of everything that is best to be done, and if the nurse thinks of something that in her opinion would be good she should suggest it to him in the form of a question as to its propriety. She should never ask the doctor's opinion and then act in opposition to it. Remember that he has charge of

the case and stands responsible, and that the nurse is only carrying out his orders. There may be exceptions to this rule. "Circumstances alter cases." A change in the disease in the absence of the doctor may necessitate the withholding of a medicine, or the giving of something he has not prescribed.

GIVING MEDICINES.

A nurse may be too particular about the time of giving the medicine. Sometimes the patient is sleeping soundly and it will not be best to wake him. As a rule a patient should never be waked to take medicine. Do not give it to him the moment he wakes nor when he wishes to be moved, nor should he be interrupted by an offer of the medicine when he is about to make a request.

The nurse can not be too careful about the exact dose. In bad cases request the doctor to write down the directions in full. If there are two kinds of medicines to be given alternately she should be very careful that she gets the right one each time.

THE SICK ROOM.

A sick person, as a general thing, should have the most pleasant room in the house. There are some cases, as in brain troubles and some fevers, where a quiet room, without much light, is to be preferred before other considerations. A room with a fireplace or grate is usually preferable. A screen of some kind should be placed between the patient and the fire. A high-backed chair with a shawl thrown over it will answer for a screen.

The room should, of course, be well ventilated, and by well ventilated I mean that openings be left sufficient to secure a good supply of fresh air and a free exit of foul air, and no danger of a draft near the patient. A window should be kept open a few inches all the time, both above and below, and the openings so screened and the bed so placed that no currents will pass over the sick person.

In case of contagious diseases, as small-pox, there should be but little furniture in the room, especially woolen articles and cushions, as such things absorb and retain the poison for some time. Flowers and pictures are never out of place. Many growing plants are not good. Vessels of water, the water being changed every day, are good to keep the air pure. Water absorbs poisonous gases. The water or other liquids which the patient is to drink should, for the same reason, be kept in another room and well covered.

Medicines should be kept out of sight of the patient. The vessel with the excrements should be removed as soon as possible and returned well cleaned. In case of typhoid fever, it should be disinfected. The doctor will give directions concerning this. If he does not ask him about it. The food which is not eaten should be at once removed. Never allow dressings of wounds or anything offensive to remain in the room.

The room should be kept scrupulously clean. A carpet is objectionable because of the dust which sweeping is apt to produce, but if the broom be

dampened and care is taken to have the parts most trodden upon covered with rugs or strips of old carpet, which can be removed and cleaned each day, it need not be taken up. A strip or two of carpet where the attendants must walk is, however, better than none at all.

In bad cases of sickness, too many visitors should not be allowed. Gossiping neighbors should be invited to another room.

Articles which may be wanted during the night should be placed in an adjoining room, or in any place where they will be out of the way, and out of the sight of the patient, and easy of access.

THE BED.

A wire woven or coiled wire spring bed, with a cotton covered shuck mattress, is about the best. Feather beds are objectionable. A straw tick is preferable to a feather bed.

The coverings should be as light as possible to secure the proper warmth. A sheet with a couple of woolen blankets are usually enough. If the weather be cold, a little fire in the room will prevent the necessity of much covering.

The bed should be kept clean, not so much of dirt that can be seen, but of dirt that can be smelled, and which you know exists, because in most diseases the patient throws off through the pores of the skin much poisonous matter. The bedclothes should be changed frequently, the frequency depending much upon the nature of the disease, but there can be no harm in changing the sheets every night and morn-

ing, having one set airing or sunning, while the other is in use. The sheets thus changed and aired should be replaced by washed ones about every two or three days.

Before putting on a clean sheet or one that has been airing, see that it is warm and dry. If the weather is at all chilly, warm the sheets by the fire. In changing sheets, move the patient to one side of the bed, roll the soiled sheet up to the side of the patient, roll the clean sheet half way into a round roll, place the roll by the side of the patient, and after smoothing out the mattress spread it in the place of the soiled one, and let the patient roll, or be lifted over on the clean sheet. The soiled sheet may then be removed and the clean one straightened out on the other side.

Pillows should not be high, as a general rule. Frequent shaking up of the pillow will add to the patient's comfort.

FEEDING THE PATIENT.

Generally, a sick person is fed too much. A common fault of the friends of the sick is the habit of frequently asking the patient if he wants something to eat. Ask the doctor's advice about the food and follow his directions.

When the disease is of short duration but little food is required until convalescence begins. Food is not medicine. It keeps up the strength of the patient if it is digested and assimilated, but the system is incapable of digesting much, as a rule, in sickness, and any more than is digested is very

injurious. If a stout person is taken sick he may become weak in a few days, or even a few hours, but this is not the weakness of exhaustion from want of nourishment so much as nervous prostration. He is in no danger of starving soon. A very little food will be sufficient while he is lying inactive. In long protracted illness, food is necessary to keep up the strength, and a little should be given frequently whether the patient crave it or not. But, as a rule, do not force food upon patients. Be very careful about giving patients too much food when convalescing. Sometimes the craving is very strong, and if the patient is allowed all he asks for, he may suffer serious relapse as a consequence of this over-indulgence. The judgment of the nurse should govern here rather than the desires of the patient. A little food, and often, is the rule in sickness, yet it ought not to be given so often that the stomach has no time to rest.

In many acute diseases abstinence from food is the best of remedies. This is especially true in diseases in which the digestive organs are involved. These organs should have rest.

Give plenty of water. Water does not need to be digested and is essential to the changes which take place in the system for removing waste and causing repair. There are cases, however, when a feverish condition of the internal organs calls loudly for water and more may be given than necessary and evil consequently result. Give oftener and not much at a time, or substitute warm drinks or agreeable acid mixtures, as lemonade,

vinegar and sugar and water, juices of fruits, etc. Acid drinks are rarely out of place and usually are agreeable to the sick. If you desire a patient to take only a small quantity of water or other liquid at a time put no more in the drinking vessel than you want him to take and let him drink all of it. Better use a small cup as the quantity will seem larger than if in a larger one.

There are many cases where it is not best to raise the patient's head to give him a drink. Let him drink through a straw or bent glass tube. Glass tubes made for this purpose can be had in the drug stores. They are called "sick tubes."

The best ware in the house should be used to hold the patient's food and drink and not only all articles of food, but the vessels which contain them should be perfectly clean. Food should be brought in on a waiter covered with a clean napkin. If such an article as a waiter be not in the house a broad board, as a box lid, with a clean white towel or napkin spread over it so as to hide it entirely will make a very good waiter. Do not bring a great quantity of any kind of food at a time. A very little only is necessary and a large amount is apt to disgust the patient.

KINDS OF FOOD FOR THE SICK.

Food for the sick should be easy of digestion, nourishing, and for the most part in a liquid form. A great variety is not needed at one time. We should only change from one kind to another when a dislike for one kind arises.

The amount of seasoning in food should depend somewhat on the nature of the disease. Pepper and most condiments are stimulating and are proper in debilitated conditions, but in high grades of fevers the food should be more bland. Consult the physician on this point.

The following are some preparations especially valuable in many cases of sickness:

Beef Tea.—Chop fine a pound of lean beef, add to it a pint of cold water, cover and let stand for two hours by the side of the fire; then put it on the fire and boil for half an hour. Remove the scum and the fat which comes to the top and salt to taste. Do not strain but pour off the liquid. This is a nutritious and usually agreeable article.

Essence of Beef.—Cut up a pound of lean beef, put into a pint bottle, without water, cork loosely, and immerse the bottle in a vessel of water. Bring the water in the vessel to a boil and let it boil two hours. The juice of the beef will have separated from the fibers. Pour off and salt to taste.

Chicken Broth.—Take half a chicken with the skin removed. Add a quart of cold water and a tablespoonful of rice and boil slowly for two or three hours. Skim off the fat and salt to taste.

Toast Water.—Toast brown, without burning, a slice of stale bread half an inch thick. Pour on a pint of boiling water. Cover closely until it cools. Strain. It may, or may not be sweetened. This is an agreeable but not very nourishing drink.

Apple Tea.—Take a good, sound, ripe apple. Cut it in thin slices and pour on boiling water. Let

stand an hour. Pour off when cool and sweeten, or it may be given when warm. This is an agreeable acid drink and may be relished when lemonade becomes distasteful.

Lime Water and Milk.—Mix equal quantities of clear lime water and fresh milk. Take a tablespoonful at once. This will often be retained in an irritable stomach when nothing else will.

Barley Water.—Wash two ounces of pearl barley in cold water. Put the barley in a pint and a half of cold water, and boil twenty minutes in a covered vessel. Strain, sweeten, and flavor with lemon juice. This is very agreeable, but not very nourishing.

Rice Milk.—Boil a tablespoonful of rice for an hour and a half in a pint of fresh milk. Rub through a sieve and add a teaspoonful of white sugar, and boil again for two or three minutes.

Oatmeal with Beef Tea.—Mix well a tablespoonful of oatmeal with two tablespoonfuls of cold water. Add to this a pint of beef tea made as directed above, and heat till it comes to the boil, stirring all the time. Boil for five minutes.

Oysters are very easily digested and are usually relished by the sick. They should not be cooked much. To make an oyster stew, put the oysters in a little cold water and allow it to heat gradually until it begins to simmer, not boil, and then remove. Season with salt and pepper and a little butter. Oysters are the most easily digested when roasted in the shell. The shell should be placed on a moderately strong fire, and allowed to remain

until the shells open a little. Then remove them at once, and serve with a little pepper and salt.

Panada.—Take two slices of stale bread. Toast them brown without scorching, cut up into small pieces, put in a bowl and pour on a pint of boiling water. Add a little sugar and grated nutmeg.

Eggs, if perfectly fresh and properly prepared, are very nutritious and generally relished by sick persons. They are especially good in convalescence. They are generally best soft boiled. Put an egg into boiling water, and set the vessel off the fire for several minutes. The egg will be found to be perfectly cooked, but not hard. An egg boiled for twenty minutes is said to be more easily digested than one soft boiled, but I do not think they would be relished so well by the majority of persons. A soft boiled egg and a slice of toast and a little butter, makes a good breakfast in many cases for an invalid.

Egg-nog.—This may be prepared in a variety of ways. The following is as good as any: Beat an egg, yolk and white, thoroughly, add a teaspoonful of white sugar, and a teaspoonful of brandy or port wine; beat again and add as much rich milk as there is of the mixture. This is good in weak conditions, since it is not only nourishing but stimulating.

Broiled Beefsteak.—Often a small piece of tenderloin, flank, or porter-house steak, free from fat, carefully broiled, and served on a plate with a small bit of butter and a little salt and pepper, is much better than broths or soft foods for a sick person.

Baked Apples.—Take good, sound, ripe apples, not too sour, bore out the core and place in a pan in a slow oven. They ought to be an hour in cooking. When they become soft through and the skin cracks, take out and sprinkle white sugar over them and into the cavities. Let the patient eat the pulp with a spoon when partly or entirely cool.

Boiled Flour.—Tie up a quart of flour in a pudding bag, tie tightly and put into a pot of boiling water. Boil half a day or more. Then take out the flour ball and dry it by the fire. Peel off and throw away the thin outer portion, and grate the mass with a nutmeg grater into a powder. One or two teaspoonfuls of this may be rubbed into a paste with a little milk and then poured into a pint of scalded milk (milk just brought to the boil). This is a very useful preparation in diarrhœa of infants.

There are many other preparations which are highly recommended for the sick, but those I have given will afford sufficient variety. Persons who are not very sick may eat many of the kinds of food that are eaten by well persons, remembering always to be careful and not eat very much. The following articles, however, should, in nearly all cases, be avoided by the sick: Fat meats and oily foods, fried articles, pies and cakes, cabbage, turnips, beans, radishes, onions, and other strongly-flavored vegetables. Potatoes are sometimes recommended among the foods for the sick, but my experience is against them. As a class, I think fruits, lean meats and grains, are always to be preferred to what are usually known as vegetables.

Tomatoes are often relished, and seem to agree very well. If fresh fruits can not be obtained, dried fruits are good substitutes. In some cases, in fact, the dried fruit is preferable.

To preserve ice for the sick, see chapter on Foods and Drinks. See word Ice in index for exact reference

BED SORES.

I quote Dr. Hope on this subject. He says: "Perhaps many persons will be shocked when I tell them that scores of people die, when long confined to bed, not of the disease or accident, but of sores caused by neglect; and in numbers of cases neither patient nor nurse has any idea of what is going on. Particularly in fevers the patient's mind is not in a state to complain of a slight pain, therefore such sores must be sought for by the nurse and prevented. They generally form about the bottom of the back and about the hips. The constant pressure of the body causes a slight redness at first, and if attended to then the mischief may be stopped; but if allowed to go on the part dies and leaves a sore which too frequently takes away all chance of recovery. Examine carefully every day, bathe the parts with spirits and water, and take off the pressure, first by altering the position, if possible; and secondly, by making little pillows or pads and placing them so as to bear the weight. Unless you do this all treatment you can adopt will be of no avail."

THE USE OF THE CLINICAL THERMOMETER.

Of late years physicians are making much use of what is called the clinical thermometer, a thermometer made especially for taking the temperature of the human body. As a means of determining the exact nature of the disease its value is undisputed; and since the more accurate the knowledge of the disease the more effectual the treatment, it can not be denied that it is a valuable instrument.

The physician can not always be with the patient and some one else ought to be able to take the temperature in his absence. Sometimes the physician leaves his thermometer and instructs the nurse how to use it. This is not always practicable. A good (the best) thermometer may be bought for three dollars, and will last a lifetime. It is a good thing to have in the family to be used whenever there are any indications of illness. The following facts will be of value in this connection:

In a state of health the temperature of the body in the armpit averages 98½ degrees Fahrenheit, with a range in health from 99 to 97½ degrees. It is about one degree higher in tropical than in temperate climates. In temperate climates it is highest in the early morning and lowest at midnight. In tropical climates it is lowest in the early morning and highest during the day. It is always one or two degrees higher in children than in adults.

When the temperature rises above 98½ degrees the person is not well; when above 100 degrees

he is probably very sick; if above 105 degrees he is in great danger; if it rises to 108 or 109 a fatal result may be expected in a very short time. There may be some exceptions, but these statements are generally true. On the other hand, if the temperature fall much below 98½ degrees the patient is in danger.

The temperature is taken as follows: After first jarring the instrument to shake the mercury down, place the end under the arm, closing the arm tightly over it, and allowing it to remain five minutes. Taking it out the degrees of temperature may be read on the scale. Sometimes the instrument is placed under the tongue and sometimes in the rectum.

MISCELLANEOUS HINTS.

Firmness is not rudeness. If a patient must, for his own good, be denied something, the nurse should be firm enough to resist his appeals. The patient's whims and fancies should not be honored, when doing so would be unfavorable to his recovery. The strong desires of a sick person sometimes for certain articles of food or drink are nature's cravings, and may often be heeded with advantage. But one should use judgment. A patient may crave pickles. The system demands an acid. The patient thinks of pickles naturally. Now pickles are usually very hard to digest. Give him vinegar and water or let him chew a pickle and swallow the juice only.

Handle a sick person with the utmost care, es-

pecially in cases where motion of the limbs or body gives pain. Go slowly and deliberately about changing a patient's clothes. By care all jolts and knocks may be avoided.

Frequent sponging the surface of the body, and particularly the extremities, with a soft cloth and tepid water is nearly always grateful, and does no harm unless the patient is very weak and can not bear to be moved. Great care should be used in this operation. Bathe only a part at a time, covering one part before exposing another. When the skin is hot and dry this sponge bathing is especially valuable. Ask the doctor's advice about it.

Do not get out of patience. Remember that you are well and the patient is sick and there is an excuse for his being irritable. Remember that you are cross sometimes, even when you are well. How, then, must it be with one who is racked with pain or has been taken from an active occupation and is compelled to lie still in one position.

It is a good plan in dangerous cases for the nurse to keep a record of the occurrences between the doctor's visits so that she may make a faithful and correct report to him. Let her, for example, take a sheet of paper and rule off five columns and head one medicine, a second food, a third sleep, a fourth evacuations and fifth miscellaneous. In the first column let her note the hours for giving medicine and mark each one with a cross when given, or state the reason why when not. In the second the hours food was given, the quantity eaten, etc. In

the third the number of hours of sleep taken by patient, the nature of the sleep, etc. In the fourth the number of evacuations, the time, the appearance of the excrements, etc. In the fifth whatever else may be of importance.

Chapter XV.

FOODS AND DRINKS.

IMPORTANCE OF A KNOWLEDGE OF THE SUBJECT.

Not only does our health depend largely upon a proper selection of food, but there is a question of domestic economy connected with this subject which is of no little importance.

Health and money are two very necessary means of securing domestic happiness. A careful and proper management of the food supply of the household will go far toward securing the one and preventing an undue waste of the other.

A discussion of the food question should have a place in a work of this kind, because women are more nearly concerned in it than men. While the man may purchase, or at least furnish the money, it is generally the woman's duty to select and prepare that which daily becomes a part of our bodies, and without which we could exist but for a brief time.

I can not have the space to give special directions for cooking. This is not a cook book. But it is hoped that the general hints here given will aid the young housekeeper in her daily work of providing for the table. A good cook book should be in every house. All cook books contain much that is worthless. None but what contain something of value. There are many valuable recipes

for cooking in the weekly family papers and other periodicals which abound in most communities. It is a good plan for a young housekeeper to begin clipping out all recipes which she may find, try them as occasion demands and if found good preserve by pasting in a scrap book set aside for the special purpose. This matter is of sufficient importance to demand this much of a sacrifice of time.

HOW TO SELECT ARTICLES OF FOOD.

Very few housekeepers know how to select meats and vegetables properly so as to get the most palatable and wholesome articles for the table. A woman at the head of the household should be able to make wise selections from the articles in the markets, and either buy them herself or instruct a servant or member of the family how to select them. Butchers or grocers will not always send the best when an order is sent them.

In buying *beef* select that which is of a clear cherry-red color. The beef of a young animal is paler. Beef of a very deep red or bluish-red color should be rejected. The fat should be slightly yellow, although this differs with the food the animal has been fattened upon, being yellow in corn-fed animals and whiter in those fattened on grass. The best beef has the fat marbled through the lean. Beef that is in good condition should rise up quickly when pressed upon by the finger. If it makes a dent which remains or disappears slowly it is bad.

In regard to the part of the animal which is best,

tastes differ very much and different butchers have different ways of cutting up beef and apply different names to the parts. The "tenderloin," which lies close to the back bone and under the short ribs, is generally considered the choicest. It is sometimes taken out by itself, but frequently cut with the "porterhouse" and "sirloin" steaks. Either of these are good, however, and generally to be preferred to "round steak," which is tougher. There is very little bone in the round steak, and hence it is cheaper when sold at the same price as the loin steaks.

Good roasts come from the fore quarters, the best being the rib roast just behind the shoulder. The pieces with much bone are best for soups, as the shanks and brisket. The neck is the toughest and stringiest. It may be used for mince meat or be eaten cold, after very long boiling. Every part of the beef is good if cooked properly, and those parts which sell at the lowest price are the best for soups.

Veal should not be from calves less than four weeks nor more than six or seven weeks old. The meat should be of a clear pinkish color, of firm consistency and the fat should be white. Nearly all parts of the calf are tender and palatable.

Mutton should be fat and the fat hard and white. The color of good mutton is darker or deeper red than beef. If properly managed in killing there will be no "wooly taste." This is not due to the wool, but to the gases in the intestines.

The lean of *pork* should be fine grained and of a very light color; the fat should be very white. Be-

ware of pork that has minute white specks through the lean or small darkish kernels through the fat. Bacon should not have yellow streaks through it. Hams should weigh from eight to fifteen pounds, have a thin skin and solid fat. Run a knife along the bone on the fleshy side. If the knife comes out smeared the ham should be rejected.

Young *chickens* are known by their tender skin, smooth legs and comb, and by pressure upon the top of the breast bone. If young this bone will yield to pressure. A dressed fowl should appear plump, young and white or yellow, not bluish. *Turkeys*, *ducks* and *geese* are known to be young by similar signs. Young ducks feel tender under the wings and the web of the foot is transparent. Tame ducks have yellow legs, wild ones reddish legs. Young geese have yellow bills and feet. Turkeys are best in the fall and winter.

Fish when fresh have full bright eyes, the gills are red, the body stiff and the smell not unpleasant though fishy.

All *vegetables* when fresh are crisp, not limp and tough. If wilted they may be partly restored by sprinkling them with water and laying them in a cool, dark place. As a rule, medium sized vegetables are better than very small or very large ones. Potatoes are sometimes unsound and the unsoundness can not be detected without cutting into them. Cut off the larger end of one; if spotted, they are unsound.

Lard should be white and solid and have no strong, disagreeable smell. Good *butter* has a very

agreeable smell and should not be very salty to the taste. The salt is often put in to increase the weight, and a good deal of it will somewhat disguise the taste, so that you can not tell how strong it is by simply tasting. The color is no real test, because it is so easy to color butter artificially. Butter that has not been colored is usually white when the cows do not get grass, and a beautiful yellow when they do. The butter will be white if the temperature is too high in churning. Yellow butter, if it has not been artificially colored, is much to be preferred.

The white granulated *sugar* is the most economical. The cheaper sugars are usually adulterated with glucose, which is not unwholesome, but is less sweet than cane sugar.

In selecting *canned fruits* or vegetables notice the can closely. If the end be "japanned" better reject it. You will notice at the end which is soldered a small spot or lump of solder somewhere near the center. If there are two of these do not buy the can. If the can seems to be bulged out or swelled at the ends it is not good. The reasons for these rejections are as follows: There is a cheap method of soldering in which a poisonous chemical is used instead of the ordinary resin. This resin leaves a brownish mark. The other substance does not. In order that no one can tell whether there be resin there or not the ends are japanned. When cans are filled and soldered they are heated. The air in them expands and when a hole is made in the top the air is driven

out. This hole is then filled up with a drop of solder before it can cool. Now cans sometimes spoil slightly after being kept awhile, and the gases produced within from the fermentation causes the can to swell. These "swells," as they are called, are sometimes bought up, holes punched in them to let out the gas and a drop of solder put on to fill up the hole again. Hence, a can with two of these lumps of solder is evidently one which has been thus "doctored" for sale.

Good *flour* adheres to the hand, and when pressed leaves the imprint of the lines of the hand.

True *vinegar* is acetic acid diluted with water and flavored with various extracts of the substances from which it is made. The acetic acid comes from a further fermentation of alcohol. All alcohol comes from sugar, and sugar from starch. Vinegar can, therefore, be made from any substance containing either starch, sugar or alcohol. The best flavored vinegar is made from fermented cider. Much of the vinegar in the market is probably made from glucose, or grape sugar, which is made from Indian corn. It may contain mineral acids, such as sulphuric or muriatic acids. If the former, it may be shown by its turning milky white on the addition of a solution of choride of barium; if the latter, by turning milky on adding a solution of nitrate of silver. If good cider vinegar can not be had families may make a very good vinegar by the following recipe:

Take water, one gallon; brown sugar, one and one-fourth pounds; yeast, one-fourth pint. Let

stand in a warm place three or four days, then draw off and add a few raisins and an ounce of cream of tartar. In two weeks it may be poured off again and bottled for use.

