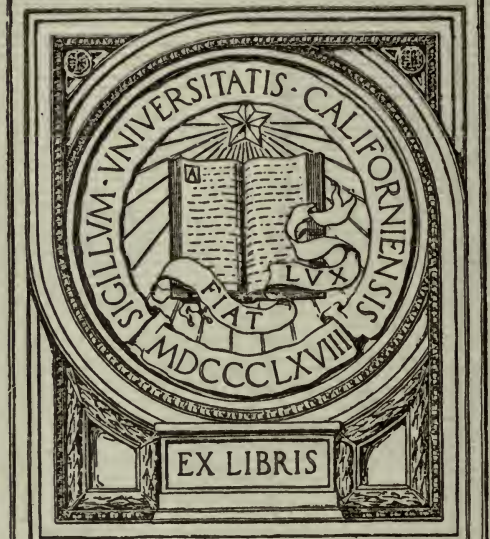

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THE KEY TO

HEALTH AND PROSPERITY

FROM

LEADING PHYSICIANS OF THE UNITED STATES, BERLIN LONDON AND VIENNA

Recipes for Cook, Farmer, Artisan, and Business Man
Antidotes for Poisons, Latin Names for Drugs in English
A Fund of Useful Facts for Everybody

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1917

PREFACE

In preparing this work the author has endeavored to use plain, simple language comprehensible to all classes. He has avoided the use of technical terms as much as possible. It is written for the generality of people, and supplies a need which, it is hoped, will be appreciated and understood by all into whose hands it may fall.

The best authorities of this country and of Europe have been consulted and the information herein recorded may be absolutely relied upon.

Many of the recipes have been purchased at considerable expense, and will be found of much value.

It is a work which will be found to assist in maintaining health, and prove of great merit in combating many of the ailments so common to humanity.

There is nothing written in any part of the book that will cause objection, and it can be put in the hands of children with the assurance that it will result in a benefit.

Its object is to educate those who have not enjoyed the advantages of special study, to the end that they may be able to know something regarding the wonderful temple composing their body, and be armed against disease.

It is not intended to supplant the offices of the physician, but, on the contrary, to assist in his work, and to be a help in emergencies, especially to those who are not in a position to consult professional advice, on account of distance, etc.

It has been the aim of the author to supply information in a compact form, and of a reliable nature; to enable the reader to save money in the purchase of drugs, necessary in all households.

Trusting that all the requirements have been met with, the author submits the work to the public, feeling assured of its being received with the appreciation expected.

AUTHOR.

CONTENTS

INTRODUCTION

It is less trouble, and much cheaper, to preserve health than it is to cure disease. A great many of the ills from which humanity suffers can be avoided. Many of us violate a law of nature through ignorance, while some, in order to gratify a temporary impulse, deliberately run the risk of contracting disease.

Notwithstanding the fact that we may at times escape immediate punishment, we may be sure that Nature exacts toll for disobedience to her law, and sooner or later we will be called to account for infractions thereof.

The brain controls to a great extent the physical being, hence it is necessary to keep the mind in a proper condition if we wish to enjoy good health.

It is true, circumstances often compel many of us to face danger; our environments sometimes are such that we cannot escape exposure to disease, yet we have within us the power to mitigate the result. Then there are those who have unfortunately come under the ban of heredity, and in such cases extreme care is necessary in order to overcome natural tendencies. Without health it is impossible to enjoy life, and it is of the utmost importance to guard with jealous care every avenue by which it may escape. We can so live that many of the ills from which humanity suffers may be defied. Nature always warns when we tread on dangerous ground, and is ever ready to assist us to retrace our footsteps. There are some who have been gifted with strong constitutions, and who have dissipated for a number of years and survived, but their lives have not been one of enjoyment; they have simply existed. Prudence requires that we should be moderate in all things.

Intemperance soon manifests itself in the general appearance of the unfortunate transgressor, and exposes his folly to the world; therefore it behooves us to live a right, clean life, honest, and true to ourselves and fellow man.