Another method of making vinegar is as follows: Save the fruit parings when you have them in considerable quantity, pour water over them and let them stand in a warm place several days. Then mash and stir vigorously with a stick and drain off the water. To this add from time to time the rinsings of fruit cans and vessels containing preserves; in fact, any waste liquid material containing sugar. Fermentation will go on and good vinegar will result. When sour enough a quantity may be taken out for use and more fruit juices or sugar and water may be added. Do not remove the "mother," or, as it is sometimes called, "the vinegar plant," which forms on top of the liquid.

BUYING.

It is best to buy for cash. The ready money will be more apt to secure the best articles at the lowest price. Buy of regular dealers whom you know, rather than of transient and unknown persons. If the dealer imposes inferior goods on you do not buy again of him if you can avoid it. It does not pay to run around to hunt up bargains in articles of food. The best is the cheapest when health is considered. There are some exceptions to this rule. Fancy prices are sometimes asked for fancy "gilt-edged" articles when a more common article is just as good.

It is economy to buy in large quantities when the articles are of a nature that will keep well. There are few, however, of this kind. Sugar, vinegar, salt, tea, if kept in a tight can, and coffee if not roasted, may be bought in large quantities and money saved thereby. Corn meal does not keep well and should be bought in small quantities. Flour keeps better, but not very long. In a family of five a barrel of flour will lose in quality before it can be used. Buckwheat flour, rice and hominy should be bought in small quantities. Potatoes may be bought in considerable quantities if you have a good place to store them. Apples, also, if they are of a good keeping variety. Money may be saved often by buying the winter supply of apples and potatoes in the fall.

STORING.

Have a stout keg or barrel for *vinegar* and keep it in the cellar, with a supply for the table in a bottle or jug in the kitchen.

Spices and *pepper* should be kept in well stopped bottles or small tin cans in a dry place.

Coffee should be kept by itself as its odor affects other articles. *Tea* should be kept in tight tin cans. When coffee is bought already roasted and ground by the grocer only small quantities should be bought at a time, and it should be put in self-sealing glass cans. A quart can will hold a pound of ground coffee if it be packed down by stamping with the handle of a knife.

Flour readily absorbs gaseous substances, hence

if stored in a room where there are onions, fish, or any substance which taints the air, its quality will be affected. It should be kept in a cool, dry place.

Salt should be kept in the dryest place in the house. It absorbs moisture from the air readily. Heat does not affect it.

If necessary to keep fresh meat longer than expected sprinkle it with black or red pepper, or powdered charcoal and put in the coolest place where flies will not get at it. Meat or fish kept on ice in the summer must be cooked as soon as removed from the ice.

A cellar is a good thing, but not an absolute necessity in warm countries. A refrigerator will not cost so much and is much more useful in the summer time if ice can be procured. Any carpenter, or indeed any one who can use tools well enough to make a box, can make a refrigerator. Every farmer ought to put up ice in the winter. A log pen with plenty of sawdust and straw will answer as well for an ice house as the most expensive building. A location easily drained should be chosen. Place a few planks or logs to keep the ice off of the ground. Build a log pen or rude framework of plank. Roof it with poles covered with plenty of straw. Pile the ice in the middle so that a space of two feet all around will be left. Fill this space with sawdust, putting straw between the chinks if logs are used, to keep the sawdust from leaking out; put plenty of sawdust on top of the ice pile and make a drain which will carry off the rain which will fall, and the work is complete. This

may not preserve the ice as perfectly as a more expensive structure, but it will preserve enough to amply pay the cost of material and labor.

A piece of ice may be kept from melting for some time in warm weather by wrapping in a cloth, putting it in a dish, placing the dish on a pillow, laying another pillow on the dish and wrapping the whole in a blanket.

A cellar is, of course, very convenient in cold countries, in fact, almost an absolute necessity. It should be carefully watched and kept clean. If a thermometer be kept hanging in it and observations made frequently the proper temperature may be kept. Fruits and vegetables should be kept cool. The temperature should not range below 34 nor above 60 degrees Fahrenheit. In very cold weather a lamp kept burning in a cellar will keep the temperature above freezing if the cellar is a good one. Vessels of water will also keep the temperature up a little and may prevent a freeze when the thermometer is ranging dangerously near the freezing point. A cellar built on top of the ground is the best. If the walls be of brick and double and a small stove kept going in the coldest weather it will serve in very extreme climates.

PRESERVING FOODS.

One of the greatest discoveries of modern times is the art of preserving foods by canning. If this operation is properly performed most kinds of food retain nearly their original flavor. This process is one of the many which places us immeasurably

above the savage, who to-day has a feast and to-morrow a famine. It enables us to distribute the abundance of certain luxuries of a particular season over the whole year, and permits the inhabitants of distant regions to double their store of luxuries by exchanging a part of that of which they have a superabundance for that which they have not.

While canned fruits and vegetables may be bought comparatively cheap, yet it is desirable in many cases that families do much of their own canning. Every housekeeper ought to know how to can fruits properly.

The only important point in canning fruit is to exclude as much as possible of the air. Heating causes the air in the fruit and in the can to expand. By expanding, much of it is driven out of the can. If the can be perfectly full of the fruit and sealed perfectly tight while hot, its chances of keeping perfectly are as a hundred to one. Doubtless the thorough heating of the fruit has something to do with its keeping aside from merely excluding the air. The fermentation which takes place when fruit spoils is caused by certain germs that may exist in the air, or have fallen on the fruit previously. These germs can not produce fermentation without air, but since it is impossible to exclude all of the air, the heating no doubt kills those germs which may have been in the fruit, and this prevents their development.

Tin or glass cans may be used. One is as good as the other. The tin will not affect the fruit, if the latter does not become partially spoiled, and if it does the effect will be noticeable, and the fruit

should be rejected anyway. When but little fruit is to be canned, perhaps self-sealing glass jars are the best. If properly cared for they will last for many years. The cans should be put in cold water which should gradually be brought to the heating point. The cans may then be taken out, wrapped in a towel, and the fruit put in while boiling hot, and having been filled perfectly full, the covers are to be screwed down as tightly as possible. Each can should be filled with the hot fruit the moment it is taken out of the hot water, and sealed up immediately.

If large quantities are to be put up, tin cans are the cheapest. I see no reason why each family should not do their own soldering. This is a simple process. The art may be learned from any tinner in a few minutes, and the materials cost but little. After they are soldered, they should be put into a kettle of boiling water for several minutes, then take them out, punch a hole with an awl in the lid to let out the expanded air, then apply a little solder to the hole as soon as possible. Cans put up in this way will keep better than when sealed with wax. To open the can lay a few live coals on the top and blow on them for a minute. The cover will come loose, and may be lifted off with a knife blade, or they may be unsoldered by applying the heated soldering iron. Cans which you buy in the stores may be used again if opened in this way.

If you have on hand a quantity of apples in the winter time which are beginning to rot, pick them

over, take out all those beginning to decay, pare and cut away the rotten part and can them up. You will thus save the fruit and have apples almost as good as fresh ones in the spring when apples are scarce and dear.

Grapes may be preserved whole by dropping them in a thick syrup of sugar, boiling hot, and canning immediately.

It is best in most cases to sweeten fruit when canning it. If properly canned the risk of spoiling and thus losing both fruit and sugar is very small. The sugar helps preserve the fruit and lessens the chance of losing it.

Cider may be kept from becoming "hard," that is, fermenting, by putting into each barrel about a pint of ground mustard. Cider which is to be kept should be made late in the season.

Grape juice may be kept unfermented by adding sugar and canning. The juice may be extracted by cooking the grapes just a little, putting the pulp in a muslin bag, and pressing the juice out. The juice of any fruit may be procured and preserved in this way.

ESSENTIAL ELEMENTS OF FOODS.

Food is necessary for two purposes: (1) To furnish material for the growth and to supply the waste of the body; (2) to keep up the animal heat. On this basis the essential elements of all articles of food may be divided into two classes. By essential elements I mean those parts of an ordinary food which are digested, absorbed and actually used by

the body. For example, a potato consists of starch, albuminous matter, water and cellulose. The water is the same as we drink, and, though absorbed, is not used to build up the system any more than the water we drink, hence, the water is not an essential element of the potato, as far as food is concerned. The cellulose is only another name for woody fiber which forms the frame-work of vegetables, and is not digested, but passes away through the bowels. It is then not a food. The starch is converted into sugar and absorbed, and the sugar thus obtained is used in the system to keep up animal heat. The potato contains also some albuminous matter, which is used to build up the body and supply waste. The starch and the albuminous matter are therefore essential elements of food.

Those elements in foods which build up and keep the body in repair are called nitrogenous, because they all contain nitrogen, one of the simple elements in nature. They are also called albuminous, because they resemble ordinary albumen. They are principally as follows: *Fibrin*, the principal part of lean meat; *albumen*, the principal part of eggs, also found to some extent in meat; *casein*, the solid part of milk, nearly pure in cheese; *legumin*, or vegetable casein, found in beans and peas; *gelatine*, or jelly, found in bones, skin and some other parts of the animal, and in fruits. (It is claimed by some physiologists that gelatine is of little or no value as nourishment;) *gluten*, found in the grains, more especially in the part next the bran or hull.

Those elements in foods which produce animal heat are called carbonaceous, because they consist largely of carbon, one of the simple elements in nature, and contain no nitrogen. They are principally *starch*, found in all grains, in potatoes and many roots, and to some extent in fruits and garden vegetables; *sugar*, found in all fruits and in most vegetables; *fats and oils*, found in the fat of all animals, in some vegetables, and in milk and eggs.

Now, we need a variety of food in order to get a proper share of the building and heat-making material, since but few single articles of food contain the proper proportion. If we were to live on potatoes alone we would not get enough building material, if on lean meat alone we would not get enough heat-making material. In winter and in cold climates we need, of course, more of those foods which contain the heat-making material than in summer or in warmer climates.

Some substances are not of much value as food, containing very little nourishment, but since they are very palatable they form an important addition to other foods. Such substances may be called relishes. Many of them will be mentioned in the following

DICTIONARY OF FOODS AND DRINKS.

Ale.—See *Beer.*

Apples.—Wholesome and easily digested, when ripe and not eaten in too large quantities at a time. They contain over eighty per cent. water, some

sugar, starch and acid. They tend to loosen the bowels. The skins and hard parts of the core should not be eaten. They are not so apt to produce bad effects when cooked as when raw.

Arrowroot.—This is often recommended for the sick. The true article is obtained from the root of a tropical plant. It is nearly pure starch. There are many substances which are sold under the name of arrowroot which are only preparations of starch from various plants. English arrowroot is made chiefly from potatoes. Arrowroot is, in my opinion, of very little use either to the sick or well, since we get as much starch as we want in more palatable form in wheat, corn, potatoes and many other articles. It is not palatable unless sweetened and then does not seem to be satisfying. One may as well feed a patient pure starch, such as is prepared for laundry purposes.

Asparagus.—Easy of digestion; contains about five per cent. of nourishment. It increases the action of the kidneys slightly. Is not constipating.

Bacon.—See *Pork.*

Bananas—Contain in 100 parts about seventy-four water, twenty sugar and four albuminous matter. They are nourishing, but somewhat difficult of digestion. They tend to loosen the bowels.

Barley.—Not much used in this country for food. It contains sixty-nine per cent. of starch, four or five of sugar, and about six of albuminous matter. It is, therefore, very nutritious. It is used for bread in many countries. We find in the market here what is known as pearl barley, which is simply the

grain with the husk removed. Well boiled and eaten with milk and sugar it forms a delicious dish, and can often be used to afford variety. It has usually no marked action on the bowels.

Beans—Contain over twenty per cent. of albuminous matter and about fifty of starch, and are, therefore, highly nutritious. When ripe and hard they should be boiled at least five hours, otherwise they are very indigestible. When used green they need not be cooked quite so long. They are inclined to be binding and should not be eaten by persons who are constipated. They are very economical as an article of diet, containing much nutriment in proportion to the price.

Beef.—The most nutritious of meats and perhaps more extensively used than any other. The lean contains about twenty per cent. of albuminous matter, a small amount of salts and the remainder is water. The fat is mainly heat-producing. Beef is easily digested if of good quality, properly cooked and well chewed. It is best eaten fresh. Dried or smoked beef affords, however, a variety and is convenient as it needs no cooking.

Beer.—Ale, lager and porter are simply forms of beer differing but slightly, hence need no separate treatment. Beer is made by allowing *malt*, which is sprouted barley or other grain, to ferment, and by the addition of hops. The sprouting of the grain changes the starch to sugar, the fermentation changes part of the sugar to alcohol, and the hops impart a bitter and slightly intoxicating

principle. The amount of alcohol in beers varies from two to eight per cent.

Because the Germans and other European people drink large quantities of beer and are generally a healthy people, that is no reason why Americans should drink it. Alcoholic drinks, not even the mildest, do not generally agree with Americans. Total abstinence or only an occasional indulgence in the mildest of alcoholic liquors is undoubtedly the best for the American people. Beer contains some nutriment, and may be classed among the foods, but when we consider the cost and the dangerous effects of the alcohol and hops which we take along with it, we will come to the conclusion that it is a very expensive food.

Beets—Contain about ten per cent. of sugar and over eighty per cent. water, with a very small amount of albuminous matter. They are readily digested and wholesome, and are somewhat loosening to the bowels.

Brandy.—Distilled wine, containing about forty-five or fifty per cent. of alcohol. Should never be used, except in sickness where a quick stimulant is desired. It is a difficult matter to obtain it pure. Most of that obtained in the drug stores is a mixture of drugs with a little alcohol. If not positive that it is pure brandy, better use diluted alcohol in sickness. Sometimes it is made of alcohol and water, flavored with oil of cognac. When made this way it is not objectionable, but is no better than simple alcohol and water. But again it is made with only a little alcohol, and to keep up the

intoxicating power, fishberries and other intoxicating drugs are added. Alcohol will burn readily. A test that would show that it contained alcohol instead of other intoxicants would be to set a small quantity of it on fire. Nearly half of it ought to be consumed.

Blackberries.—An agreeable, wholesome fruit, containing sugar and an acid. They are said to be slightly constipating, which I am inclined to doubt.

Buckwheat—Contains about eighty per cent. of starch, and about two and one-half of albuminous matter. Buckwheat cakes are sometimes the cause of a breaking out, or rash of the skin. They are wholesome, if made properly—so as to be very light, and not eaten too frequently.

Butter—Is the fat, or oil of milk. It is purely a heat-producing food, and for this purpose is no better than other fats, though usually more agreeable to the palate. It is not wholesome when it becomes rancid. The substitute for butter, known as oleomargarine, is prepared from tallow, and is not unwholesome, although not as agreeable as real butter.

Cabbage—Is but slightly nourishing, consisting of ninety-four parts water and a small amount of sugar and albuminous matter. It should be well cooked or it will be difficult of digestion. It forms an excellent addition to vegetable soup, and as a relish is valuable. Good for constipation.

Carrots.—More nutritious than cabbage. They contain some starch, sugar, albuminous matter, and

about eighty-three per cent. water. They are loosening to the bowels.

Celery—Resembles the carrot in composition and properties.

Cheese.—Highly nutritious, containing large per cent. of both heat-making and building material. It is not easily digested, however, and causes constipation in many persons if eaten in any considerable quantity.

Cherries.—Very wholesome and agreeable acid fruit. They contain from eight to thirteen per cent. of sugar, and a small amount of albuminous matter. Like all acid fruits, they are loosening to the bowels.

Chicken.—See *Poultry*.

Chocolate—Is made from the seeds of a tropical plant. It contains much nutritious matter, consisting in the main of fat (cocoa butter), about thirty-five per cent.; starch, about one-half per cent., and glutin, about three per cent., besides a narcotic principle similar to that found in tea and coffee. As a beverage it is much preferable to tea and coffee, in my opinion. Prepared with milk and sugar it is not only mildly stimulating, but a highly nutritious and agreeable drink. Children, however, had better drink the milk without the chocolate. It is said to be slightly constipating.

Cider.—Fresh cider contains no alcohol. It is simply the juice of apples and is as harmless as the apple itself. Hard cider is the fermented juice and contains from five to ten per cent. of alcohol. It is the wine of apples. In another place I

have given directions for preventing fermentation. Sweet cider is a pleasant, wholesome drink, loosening to the bowels. Hard cider is intoxicating if taken in considerable quantities, and is not to be recommended as a drink, though it is less objectionable than beer, ale or porter.

Clams.—See *Oysters.*

Cloves—Are the dried flower buds of a species of plant growing in tropical countries. Like all other spices, they should be used with moderation. They contain little or no nutriment, and are useful only to give flavor to other substances, and to stimulate the stomach. Clove tea is a useful medicine in colic and painful menstruation.

Coffee.—The coffee bean, or berry, contains some nutriment, but the drink prepared from it is valued chiefly for a peculiar aromatic principle which is stimulating. It is apt to keep some persons awake if drank before retiring. It is no doubt useful, when not used too strong, to adults, and especially to old people, but children and youth while growing up are better without it. It seems to be better adapted to the people of warm climates. To make good coffee it should not be boiled longer than ten minutes, and if it can be boiled in a very tight vessel, so that the aroma can not escape, it is much better. There are patent coffee pots which are excellently adapted to the purpose. It is said to have a tendency to produce constipation.

Corn—Contains eleven per cent. albuminous matter, sixty-four and one-half of starch, eight of

fat, and a little of sugar. Corn bread is not as nutritious as wheat bread nor so generally well relished, but affords an excellent variety occasionally. In many cases it loosens the bowels, probably because of its coarseness. Green corn, or roasting ears, are wholesome if well cooked. The variety known as sugar corn is by far the best for this purpose. It is now canned and sold quite cheap in the groceries. A can purchased occasionally during the winter affords an agreeable variety when green vegetables are scarce. Corn starch is not nearly as nutritious as cornmeal, being nearly pure starch. Some food containing building material should be eaten with it. Hominy is a wholesome form of corn.

Cranberries—Contain but little nutriment, but are excellent relishes, sharpening the appetite. They are especially good eaten with fresh meats. One should eat but a small quantity at a time.

Cucumbers—Are difficult of digestion and contain but little nutriment. As pickles they afford a relish. They should not be eaten freely.

Currants—Are slightly nutritious. Afford a good relish and are loosening to the bowels.

Dates.—About one-half sugar. They are very nutritious and agreeable.

Ducks.—See *Poultry*.

Eggs—Contain all the elements required by the body in about the right proportions. Very valuable as food. They should be used largely by the young, being preferable to meat. At average prices they are among the cheapest of foods, a

pound of eggs being more than equal to a pound of meat in nutrient value.

Fats and Oils.—The only difference between fat and oil is that the former is solid and the latter is liquid at ordinary temperatures. Their use as food is principally to furnish animal heat. There is a common notion among a certain class of people that fat meat is injurious, and that lard ought not to be used in cooking. It is without foundation. It is true that articles are often rendered indigestible by being improperly cooked in grease, but if fats are properly used they are not only harmless but absolutely necessary in the human economy. It is the opinion of many good authorities, among whom are Dr. William B. Carpenter, Dr. Hooker and Dr. J. Hughes Bennett, of Edinburgh, that a deficiency of fat in the food is one principal cause of tuberculous disease, or consumption. Says Dr. Edward Smith: "It is very probable that fat exerts an influence in the passage of refuse matter through the bowel; so that with some excess of fat the bowels will act more readily than where the dietary is deficient in that lubricating substance."

Figs—Are rich in nutritious elements. They are especially valuable for their loosening effects on the bowels.

Fish—Contain more water than meat, and are therefore less nutritious. Salmon is probably more nutritious than any other kind. Fish, when fresh, are easily digested, and as they afford an excellent variety should be eaten frequently. They are said to be especially good for brain workers, since they

contain a large amount of phosphorus which is an element of nervous tissue.

Game.—By this term I mean all wild quadrupeds and birds that are used for food. As a rule, only those animals which live on vegetable food are fit to eat. The flesh of birds contains less fat than that of most quadrupeds, and is of a more delicate flavor. Rabbits and squirrels are wholesome food, and nearly as nutritious as beef. The flesh of the groundhog, or woodchuck, and of the opossum, is excellent eating. The raccoon is sometimes eaten. Venison is excellent food. The flesh of wild animals is usually better relished by invalids than that of tame animals, on account of the more delicate flavor. It is also more easily digested.

Geese.—See *Poultry*.

Gin.—See *Whisky*.

Ginger—Is the root of a plant growing in the East and West Indies. Where it grows it is, when young and tender, preserved in sugar, and eaten as a dessert. The dried root which we get is very stimulating, and, while valuable as a medicine, should not be used much in food. The digestive organs are weakened by its constant use.

Gooseberries.—Very similar to currants in composition and effect.

Grapes—Contain from nine to fifteen per cent. of sugar, about one and one-half per cent. of acid, less than one per cent. of albuminous matter, and over eighty per cent. of water. The seeds and skins are indigestible. Grapes are very wholesome food. When perfectly ripe they may be eaten

freely, rejecting the skins and seeds. They are somewhat loosening to the bowels.

"*Greens.*"—Various young and tender plants are used in this country for food and relish, either cooked or eaten raw with vinegar. Among the number may be mentioned mustard leaves, yellow dock, or sour dock, cowslips, radish and turnip tops, spinach and dandelion. Lettuce may be reckoned in this list. It contains a narcotic principle similar in effects to opium. Much lettuce eaten at a meal will produce drowsiness. None of these plants used for greens are of much nutritive value, but as they afford a relish in the spring of the year when green foods are scarce, they are of value.

Ham.—See *Pork.*

Hominy.—See *Corn.*

Honey—Is mostly sugar, and is about equal to it in nutritive value. It loosens the bowels. It is now largely made artificially, even the combs are made and filled by machinery. One should not eat much honey at a time, as it cloys the appetite. Solomon was aware of this when he said, "It is not good to eat too much honey."

Horseradish—Is very stimulating. It arouses an appetite, and may be used in moderate quantities.

Huckleberries—Have very indigestible skins, which are generally eaten. Otherwise they are excellent fruit. They are good for constipated bowels.

Ice Cream—When eaten frequently no doubt causes indigestion. It lowers the temperature of

the stomach so much that digestion is arrested for a time. It is my experience that it is less hurtful when no other food is eaten with it.

Jelly.—The jellies made from fruit contain gelatin, a nitrogenous matter, almost the same as the gelatin from animals. There is a difference of opinion as to the nutritive value of gelatin. Says Dr. Whittaker: "Though the gastric juice will attack and dissolve gelatin, it has very little, if any, nutritive properties, and should never, in any of its forms (jellies, isinglass, Iceland moss), be relied upon as an article of food." Flint comes to about the same conclusion. On the other hand, Dr. Edward Smith says: "My experiments, and those of others, have proved that it is a valuable food, since it increases vital action in the same direction, if not in the same degree, as albumen." Fruit jellies contain a considerable amount of sugar and the peculiar acid of the fruits, and are usually well relished, and whether highly nutritious or not afford a harmless and agreeable addition to other foods.

Lamb.—See *Mutton.*

Lard.—See *Fats and Oils.*

Lemons—Contain citric acid. They are cooling and agreeable. Lemonade is one of the most agreeable, and at the same time, one of the most harmless of drinks.

Lettuce.—See "*Greens.*"

Liver.—The livers of various animals are used for food. There can be no objection to liver if it be sound. That of the calf is considered a luxury.

The liver of the ox is the most nutritious, containing about twenty per cent. of albuminous matter. It should be well cooked.

Macaroni—Is simply fine flour made into a paste and dried. It forms a large part of the food of the people of Southern Italy. It is said to be more nutritious than ordinary wheat bread, because the Italian wheat from which it is made contains more gluten. It is not so easily digested as bread. Vermicelli is of the same composition as macaroni.

Milk.—One of the most valuable of foods. Like eggs, it contains all of the elements needed by the body. It should be the principal food of children.

It agrees with and is valuable to most adults. It is easy of digestion. It always curdles when taken into the stomach, a fact which should be known to all mothers, since if a child from any cause throws up its food, one must not come to the conclusion that a bad condition of the stomach has caused the curdling of the milk and that, therefore, the milk has not agreed with it. The souring of the milk does not lessen its nutritious properties very much. It consists in the conversion of the sugar to lactic acid. Buttermilk is not only very nutritious, but a cooling and agreeable drink. In India it is used to such an extent that the people have a saying that "a man may live without bread, but without buttermilk he dies."

Molasses.—See *Sugar*.

Mustard.—A strong stimulating condiment. It should be used with great moderation.

Mutton.—"Although an agreeable and valuable

food for all classes, it is not so well fitted as beef to sustain great exertion, but is rather a food for those of sedentary and quiet habits, including women and the sick."—*Dr. Edward Smith.* Lamb is less nutritious. It is more easily digested.

Nutmeg—Is the seed of a tropical fruit. Mace is the fleshy covering of the nutmeg dried. The whole fruit is used in countries where it is grown when green as preserves. Both the nutmeg and mace are rather mildly stimulating and are perhaps the least objectionable of the spices if used in any considerable quantity.

Nuts.—Walnuts, hickorynuts, almonds, hazelnuts, filberts, peanuts, and chestnuts, all contain a considerable amount of oil, and are nutritious, but rather difficult of digestion. I think, however, that the ill effects that are often ascribed to them are due to the fact that they are usually eaten between meals, and as an addition to, rather than a part of our regular food. For my own part, I have never observed any ill effects from eating nuts when they were eaten as a part of the ordinary food. The oil they contain makes them loosening to the bowels, and in my own case, I have found hickorynuts to be an excellent remedy for constipation. Cocoanuts, as we get them, are rather indigestible, but in many parts of the world they form almost the sole food and drink of the people.

Oatmeal—Contains about fifty-eight per cent. of starch, twelve and one-half of albuminous matter, five of sugar, five and one-half of fat, and is therefore very nutritious. It is a singular fact that a grain

which can be so cheaply produced, and which affords such a nourishing and delicious food, is not more extensively used. While oats can be grown much more cheaply than wheat, oatmeal sells at a higher price than flour, chiefly because the demand for it is not great. Large quantities of it are used in Scotland by the poor classes, but in this country it seems to be rather a luxury than a necessity. It should be well cooked to render it digestible. Boiled for two hours, or rather kept at the boiling point by putting it with a little water in one vessel and placing this vessel inside of another containing boiling water, for this length of time, and eaten with cream and sugar, it is one of the most nutritious and palatable of foods.

Onions—Contain a stimulating oil which gives them their peculiar odor. In cooking, this oil is largely evaporated. They are moderately nutritious, containing more flesh-forming material than the potato, but only about one-fourth as much heat-giving material. They form an important article of food in Spain and some other countries, but here they are used mainly as a relish. They have the reputation of increasing the action of the kidneys, and of being expectorant, that is, increasing the flow of mucus. Like all watery vegetables, they would be useful in relieving constipation.

Oranges—Contain much less acid than lemons, and more sugar, but otherwise the two are similar. They are an agreeable and wholesome fruit.

Oysters.—Not of high nutritive value, but are

easy of digestion and wholesome in their season. Clams are very similar.

Parsnips—Are easy of digestion and wholesome to those who like them. They contain about one per cent. of flesh-forming elements, eight or nine of starch, one and one-half of oil, and eighty-one of water.

Peaches—Are not more nutritious than apples; are easy of digestion, and loosening to the bowels.

Pears—Are more diffiult of digestion than apples or peaches, but more nutritious.

Peas.—Very similar to beans, which see.

Pepper.—The cayenne, or red pepper, is stronger than black pepper. Both are powerful stimulants and should not be used too freely.

Pickles.—See *Vinegar.*

Pine-apples.—Agreeable and wholesome, but not very nutritious. Are more digestible when cooked.

Plums.—Similar in composition and properties to peaches. Prunes are a dried species of plum.

Pork—Is not quite as nutritious as beef and not so easily digested. There is a great deal of, I think, unfounded prejudice against the eating of pork. If the animal be healthy there is no more agreeable and wholesome meat. One reason why it is not so easily digested is the great hardness of its muscle fiber. It should be well cooked and well chewed. Ham is best when thoroughly boiled and eaten cold. Bacon is considered a luxury by a few and a necessity by many. Too much of it is eaten by the laboring classes. It should be

eaten more in the winter than in the summer. Too long drying or smoking makes bacon and ham more difficult of digestion.

Potatoes—Do not contain enough flesh-forming matter to make a complete food, but are valuable along with meat. The Irish potatoes average about two per cent. albuminous matter, eighteen of starch, and three of sugar. The sweet potato differs somewhat, containing more sugar. Potatoes should be thoroughly cooked. When boiled they should be put in boiling water, and when done the water poured off and exposed to dry heat until they appear mealy. If roasted the oven should be hot when they are put in. If fried the grease should be very hot when they are put in it. Young potatoes are not wholesome. They should get their growth before they are eaten, and then are better after laying out of the ground a few days.

Poultry.—This term includes domestic birds, as chickens, ducks, geese and turkeys. The flesh of these birds is regarded as lighter food than beef, mutton or pork. This is not because of inferior nourishing qualities, but rather because they have a more delicate flavor and are more easily digested. They contain nearly as much nutriment as beef.

Prunes.—See *Plums*.

Pumpkins and Squashes—Are only moderately nutritious, but wholesome.

Quinces—Are hard and tough when raw, but when well cooked with sugar form delicious preserves. The flavor is so strong that they may be

mixed with an equal quantity of apples, to which they will impart their flavor in preserves. Such preparations should be eaten in great moderation.

Raspberries.—Somewhat similar in properties and composition to *Blackberries*, which see.

Radishes—Resemble carrots in composition. Difficult of digestion, but not unwholesome if the stomach is in good condition.

Rhubarb—Contains much acid. Is easy of digestion if well cooked, and is decidedly loosening to the bowels.

Rice—Contains seventy-nine parts in a hundred of starch, six of albuminous matter, and a small amount of fat and sugar. It is not a perfect food, containing too little flesh-forming material. It is quickly digested when well cooked. It forms the greater part of the food of millions of people. It is a curious fact that when new it is not so digestible as when old. In India it is sometimes not used until it is three years old.

Sago.—A form of starch, produced from various species of palm trees. See *Arrowroot.*

Salt—Appears to be a very essential part of food, although it does not add anything towards building up the tissues. It has been in use from the most ancient times and is universally sought after by man and beast. An excessive use of it is doubtless injurious. Many nutritious foods would not be relished without a little salt.

Squashes.—See *Pumpkins.*

Strawberries.—Similar to raspberries and blackberries in properties and composition.

Sugar.—Nearly all foods contain more or less sugar, but it is most abundant in fruits and vegetables. It is an important article of diet, furnishing the heat-making material in a very palatable form. It furnishes no building material to the body, and therefore is by no means a complete food. When eaten in excess it cloys the appetite and produces indigestion. As an addition to tasteless foods, rendering them palatable, it is valuable.

Tallow.—See *Fats and Oils.*

Tapioca—Is, like sago and arrowroot, nearly pure starch, obtained from a tropical plant.

Tea.—Black and green teas do not differ in composition and properties. The difference is in the mode of preparation and in the maturity of the leaves. Its peculiar properties are due to a substance called *theine*, which is a stimulating, aromatic oil, which gives it flavor, and tannin, which makes it astringent. The stimulating effects are somewhat similar to coffee. It should be made at a low heat, never be boiled, as boiling drives off the oil which gives it flavor, and dissolves out too much of the tannin. Tea is more suitable to cold climates, and as a winter drink. Young people do not need it, and are better off without it. Middle-aged and old people are often benefited by its use. It should never be used too strong. Most people in this country drink it too strong.

Tomatoes—Are moderately nutritious and very wholesome. They are loosening to the bowels.

Turnips—Contain a little over one per cent. of building material, about seven of starch and sugar,

and over ninety per cent. of water. They are, therefore, of but little nutritive value, but are wholesome.

Veal.—See *Beef.*

Venison.—See *Game.*

Vermicelli.—See *Macaroni.*

Vinegar—Is diluted acetic acid mixed with flavoring extracts of whatever it be made from. A little stimulates digestion, but taken habitually it weakens the stomach and causes emaciation. Pickles eaten occasionally in very moderate quantities, are not hurtful to strong stomachs. "Greened pickles" are made by heating them in a copper or brass vessel or by putting a copper coin in the vessel, or by adding sulphate of copper. Such pickles are poisonous, and should not be eaten.

A writer in the *Popular Science Monthly* says: "The value of vinegar as a condiment depends on the fact that acetic acid dissolves gelatin, fibrin and albumen; hence it aids in digesting young meats, fish, lobsters, and hard-boiled eggs. The acid assists also in the conversion of cellulose (woody fiber) into sugar, which is the first stage in the digestion of the green leaves used in salads. It is a mistake to use vinegar on beans, for it renders insoluble the legumin, which is their chief nutritive constituent. Oil, pepper, mustard, and a little white wine make the best dressing for beans. It has been proved that some vegetable acid is necessary for the preservation of health, as long continuance in a diet lacking such acids produces scurvy. Vinegar will partly supply this lack, but not wholly.

A craving for acids is better supplied by fruit or acid vegetables."

Water—Is not properly a food, but without it no food would be sufficient except those containing large quantities of it. One should drink plenty of water, yet not an excessive amount. A habit may be acquired of drinking too much water. Drinking much iced water is frequently injurious.

Water-melons—Consist almost entirely of water. A small amount of sugar is the principal nutriment found in them. They are wholesome when thoroughly ripe.

Wheat.—The most important vegetable production of temperate climates. It is almost a complete food, as far as its composition is concerned, and one of which we never tire, if we have something else to eat with it. The outside layer of a grain of wheat is mostly silica, a flinty substance destitute of nutritious properties. It is taken off with the coarsest bran. Next to this is a layer containing a large per cent. of gluten, which is a valuable albuminous food. The center of the grain is mostly starch. In ordinary white flour a large part of the gluten goes with the bran and middlings, although a considerable amount is left in the finest flour, as may be shown by mixing a quantity of flour with water and rubbing it thoroughly on a fine cloth stretched over a vessel. When the water which goes through is no longer milky in appearance the sticky substance left on the cloth is gluten and the white settlings in the water in the vessel is starch.

A great deal has been written about the great amount of nutriment which we throw away in the shape of gluten in the bran, but most writers have overlooked the fact that the bran being coarse and irritating, causes such looseness of the bowels that a large amount of the nutriment is carried away in the excrements before it can be digested, so that after all, bread from fine white flour may be more nutritious than when made from the whole wheat.

Whole wheat flour, or Graham flour as it is called, is good for some people and as an occasional change for all. It should be used largely by persons troubled with constipation. Bread made out of Graham flour can never be made as palatable to most persons as bread made from fine flour. It may be relished occasionally for a change, but one tires of it, which is not true of light, white bread.

I do not agree with those who think that bread should form the largest part of our diet. Although it may, and should be, eaten at every meal, yet garden vegetables or fruits, or both, should also form a part of every meal.

For an occasional change wheat may be boiled whole and eaten with sugar and milk. It is very palatable. Cracked wheat is perhaps better. Ordinary Graham flour may be boiled and eaten as mush, either warm or cold with milk and sugar, or it may be sliced and fried. The good housewife will use all of these forms for the sake of variety.

Whisky.—Pure whisky contains from fifty to sixty per cent. of alcohol, a little fusel oil, which

gives it its peculiar flavor, the remainder being mostly water. It is a very difficult matter to get pure whisky in this country. Most that is sold under that name is a vile compound of a little alcohol, tobacco, fish berries, cayenne pepper, burnt sugar, etc., and water. Whisky is made by distilling grains, chiefly corn or rye. Could we get it pure it might frequently answer a good purpose in sickness, but since it is almost impossible to do so, we had better let it alone. It is not a food in the proper sense of that term. *Gin* is whisky flavored with juniper berries. It acts upon the kidneys, increasing their secretion.

Wine.—There are many kinds of wines. The term is usually applied to the fermented juice of grapes. A fermented juice of any kind, which has not been subjected to distillation, may be called wine. Thus hard cider is wine of apples, and we have blackberry, currant, elderberry and other wines. Wine contains more or less alcohol, varying from five to twenty-five per cent. In addition to alcohol and water it contains certain acids and flavors of the fruit from which it is made, and some sugar. The weakest wines, if used in moderation by adults, are not objectionable. The danger in this country is that a desire for some stronger alcoholic drink may be cultivated. In Italy and Greece the people all drink wine, as we drink water or milk, and drunkenness is a rare occurrence. But the wines of those countries are weak and the disposition of the people is such that there is no danger of their using them to injurious excess.

The example of that people is no guide for us. As a rule, people of warm countries rarely ever go to excess in alcoholic liquors, while those of colder countries do. Russia shows the greatest amount of drunkenness, Greece the least. Wine contains very little nutriment, and should not be counted among the proper foods.

Chapter XVI.

HOUSEKEEPING AND DOMESTIC ECONOMY

IMPORTANCE AND DIGNITY OF HOUSEKEEPING.

I do not believe in drudgery. A woman should have time for recreation, for reading, for conversation, for fancy work, etc. If her family consists of but two or three members she will find time enough for these things and to keep her house in order and do the cooking necessary, provided she has good health and knows how to manage. If she has a large family to cook for and a large house to see after, she needs help; but she needs all the more the ability to manage for them—there is more management with the same amount or more of work.

The young lady who expects to marry a rich man, and who does not know anything about housekeeping, may try to console herself by thinking that she will always have servants to do her work. She should know that servants are quick to notice the ignorance and incapacity of the mistress, and most of them are ready to take advantage of her ignorance. She should know, also, that servants, and especially good ones, are not always to be had, and that with the best there is still plenty for the mistress to do in planning and directing the work of the house. Again, fortune is fickle and

though to-day you may be in the midst of plenty, to-morrow you may be the wife of a bankrupt, too poor to hire a servant.

The best legacy a mother can leave her daughter is a practical knowledge of housekeeping. The mother who has neglected to teach her daughter the duties of a housekeeper has neglected one of the most sacred of her duties. Your wit, your grace and ease in society, your accomplishments in music or painting, or your literary talent, may be admired by your husband, but no one, nor all of those combined, can take the place of a good dinner, or atone for a dirty house.

The following extracts from high authorities confirm what I have just said on this subject:

The "Buckeye Cookery" says: "Housekeeping, whatever may be the opinion of the butterflies of the period, is an accomplishment in comparison to which, in its bearing on woman's relation to real life and to the family, all others are trivial. It comprehends all that goes to make up a well-ordered home, where the sweetest relations of life rest on firm foundations, and the purest sentiments thrive. It is an accomplishment that may be acquired by study and experiment, but the young and inexperienced housekeeper generally reaches success only through great tribulation. It ought to be absorbed in girlhood, by easy lessons taken between algebra, music and painting. If girls were taught to take as much genuine pride in dusting a room well, hanging a curtain gracefully, or broiling a steak to a nicety, as they feel when they have

mastered one of Mozart's or Beethoven's grand symphonies, there would be fewer complaining husbands and unhappy wives."

Jennie June (Mrs. Croly) says: "The marriage relation is one of reciprocal interests, duties, and responsibilities; and no young lady ought to marry until she is willing to assume her share of them. True affection on the part of the husband will lighten and make duties pleasures, but whatever aspect they bear, she must not shrink from them. If she has not received the training necessary to fit her for the position, it is her misfortune; but it will be her fault if she does not try as far as possible to remedy the evil."

Marion Harland (Mrs. Terhune) says: "You may pass a long, useful, and contented life without learning how to embroider a tidy. As American homes now are—and there is faint prospect of reconstruction of our domestic system—no American woman, however exalted or assured her social rank, or whatever may be her accomplishments, can afford to remain ignorant of practical housewifery. This is a rule without exception. Disregard of it is unwise and selfish."

BEGINNING HOUSEKEEPING.

No man or woman who has tried both, but will say that keeping house is much preferable to boarding. When you keep your own house you can have *what* you want to eat *when* you want it, which you can not always have when boarding, no matter how much you may pay. As a matter of econ-

omy, keeping house is much cheaper than boarding. In fact, enough may be saved in a year to pay for a good set of household furniture. There is money made in keeping boarders at three dollars per week. I have nothing to say against it. It is hard work, and those who make it deserve it, but a young married couple may save just half of this sum by keeping house and boarding themselves. Three dollars, or at least three dollars and a half, will pay for the food two persons eat in a week, and if it is properly selected and prepared, the meals will average much better than those you would get at a boarding-house where you each pay three dollars a week for meals. You will thus by housekeeping save over seventy-five dollars a year, which sum will go far towards furnishing a house comfortably.

You need not get much furniture at first. You can add more when by experience you discover what is needed the most. Better do without many articles than go in debt for them. It is a custom now in cities and large towns to sell furniture on the installment plan, so that a young man with a regular salary, although he have but a few dollars ahead, may begin housekeeping and apply a portion of each week's earnings toward paying for his outfit. He should be careful not to buy too much in this way, lest sickness or accident may stop his salary for a time and he thus become hopelessly in debt.

THE KITCHEN.

The kitchen should be a well-aired and well-lighted room, on the sunny side of the house if possible. If it has a hard wood floor, the boards closely joined, it is best without a carpet. The floor should be treated with an occasional coat of linseed oil. If this is done, grease spots may be washed up and not show. If the floor is made of soft wood or contains cracks, an oilcloth carpet should be put on it. This is easily kept clean and will last a long time. Strips of rag carpet or old woolen carpet may be laid where the cook may want to sit when paring potatoes or any work of the kind. They will be warmer and more comfortable to the feet, and can be taken out and shaken each day, and may be moved to any part of the room. Never put a rag or woolen carpet over the whole floor.

The walls should not be painted or papered, but simply whitewashed about once a year. If you build the house, do not have the woodwork in the kitchen painted, but oiled or varnished.

If the kitchen occupies an addition, or wing to the house, which is not as high as the rest of the building, see that a chimney be built so tall that its top is as high as any part of the house. Then you will not have a smoky flue. I have seen many kitchens in "shed rooms," and when the chimney is short, the stove is almost sure to smoke when the wind is in certain directions. Nothing is more

annoying or better calculated to disturb the peace and happiness of a home than a smoky flue.

In regard to the furniture of a kitchen, that will depend upon your means and upon the size of the family somewhat. A few articles well chosen and kept in perfect order will be of more value than many not kept in order. The ingenious housewife will be able to make many shifts, and substitute often one article for another. Kitchen furniture, however, does not cost much, and there are few families who can not afford to have most of the little conveniences belonging to a kitchen.

An ingenious husband may manufacture many articles and pieces of furniture. For example: A safe or cupboard may be made of a few boards. Let it consist of two upright boards with four or five boards of the same width for shelves. Place it close against the wall, which will answer for a back. For doors make curtains of cheap calico to run on a string or wire at the top. This will not, of course, be as good as a closed cupboard, but it is a hundred times better than none at all, and will answer until you are able to buy something better. A potato masher is a very convenient article. One may be whittled out of a stick of stove wood. A horseradish grater can be made by cutting an old tin fruit can in two lengthwise and punching a number of holes in it with a nail, laying it on a block of wood and striking the nail with a hammer.

A tight tin box in which bread and cake may be kept is a very great convenience. Any tinner can make one. It will be more convenient if it be

made of a height to fit a shelf in the cupboard and have a door at the side to let down rather than a lid at the top. Then it need not be pulled out of the cupboard to open it.

The following articles are not absolutely necessary, but are very convenient and do not cost very much: A slaw cutter, a lemon squeezer, gem pans, a meat broiler, an egg beater, a can opener, and a chopping knife.

Such articles as hominy, oatmeal, cracked wheat, etc., are most conveniently and best cooked in vessels with a double wall; that is, the article is put with a little water in a vessel and this vessel has surrounding it another vessel holding water. In this way the heat will never rise above the boiling point, no matter how great the fire, and hence, there will be no danger of burning the food. Now, there are vessels made with double walls for this purpose, but they are no better, nor more convenient, than one which can be improvised as follows: Get a small tin bucket which will go completely inside of a common iron pot or stew kettle of any kind. Put the article to be cooked in the tin kettle with a little water and put on the lid. Put water enough in the pot to come up a little more than half way on the tin bucket, and put a lid on the pot. If the pot be flat on the bottom a small pebble or two may be placed in the bottom to raise the bucket a little.

A "dish-rag" made of small metal chains may be had in the hardware stores. It is very convenient in cleaning the bottoms of kettles. A large

oyster or mussel shell is, however, much better than a knife for the same purpose.

Have plenty of good strong nails driven either into the wall or into the back of the closet if there be one, for the purpose of hanging utensils. Keep each one always in the same place when not in use. A good substitute for a kitchen closet is a very large dry goods box, placed on end in one corner. Nails may be driven in the inside of the back and sides to hang articles upon, and those which can not be hung up may be placed upon the top and bottom boards of the box.

Gasoline, or vapor, stoves do not cost much, are perfectly safe and reliable if properly managed (see chapter on "What to Do in Emergencies"), and where wood or coal is high, are much cheaper than coal or wood cooking stoves, especially in the summer, when a fire is not needed to warm the room. Those who once use them feel that they can not do without them. With them you burn no more fuel than is just necessary to cook the food, and in hot weather are not roasting yourself at the same time, besides, the amount of heat may be regulated perfectly. They are especially valuable in sickness, where hot water is needed on short notice.

A kitchen should be well ventilated. When articles which fill the room with an odor are cooked, the outside windows and doors should be opened as much as possible.

THE DINING-ROOM.

Although it is not essential that a separate room be set apart for a dining-room, it is a great convenience, and where the house is large enough, one room should be thus set apart. It need not be a large room, but it should be a pleasant one. It should adjoin the kitchen for convenience, but a tight-fitting door should be between the two, that the odor of cooking may be kept out as much as possible.

There need be but little furniture in a dining-room. A plain carpet, common chairs, and besides the dining table, a side table to receive dishes and food, and a stove or grate, are about all that are needed. In some cases a dining-room may be warmed by the same stove which warms the sitting-room.

Appropriate pictures on the wall and a few plants in the window would be pleasing to all. A bouquet of fresh flowers or a dish of cut flowers on the table add much to the pleasure of those whose finer tastes are cultivated.

Furnish a table according to your means, but, if possible, have dishes of good ware, and knives, forks and spoons of good material. Silver knives are, however, not advisable. If you are able, get heavy plated silver spoons and forks and the best steel knives. The best plated ware is really better than solid silver for it is stronger and does not cost so much, and no one can tell the difference until after many years of wear. Solid silver knives

would be too soft to keep an edge and no material upon which silver plating can be put would be hard enough for a knife. Broken and cracked dishes should never be put upon the table, if it can possibly be avoided. Better wear cheaper clothes or do without many other articles than to use old, yellow, grease-soaked and cracked or broken dishes.

Clean and whole dishes, bright knives and forks, and a clean tablecloth, will tend to make a man relish the plainest food, while, on the other hand, a dirty tablecloth, broken and stained dishes, rusty knives and forks will take away from the most expensive luxuries.

THE SITTING-ROOM.

As this is the room in which the inmates will spend most of their time when not engaged in taking care of the house, it should be the most comfortably furnished and warmed of any of the rooms. Do not try to have furniture in sets. Let the chairs be selected for ease and comfort and not merely for show. Let there be a big arm-chair and an easy rocker, or two or three of them of different styles and sizes, and a small sewing chair. A footstool is a luxury. One can easily be made out of a wooden box and some pieces of carpet.

The radiated heat and light from a grate or fireplace, when long continued, is injurious to the persons sitting in front of them. Headaches and pained eyes are often the result of sitting long before an open fire. Even stoves give out sufficient

radiated heat to cause unpleasant sensations. All of this may be remedied by the use of a fire screen. One may be made cheaply as follows: Make three long, narrow, light frames of wood. Hinge them together in an upright manner, and cover with red or brown canton flannel, satinne, cretonne or calico. Small brass hinges may be bought at the hardware stores for a few cents, and the cloth can be tacked on with the large brass-headed tacks to be had in furniture stores. The frames should be each about eighteen inches wide and high enough to come above the level of the head when a person is sitting in a chair. The parts may be hinged together so that the two outer ones will fold in toward the center one, or so that one will fold upon one side of the center part, and the other fold upon the other side. When the panels are placed so that they make small angles with each other, they will stand upright. When not in use, it may be folded up and placed in the corner of the room. A very pretty piece of furniture may be made out of this by painting the woodwork black and either painting flowers upon the cloth or embroidering upon it, or covering it with peacock feathers.

Many prefer a grate or fireplace to a stove for heating a sitting-room. The former are more cheerful and aid much in ventilating the room, by causing a constant current up the chimney. Yet they are more expensive than a stove, consuming much more fuel, and, if care is not taken, they may cause cold drafts of air from openings in the room, and persons sitting in such drafts may take cold.

Hard coal base-burners are much in use. They keep an even heat and if properly managed are unobjectionable. If allowed to get choked up with ashes and cinders, they may allow a very injurious and offensive gas to escape into the room.

THE PARLOR.

This is not an essential part of the house by any means. Thousands of people in this country live and are happy in houses where a kitchen, dining-room, sitting room, parlor and bed-room are combined in three, or even two rooms. But where means will allow, a handsomely adorned and furnished "best room," where company may be entertained and Sundays be spent, is certainly desirable.

It will be useless to advise concerning the furnishing of this room. If you have taste and means, you will furnish it without suggestions from books; if you have not, no book can help you.

It would be impossible to lay down any fixed rules, or suggestions that would aid one in selecting furniture for a parlor. Your own taste must govern your selections. You may be aided somewhat by observing the houses of persons of taste and culture. Persons, however, frequently make great blunders by attempting to imitate others who have greater means and more cultivated tastes.

The following hints about furnishing and decorating rooms are taken from the *Journal of Decorative Art*. They are so appropriate that I could not forbear quoting at length:

"The ideal beautiful home is attained rather by avoiding errors of taste than by the adoption of special dogmas of art. For my own part, if I have any dogmas to preach, they may fairly be condensed in this one rule: 'Avoid shams and affectations of all kinds.'

"Don't mistake mere prettiness for beauty. Millinery, for instance, is out of place in the home beautiful.

"Don't attach to your chairs and sofa-cushions meaningless bows of ribbon which tie nothing.

"Don't dress up your toilet-tables in muslin petticoats stiffened with crinoline or colored calico.

"Don't scatter startling white 'tidies' about chairs and sofas as on so many bushes, as if you were hanging out the wash to dry.

"Don't display on your walls china plates and dishes. They were never meant to go there. An exception may be made now and then in favor of a piece of fine color to help light up the room, or where a delicate china painting is worthy of careful examination. But hang up ordinary domestic china! Don't.

"Don't hang small pictures so that their beauty is lost to any one under eight feet high. If a picture is not seen from the same position that the artist saw it when he painted it, the drawing will appear foreshortened, and the general effect consequently falsified.

"Don't hang any picture in the home which has not the impress of elegance, purity and cheerfulness.

"Don't give place to representations of corpses, tortured saints or any thing occasioning painful emotions. And, above all, having such pictures and not wanting them down stairs, don't banish them to the nursery, school-room or bedroom.

"Some things I would relegate to the bedroom—out of the way somewhere—in locked drawers, for instance. I mean mementos of sea-weed and dried ferns for flowers and wretched daubs on china, canvas or paper in crude efforts of youthful members of the family. No true lover of the home beautiful will inflict these on his family and friends and compel them to violate truth by pretending to like them.

"Don't buy your carpet or your wall-paper because it looks pretty in the roll when you see it in the store. But think of the fitness of each, with its ultimate surroundings. Remember that the carpet is to be a background for your furniture, and the wall-paper, unless it is to be the actual decoration of the walls, is to be merely a background for your pictures.

"Don't admit into the home beautiful any piece of furniture or implement of every-day life which does not honestly serve its purpose—no light, flimsy chairs which an able-bodied man dare not sit upon; no puffy, debilitated sofas, all wind and springs; no burnished, brass-sheeted fire-irons, bought only to be looked at, and give place to the ugly little black poker and shovel when coal is to be broken or ashes are to be removed.

"There is no reason why an object should not be

useful as well as ornamental. Indeed, there can be no beauty without fitness. Nature everywhere teaches us the compatibility of the highest utility with the greatest beauty."

A parlor should not be shut up tight for six days and only opened on Sundays or when visitors are to be entertained. It should be opened and aired every day, whether used or not. In hot weather it may be kept dark during the heat of the day, but should be opened to the light and air in the morning for an hour or so at least.

BEDROOMS.

Much has been said elsewhere in this book concerning the hygiene of the sleeping apartment. I will repeat and emphasize the statement that a bedroom should be *well ventilated.* There should be free access for fresh air, but the bed should be so placed that a draft will not strike the sleepers. If possible all bedrooms should have chimney flues, even if no fire is ever built in the room. An open flue is one of the best and safest of ventilators. In damp weather a very little fire in a grate or fireplace, or even in a stove, will render the air of a room purer by creating a current up the flue which will carry out impure air. In all cases there should be a small opening in some other part of the room that fresh air may enter.

It is an excellent plan to have a fire in an adjoining room and keep the bedroom door open all night.

The windows of the bedroom should be thrown

open as soon as the sleepers leave it and be left open for an hour or more, to thoroughly air the room.

Bedrooms need not be large, if they are well ventilated. A room nine by ten feet is large enough, if it communicates with another room, or a hall by a door, or a transom over the door, which may be left open.

The whole floor of a bedroom need not be carpeted. A strip in front of the bed, or enough to cover the space between the bed and the door is sufficient.

TAKING CARE OF ROOMS.

There are two extremes in housekeeping. There are those who allow the dust and dirt of years to accumulate in all parts of the house, and there is an odor always to be observed by persons accustomed to clean surroundings, and in some cases the food may have a savor of something not to be bought at the grocery. There are a few who go to the other extreme and spend their lives in scouring and dusting and scrubbing, and wear themselves out trying to keep everything perfectly clean and in order. This is the least objectionable of the two extremes. The humorist, Josh Billings, thus characterizes the extremely neat person: "If you should shut one of these people up in a hogshead, she would keep busy scouring all the time, and would clean a hole right through the side of the hogshead in less than three months."

Rooms not used much do not need to be swept and dusted every day. Carpets are worn more by

too frequent sweeping than by the dust, and the dust raised by sweeping is worse than what would rise by the ordinary use of the room. When sweeping is done it should be thorough. A good sweeping, getting well into all the corners, every alternate day, is better than a partial sweeping every day.

A good carpet should be swept with a damp broom. Dip the broom in a pail of clean water and strike the upper part of it against a solid object as the edge of the door-step or the porch floor, to knock off the surplus water. After using the broom a few minutes rinse it thoroughly in a pail of water and proceed as before. A great deal of the fine dust will adhere to the broom and be washed off instead of rising in the air to penetrate the lungs and settle on the furniture. Spent tea leaves, or bits of wet paper scattered over the carpet and then swept up will assist greatly in catching the dust. A cloth of some kind should be thrown over the center-table or shelves which contain trinkets which would readily catch the dust from sweeping. A feather or wool duster is convenient for dusting the furniture, but not essential. An old calico rag will answer.

"HOUSE-CLEANING."

Let none of my readers take offense when I say that many women act very foolishly in the matter of house-cleaning. They have an idea that at periodical times, say twice a year, they must fall to work and tear the whole house upside down and rearrange everything, and scour and scrub as though their lives depended upon it, and that all

this must be done as quickly as possible. Many a woman has contracted the cause of her death, or a lifelong disease, in her frantic efforts to clean house.

Now, I believe in house-cleaning, but I object to the methods and the hurry exhibited by some people. Take one room at a time and take your time for that. Do not rush things. Do not worry over the work. I am not speaking to those who can well afford to hire some stout persons to do the work, but to those who are obliged to do such work themselves.

Rooms with the woodwork varnished or finished with a hard oil finish are more easily kept clean. A damp cloth will easily remove fly-specks and smoke from a varnished or oiled surface. Sal soda, potash, or strong soap will be needed to clean painted woodwork, and then repeated washings will remove the paint as well as the dirt. In building a house this is a point worthy of consideration.

REGULAR TIMES FOR HOUSEWORK.

The systematic worker accomplishes the most with the least effort. A woman may be systematic in her household duties. The heavy work should be done in the forenoon. A woman ought to have at least two hours in the afternoon which she can devote to whatever she may feel like doing, let it be calling, shopping, reading or entertaining company. The cleaning and arranging of the house for the day should be done, and the principal part of the preparation of the meals, should be made before this time.

It is true that so multifarious are the duties of a housekeeper that it is difficult to have a perfectly regular system, yet the more nearly systematic the work is carried on, the easier it is for the parties concerned.

Says Jennie June: "Regularity is the pivot upon which all household management turns; where there is a lack of system, there is a lack of comfort that no amount of individual effort can supply. Forethought also is necessary, so that the work may be all arranged beforehand, done in its proper order and at the right time."

WHAT IS DIRT?

Anything which is offensive to the senses is dirt. Anything out of its proper place is dirt. The soil of the garden and the gravel of the street are not dirt in those situations, but they would be dirt on the floor of a house. Dust almost constantly on furniture may be unavoidable in some situations, as when the house is very close to a dusty street; but, as a general thing, to see dust thick enough to write your name in is an evidence of careless housekeeping. A whisk of a duster once a day or sometimes once in two days will keep furniture clean.

Some persons would regard books and papers on the floor, or carelessly strewn over a table, as dirt. If this be dirt it is, to say the least, a very pardonable kind. Persons who make but little use of books and papers usually keep them neatly arranged.

SUGGESTIONS TO THOSE ABOUT TO BUILD A HOUSE.

Persons contemplating building a house usually have their own notions about it. It is a subject which is frequently thought about and discussed by those who expect to build, and yet there are few things in which people make more blunders than in building a house. It is a question, too, which one does not like to give advice concerning. It would be much easier to advise were money not a factor in the problem. I have here laid down a few hints which may prove useful to those concerned.

Up-stairs and Down-stairs.—Many people prefer a house of two or more stories because they think the up-stairs room is more healthful as a sleeping apartment. There is, in fact, nothing in this. An up-stairs room may be as unhealthful as a down-stairs room, and more so. Bad air is usually lighter than pure air and of course rises. The lightness of the air, however, depends upon its temperature, which frequently varies. If the surroundings of the house are good, if no decaying matter is left, if no sewers open or leak in the neighborhood, if there be no stagnant pools near, if water-closets are in good condition, if proper ventilation is made, the air will be as pure, taking it one day with another, in a down-stairs room as in an up-stairs room.

To persons then, with limited means, I would say, build a one-story house, or at least one of a story and a half. An up-stairs room, if it be only

half height at the sides, is convenient frequently as a store room, or for a spare room to be used only occasionally, but upper stories are by no means essential, and a great deal of labor may be saved by having the rooms most frequently used on the ground floor. Going up and down stairs is very hard work, and many women are not physically capable of much climbing of stairs. Many diseases of the womb, miscarriages, etc., might be traced to the violent efforts made in going up and down stairs.

In the cities upper apartments are in many cases absolute necessities. My suggestions are intended mainly for those who live in the country and small towns and villages. Elevators, of course, overcome some of the objections to upper rooms, but these are found only in very large buildings.

A basement room, that is, one partly under ground, is objectionable except for mere storage purposes. Such rooms are apt to be damp in spite of all precautions.

Porches and Verandas.—These contribute much to the comfort of a home. A veranda makes a house warmer in winter and cooler in summer. The little additional expense they require will be amply compensated in the saving of fuel and of carpets, and in the increased comfort to the inmates.

A Bath-Room.—Not an essential room, as a bath may be taken anywhere, but a very convenient one. It need not be larger than six by eight feet square. Any one can make a bath-tub. Make a strong box

of one and a half inch plank, about four feet long, two feet wide and two feet deep, and get a tinsmith to line it with zinc or galvanized iron. Make a hole at one end and put in a spout to extend outside of the house, to carry away the waste water. The bath-room may be warmed by having the pipe from the kitchen stove or a stove in some adjoining room pass through a drum in the bath-room. A small sheet iron stove which will get hot quickly will perhaps be more satisfactory.

A Clothes-Room.—Where there are large families this is a very convenient room. Instead of several wardrobes or closets, a single small room might be devoted to the storing of clothes. It might contain bureaus or chests, for the clothes which are kept folded, and plenty of hooks or hangers for those which may be hung up. Extra bedclothes, pillows, mattresses and everything of the kind might be kept here. There need be no carpet and the room need not even be plastered, a plain ceiling of wood being sufficient. The trunks and valises of members of the family could also be kept here. It should, however, never be used for storage of perishable articles, as fruits and vegetables. If some small pieces of gum camphor be wrapped in paper and laid in several places in the room, moths would never appear in the clothes. As the camphor evaporates soon, it should be renewed about once a month.

The Pantry.—A small room adjoining the kitchen for the storage of many articles and for keeping flour and meal, etc., is considered by many to be

almost indispensable. The extra expense of such a room is but little. It will spare the necessity of making the kitchen so large. This room should be well plastered and made proof against rats and mice, if possible, and should be kept scrupulously clean. If flour and meal, bread crumbs and other eatables be allowed to remain on the floor, mice will be attracted and it will be a difficult matter to keep them out.

A Dumb Waiter.—In building a house, if you have a cellar under the kitchen you may save much future labor by having a dumb waiter constructed, and the extra expense is but little. A hollow case the whole length along the wall is needed, and a framework with from one to three shelves should be made to slide easily up and down in it by means of cords passed over pulleys and balanced by weights. Any articles can be carried up and down, wood, coal, vegetables, etc.

ECONOMY NOT STINGINESS.

Many persons have an idea that strict ecomomy and stinginess or penuriousness are one and the same. There could not be a greater error. Economy is a virtue and one of the highest kind. The example is set for us by nature herself. Nature never wastes material. A part of the body which is no longer of any use is absorbed, and the material that would otherwise go to supply it is reserved for those parts which are of use. It is wrong to waste anything when it can be avoided. Economy is not selfishness. It is liberality, for one can not

have anything to give away unless he saves something more than he uses. Stinginess is selfishness. It is meanness; it is low. It is not becoming a man nor a christian. "As ye have freely received, freely give." The lesson of economy was taught by the Great Teacher when he ordered his disciples to gather up the fragments after feeding the five thousand.

If there were more persons constantly practicing domestic economy, or economy in their own affairs, there would be less need of the newspapers and politicians talking about political economy. What matters it how high the tariff is, or how low, if Mr. Jones constantly spends more than he makes. His family is going to suffer whatever becomes of the government.

If my readers will admit that economy is simply saving that which would otherwise be lost, that a dollar saved is the same as a dollar earned, and that stinginess is the refusal to aid others when we can aid them without making ourselves suffer, I need not argue further for the practice of the one and the discontinuance of the other.

Extravagance is not exactly wastefulness, but it is just as bad. The wasteful person destroys or allows the destruction of that which is useful. The extravagant person buys that which is not needed, or that which can not be paid for. Both will inevitably lead to poverty.

Economy should be taught in our schools, not as a special branch, but incidental to all branches and by general hints and examples. Parents should

teach children to be economical. They should teach them that it is wrong to waste anything which can be used. It is too frequently the case that poverty is the only teacher of economy. People are often compelled to be economical by poverty, and habits of economy thus acquired usually remain after the persons become wealthy. But their children too often become extravagant and wasteful and are reduced to poverty. Their children again learn the lesson of economy and become wealthy, or at least well-to-do, and thus it goes, up and down, one generation piling up wealth and the next scattering it. This ought not to be and would not be were economy taught as a virtue and wastefulness and extravagance condemned as vices. Were all persons economical there would be fewer of the extremely rich and few that could be called poor. There would be a greater number of that class who have neither poverty nor riches, the most blessed of all people under the sun. There would be fewer extremely rich, because in a great measure the extravagance of one class puts money in the pockets of another class.

The main reason for there being so many poor people in this country is the want of economy. This is a wealthy country. There is an immense amount of food produced annually. The stock of manufactured articles is great. The power of steam to produce is almost unlimited. The national treasury is overflowing with money. Notwithstanding the statements of politicians and the cries of hard times which we so frequently hear, it is a

fact that wages are good and that labor is well paid. Why then the strikes among workingmen, the riots, and the poverty? The answer is easy. If you investigate you will find that the workingmen who strike are almost to a man reckless and extravagant. They spend money in the saloons and for tobacco which ought to go for the necessities and the luxuries of the home. If they have a day off from their work, instead of spending it fixing things in the home, they spend it along with more money than they would earn in a day, in some saloon. In many cases the wives of these men are shiftless and wasteful in the home.

The man who earns a dollar a day and lives on ninety cents a day will be able in the course of ten years to buy a comfortable home. On the other hand the man who spends ten cents more each day than he earns will soon be hopelessly involved in debt or be an inmate of the poor house.

"Is it possible," says Samuel Smiles, "for a man working for small wages to save anything and lay it by in a savings bank, when he requires every penny for the maintenance of his family? But the fact remains, that it *is* done by many industrious and sober men; that they do deny themselves and put their spare earnings into savings banks and the other receptacles provided for poor men's savings. And if some can do this all may do it under similar circumstances, without depriving themselves of any genuine pleasure or any real enjoyment."

SOME HINTS ON ECONOMIZING IN THE HOME.

The following suggestions are made at random. Some may seem unnecessary to many persons, but it must be remembered that they are intended for all readers, and what does not hit you may hit some one else.

If you will have a little patience and will wait until articles such as fish, fruits, poultry and vegetables are in full season before you purchase you will not only save money, but get goods of better quality and finer flavor. If you do buy of the earliest samples that come into market, buy very sparingly—just a taste, to give variety. A story is told of Washington somewhat as follows: In February a fine shad was caught in the Delaware, and the President's steward finding it in the market bought it. When it came into the dining-room Washington inquired, "What fish is that?" "A shad," replied the steward; "a very fine shad. I knew your excellency was extravagantly fond of fish, and was so fortunate as to procure this one in the market; a solitary one, sir, and the first of the season." "The price, sir; the price?" demanded Washington sternly. "Three dollars," said the steward. "Take it away," said Washington. "It shall never be said that my table sets such an example of luxury and extravagance."

Save all fragments of meat, bread, fruit and vegetables which may be left at a meal, and contrive some way to work them up into a palatable form for the next meal or the next day. Some articles

are the better for being warmed over; others again are not good unless worked over, or treated in a different manner. There are some few articles which can not be worked over and be made palatable nor wholesome. Potatoes belong to this list. In such cases one should be careful to cook no more than will be eaten at one meal. Rather cook less than would be eaten, and make up for the small quantity by having more of some other articles. Beans are better for being warmed over. Meats need not be thrown away if left over. Notwithstanding the ridicule that is often cast upon boarding-house hash, there is nothing better than hash, properly made, occasionally for breakfast, especially in the winter. Chop the meat fine, add potatoes chopped fine, an onion, a little butter and water. Let boil from twenty minutes to half an hour, season with salt and black pepper. Beef or pork which has been roasted, boiled, broiled or fried may be used. Chicken and turkey make excellent hash. You may omit the potatoes and onions, adding only water and a very little butter; no butter if the fowls be fat. The gravy left over may be added. Bread that gets too dry may be steamed or toasted. None should be thrown away.

Calculate closely and cook not very much more than will be eaten. Some women seem to have no judgment in such cases. The slop-pail will be found running over with cold potatoes, biscuits, pancakes or with whatever may have been the last meal. It looks like a little thing to throw away a biscuit or a slice of bread, but if you do it every

day for a year and then count up the cost of the flour thus wasted, you will be astonished. Many women throw away from day to day in the shape of food what would make them independently rich in forty years.

There are many kinds of food that afford a great deal of nourishment at a low price, yet one could not well live on these alone, for the system demands variety. Luxuries are not necessarily those articles which cost the most money. Take the most costly food and live on it for weeks together and it becomes unpalatable. Many times have men, on a wager, tried to eat one quail every day for thirty days and failed. At last it has been accomplished, if the newspapers are to be relied upon. But this is a rare exception. Corn bread is a luxury when you have not eaten it for several months. Beans are a luxury when eaten only occasionally, and so with many of the cheaper articles of food. At least this is true with a large number of people in this country. What then is the lesson of economy? Buy the expensive foods only occasionally, to afford a variety with the cheaper articles. Say you eat Indian corn meal once a week, varying each time the mode of preparation until you have gone the round of all the different ways in which it may be prepared. Suppose you have corn bread one meal this week, corn pancakes one meal next week, cornmeal mush and milk the next week, fried mush the next, and so on. In the same way alternate, bean soup, boiled beans and baked beans with rice, hominy, potatoes, cabbage, etc., using

always the cheaper articles the most frequently, and preparing them in as many different ways as possible. Meats are usually expensive, and most people, especially those who do not do manual labor, eat more meat than they ought to. Meat ought not to be eaten more than twice a day by persons who do no manual labor, and for many persons once a day is sufficient.

When one eats coarse and common food most of the time the finer articles taste the better when one gets them. When you purchase an expensive article of food ask yourself whether you have earned the right to enjoy it by having eaten cheaper food for some time.

One should be thankful for good health and a good appetite rather than long for luxuries, for without health and appetite the most tempting viands are distasteful. Hunger is the best sauce, is an old proverb, and there is much truth in it. Of course, no one wants to live on cornmeal and beans exclusively, although they do contain all the elements the system demands and are very palatable when properly prepared. Yet if more of these articles were eaten instead of so much rich food, the world would be the better for it.

In the way of food nothing is more economical, and at the same time more desirable than soups of various kinds. The French people excel in making soups and are the most economical people in the world, especially in the line of cooking. It does not require any particular skill to make good soup

out of very cheap articles. A few directions, if followed, will secure success:

The cheapest parts of the animal are the best for soup and only a small quantity of meat is needed to make a large quantity of nutritious and palatable soup. The shank or leg of the beef, the neck, the tail, even the parts often thrown away by the butcher, as the shin bone, that is, the part just above the foot, may be used. Pieces of meat and bones left from another meal may be added. Different kinds of meat may be used at the same time, and the soup be the better for it. The meats for soup should be put in cold water and allowed gradually to come to the boil and then kept boiling without interruption until the meat is tender and loose from the bones. When the water gets low add hot water so as not to stop the boiling.

The great secret of making good soup lies in getting a combination of many flavors and not enough of one kind to give it a distinctive flavor. With beef as a basis, the following may be added, not much of each, just a little: Potatoes, cabbage, turnips, tomatoes, rice, vermicelli, onions, black pepper, red pepper, cloves, salt and vinegar. Of the spices and vinegar but a very little should be added and not until about ready to serve. The others may be put in after the beef has boiled half an hour. Oatmeal, rice, pearled barley, vermicelli, macaroni, milk and eggs may be added to any meat soup with good results.

Soups to be fine and suitable for any palate should have no fat, or at least very little. Skim off

the fat as it rises before the vegetables are added. This fat may be used for frying meats, potatoes, etc. Add salt sparingly at first, more can easily be added, if desired, when served. Soup ought to be served as often at least as once a week the year round.

Much may be saved by persons who own or rent a small tract of ground by raising their own garden stuff. If you have but a piece of ground three feet by six you can at least have a bed of lettuce or onions. Use every foot of ground not actually needed for buildings, walks and fences. The same ground may be made to produce more than one crop the same season. Lettuce, radishes and early potatoes may be removed in time to raise a second crop of the same, or a crop of turnips. The soil of a garden can not well be made too rich. Gather up the leaves that fall from the shade and fruit trees in the fall and spread them on the garden to be spaded under in the spring. Scatter all wood ashes on the garden, unless there be a very large quantity in comparison with the size of the garden. The ground should be spaded very deep and be made very fine.

Some further hints about economizing in regard to food have been given in the chapter on foods and drinks, which see.

Save all rags and bits of paper, old carpets, old iron, copper and zinc and old rubber shoes to sell to the parties who buy up such articles. Even bones are bought up in some localities. Burn old leather shoes and boots. They make excellent fuel. Bones

make good fuel. Burn them in the stove if you can't sell them.

Chickens and pigs are easily raised in the country and sometimes in villages. Much may be saved by thus raising a good part of your own meat.

Study economy in the use of fuel. A large stove is more economical than a small one. A small stove requires constant replenishing, the draft being concentrated the fuel burns out more rapidly; and there being less surface to radiate heat it does not warm the air of the room so well as a large one. Put in plenty of fuel, and when it gets a good start close the dampers and let it burn slowly.

In a kitchen stove keep the dampers closed except when starting the fire. Put water on to heat as soon as the fire is started that it may get the benefit of all the heat produced. Have articles to be cooked ready to put on as soon as the fire gets under headway. Where a pot is to be kept boiling add fuel frequently, but little at a time.

Gasoline, or vapor stoves, have been mentioned elsewhere as more economical for cooking purposes than wood or coal stoves. Keep your can of gasoline well stopped or you will lose much of it by evaporation. Do not turn the flame high. A pot may be kept boiling after it has begun, with a very low flame. Care should be taken to avoid a current of air against a gasoline stove, as the flame may be blown out and then the oil will soon escape in great quantity. In case such an accident happens, wipe up the oil with cloths and carry these cloths and deposit them some distance from the

house. Bring no light or fire into the room until it has been thoroughly aired. The gasoline evaporates rapidly and leaves no grease spot. The only thing to avoid is setting the vapor of it on fire.

Remember that water can be made no hotter than the boiling point unless confined tightly in a strong vessel. It is therefore useless to try to hurry the cooking of any article so long as it is boiling.

Be economical of time, since time is money. Work systematically. Have stated times for certain kinds of work. Prepare fuel, kindlings, etc., the night before, for use early in the morning. On wash days, or when you have some particular work, have for the table that which requires but little preparation, or prepare something the day before. Have a place for everything and keep things in their places. Then no time need be lost in searching for articles when needed. This advice is easier to give than to take. It requires some thought to keep things in order.

Keep a strict account of all expenditures. Nothing is more conducive to economy or preventive of extravagance. The little sums expended every day soon amount to large ones, and a contemplation of these will check any tendency to extravagant outlay.

Chapter XVII.

WOMAN'S WORK AND WORTH.

What can a woman do? is a question frequently asked. I might answer the question in a word by saying that she can do almost anything a man can do and some things which he can not do.

If any one wishes to know what the women of the United States *are* doing at the present time let him consult the Report of the 10th U. S. Census. According to this report there are 594,510 women engaged in agricultural pursuits. This includes bee-keeping, dairy business, stock raising and turpentine producing. There are 1,361,295 women engaged in professional and personal services. This includes a great variety of occupations, among which may be mentioned the following, with the number in each: Actors, 1,820; auctioneers, 3; preachers, 165; lawyers, 75; physicians and surgeons, 2,432; journalists, 288; artists and teachers of art, 2,061; dentists, 61; janitors, 699; midwives, 2,118; nurses, 12,294; hotel-keepers, 2,136; laundresses, 108,198; authors and lecturers, 320; teachers and scientific persons, 154,375; sextons, 14. In trade and transportation there are 59,364 women engaged. This also includes a great variety of employments. Among what might be considered peculiar occupations for women are the following: Bankers and brokers of money and stocks,

68; shippers and freighters, 6; traders and dealers in coal and wood, 90; traders and dealers in real estate, 39; undertakers, 55; traders and dealers in live stock, 14. There are 631,988 women engaged in manufacturing and mining, and nearly every branch of manufacturing industry is represented by women as employers or employees.

The whole number of different occupations engaged in by men and women is given as 265. Of this number only 47 are followed exclusively by men. The total number of persons employed is 14,744,942, of which number 2,647,157 are women and girls. As there are about the same number of women as men in the country, this shows that a large number of women are engaged in household duties or are unemployed.

While woman's especial talent lies in the line of duties connected more immediately with the home, yet she is not excluded, as the above statistics show, from the varied occupations by which a majority of men earn a living. It is not a proper place here to discuss what is generally called "woman's rights." I believe a woman has a perfectly natural right to do whatever nature has made her capable of doing, provided it is right in itself. Why should she not have? That is a difficult question to answer.

The majority of women, however, desire to be, and are, somewhat dependent upon men. By dependent I mean that they expect to leave certain duties and privileges which have no immediate connection with the home to the exclusive management

of men. On the other hand, men are just as dependent on women. They expect certain duties pertaining more immediately to the home to be managed mainly by women.

As time advances woman appears to be taking a higher place in the world's history. She is showing more and more her ability to do what man can do. But let the progress be what it will there will always be a plainly drawn line between the physical and mental qualities of the sexes, and their habits and occupations will necessarily be somewhat different. There will be perfect equality, but not perfect similarity.

There should be more similarity than there is at present. Men ought to take more interest in the affairs of the home, and women ought to take more interest in the affairs of state and of business. A business education for women is demanded almost as much as for men. How many women are there who do not know the value of money and the simplest business principles. A knowledge of political matters will not degrade women, yet she can well afford to leave the managing of the political machine mainly to men, and devote more time to social, educational and domestic affairs.

There is always a large number of women who are by the force of circumstances compelled to make their own living. I do not mean by this that married women do not earn their living. Their husbands work away from home and earn the money, but the wives work in the home and earn all they get, although in an indirect manner. But I

refer to that class who have no men to keep house for, and are compelled to work for wages or to carry on some business for a livelihood. It is to this class I address myself, and wish to call their attention to some of the available occupations suitable for and now open for women.

First, it may be well to observe that each occupation has something in it which, if proper precautions are not taken, is detrimental to health. There is danger of exposure to inclemencies of the weather, to evils of confinement to rooms, of excessive use of certain sets of muscles to the neglect of others, etc. All of these evils may be avoided or counteracted if proper care is taken. As we go along, I shall call attention to some of these dangers.

THE PROFESSION OF TEACHING.

Women are mentally, naturally better fitted for teachers then men. They are better judges of human nature. They naturally take more interest in children, hence are peculiarly well adapted to teach primary schools. But unless the greatest caution is taken women are liable to injure their health by closely following this profession.

Some of the dangers to health to which the woman teacher is exposed are as follows:

Exposure to great variations in temperature.— School-rooms get too warm, the air gets too dry and ventilation is often bad. Study to counteract all this. Keep a thermometer in your school-room and never allow the heat to get above seventy degrees nor below sixty. Keep a clean vessel of

pure water on the stove constantly. See that no openings are made which would cause a draft to strike the person. Give boards of education no rest until your school-room is properly ventilated and so arranged that it can be comfortably and evenly warmed. Provide good warm clothes to wear in going to and from the school. Keep the feet warm and dry by proper clothing. Walk briskly going to and from school, but arrange your boarding place so that you will not have to walk more than half a mile. When the weather is extremely cold, wear a veil over the face when out of doors.

Standing on the feet too long at a time.—This can be avoided. Do not forget and remain on your feet until you are tired enough to drop. Sit down for a short time before you get tired standing. Do not sit too long either. Change your position frequently.

Want of sufficient physical exercise.—Read what I have said in another part of this book about gymnastics for women. Take plenty of exercise but let it be very gentle.

Worrying over the management of the pupils, over the treatment received from parents, over the matter and methods of teaching. Don't do it. Do the best you can while in the school-room. Plan all you want to outside of the school-room. Read on methods and management. Try experiments. Adopt plans of others. Do anything and everything to make a good teacher of yourself, but *don't worry about it.* If you have done your best and

don't succeed as a teacher, quit the business and seek some other employment. There are a great many occupations open for you, as I have said before. Worry will kill you as sure as you keep it up. Don't worry.

Remember, too, that the profession of teaching is a crowded one. There is room enough for good teachers, but no room for poor ones.

WOMEN AS PHYSICIANS.

Here is a great field for woman's work. Only a few years ago it was thought to be an awful thing for a woman to practice medicine. Now there are thousands of female practitioners, and some of the most eminent physicians of the country at present are women. Dr. Mary Putnam Jacobi, of New York, has an immense practice and stands among the leaders in the profession in that city. She is a graduate of the "School of Medicine" of Paris, France, and is now a professor in the medical college founded by Elizabeth Blackwell, M. D. The last named lady is also one of the leaders of the profession. She is noted as the first woman that ever obtained a medical diploma in America. Her sister, Dr. Emily Blackwell, is also a prominent physician.

The history of the progress of women in this profession is an interesting one. With a few rare exceptions women were not recognized by medical colleges until within the last quarter of a century. As early as 1799 Mara Zega was a famous doctor of medicine in Europe. The great universities of

Europe graduated during the last century a few women who excelled as surgeons. In 1849 Dr. Elizabeth Blackwell graduated from a medical college in New York state, and afterwards gained admission into the great hospitals in London and Paris. In 1870 the Vienna University admitted women to the medical degree, and in 1873 a woman took the prize in operative surgery. In 1870 the government of Holland ordered the colleges to admit women. In 1873 Russia admitted women to all medical schools. In 1876 the fifteen universities of Italy were thrown open to women. In 1875 the College of Physicians and Surgeons, Toronto, Canada, gave its first diploma to a lady. In 1876 the College of Physicians of Dublin admitted women to its halls. In 1877 the London University did the same. At present there are one hundred and three lady students in the Paris schools of medicine. There are several medical colleges especially for women in the United States, and a large number of colleges admit both sexes on equal footing. In all of our large cities there are prominent lady physicians. In some cases both husband and wife are doing each a large practice.

There will be for many years, at least, to come, a great demand for lady physicians. Many people prefer them to men, and where there is but one lady physician in a small place she will not fail of securing a good practice. The medical profession is not crowded with women. Many a lady who may not be adapted to succeed as a teacher may succeed as a physician.

From statistics it is shown that the average income of lady physicians is one thousand dollars a year. Some few realize as high as eight or ten thousand. From circulars sent out to women physicians by Dr. Emily Pope, it was shown that of the number who had practiced from five to ten years over two-thirds of them had good health and one-third of them had improved in health.

A woman to be successful as a physician must have certain mental and physical qualities. She must have a fair share of patience, must have firmness of will and physical courage that will enable her to control her feelings and not be overcome at sight of suffering or of severe injuries. Above all, she must have a love of the work, without which no one can succeed in any profession. Dr. Alice Stockham has expressed the qualities of a woman physician admirably as follows:

"To be a successful physician a woman must be a lady—a womanly woman. No aping of masculine habits, of dress or foibles will conduce to success. She must have an affinity for the work, feel at home in the sick room, with a desire and a tact to relieve the suffering, devoid of any morbid sensibility at sight of pain, offensive deformities and ghastly injuries and operations; she must be born to command, firm in purpose and quick to execute, at the same time have dignity and self-control. Nothing must escape her observation. She must be able to reason from cause to effect, strong in convictions, but slow to give an opinion.

She needs a love for scientific research, and the ability to apply herself to study."

It is scarcely necessary to advise a lady physician in regard to taking care of her health. A physician is supposed to know more about such matters than other people. I will simply say that there are dangers to health in the prosecution of this profession, but they are no greater on an average than in that of other professions and trades, and close by cautioning those who expect to enter this profession in regard to the care of their health. Go into it with the determination not only to fight your way to success, but with a determination to protect yourself from the dangers imminent to the profession and to counteract the results of a close application to your calling.

WOMEN AS LAWYERS.

The number of women practicing law in the United States is small compared with those in some other professions, yet seventy-five is a goodly number when we consider the nature of that profession and the esteem in which women have been held by law-makers. Six ladies have been admitted to practice in the United States Circuit Court. Of these Mrs. Belva Lockwood, who, in 1884, was candidate for president, stands at the head in legal ability. Among the popular institutions in which ladies may obtain a legal education are the university at Ann Harbor, Michigan, and the Boston University Law School.

If a young lady thinks she would like the pro-

fession of law and has the ability, I see no reason why she should not prepare herself for and follow it. There is room enough for good lawyers. The poor ones are rather numerous. It takes a good while for a lawyer to get established and get into a position to make money. Unless you have especial ability and a particular liking for law and have the patience to wait for a reputation, I would advise you not to think of becoming a lawyer. There are many other occupations more suitable to the majority of women.

WOMEN AS PREACHERS.

The statistics show that there are more than twice as many women in the ministry than there are in the law. I would not urge upon women to become preachers. It is a noble profession, it is true, but public speaking, it seems to me, is generally better suited to men than to women. There are few women who can speak in public, so as to be heard easily by a large audience. There are, it is true, many lady elocutionists and public readers, but the art of speaking and reading for an audience is largely a natural gift rather than an acquired power, and where you find one who has this power the chances are that she has not the mental ability which a preacher ought to have. To write a sermon is one thing and to deliver it properly is an entirely different thing. Preachers should be highly educated, should have great intellectual power and have at the same time reasonably good delivery. There are a great many occupations

more suitable to the female than preaching. It is not a lucrative profession, and if a young woman does not feel that she has a "special call" to enter the ministry she had better not think of it.

WOMEN AS DENTISTS.

The number of dentists among women in the United States is reported as sixty-one. There is no more profitable profession and none better suited to a large class of women than dentistry. "The first lady dentist ever graduated in this country was sent out from a Cincinnati dental college, and during the war this lady returned the largest income of any dentist west of the Mississippi."

Among the leaders in this profession is Mrs. Elizabeth Morey, of New York City. She gained a knowledge of the practice from her husband. She is the inventor of the skeleton tooth. It is a contrivance designed to correct the deformity known as pin-tooth, a tooth much smaller than the others, detracting from the appearance. It consists of an artificial tooth of the right size made to fit over the small tooth. Mrs. Morey says: "In my opinion women are better fitted than men to make good dentists. The latter use too much force and often crush a tooth or injure the jaw in taking one out. When I am obliged to pull a tooth I take it out whole. Men are, perhaps, better adapted for the inventive and mechanical parts than women."

Almost every dentist's office has a lady attendant whose business it is to aid the dentist, handing

him tools, napkins, water, etc., to receive customers, to hold a nervous lady's head, to soothe a frightened child, and attend to such like duties.

A dentist should have almost the same mental qualifications as a physician. No nervous, excitable, timid woman would ever succeed as a dentist. A strong effort of the will can in many cases overcome timidity and nervousness.

There is nothing particularly deleterious to health in the work of a dentist for a woman any more than for a man. Overwork and close confinement to the room will of course have its bad effect, but they may be easily avoided.

WOMEN AS PROFESSIONAL NURSES.

There is at present a demand for trained lady nurses. Says Mrs. Rayne: "There could be no better profession for the development of all the finest and most womanly qualities, or one in which the laborer is more worthy of his hire." In another part of this book I have given some instructions in regard to nursing the sick which every one ought to know, but to be in the highest degree successful as a nurse one needs to know many things which could not be detailed in a work like this, and above all needs an experience with the sick.

There was established in 1873 what is known as the Bellevue Training School for Nurses in connection with the famous Bellevue Hospital of New York. Here women are instructed in regard to taking accurate observations and reports of symptoms for the physician's use, such as state of pulse, temper-

ature, appetite, breathing, sleeping, delirium, effects of medicines, diet, etc. The ladies, after going through a certain period of training, are sent out with diplomas, which enable them to obtain positions in hospitals, asylums and in the homes of the wealthier class who can afford to hire such trained nurses.

Graduates of this school have been called to be superintendents of more than a dozen large hospitals throughout the United States, and many are employed in the large cities as professional nurses.

The demand for such trained women is increasing every day. Many surgeons will refuse to perform an important operation unless assured that a trained nurse is to have charge of the patient. Many wealthy people who formerly had a prejudice against professional nurses now employ them. The reason of this prejudice lies in the fact that formerly nearly all of those who hired out as professional nurses were ignorant of their duties and were not to be trusted.

I will say to young ladies, if you wish to devote your lives to usefulness, attend a training school for nurses and prepare yourself for this profession, one of the noblest in existence, rather than go as a missionary to heathen lands.

Resolve to be a good nurse, or none at all. Don't be a Sairy Gamp. If you do not have the qualities of a nurse mentioned in the chapter on nursing the sick, do not enter this profession.

Nursing ought not to be a hard life. It ought not to be a dangerous one. Take care of your own

health. Protect yourself from the weather, take plenty of exercise when off duty, be temperate in eating, keep yourself scrupulously clean and neat, sympathize with your patients, but don't worry over them.

WOMEN AS TELEGRAPH OPERATORS.

There are a great many women employed in telegraph offices, and at present the supply of operators seems to be greater than the demand. I can hardly advise a young lady to learn telegraphy. While there are many parts of the work to which women are especially well adapted, there are also serious drawbacks. Male operators get much higher wages on an average than female, and the alleged reason is that the men are liable to be called upon to work at any hour, day or night, and at times to do extra work which would greatly tax the power of endurance of a woman. Telegraph companies say that women, as a general rule, are oftener absent from their duties, although they are usually more frequently punctual to time when they are present.

Many women prefer the work in a telegraph office to that of clerking in a store because they are not obliged to stand up so much of the time, and to the work in factories because their clothes are not soiled and worn so much, and to doing housework, because the latter has more the air of servitude. These facts will perhaps explain why there are so many women applicants for positions as telegraph operators.

WOMEN AS CANVASSERS.

There are several branches of this business which are especially well suited for women. Among the most important of these is canvassing for books. Do not smile as you read this, for while it is true that book agents are sometimes looked down upon and made sport of, it is nevertheless a perfectly legitimate and honorable business. Some of the best women in the land are among the number, and some are known to make as much as two thousand dollars a year at the business.

Some of the best books published are sold entirely by agents. The agent has a right to demand a market for her book as much as the milliner has for her goods; and if she acts the lady in every case no persons with any respect for themselves will treat her with disrespect. The qualifications for a successful book agent are so many and various that I can not enumerate them all here. She should have a quiet, lady-like manner, should have some knowledge of human nature, and should have a determination to succeed in spite of temporary disappointments. She should endeavor to make a good impression upon all she meets whether she makes a sale or not. She needs tact rather than talent. Much may be learned by a little experience in the work. Let her try different plans of approaching people and study carefully the effects of each. Most publishers of subscription books instruct their agents carefully as to the mode of

canvassing. Any instruction of the kind would be unnecessary here.

Select a good book. There are many such, but there are also many comparatively worthless. Select one which you can conscientiously recommend, one which you will not be ashamed to ask any one to buy. Make yourself thoroughly familiar with the book before beginning the canvass. Do not bore people. Be particularly careful how you approach busy men, scholars and men with large libraries. They may be annoyed at your approach because they are too busy to look at the book, or because they think they know a great deal about books and do not wish to listen to a speech.

Small and medium sized towns are perhaps the best places for women to canvass. If you work in a large city, expect to do more among the middle class rather than among the wealthy. Canvassing in the country, unless it be thickly settled and the roads and weather fine, may be too much of a hardship for women. Canvassing is, however, generally a healthful occupation. There are many women who could not endure the confinement of teaching or clerking who would improve in health by canvassing.

Books are not the only articles which may be successfully handled by the lady agent. Some women make big wages selling corsets. This will be particularly suited to some ladies who would not have all the qualifications necessary for selling books. Here she would meet only with those of her own sex.

Insurance companies employ a good many lady agents. Organs and pianos are frequently sold by lady music teachers, or by ladies who have some musical talent. The sales here are necessarily few in number, but the commissions are large—from $50 to $100 usually, on an instrument.

There is still money to be made in selling sewing machines. Many women engage in this with success, although the business is not so profitable as it was formerly. Cook-stoves are sold by women by photographs and circulars, the employer attending to the delivery and setting up of the stoves.

A great many women are employed as clerks in stores. The wages are not high and the confinement to a room so many hours, and especially the being obliged to stand upon the feet so much, make it a rather objectionable occupation. Many are, however, compelled, or at least think they are compelled, to engage in such work. I would ask such persons to consider the advantages of some of the other occupations mentioned in this book, and especially that of book canvassing.

DRESS MAKING AND MILLINERY.

It requires much taste, skill and experience to make a successful dressmaker. If a young lady has decided to become a dressmaker she should not rest contented with being an ordinary one. She should apply her whole mind to the work, determined to learn all there is in it. She must have patience, be content to begin at the bottom and

climb up by degrees. She must learn all the details of the art, become skillful in cutting and fitting, and acquire the taste and judgment required in trimming and draping. She must read and keep posted in the styles, and study the wants of her customers. It is not a trade which any one may "pick up." It must be learned slowly by patiently serving an apprenticeship. It is true there are many who boast of having picked up the trade, but the facts are they have never learned it, and do not understand their business. People are beginning to find this out, and a demand for really skillful dressmakers is growing every day.

There are about seven thousand dressmakers in the City of New York, about two hundred and seventy of whom are men. The wages range from four to sixty dollars per week, graded according to ability. In all large cities there is a constant demand for good fitters at salaries varying from fifteen to forty dollars per week.

There are books giving plain directions for cutting and fitting. They may be had by applying to any large book dealer. The millinery business frequently goes with dressmaking. This requires more taste than skill. This business is more crowded than dressmaking because it requires less time to learn it, and so many have not the patience nor the ambition to master the art of dressmaking.

Since the advent of the sewing machine there are few women who are really skillful with the needle. There is always a demand for women skillful with the needle, because there are many

kinds of work which can not be done by the machines. Many consider hand-sewed garments superior, and such command a higher price.

Whatever you do, then, in this line if it be only plain sewing, learn to do it well and never slight your work, and your work will advertise you. Says Mrs. Rayne: "The woman who would succeed must work conscientiously, be just in small as well as in large dealings, and endeavor to inspire confidence in those who would employ her, by wearing the attractive products of her own skill, and surrounding herself with the tokens of her own success; and, above all, let her keep her domestic troubles and the wrangles of her work-room out of sight, and as separate from her business life as she would the bread and butter of the nursery from her customers' silks and satins."

A word about the health of dressmakers. Sitting long in one position is very injurious to health. The person who cuts and fits has sufficient change of position, but the one who trims or works with the needle, or with the machine, needs to be cautious. Think to bring into action other muscles than those used in your work. Vary your work as much as possible. Of course you must watch the ventilation of your rooms, clothe yourself properly, regulate your diet, in short, pay attention to all the laws of health as laid down in other parts of this book.

GARDENING.

There is money to be made in gardening where markets are good. The work is not heavy, if properly managed. It requires almost constant attention, but at no time is there need of particularly heavy labor. There are many women who might engage in gardening for profit. With a little capital a man or boy may be hired to do the rough and heavy work, while the woman could do the planning and the lighter part of the work. The out-door exercise would of itself be a remuneration in many cases, even if no money were to be made at it.

In Europe a large proportion of the women work out of doors, many of them doing all the drudgery and hard work in the fields. These women are generally robust and healthy in body, but do not stand very high intellectually. Our American women of course could not endure what many of the peasantry of Europe undergo, and we ought not to expect it of them. A stout body at the expense of the mind is not to be desired. But a little more physical labor would not degrade our women provided it were done judiciously. Let the woman who wishes to engage in out-door work begin by working a few minutes only each day, gradually increasing the time, always stopping short of great fatigue, and in the majority of cases a decided improvement in bodily health will be observed, and with no danger to the intellect, but rather an improvement. The mornings and evenings should be chosen for

work, avoiding the heated hours of the middle of the day.

Good prices are always paid for the earliest vegetables and small fruits, and it requires but little more labor to produce early vegetables than to produce late ones.

The cultivation of flowers is in many places a profitable occupation, and one for which women are especially adapted. The demand for flowers is growing, it seems, from year to year.

The cultivation of strawberries and raspberries is a very profitable business when properly managed, and one which women can easily engage in. In a fair season an acre of strawberries will yield a clear profit of from $150 to $175. "A lady, who lives in a home of luxury in Freeport, Illinois, made a handsome fortune out of strawberries. She kept a man to work the farm, hired children to pick the berries, and took orders from commission houses and families herself, not disdaining to deliver the berries from her own carriage, or wagon, both of which she handled herself."

If you go into the business of gardening resolve to succeed at it. Do not be discouraged if you do not make anything the first year. You must study the business, read books on the subject, employ the most approved methods, attend closely to the business, doing the right thing at the right time. So long as people continue to like fruits and vegetables there will be a demand for gardeners.

POULTRY RAISING AND BEE KEEPING.

If properly managed poultry pays well, and the care of fowls is a business well suited to females. Like gardening, it requires attention, but no severe labor. Chickens kept in a small enclosure, fed daily with a variety of food and plenty of drink, will lay the year round, if they are of the right breed. Brown Leghorns and Brahmas are excellent for laying.

Keeping a small number of some choice breed and selling the eggs for breeding purposes is profitable. The eggs of choice breeds sometimes bring as much as three dollars a dozen for breeding purposes. It would hardly be profitable to raise the fancy breeds if the eggs were to be sold for eating only, since these high-bred fowls require much more attention.

Fowls should be fed on grains, as corn, wheat and oats, as the main diet, but need a variety, in the shape of meat, scraps from the kitchen and tender vegetables. They should have sheltered places to roost and a sunny plat of ground where they may exercise. Gravel and sand should be thrown frequently in this open plat. During the summer have a portion of the ground over which they run spaded, that they may have fresh, loose earth to wallow in and to absorb the excrements.

Do not attempt to keep chickens and cultivate a garden or flowers in the same enclosure. You will make a failure of both, and trouble and vexation will be your sole reward. Do not turn your chick-

ens loose upon the street to prey upon your neighbor's garden. If he kills them and eats them you ought not to complain, for they are his as much as they are yours if he feeds them with his choice vegetables.

Bee culture is another of the employments for which women are better adapted than men. It involves no great outlay of strength and expense, but, like gardening, much close attention and great skill and gentleness. "The hand of woman, from nature, habit and education, has acquired an ease of motion which is agreeable to the sensibilities of bees, and her breath is seldom obnoxious to their olfactories by reason of tobacco or beer."

It is a business a woman can do at home and at the same time care for children and oversee household work. It is, therefore, especially suited to a widow woman with children and a home of her own comprising an acre or less of ground.

To be successful in bee keeping one must learn the business, must thoroughly understand the nature and habits of bees and keep posted on the improved methods of caring for them. She should have books on the subject and subscribe for a journal devoted to bee culture.

Honey always brings a good price notwithstanding a great deal of an imitation article is thrown on the market. One who is regularly in the business may in the course of a few years, establish a reputation so that she will have a market at her very door for all the honey she may be able to produce.

WOMEN AS PROFESSIONAL COOKS.

Every woman should learn to cook, and many men too, for that matter; but there is need for cooks who follow the business as a regular profession, who know all the details of the business and can get up any kind of a dinner. Cooking is properly a woman's business, yet most of the professional cooks are men. This ought not to be so. Women can learn anything in this line that men can and generally much quicker.

Mrs. Vanderbilt, it is said, pays her cook a salary of $7,000 a year, and there are many wealthy families who pay from $3,000 to $4,000 yearly to their cooks. There are cooking schools in New York and Boston, but the expenses of attending them are too great for persons of limited means. There are many good cook books, and with the aid of one, in a little time for practice, almost any one can acquire skill in this line.

If this information and advice is appropriated by only one of the many women who are complaining of having nothing to do to make a living, the writer will feel abundantly rewarded for making these statements.

A great many women make money keeping boarders and managing restaurants. In the city of Indianapolis, the most popular restaurant is managed and run entirely by ladies of the Woman's Christian Temperance Union. They make the business pay, yet furnish the cheapest meals to be had in the city. Cheap restaurants are demanded,

not low, filthy places where liquors and tobacco are retailed, but neat, clean, orderly lunch rooms where a transient visitor to the town or city may get just what he wants, from a five-cent lunch up to a half-dollar meal, and at a reasonable price. The general rule is to charge five cents for each item on the bill of fare, no matter if it cost but half a cent, but the restaurant which will furnish a cup of coffee, a glass of milk, or a piece of bread and butter for three cents each, and other articles in proportion, will become the popular one if the surroundings are made attractive and the location be favorable. Women are especially well adapted to managing such eating-houses.

HOUSEKEEPING AS A PROFESSION.

Every woman should learn to keep house. Every woman should know how to keep house whether she ever does a stroke of work or not. Then she will be able to oversee the work of servants, if she be so fortunate as to be able to keep them. But there is need of professional housekeepers, women who are willing to hire out for that purpose.

Little need be said here to the woman who would be called to keep house for others. What has been said in the preceding chapter will apply here. If she studies her business and systematizes her work she will have much leisure for the improvement of her mind and for recreation. If she economizes closely, is particularly neat and clean, and attends to her own business strictly she is sure of keeping

a place when one is obtained, and she ought to command fair wages.

Of course there is no great demand for this class of workers, housekeeping being largely a matter of love and duty towards a husband and children, but there are always cases where a bachelor of wealth owns a home and wishes some one to manage it as a wife would manage her own home, and there are always cases of widowers who need housekeepers. Why should not some women prepare themselves especially for such work?

WHAT ALL WOMEN OUGHT TO KNOW.

I have said once or twice before that all women ought to know how to keep house and to cook. I wish to emphasize it by repeating it here. In this country fortunes fluctuate. You may be the daughter of a millionaire to-day and to-morrow be dependent on daily toil for a living. This is one strong reason why women should know how to do something useful. But there are other reasons. If you know how to cook and manage a house, you will know how to manage servants in these duties, you will not be in trouble should your servants leave you without warning, as they often do. You will know how to teach these arts to your children and if fortune throws them where they will be compelled to do such work they will know how and be thankful for your instruction as long as they live. There is a still stronger reason. You need exercise, physical exercise, daily. If you have no other occupation which will require your moving

about, you will not be inclined to take this sufficient amount of physical exercise. If you are in delicate health, do only the lighter parts of the work about the house, as arranging and dusting articles in the rooms, putting things back in their places; simply "potter" around in other words.

Says Mrs. Edna D. Cheney: "It hardly strengthens a woman to be told that women are more angelic by nature, more amiable, more religious, and more holy than men, when she is suffering from excessive nervous irritability, from neglected solitude, from want of employment suited to her feeble powers or from the unused energies of mind and body which are devouring her day by day."

You need recreation. Are you engaged in literary work? You can not read and write all the time. You can not ride out, or walk or visit, just any time for a change, but you can almost any time take a rest from mental or from sedentary toil of any kind, by taking a turn in the kitchen or by doing a little of the housework.

The great majority of women are, of course, compelled to learn these arts of cooking and keeping house. To these I need say only, learn to do your work well. But to the smaller number who may think such arts beneath their regard, I appeal and would urge upon them to learn to do something useful, and since there is such universal need of knowing how to manage the affairs of the home learn that first of all, and then learn and practice whatever else may be legitimate and to your taste.

There are some other things every woman ought

to learn to do. In these days of sewing machines and factory work there may be no absolute necessity for all women to learn to be proficient with the needle, but no woman ought to be as clumsy with a needle as the majority of men are. Every woman ought to be able to handle a needle and to do plain sewing. There are so many cases where a few stitches are necessary, and to be dependent on some one else in such cases is frequently very inconvenient. It is important for the majority of women to know how to run a sewing machine, but not for all. Should necessity demand, the art is soon learned. But to learn to use a needle is another thing and ought to be begun in early youth.

Every woman ought to learn the value of money and to keep simple accounts. No matter how rich you may be, an account of receipts and expenditures will be of value to you. Extravagance will be prevented to a great extent, and habits of economy taught by the simple device of keeping an account of incomings and outgoings. This will in itself teach the value of money. A woman ought not to be ashamed to ask the price of an article before purchasing it.

There is much good sense in the following advice given in a letter from Margaret Fuller to a lady friend: "I should think two or three hours a day would be quite enough, at present, for you to give to books. Now, learn buying and selling, keeping the house, directing the servants; all that will bring you worlds of wisdom if you keep it subordinate to the one grand aim of perfecting the whole

being. And let your self-respect forbid you to do imperfectly anything that you do at all."

No matter how well educated a woman may be in book knowledge or in the fine arts, as music and painting, there will always be times in her life when she will appear very awkward if she has not a general knowledge of the common affairs of every-day life, such as the routine of household work and the common and simpler forms of business. These things can not be learned from books, only by actual practice. Every young lady, then, should spend some time each day in the kitchen and take a hand frequently in the everyday work of the home; should do much of her own purchasing and thus learn the value of money and the methods of the business world. She will be no less the lady in the afternoon and evening if she have assisted her mother or the servants in the forenoon in household work or in marketing and shopping.

There is yet another reason why each woman should learn to work at something. She ought to make herself independent of others as far as possible, or at least place herself in that condition which will enable her to make herself independent at any time. Says Weaver: "A dependent life is an ignoble one, unless compelled by misfortune; just as ignoble in woman as in man. No woman of health and sound mind should allow herself to be or feel dependent on anybody for her living. The sick are always dependent, though they have wealth at their command. But the well should never be dependent. To eat and wear the fruits of another's

labor tends to degradation. To feel that one is shining in borrowed plumes and eating the bread of dependence is degrading to a noble mind. A noble mind will not willingly do it. The want of employment and the dependence of many women have ruined their character and made them little else than nuisances to their fellow-men. Thousands of women have no employment, and live through life in a state of abject dependence. What are they, what can they be, under such circumstances? It requires employment to develop men, why should it not to develop women? Dependent men are ninnies, why should not dependent women be?"

WOMEN AS ARTISTS.

This term may include a variety of occupations. Photographers are frequently classed as artists. It may include all those who work in any kind of decorative material. The desire to decorate homes is one which is growing every day, and while there are so many cheap means of decoration, so many decorative articles, and so many pictures made by machinery at such a small cost, it may be questioned whether there would be any encouragement for one to learn to paint, draw and design for a living. Let us see about this.

There is a growing demand for hand-painted decorations and real paintings from nature to take the place of the chromos, cheap prints and machine decorations which are so common. This demand is greatest, of course, among the wealthier class, and especially the educated and refined among the

wealthier class. Many ladies are making a good living painting small pictures from nature, decorating pottery, painting on china, silk, etc. There is in fact no end to the number and variety of surfaces on which to paint, and of the materials used.

Does it require natural talent to be able to produce such work? Not so much as people generally suppose. One must have good taste, an ordinary appreciation of color, and a little dexterity of hand to begin with, and the rest can be acquired by patience and perseverence under the eye of a good teacher.

Artists, instead of painting only pictures on canvas to be framed and hung up, are now employed to decorate plastered walls and ceilings with representations of various kinds, and the time is evidently not far distant when the majority of homes will show evidence of the artist's work, and not be simply storeboxes spread inside with mortar.

Women are especially successful in the decorative branch of art. They have more cultivated tastes, as a rule, than men, and there is no reason why a large proportion of women should not make money by means of educated talent in this line.

Photography is a good business for women, and there ought to be more of them engaged in it.

WOMEN IN LITERATURE.

Many women have been very successful in literary work. Many have become famous and rich by their pens. It is not the purpose of these paragraphs to give a history of women in literature, nor

yet to advise young women to attempt to enter this field. I say attempt to enter it, because where one is successful among those who try, a thousand make complete failures. This may be sad but it is true. When I say successful, I mean in its broadest sense. There was a time when persons who were very talented as writers were not well paid, and hence unsuccessful financially. But to-day literature as a general rule is well paid. Let a writer become famous for her productions and her financial success is sure. The American people are readers, and they read good literature in the main. But the country is flooded with good literature.

It is true the population of civilized countries increases and education is spreading among the masses everywhere, so that the demand for books and papers will constantly increase, but it must be remembered that a really good literary production will last for centuries, and also that with the increase of civilization the number of talented minds increases.

I would say then to the young lady with literary aspirations, write and keep writing; try various papers and magazines; get the opinions of good judges concerning your productions, but do not expect to rise at once to literary fame, and do not expect money for your first work. Have some other occupation if you are dependent upon your own exertions for a living. Do not expect to make a living with your pen. Place no confidence in the opinions of your personal friends concerning your productions. Get the opinions of strangers

who are known to be good judges in such matters. Do not rest satisfied with the opinion of one person. Some of the best literary productions have been refused by leading magazines and book publishers, afterwards accepted by others and became popular.

Remember always that short articles are more often read than long ones, other things being equal. Write to the point, using no more words than necessary, when narrating facts, or making arguments. If you are writing fiction and have a power in the line of word painting, be careful how you indulge it. Flowery language is appreciated in small doses, but when it is all of that kind, it palls the taste.

Journalism is a profession in this country, although there are no special schools in which it is taught. It must be learned in that dearest of schools, experience. It is a business well adapted to the powers and capabilities of women. A large number of women are employed in connection with the work on daily and weekly papers, besides those who are editors or assistant editors, or paid contributors to the monthly and weekly magazines.

Every lady can not make a successful journalist. Not by any means. It requires a peculiar talent, not necessarily literary talent either, in the true sense of that term, but a talent for gathering, condensing and expressing news and other matters interesting to the public. A newspaper writer must be able to write on the spur of the moment and on almost any subject. Comparatively few persons are

by nature adapted for journalism, and the greater number of these make money by their pens.

There will be no harm, however, in trying your hand at various kinds of writing. You do not know your own powers, may be, and if you do not place your hopes high you can not suffer great disappointment if you fail to please. In order to secure a reading for your manuscript use a little business sense in preparing it. If you have a reputation already established it matters not upon what you write nor how careless your penmanship, it will be published, otherwise it is necessary to observe the following rules:

Write as plainly as possible, on one side of the paper only; be very particular as to spelling, punctuation and capitalization; use good paper and black ink. If you send your communication to a strange paper enclose stamps sufficient for its return if not accepted. Make no apology for writing it, but in as few words as possible request an examination of the manuscript and its publication if acceptable, or its return if not.

If you have exhibited real literary power it will soon be discovered; if you have not the person who rejects your manuscript has done you a favor. An editor may reply simply by saying that your communication is not suitable for his paper. This may be simply one way to get rid of you, to avoid saying that your manuscript has no merit, or it may be that he thinks your communication has merit, but that it really is not suited to his paper. Such

a reply ought not to discourage one. Try another time at least.

UNMARRIED WOMEN.

There ought not to be many of them; but in the nature of things there must be a few at all times. The term "old maid" ought not to be a hateful one, yet it is to many unmarried women. I have no patience with the man or woman who takes delight in making sport of unmarried women by call ing them old maids. What sense is there in ridiculing this condition in life? A woman has a perfect right to remain single through life if she chooses. Why should she be ridiculed for it? Perhaps the majority of unmarried elderly ladies are so from necessity. They were disappointed in early life. They were unfortunate. Should we make fun of people's misfortunes? We ought rather to admire the spirit which dares to face the battle of life alone rather than to risk her happiness for life with one whom she could not love and respect. The women who marry for spite, or simply to avoid becoming old maids, are the ones who ought to be ridiculed, if any are. Yet they need our sympathy rather. The term "old bachelor" is also regarded with some degree of contempt, but it should not be so. The two terms, "old maid" and "old bachelor," ought to be eliminated from our vocabularies. The term "old maid" is not so frequently heard now as formerly. It is to be hoped that it will go out of fashion entirely. Says Mrs. Rayne: "I believe a large proportion of unmarried women are so simply because they have too much conscience

and delicacy of feeling to form marriages of interest or convenience without the concurrence of their affections and their taste. A woman who is determined to be married, and who 'plays her cards well,' as the phrase is, usually succeeds. But how much more estimable and honorable is she who regards a life-union as too important and sacred to be entered into from motives of vanity or selfishness."

Are the lives of unmarried women happy, may be asked? From the fact that there are so many unhappy matches, and that so many people have not sufficient mental training and power to make the best of circumstances, I infer that the proportion of happy single women is as great, if not greater, than of happy wives. This is, of course, no argument against matrimony. We need more proper marriages, not a less number of marriages.

There are temptations rather peculiar to the unmarried woman, such as selfishness, caused by a want of worthy objects of affection; despondency of mind, produced by the suspicion of neglect of friends; and a general irritable disposition, arising from want of an interesting occupation. These are temptations which every single woman must guard against. Married women, however, have their temptations, arising from their conditions in life. They are apt to become narrow-minded and selfish in another form. For the sake of advancing their children in society and wealth, mothers may become selfish and trample upon all principles of right and duty towards others.

There are many noble examples of unselfish, disinterested workers for humanity in the ranks of the unmarried. Each of my readers doubtless can call to mind some elderly unmarried female of her acquaintance who is doing constantly a world of good in the community, who takes the lead in all progressive movements, whose charities are innumerable and whose opinions are valued by all. Such names as Frederika Bremer, Emily Bronte, Hannah More, Harriet Martineau, Eliza Cook, Miss Sedgwick, Gail Hamilton, the Cary sisters, Anna Dickinson, Maria Edgeworth, Miss Mitford and Jane Austin, all eminent in literature and as workers for the good of humanity, are sufficient reasons for respecting this class of women.

Says Mrs. Lydia Maria Child, in concluding an article on the subject of unmarried women: "The conclusion of the matter, in my mind, is, that a woman may make a respectable appearance as a wife, with a character far less noble than is necessary to enable her to lead a single life with usefulness and dignity. She is sheltered and concealed behind her husband; but the unmarried woman must rely upon herself, and she lives in a glass house, open to the gaze of every passer-by. To the feeble-minded marriage is almost a necessity, and if wisely formed it doubtless renders the life of any woman more happy. But happiness is not the sole end and aim of this life. We are sent here to build up a character; and sensible women may easily reconcile themselves to a single life, since even its disadvantages may be converted into

means of development of all the faculties with which God has endowed them."

INFLUENCE OF WOMEN.

Each individual wields an influence in the world. It may be small and it may be great. It may be for good and it may be for evil. Women have each an individual influence in the society in which they move. So have men. I shall not use this as an argument for morality and good conduct in women. Everybody should do what is right, because it is right and because it conduces to human happiness. If we influence others to do good we ought to be glad of it. But the man or woman who does good simply because some one else does, works from a not very high motive. The fact of the matter is, we are all too easily influenced by others. We do what others do, not stopping to question whether it is right or wrong. Children ought to be taught the difference between right and wrong-doing, and to act according to the right because they see it is right and pay no attention to the conduct of others.

We hear much said about the great influence of women for good in the world. I am inclined to think that it is very much over-estimated. I mean the influence of women as a class, not the individual influence of certain women. If women exert such a great influence for good, why do we have so many thieves, and gamblers, and libertines, so many paupers and worthless men generally. Most of them had mothers to train them in

early youth and who loved them, yet some way the mother's love and care and teaching did not keep them out of vice when they grew up.

While a mother's love may do much, yet it can not take the place of the proper training which can be given only by one who has herself been properly trained. A mother's love and influence merely, may in some instances reclaim young men from vice, but it is the exception and not the rule. It is true we read of many cases in the literature of the day of the power of a mother's love over men after they had grown up, but the very fact that these cases are written about, proves their comparative rarity. Let one read all the newspaper accounts of murders and think no further, and he will get the idea that murder is the rule in this country, but a little reflection will convince him that it is the rare exception; that where one man commits murder there are ten thousand who do not. So it is with these cases. They are remarkable because rare, and hence become the themes for writers. We have only to look about us and reflect, and we will be convinced of the contrary.

What, then, is the lesson for women? Be good and do good. Your influence will then be for good. But do not rely upon your influence, if you expect to have your children an honor and a blessing to you in your old days. Train your children. But first train yourself. Learn all you can, first in the business of taking care of your own physical, mental and moral nature and then in the business of caring for and educating children; then if you have

plenty of time, devote it to literature, to politics, or whatever may seem to your taste.

It is not the mother's love for her children, nor the memory of it, which influences the conduct of the grown-up man or woman, so much as the effect of an early training given by the mother. This kind of influence is expressed in the following extract from the writings of an eminent divine: "I do not believe the assertion at all too strong when I say that the greatest and best of those whom we count among the great and good of our race, have always derived the elements of their characters from the *maternal care* bestowed on them in childhood."

THE KINGDOM OF HOME.

So many excellent thoughts have been written on this subject by men and women far more competent than the writer of this book, that he prefers to let them speak for him, asking his readers to give these paragraphs their closest attention, for they well deserve it.

"A house is no home unless it contains food and fire for the mind as well as for the body. For human beings are not so constituted that they can live without expansion. If they do not get it in one way, they must in another, or perish. * * * * To woman the care of the home is confided. It is the sanctuary of which she should be the guardian angel. To all elements that are introduced there she should be the 'ordering mind.' She represents the spirit of beauty, and her influence should be spring-like, clothing all objects within her sphere

with lively, fresh and tender hues."—*Margaret Fuller Ossoli.*

"You have chosen a comparatively poor man, your business is to adapt yourself to his circumstances, to make the most of his means in providing a pleasant home, and bringing up carefully and conscientiously the children which may be given you. If society find you out, or if you find it worth while to fill up any of the chinks or interstices with occasional glimpses of the false, glittering, outside world—good! you will come back to your sweet home with so much the more relish; but do not *marry* it, do not sacrifice your own sense of duty, and the happiness and welfare of husband and family to it.

"Talk of happiness—there is none like that of an intelligent, affectionate family circle. There is no pleasure, no enjoyment equal to that of a mother ministering to the wants, or gratifying the natural and innocent tastes of her children. The pleasure is all the greater, because it is a surprise."—*Mrs. J. C. Croly, (Jennie June).*

"The French have no word into which the English word *home* may be legitimately translated; yet it is sufficiently evident that many of the French people have the thing without the name, while a large portion of the American people have the name without the thing. There are comparatively few who have an adequate idea of what home is, as an institution. It is recognized as a house, containing a convenient number of chairs and tables, with a sufficiency of chamber furniture and eatables, a

place to eat and sleep in simply. It is not unjust to say that half of the young married people of America have no higher conception of home than this. What they call their homes are simply boarding-houses, where, for purposes of economy and convenience, they board themselves.

"In my idea home rises to the dignity of an institution of life, and, like everything legitimately to be called an institution of life, is both an outgrowth of life and a contributor to its development. Like all institutions, it has its external form and internal power and significance. Like the church, it has its edifice and appointments not only, but its membership, its bonds of spiritual fellowship, and its germinal ideas, developing themselves into influences that bear flowers and fruits to charm and feed the soul. It is into the meaning of the word HOME that I would introduce you first, my friends, and then into the home itself. Marriage is the legitimate basis of a genuine home. A husband is its priest and a wife its priestess; and it is for you, young husband and young wife, to establish this institution, maintain it, beautify it in its outward form, fill it with all good influences, develop its capacities, make it the expression of your best ideas of intimate social life, and to use it as an instrument of genial power in moulding such outside life as may come into contact with it. Its outward form and its internal arrangements should, so far as your means will permit, be the outgrowth of your finest ideas and the expression of your best tastes, combined with the practical ingenuities

which may be rendered necessary by a wholesome economy."—*Titcomb's Letters.*

"God has set the solitary in families; and in that institution are enclosed the greatest results of earth and heaven. With a vision sufficiently clear we might see in the germ the full circle of the flower; in the acorn the branching oak, with five hundred summers murmuring in its leaves. So in the ground and seed-plot of home we may have prevision of the best conditions of this world or the other. From this we build up images of that which no mere definite speech can express. The fairest social state will appear when 'our sons shall be as plants grown up in their youth,' and 'our daughters as corner-stones, polished after the similitude of a palace.' And, linking our homeliest work, our closest love, with wider and more enduring scenes, we speak of 'the FAMILY in heaven and earth.'"—*Rev. E. H. Chapin, D. D.*

"You have only to peep into the room of almost any man who takes care of himself, if you wish to know what sort of homes men make. True, some of these homes are quite presentable; but are they, the best of them, in their appointments and keeping, the highest models of the civilized home? Contrast that with the dainty appointments and keeping of the majority of the homes of most women who care and provide for themselves. Of course, in a complete home, occupied by a complete family, there should be both the masculine and feminine elements; but whose taste is it that prevails in the furnishing and the keeping of the

house? Will it, as a rule, be nicely furnished if the woman have not the taste to select and adjust? It is true the man usually provides the means for its furnishing and its sustenance, and if this is what is intended by the expression we will so understand it; but, after all, it is the woman who is really the artist; she plans and molds and puts her impress upon it. True, she is often guided by his wishes in many particulars, but the home when it is made is the expression of her taste and thought far more than his. She puts herself into it, and everything therein is largely molded by her presence."—*Julia Colman.*

"The Christian home, implying marriage, mutual affection, piety, gentleness, refinement, meekness, forbearance, is our ideal of earthly happiness—a beautiful and impressive type of heaven. It is more a residence, a place of abode, however attractive in its surroundings, however richly adorned with art and beauty.

"It is where the heart is, where the loved ones are—husband, wife, father, mother, brothers, sisters, all united in sympathy, fellowship and worship. It may be humble, unpretentious, exhibiting no signs of material wealth; but there is the wealth of mutual affection, which fire can not consume and no commercial disaster alienate or destroy, and this is home—the home of the heart, the home of childhood, the elysium of riper years, the refuge of age."—*Samuel D. Burchard, D. D.*

"If you want to gather up all tender memories, all lights and shadows of the heart, all banquet-

ings and reunions, all filial, fraternal, paternal, conjugal affections, and had only just four letters with which to spell out that height, and depth, and length, and breadth, and magnitude, and eternity of meaning, you would write it all out with these four capital letters: H–O–M–E."—*Rev. T. De Witt Talmage.*

"Home's not merely four square walls,
Though with pictures hung and gilded;
Home is where affection calls,
Filled with shrines the heart hath builded!
Home! go watch the faithful dove,
Sailing 'neath the heaven above us;
Home is where there's one to love!
Home is where there's one to love us!

"Home's not merely roof and room,
It needs something to endear it;
Home is where the heart can bloom,
Where there's some kind lip to cheer it!
What is home with none to meet,
None to welcome, none to greet us?
Home is sweet,—and only sweet—
When there's one we love to meet us!"

—*Charles Swain.*

APPENDIX.

MISCELLANEOUS RECIPES FOR THE HOUSEHOLD.

There are many books of recipes and many written recipes in the world. Many of them are of little value, not being reliable. Others are of value to certain classes of persons only. The following are selected from a large list as being of especial value to housekeepers, and to women generally. They have all been tried and tested by good authorities, and I have no hesitation in recommending them to my readers, although I have not seen all of them tested myself. They are not given here in any particular order, it being a difficult matter to classify subjects so varied and disconnected. The subject of each paragraph, however, will be found in alphabetical order in the index of the book.

To Remove Unpleasant Odors from a Room.—Burn a teaspoonful of ground coffee on a hot shovel, or on a shovelful of live coals. Sugar, resin, or vinegar may also be burned for the same purpose.

To Remove Grease Spots.—Gasoline, sunlight oil and benzine are frequently used for this purpose. They are objectionable because they themselves are oils and leave a spot, although not so distinct as common grease. An alkali is the only substance which will perfectly remove grease spots. Soap

will be efficient if used repeatedly with much rubbing or brushing. Ammonia (hartshorn) is better than anything which can be used.

To Remove Ink Stains.—There is no one substance which will remove all kinds of ink stains, as inks are made of many different chemicals. Oxalic acid will, however, remove the stains made by the most of the black inks in common use. Sweet milk is efficient in many cases. Washing clothing in cold water while the stain is fresh will frequently remove the ink entirely. Printer's ink may be removed by turpentine.

To take out Mildew.—Wet the cloth and rub with chalk and soap and lay in the sun, or soak for a short time in buttermilk and lay in the sun.

To Remove Iron Rust from Cloth.—Wet the spot with oxalic acid, hold a warm flat iron to it a minute or two, rinse and rub in water.

Economical Soap.—Save all the pieces of toilet soap which are too small to use, until you get enough to fill a tea cup when cut up in bits. Soak in soft water over night, then boil until all are melted, and pour into a tea cup, or other suitable mold, and when cold you will have a fine cake of soap as good as the original pieces you bought.

Enamel for Shirt Fronts, Collars and Cuffs.—One ounce of white wax and two ounces of spermaceti, melted together with a gentle heat. A piece of this the size of a hazel-nut will be sufficient to add

to the proper quantity of starch for a dozen shirt bosoms.

Chloride of Lime—Is one of the best general *disinfectants*. It may be had at almost any drug store, and is cheap. It must be kept from the air, as it soon loses its strength entirely when exposed. Place a tablespoonful at a time in different places on the floor of the cellar. If quick results are desired, as when a cellar has been neglected and decayed vegetable matter has accumulated, place a little on a plate and pour on a small quantity of vinegar. The chlorine gas which is generated acts as the disinfectant. This gas is injurious to clothing and to life if developed in any considerable quantity. A very little of it is constantly being given off when the chloride of lime is exposed to the air. It is produced rapidly when a strong acid is added. Vinegar being a weakened acid will not cause a very rapid development. It is this gas which destroys the foul gases which may be produced in decaying substances. It must be remembered always that close attention to cleanliness is the great secret of keeping a place wholesome. Use disinfectants to purify the air only. Remove from the floor and other places all decayed or decaying matter, and wash everything that can be washed. Carbolic acid or copperas may be used in case chloride of lime can not be obtained. A cellar may be whitewashed, using an ounce of carbolic acid to a gallon of whitewash, or a little copperas may be thrown here and there on the floor.

To Kill Rats and Mice.—It is not generally known that one of the surest and safest means of destroying these animals is plaster of paris. Mix thoroughly one part with two parts of flour, and put on plates in places where the animals frequent. The plaster is not a poison in the ordinary sense, but causes death by hardening in the stomach.

Furniture Polish.—Raw linseed oil, one pint; muriatic acid, one ounce; turpentine, one ounce; benzine or gasoline, 3 pints. First mix the oil and acid, shake for five minutes then add the turpentine, shake well and add the benzine or gasoline. This is said to be the best furniture polish in the world.

Flour Paste.—The best paste for paper is made from flour. In making scrap books use no other kind. To a pint of cold water add two heaping tablespoonsful of flour. Stir vigorously to remove all lumps, then place on fire and stir until it boils. A few cloves added when it is cooked will make it keep sweet longer.

Morocco Leather—May be improved in appearance, when a little worn, with a varnish of white of an egg.

Rust on Stoves and Stove Pipes.—Rub with a cloth saturated with common coal oil. When stove pipes are laid away for the summer they should be well rubbed with coal oil.

To Remove Dandruff.—Brush the scalp every day vigorously with a good stiff hair brush, and then anoint with a mixture made as follows: Take one pint of alcohol and a tablespoonful of castor oil, mix and shake well, then scent with a little oil of lavender or bergamot.

For Chapped Lips and Hands.—Glycerine is a common remedy for such troubles. It is in many cases too stimulating and leaves the parts too sensitive. I prefer linseed oil with a very small quantity of tannic acid added. This toughens the skin and makes it pliable.

Bites and Stings of Insects.—Ammonia (hartshorn) will relieve the pain in most cases. Apply a little to the spot as soon as possible. If none be at hand take wood ashes, wet with hot water and bind on the place.

Bedbugs.—The most effectual poison is corrosive sublimate applied in solution to parts of the furniture containing them. It is a deadly poison and should be kept carefully away from children. It is said that a strong tea made of common smartweed will kill them. Of course no good housekeeper will allow bedbugs to remain in the house, but no one can prevent their entrance under some circumstances. Like the itch, it is no disgrace to get them but a disgrace to keep them.

To Destroy Ants.—Sprinkle a little sugar upon a sponge and place it in the cupboard or other place

infected. The next morning dip it quickly in boiling water. Large numbers of ants may thus be caught in this sponge trap. Camphor will, it is said, keep them away from a cupboard.

Cockroaches—Are sometimes very troublesome about houses. Cayenne pepper sprinkled about in cupboards will keep them away.

Persian Insect Powder—To be had in most drug stores, will destroy any insect which may become troublesome about the house.

Corns and Bunions.—The fact that there are so many remedies for these excrescences which trouble so many persons, is proof that they are not easily cured. In fact, they can never be cured so effectually that a misfitting boot or shoe will not cause them to return. The following is one of the many remedies which are claimed to be infallible: Take strong acetic acid and apply night and morning to the corn with a camel's hair brush. In about a week the corn ought to disappear.

Cement for General Purposes.—Take equal parts of white glue and Russian isinglass and dissolve in hot acetic acid. Warm before using by immersing the bottle in hot water for a few minutes. This cement will hold together wood, earthen or glassware, in fact almost any substance.

To Clean Windows.—There is nothing better than soap and water rubbed on with a cloth. Wipe partly dry with a dry cloth, then rub vigorously

with old newspapers. If there are spots of varnish or paint on the glass rub with a cloth moistened with turpentine.

To Make Shoes Waterproof.—Take several small pieces of an old rubber shoe, put in an old pan with some beef or mutton tallow. Heat until the rubber is partly dissolved, which may be known by the mixture turning black when a drop is cooled on a chip. Grease the shoes well with this, both soles and uppers, holding them to the fire while rubbing in the mixture.

To take out Scorch in Cloth.—Peel and slice two onions, extract the juice by pounding and squeezing; cut up half an ounce of fine, white soap and add to the juice. Add to this two ounces of fuller's earth and half a pint of vinegar. Boil all together and when cool spread upon the scorched place and let dry on. Then wash and boil out the goods and the spots will disappear, unless burned so badly as to destroy the threads.

The Crying of a Child—What it may Indicate.—The cry of teething is a fretful cry; that of earache is short, sharp and piercing, the head being moved from side to side, and the hand often put up to the affected side of the head; the cry of croup is hoarse and ringing, so peculiar that it may be called "the croupy cry;" the cry of colic is an interrupted straining cry, accompanied by drawing up of the legs; tears in a severe illness are a sign of amendment (Dr. Chavasse).

Freckles—Are not easily removed; in fact their removal is impossible in many persons. The following is said to be good for this purpose: Scrape horseradish into a cup of cold, sour milk, let it stand twelve hours, strain and apply two or three times a day.

Facts About Dressing.—White or light colored clothes make persons appear larger than they really are. Very large women should dress in black or dark colored goods. Yellow, orange or red colors are suitable to persons with dark hair and complexion; light blue is suitable to very fair complexions; light green is unsuitable to persons of a ruddy complexion; violet is unfavorable to all complexions. Clothes with stripes running up and down make persons look taller than they really are, and when the stripes run transversely they look thicker than they really are.

To Remove a Tight Ring from the Finger.—Take a piece of common wrapping twine, soap it thoroughly and wind it round the finger, beginning at the point and continuing until it reaches the ring, then slip the end of the string through the ring and unwind it.

To Make Washing Easy.—Put the clothes to soak the night before, and at the same time place on the hot stove in a vessel two pounds of soap cut into small pieces, one ounce of borax and two quarts of water. Let these simmer until the fire goes out; in the morning the mixture will be solid. Begin

washing by putting the washboiler over the fire nearly full of cold, soft water. Into this put about a quarter of a pound of the soap and borax mixture, then wring the clothes out of the water in which they have been soaking and put them in the boiler. Let the clothes boil a few minutes, take out and rub the places most soiled, as the wrist bands and collars of shirts, wring out and put into cold water, rinse thoroughly and wring out. Borax makes the clothes white and saves nearly one-half the soap. The washer-women of Belgium and Holland, it is said, use borax largely in washing, and their clothes are noted for their whiteness.

Hair Oil.—Hair in a perfectly healthy condition needs no oil, because it is naturally supplied with oil from the scalp. But there are many cases where the hair is dry and harsh from a deficiency in the natural supply of oil, and in such cases a little hair oil is not objectionable, but a benefit. Any one can make a good hair oil by the following recipe: Take one-half pint of alcohol and pint of castor oil. Mix and shake thoroughly, then add a few drops of oil of lavender, or bergamot, to scent it. Any other perfume may be added if desired. The proportions of alcohol and castor oil may also be changed, the object being to use enough alcohol to dissolve the castor oil partially but not wholly.

When Cooking Onions place half a teacupful of vinegar on the stove and let it boil. The vapor of the vinegar will nearly if not quite destroy the odor of the onions.

Mica (often called "isinglass") windows in stoves may be cleaned by washing with vinegar.

To Thaw Out a Pump.—If hot water be simply poured down the ice will scarcely be affected, because the hot water is lighter and comes to the top, leaving only cold water next to the ice. Pour the hot water down through a tube, lowering it as fast as the ice melts.

Silk goods should not be folded in white paper as the chloride of lime used in bleaching the paper will change the color of the silk. Use brown or blue paper.

Fruit Stains in white goods may generally be removed by washing in water without soap, then holding the article for a few minutes in the fumes of burning sulphur. They may be removed from the hands in the same manner.

Ill-fitting Collars and Shirts are often made so by the laundress. Damp linen will easily stretch. If a collar is pulled lengthwise when wet it may be increased half an inch in length. They should be pulled crosswise, and carefully in doing up. The same is true of shirt fronts; a vigorous pull lengthwise will change the shape of the neck band in front.

The Feet should be washed every day in summer, running the finger between the toes, and at least twice a week in winter. In spite of all this

some persons will have bad smelling feet. It is often a hereditary peculiarity. As a remedy in such cases, two tablespoonsful of ammonia (harts-horn) may be added to a half gallon of the water used in washing them.

CAKES.

Eight-Egg White Cake.—Into three cups of sifted flour stir two teaspoonsful of baking powder. Stir together one-half cup of butter and two cups of white sugar, adding three-fourths of a cup of sweet milk, the whites of eight eggs well beaten and the flour. Stir barely long enough to mix. For layer cake bake in jelly pans.

Chocolate Cake.—One cup butter, two of sugar, one of milk, five eggs, leaving out the whites of three, four cups sifted flour, two teaspoonsful baking powder, or one small teaspoonful soda and two of cream of tartar in the flour; bake in three layers in deep jelly tins. For icing, take whites of three eggs, beaten stiff, one and a half cups powdered sugar, six tablespoonsful grated chocolate, two teaspoonsful vanilla.

White Cake.—One cup butter, two of sugar, one of sweet milk, three of flour, whites of five eggs, two teaspoonsful baking powder.

Snow Cake.—One-half tea cup butter, one of sugar, one and a half of flour, half cup sweet milk,

whites of four eggs, teaspoonful baking powder; lemon flavoring.

One-Egg Cake.—Stir together one and a half cups of sugar and a piece of butter about the size of an egg; three cups of sifted flour in which has been mixed two teaspoonsful of baking power, one egg, and one cup of milk.

Gyp's Cookies.—One cup sugar, one-half cup of butter, one egg, one tablespoonful of milk or water, two teaspoonsful baking powder, flour enough to roll; any flavoring.

Gyp's Sponge Cake.—Three eggs, whites and yellows beaten separately, then together, one cup sugar, one and a half cups flour, one teaspoonful baking powder. Beat well.

Crullers.—Two cups sugar, one of sweet milk, three eggs, a heaping tablespoonful butter, three teaspoonsful baking powder, mixed thoroughly with six cups of sifted flour and a teaspoonful cinnamon. Beat the butter and sugar into a "cream," add milk; add flour, baking powder and spices gradually; put another cup flour on the board and work until stiff enough to roll. Roll out to a quarter of an inch thick, and cut into strips, and cook in hot lard.

Delicate Cake.—Three cups flour, two of sugar, three-fourths cup sweet milk, whites of six eggs, half cup butter, teaspoonful cream of tartar, half

teaspoonful of soda, lemon flavoring. One and a half teaspoonsful of baking powder may be used instead of the cream of tartar and soda.

Neapolitan Cake.—Black Part—One cup brown sugar, two eggs, half cup butter, half cup molasses, half cup strong coffee, two and a half cups flour, one of raisins, one of currants, a teaspoonful each of soda, cinnamon and cloves. *White Part*—Two cups sugar, half cup butter, one of milk, three and a quarter of flour, whites of four eggs, small teaspoonful cream tartar. Frosting made of whites of two eggs, to go between the layers.

Cocoanut Cake.—Make batter as directed in the recipe for Eight-Egg White Cake. Make frosting of the whites of about three eggs, mix grated cocoanut with it and spread between the layers. Spread frosting on top, and sprinkle over with the cocoanut.

Corn Starch Cake.—One cup butter, one and a half cups flour, one of corn starch, one of sweet milk, whites of eight eggs, two cups sugar and three teaspoonsful baking powder.

Mountain Cake.—One large cup of butter, three cups of white sugar, four cups of flour, five eggs, the whites and yellows beaten separately, one teaspoonful of cream tartar, and one of soda dissolved in a cup of milk. Beat to a batter and bake in a hot oven.

Ash Cake.—One pound of white sugar, one teacupful of butter, half a cupful of sweet milk, the whites of ten eggs, half a teaspoonful of soda, one teaspoonful of cream tartar, three cups of flour; flavor with vanilla or almond. Bake in jelly tins, and put icing between the layers.

Frosted Loaf Cake.—Three cups flour, two of sugar, three-fourths cup of sweet milk, whites of six eggs, half cup butter, heaping teaspoonful of baking powder; lemon flavoring.

Good Boy's Cake.—One cup butter beaten to a cream, two cups white sugar, four eggs beaten separately, three cups flour, one cup of sweet milk, one teaspoonful of soda dissolved in the milk; lemon flavoring. Bake one hour.

Gold Cake.—Yellows of eight eggs beaten to a froth; mix with them one cup sugar, three-fourths of a cup of butter previously stirred to a cream, add two cups flour, a half teaspoonful of soda dissolved in half a cup of milk; when well mixed, stir in a teaspoonful of cream tartar.

Silver Cake.—Two teacupsful of white sugar, three-fourths of a cup of butter, one cup of sweet milk, four cups of flour, whites of four eggs beaten to a stiff froth, one teaspoonful of soda, two of cream tartar; flavor with vanilla, nutmeg or lemon. Bake in quick oven.

White Cake.—Three-quarters of a pound of flour, one pound white sugar, six ounces of butter, whites of fourteen eggs, one teaspoonful cream tartar sprinkled into the flour; rub the butter and sugar to a "cream," then add the eggs alternately with the flour into the butter. Bake in a quick oven.

Mrs. W.'s Snow Cake.—The whites of ten eggs, one cup and a half of fine white sugar, one cup of flour, a small teaspoonful of cream tartar. Beat the whites to a stiff froth, sift on them the sugar; put the cream tartar in the flour, and sift it in; beat well.

Berwich Sponge Cake.—Three eggs, beat two minutes; add one and a half cups sugar, beat five minutes; add one cup flour, one teaspoonful cream tartar, and beat two minutes; add half cup cold water, half teaspoonful soda, beat one minute; add cup flour, a little salt; rose or lemon flavoring.

Angel's Food.—Whites of eleven eggs, one and one-half tumblers of sifted granulated sugar, one tumbler sifted flour, one teaspoonful vanilla, one teaspoonful of cream tartar. Sift the flour four times, add cream tartar and sift again; beat the whites of the eggs to a stiff froth, add the sugar and the flour. Put in vanilla and bake forty minutes in a moderate oven. Do not open the stove until the cake has been in fifteen minutes. Do not grease the pan.

PIES, PUDDINGS, ETC.

Sweet Potato Pie.—Boil potatoes soft, peel them, line a pie dish with nice crust, slice in potato to cover the bottom, add a generous covering of sugar, a little flour, a pinch of salt, then another layer of potato, more sugar and bits of butter, pour in some rich milk or cream; flavor with nutmeg, and bake rather slow.

Lemon Pie.—One lemon grated, one cup sugar, the yelks of three eggs, small pieces butter, three tablespoonsful milk, two teaspoonsful corn starch or flour; beat all together and bake in rich crust; beat whites to a stiff froth, with three tablespoonsful sugar, place on pie when done and then brown in oven.

Lemon Pie.—One egg, one lemon, one cup sugar, one teaspoonful flour; bake with two crusts.

Custard Pie.—Three tablespoonsful sugar, one egg, one pint milk, one tablespoonful of sifted flour; grate nutmeg over the top.

Raisin Pudding.—One quart of sweet milk, six eggs, one-half teacupful butter, one-half teacupful sugar, one teacupful raisins with seeds removed, flour sufficient to make thick batter; pour in a mold and steam until cooked.

Sauce for Pudding.—Put a pint of water and a cup of sugar in a saucepan, add a pinch of salt and

stir until the sugar is melted. Mix an even tablespoonful of corn starch to a smooth paste with a little water, and stir into the saucepan when the sugar and water begin to boil. When clear remove from fire, and beat in a teaspoon heaping full of butter and a teaspoonful of vanilla.

Bread Pudding.—Crumb about a pint and a half of bread crumbs, moisten with an egg beaten with sugar, and enough milk to soften the bread, a handful of raisins, and half a sliced lemon. Use rice instead of bread when you want a nice rice pudding. Add two tablespoonsful sweet milk when making rice pudding.

Pumpkin Pie.—Stew pumpkin, cut into small pieces, in a half pint water, and, when soft, mash with potato masher very fine ; let the water dry away, watching closely to prevent burning or scorching ; for each pie take one well-beaten egg, half cup sugar, two tablespoonsful pumpkin, half pint rich milk (a little cream will improve it), a little salt ; stir well together and season with cinnamon or nutmeg ; bake with under crust in a hot oven. Some Some steam pumpkin instead of stewing it.

Mince Meat.—Take five or six pounds of beef—a neck piece does very well,—boil in just enough water to cover it ; skim well. When very tender, salt to taste, and let the liquor boil away as much as possible. When perfectly cold, remove bones, gristles, etc. Mince three pounds beef suet, seed and cut four pounds raisins, wash and dry four

pounds currants, cut a pound of citron into small, thin pieces, chop very fine four quarts good cooking apples; put all into a large pan, then add two ounces cinnamon, one of cloves, one of ginger, four grated nutmegs, the juice and grated rinds of two lemons, one tablespoonful salt, one teaspoonful pepper, and two pounds sugar. Put in a porcelain kettle one quart boiled cider, or one quart currant or grape juice, one quart molasses, and a large lump of butter; let it come to the boiling point, and then pour over the ingredients in the pan. Mix well. If too rich, add more apples. If you have no cider, use vinegar and water in equal proportions. A glass of jelly and a few cherries adds to the flavor, and wine or brandy always improves it. Some, however, object to the use of wine. The mince meat made by the above recipe, will keep two months.

Brown Betty.—Butter a pudding dish; put in a layer of sweet, rich apple sauce; add a few lumps of butter, then a layer of cracker crumbs sprinkled with cinnamon, then a layer of sauce, and so on until the dish is filled, making the last layer of crumbs; bake in oven, and eat with cold, sweetened cream.

Saratoga Apples.—Cut slices across the core and drop in hot lard. Turn when slightly brown. Place slices on a plate sprinkled with white sugar. Pile up as fast as done, sprinkling sugar between the slices. Large, sound apples should be selected.

Saratoga Potatoes.—Peel the potatoes and slice them moderately thin; put to soak about half an hour in salted cold water. Take them out, drain all the water off you can. Drop into hot lard; fry brown on both sides.

Spiced Pears.—Put in a porcelain kettle one pint vinegar, three pints sugar, cinnamon, cloves, etc., let boil. Put in the pears and let boil until perfectly clear.

Pickled Peppers.—Take large green ones (the sweet variety is best), cut off the tops around the stems, lift off, take out the seeds; soak in strong brine for two days, changing water twice; stuff with chopped cabbage, or a mixture of nasturtiums, chopped onions, red cabbage, grapes, and cucumbers; season with mustard seed and a little mace, if you like it. Sew up the incision, place in a jar, stem end up, and cover with cold spiced vinegar.

Ripe Tomato Pickles.—Choose large, sound, ripe tomatoes, put in a jar; scald spices (tied in a bag) in vinegar, and pour while hot over them.

Cucumber Pickles.—Fill self-sealing glass jars with nice, little cucumbers, small red peppers, and bits of horseradish. Put a cup of sugar in each jar, and pour in boiling vinegar enough to cover the pickles. Seal at once.

Tomato Catsup.—Half bushel tomatoes, four ounces salt, three ounces ground black pepper, one ounce cinnamon, half ounce ground cloves, a very

little cayenne pepper, one gallon vinegar. Slice tomatoes and stew in their own juice until soft; work through a sieve that will keep the seeds from going through. Boil the pulp and juice down very thick, stirring all the time; then add the vinegar with which a small teacupful sugar and the spices have been mixed; boil up twice, remove from fire, let cool and bottle. If you like onions, peel and chop very fine about a half dozen, and put in about fifteen minutes before the vinegar and spices are put in.

Corn Bread.—One quart buttermilk, one heaping pint corn meal, one teaspoonful soda, one of salt, one tablespoonful sugar, and three eggs. Have the oven hot, and do not use too deep a pan.

Omelet.—Three eggs, a pinch of salt, and three teaspoonsful of milk to each egg. First beat the eggs good, then add salt, and stir in the milk. Melt a lump of butter the size of an egg in a skillet, then pour in the mixture, lifting the edges with a clean knife until all the soft part is cooked; slip from the skillet on to a dish and serve.

Apple Cream.—Peel and slice half a dozen apples of fine flavor and stew them with a very little water, or steam until soft; add four tablespoonsful of white sugar and the whites of four eggs to them, and beat the whole until very light. Serve in a tall glass dish with cream poured over.

MEATS AND THEIR ACCOMPANIMENTS.

With roast beef, grated horseradish.

Roast pork, apple sauce.

Roast veal, tomato or mushroom sauce.

Roast mutton, currant jelly.

Roast turkey, cranberry sauce.

Boiled turkey, oysters.

Broiled fresh mackerel, sauce of stewed gooseberries.

Roast goose, apple sauce.

TABLE OF WEIGHTS AND MEASURES FOR THE HOUSEHOLD.

One quart sifted flour weighs one pound.

Three coffeecups sifted flour weigh one pound.

One pint of soft butter (well packed) weighs one pound.

Two teacups soft butter (well packed) weigh one pound.

One and one-third pints powdered sugar weigh one pound.

Two coffeecups powdered sugar weigh one pound.

One tablespoonful "Coffee A" or best brown sugar weighs one ounce.

Two tablespoonsful (well rounded) of flour weigh one ounce.

One tablespoonful of soft butter weighs one ounce.

Two teaspoonsful (heaping) of flour, sugar or meal, equal one heaping tablespoonful.

One tablespoonful equals about one-half a fluid ounce.

One teaspoonful equals about one fluid drachm.

A wine glass of common size holds about four tablespoonsful, or two fluid ounces.

TIME OF BOILING VARIOUS ARTICLES.

Green beans in pod, three hours.
Dry beans, at least four hours.
Beef, to the pound, thirty-five minutes.
Cabbage, one hour.
Carrots, one hour.
Codfish, dry, to the pound, thirty-five minutes.
Onions, one hour.
Parsnips, one hour.
Pork, to the pound, twenty-five minutes.
Potatoes, thirty minutes.
Rice, twenty minutes.
Turnips, forty-five minutes.

THE END.

INDEX.

Page.

Abortion, ... 133
Absorption, ... 30
Accounts, should keep, ... 473
Actors, women as, ... 474
Acids, ... 373
Afterbirth, ... 194
Age, to marry, ... 100
Air, pure, ... 71, 209
Alkalies, ... 372
Ammonia, ... 373
Amenorrhea, ... 285
Amusements, ... 257
Angina pectoris, ... 293
Antidotes (see dictionary of poisons and antidotes arranged alphabetically) 372
Ants, to destroy, ... 523
Apoplexy, ... 380
Apples, baked, ... 396
Apples as food, ... 416
Apples, Saratoga, ... 537
Apple cream, ... 538
Arrowroot, ... 417
Artists, women as, ... 474, 503
Arteries, to find, ... 362
Arsenic, ... 373
Authors, women as, ... 474
Auctioneers, women as, ... 474
Barren women, ... 153
Bathing in pregnancy, ... 168
Bathing, rules for, ... 241
Babies, peculiarities of, ... 214
Bad habits, ... 243
Baked apples, ... 396

Page.

Barley water, ... 394
Bandage for mother, ... 196
Bandage for child, ... 197
Bed for sick, ... 387
Bed wetting, ... 242, 344
Bed sores, ... 397
Bedrooms, ... 454
Bedbugs, ... 523
Beans, warmed over, ... 467
Beef tea, ... 393
Beef essence, ... 393
Beer, ... 418
Bee-keeping, ... 495
Bites and stings, ... 360, 523
Bile, ... 25
Birth, several at a, ... 145
Blood, ... 28
Blood-spitting, ... 363
Bleeding, ... 29, 308, 360
Bladder, ... 53
Boiled flour, ... 396
Boiling, time of, ... 540
Boils, ... 382
Bones, broken, ... 364
Bones described, ... 16 to 18
Bones, what to do with, ... 471
Boys and girls, differences, ... 260
Bowels, ... 24
Bowels, constipation of, ... 200, 279
Book agents, women as, ... 488
Broth, chicken, ... 393
Bread, corn, ... 538
Bread, dry, what to do with, ... 467
Brandy, ... 420
Bringing up by hand, ... 222
Brain, ... 36
Brain work, ... 128
Broken bones, ... 364
Breasts, gathered, ... 315

	Page.
Buying,	408
Bunions,	524
Burns and scalds,	357
Canvassers, women as,	488
Canning fruits,	412
Cakes,	92, 529
Caul,	204
Carpus,	17
Cartilages,	17 to 19
Capillaries,	27
Canker of the mouth,	341
Canned goods, to select,	406
Carbuncles,	382
Care of sick,	384
Cellar, how to care for,	411
Cement,	524
Choosing a husband,	106
Chapped hands and lips,	523
Children and money,	262
Change of life,	322
Child-bearing,	129
Childbirth, painless,	172
Childbirth, chloroform in,	179
Child, new-born, attention to,	192
Childbed fever,	310
Chicken broth,	393
Chicken-pox,	346
Chest, a medicine,	354
Charcoal, burned in room,	370
Choke-damp,	369
Choking,	381
Chloroform in childbirth,	179
Chyle and chyme,	24
Cholera infantum,	340
Chocolate,	421
Cider,	414, 421
Circulation of the blood,	26
Club-foot,	20
Clavicle,	17

Page.
Cleanliness, ... 64, 213, 240
Clothing, change of, ... 67
Clothing and shelter, ... 73
Clothing, tight, ... 19, 74
Clothing for children, ... 76
Clothing for pregnancy, ... 163
Clothing for babies, ... 181
Constipation, ... 200, 242, 279
Convulsions, ... 339, 376
Condiments, ... 91
Consumptives marrying, ... 96, 99
Consummation of marriage, ... 117
Confinement, preparations for, ... 180
Colic, ... 337
Cow's milk for children, ... 234
Coffee, ... 90, 422
Coffee not good for young, ... 234
Corn bread, ... 538
Courses, ... 269
Corns on feet, ... 524
Cockroaches, to destroy, ... 524
Cooking, ... 91
Cooking onions, ... 527
Cooks, professional, ... 497
Collars, ill-fitting, ... 528
Collapse, ... 383
Contagious diseases, ... 345
Courtship, ... 111
Cousins marrying, ... 96, 99
Coccyx, ... 17
Condom, ... 138
Cord around child's neck, ... 192
Crying of a child, ... 525
Cramps, ... 366
Croup, ... 327
Culture, mental, ... 252
Dancing, ... 79
Damps, ... 369
Dandruff, ... 523

Page.
Dentists, women as, ... 474, 484
Death rate in married, ... 93
Diarrhœa, ... 284
Diet in pregnancy, ... 164
Diet of youth, ... 233
Displacements of Womb, ... 296
Diphtheria, ... 332
Dislocations, ... 364
Digestion, organs of, ... 22
Digestion, time of, ... 24
Disinfecting, ... 521
Dirt, ... 458
Dining-room, ... 448
Dog bites, ... 368
Dress-making, ... 490
Dressing, ... 526
Drowning, ... 365
Dumb-waiter, ... 462
Duration of pregnancy, ... 143
Dyspepsia, ... 92
Dysmenorrhea, ... 286
Earache, ... 344
Ear, ... 43
Ear, objects in, ... 378
Eating, frequency, ... 88
Eating, manner of, ... 88
Economy, ... 124, 462, 466
Education, ... 255, 273
Eggnog, ... 395
Eggs, to cook, ... 224, 395
Engagements, ... 114, 116
Enamel for collars, ... 520
Epilepsy, ... 383
Esophagus, ... 23
Ether, ... 373
Excretions retained, ... 68
Exercise and rest, ... 77
Exercise in pregnancy, ... 165
Exercise for babies, ... 230

Page.
Exercise for children, ... 237
Excessive child-bearing, ... 129
Eye, ... 40, 379
Fainting, ... 295
Femur, ... 18
Feet, protection of, ... 74, 528
Fever, childbed, ... 310
Fecundation, ... 142
Feeding sick, ... 390
Felons, ... 382
Fibula, ... 18
Fire in damp weather, ... 75
Fire, what to do in, ... 358
Fish-hook in flesh, ... 363
Flour paste, ... 522
Flooding, ... 309
"Flowers," the, ... 269
Fœtus, ... 204
Food for sick, ... 392
Food, quantity, ... 84
Food, quality, ... 85
Food, animal, ... 85
Foods and drinks, ... 400
Foods, selecting, ... 411
Foods. elements of, ... 414
Foods, dictionary of, ... 416
Foul air, ... 369
Fruits for children, ... 236
Fruit stains, ... 528
Freckles, ... 526
Freezing, ... 368
Frightening children, ... 262
Fraud, sexual, ... 137
Fuel, ... 472
Furniture polish, ... 522
Gas, should not be blown out, ... 370
Gasoline, ... 472
Gasoline stoves, ... 358
Gardening, ... 471, 493

Page.
Gathered breasts, ... 315
Getting up after confinement, ... 201
Ginger, ... 425
Girls and boys, differences, ... 260
Gravel, ... 54
Greened pickles, ... 374
"Grannies," 269
Graham bread, ... 437
Grease spots, ... 519
Growth, too rapid, ... 252
Gymnastics for women, ... 80
Habits, bad, ... 243
Hair, ... 35
Hair-oil, ... 527
Hash, ... 467
Hanging, ... 383
Hemorrhage, ... 308
Hearing, ... 44
Health defined, ... 61
Health, value of, ... 63
Heart, ... 26
Headache, ... 294
Heredity, ... 93
Helpmeet, ... 124
Hip bones, ... 17
Hooping-cough, ... 348
Home, ... 513
Home economy, ... 466
Housekeeping, ... 440, 498
House-building, ... 459
Housework, ... 456
Husband, choosing, ... 106
Hysterics, ... 301
Hygiene, ... 162, 272
Ice, breaking through, ... 383
Ice-house, ... 410
Ice-cream, ... 426
Ice, to keep, ... 411
Influence of mother on unborn child, . . . 155

	Page.
Influence of women,	511
Independence for women,	502
Ink stains, to remove,	520
Infant mortality,	206
Infant, bathing,	207
Infant, clothing,	208
Infants, air and light for,	209
Infants, sleep of,	210
Infants, cleanliness in,	213
Infants, exercise for,	230
Ingrowing toe-nail,	382
Ironing shirts,	520
Itching of genital organs,	292
Jealousy,	126
Joints,	19
Journalism,	506
Kidneys,	53
Kissing,	113
Kitchen,	444
Larynx,	32
Lawyers, women as,	474, 482
Labor, signs of approaching,	182
Labor, cause of,	184
Labor, symptoms and duration of,	184
Labor, duty of attendants,	189
Labor, duty of physician,	190
Labors, lingering,	202
Lead colic,	374
Leather, old, what to do with,	471
Leucorrhea,	290
Literature for women,	504
Lime water,	394
Lightning stroke,	383
Liver,	24
Ligaments,	19
Life, change of,	322
Love defined,	102
Long engagements,	114
Longest bone,	18

Page.
Lungs, ... 30
Lymphatics, ... 29
Masturbation, ... 245
Marry, who should not, ... 96
Marrying cousins, ... 96, 99
Marrying, proper age for, ... 100
Marrying, proper time for, ... 102
Matches, proper and improper, ... 97
Marriage, consummation of, ... 117
Man and woman, ... 54, 56
Man and wife sleeping together, ... 123
Macaroni, ... 428
Medicine chest, ... 353
Medicines, giving, ... 387
Measles, ... 347
Menorrhagia, ... 288
Meats and accompaniments, ... 539
Measures, domestic, ... 539
Menstruation, deviations of, ... 285
Menstruation explained, ... 269
Menstruation, hygiene of, ... 272
Mental work, ... 252, 306
Meat for children, ... 235
Mica stove doors, to clean, ... 528
Mice and rats, to kill, ... 522
Mildew to remove, ... 520
Milliners, ... 490
Ministers, women as, ... 483
Migraine, ... 293
Milk leg, ... 317
Milk, secretion of, ... 220
Milk, character of, ... 219
Milk, too much or too little, ... 221
Milk, the first, ... 198
Miscarriages, ... 152, 307
Morning sickness, ... 148, 319
Monthly sickness, ... 269
Monthlies, ... 269
Monthly nurse, ... 181

Page.
Money for children, ... 262
Mortality of infants, ... 206
Mother's influence on unborn child, ... 155
Mothers' marks, ... 156
Mumps, ... 349
Muscles, ... 20
Nervous system, ... 36
Nerves, ... 38
Nervousness, ... 303
Neuralgia, ... 293
Nipple, rubber, ... 224
Nipple, to draw out, ... 197
Nipples, sore, ... 316
Nipples, tender, ... 316
Night terrors, ... 342
Nose bleeding, ... 362
Nose, objects in, ... 378
Nursing sick, ... 384
Nursing child, ... 213, 216
Nurse, monthly, ... 181
Nuts, ... 429
Oat-meal, ... 394, 429
Objects swallowed, ... 378
Objects in nose and ear, ... 378
Objects in eye, ... 379
Occupations for women, ... 474
Odors, to remove, ... 519
Oil glands, ... 34
Omelet, ... 538
Onions, ... 430, 527
Oranges, ... 430
Oysters, ... 394, 430
Pain, ... 173, 353
Painless childbirth, ... 172
Panics, ... 378
Pantry, ... 461
Parlor, ... 451
Paste, ... 522
Parotitis, ... 349

Page.
Parturition, painless, ... 174
Periods, monthly, ... 269
Pelvis, ... 17
Pepper, ... 92
Pederasty, ... 137
Pears, spiced, ... 537
Peppers, pickled, ... 537
Physician, engaging, ... 170
Physicians, women as, ... 474
Pharynx, ... 23
Pickles, ... 374, 399, 537
Pies, ... 92, 534
Piles, ... 70
Placenta, ... 194
Playthings, ... 257
Potatoes, ... 91, 396, 432, 537
Pork, ... 431
Porches, ... 460
Poisons—See alphabetical arrangement of poisons and antidotes beginning on page 372
Powder, insect, ... 524
Poultry-raising, ... 495
Pregnancy, signs of, ... 147
Pregnancy, hygiene of, ... 162
Pregnancy, clothing for, ... 163
Pregnancy, diet for, ... 165
Pregnancy, exercise in, ... 165
Pregnancy, bathing in, ... 167
Pregnancy, duration of, ... 144
Pregnancy, prevention of, ... 139
Pre-natal influence, ... 155
Presence of mind, ... 352
Pruritus, ... 292
Preserving foods, ... 411
Prevention of pregnancy, ... 137
Preachers, women as, ... 483
Professional nurses, ... 485
Professional cooks, ... 497
Privy, regular time for, ... 70

Page.
Puberty, ... 52, 263, 266
Pulse, ... 28
Pure air, ... 71
Puddings, ... 534
Pump, to thaw out, ... 528
Quickening, ... 149
Rats and mice, to kill, ... 522
Rapid growth, ... 552
Reflex action, ... 39
Reproductive organs, ... 48
Respiration, ... 30
Reelfoot, ... 20
Recreation, ... 500
Rice milk, ... 394
Ring, to remove from finger, ... 526
Rust on stoves, ... 522
Rust stains, ... 520
Saliva, ... 22
Salivation, ... 22
Salt, ... 92
Saratoga potatoes, ... 536
Saratoga apples, ... 537
Scarlet fever, ... 350
Scalds, ... 357
Sciatica, ... 293
School age, ... 254
Scapula, ... 17
Scorch in cloth, ... 525
Sex and education, ... 273
Sex predicted, ... 161
Sex and disease, ... 278
Sexual intercourse at change of life, . . . 324
Sexual intercourse, inability for, . . . 119
Sexual fraud, ... 37
Sexual indulgence, ... 121
Seduction, ... 112
Senses, cultivation of, ... 46
Shoes, old, what to do with, ... 471
Shoes, to make water-proof, ... 525

Page.
Shirts, ill-fitting, ... 528
Shock, ... 383
Sickness, morning, ... 319
Sickness, green, ... 320
Sick, care of, ... 384
Sick, bathing the, ... 400
Sick headache, ... 294
Sinews, ... 23
Sitting-room, ... 449
Signs of pregnancy, ... 147
Skin, ... 33
Sleep in pregnancy, ... 168
Sleep of infants, ... 210
Sleeping together, children, ... 248
Sleeping together, man and wife, ... 122
Sleeping, covering, ... 75
Sleeplessness, ... 312
Small-pox, ... 346
Smell, ... 45
Snake bites, ... 368
Soap, economical, ... 520
Sore nipples, ... 316
Soups, cheap, ... 470
Spots, to remove, ... 519
Spells, monthly, ... 269
Spermatozoa, ... 42
Sprains, ... 20, 364
Spinal column, ... 16
Spinal cord, ... 16, 38
Spleen, ... 46
Stories for children, ... 261
Stains, fruit, ... 528
Storing provisions, ... 409
Sterility, ... 153
Stone in the bladder, ... 54
Stomach, ... 23
Sunstroke, ... 376
Sunshine, ... 76
Sudden childbirth, ... 377

	Page.
Supra-renal capsules,	47
Swallowed objects,	378
Swimming,	365
Systematic work,	473
Taste,	45
Tears,	42
Tendons,	20
Tea,	90, 234, 434
Tea, beef,	393
Temperaments,	97
Terrors,	342
Teeth,	250
Teething,	227
Teaching,	477
Temperature,	399
Telegraph operators, women as,	487
Thorax,	16
Thrush,	341
Thymus gland,	47
Thyroid gland,	47
Thermometer,	398
Tight clothing,	19, 74
Time of boiling,	540
Touch,	46
Tour, wedding,	117
Tobacco,	234, 243
Toys,	258
Toothache,	381
Toe-nail, ingrowing,	382
Toast water,	393
Twins,	144
Ulna,	17
Unwell, to become,	269
Unmarried women,	508
Urinary organs,	52
Vaccination,	229
Varioloid,	348
Varicella,	347
Varicose veins,	319

Page.
Vegetables for sick, ... 396
Vertebræ, ... 16
Ventilation, ... 72
Vinegar, ... 407, 435
Wastefulness, ... 467
Washing made easy, ... 526
Water-proof shoes, ... 528
Water-closet, regular time to visit, . . . 70
Wedding tour, ... 117
Wetting the bed, ... 242, 344
Weaning, ... 225
Weights, domestic, ... 539
Whisky, ... 437
Wheat, ... 436
Whites, ... 290
Whooping-cough, ... 348
Windows, to clean, ... 524
Windpipe, ... 31
Wine, ... 438
Woman's work, ... 474
Women's rights, ... 120, 475
Women, unmarried, ... 508
Womb, displacements, . . . 51, 53, 79, 296
Work and worry, ... 127
Work for children, ... 238
Work for all women, ... 499
Worms, ... 336
Wounds and bleeding, ... 360

NATIONAL LIBRARY OF MEDICINE

NLM 00562979 4