The law of nature tends to the casting away of things useless, and building up; this is progress, and it is the duty of all not to be satisfied with imitating others, but to be original. Do not be content to stand still; go ahead, and do not wait for some one to push you out of the way. Be

confident in your own strength, and when, after reflection you are decided, do not listen to opposition. This is determination. This is the material of which men are made who succeed in life.

Ambition soon wanes in a diseased body, for we lose interest in all things; we become indifferent to results, and drift with the tide. Hence the necessity of avoiding everything conducive to illness, and living a clean life, void of excesses.

Our bodies are made up of minute cells, each one acting independently of each other. They are constantly dying and as constantly being renewed. They possess the peculiar power to propagate, as the necessity requires, by dividing into halves, thus maintaining the equilibrium of the body. If, for instance, any part of the body receives a wound, many of the cells composing the part are destroyed and must be replaced. Nature provides this arrangement by automatic action, and is careful in not exceeding the demand.

Certain elements of the blood contain the required material for the purpose, provided it be in a healthy condition.

There are many different kinds of cells in the body, hence the blood must contain all the elements necessary to the different parts so that the proper selection may be made.

As the blood courses through the arteries, each cell draws from it the sustenance required. The muscles remove certain constituents, the heart, lungs, brain and other organs what is necessary for their maintenance. Should the blood be deficient in lime, the bones would be deprived of support; and so it is regarding other parts, each requires special elements in order to maintain its peculiar character.

Anatomy teaches us the names of the different parts of the body, their location and appearance.

Physiology informs us of the purpose of each and the manner in which they perform.

And that science which teaches us knowledge of those things which are harmful, that will interfere with the proper action of the organs, and what will assist in functional exercise, are treated of in Hygiene.

That part of the body made up of a combination of cells, and which can be separated from the rest as an entire body, and which performs a particular function, is called an organ; as, the liver, kidneys, heart, etc. A system, as it is called, is composed of organs of similar construction,

such as the nerves, arteries, etc. Those organs which, though differently constructed, act in unison for a particular purpose, are called an apparatus; such as the stomach, pancreas, liver, etc., which are termed the digestive apparatus.

As has been said above, each cell acts independently of the others; it possesses life in itself, and its death has no effect on other cells. Thousands of cells die daily; in fact, life and death follow in rapid succession throughout our existence. There is no difference in appearance between living and dead cells; one is simply motionless.

In addition to knowledge on anatomy and physiology, the work embraces many other subjects of interest and value to all classes, such as recipes for the compounding of remedies for the alleviation of common ills, household recipes appertaining to the culinary department, and personal requirements; and facts useful to the mechanic, the farmer, and business man.

The contents are applicable to all walks in life, gathered from many different sources, and strictly reliable. The very best efforts of some of our foremost authorities have been selected with painstaking care, and recorded in language so plain that all who read may comprehend and apply the principles set forth.

In conclusion, the author submits the result of his labor to the public, confident of its ability to judge and appreciate its merit.

AUTHOR.

FIG. 1.—The Skeleton.

CHAPTER I

Anatomy

The Bones. There are two hundred distinct bones in the human skeleton besides the teeth.

These are divided into those of the head, trunk, upper and lower extremities. The bones of the head, of which there are eight, belong to the cranium, and the face contains fourteen. The internal surface of the cranium presents eminences and depressions for lodging the convolutions of the brain, and numerous furrows for the ramifications of the blood vessels.

The bones of the cranium are united to one another by ragged edges called Sutures, which are quite distinct in the child, but in old age are nearly effaced.

The trunk contains fifty-four bones. The Sternum, or breast bone, commonly so called, in a child is composed of six pieces, in the adult of three, which in old age are consolidated into one. There are twenty-four ribs, twelve on each side, which are attached to the Spinal Column; the last four, however, are attached to the sternum in one bone. The spinal column contains twenty-four, called Vertebræ. At the bottom of the spinal column are the Sacrum, the Coccyx, and two called the Ossa Innominata. There is another bone at the other extremity, at the base of the tongue, which is the most isolated bone of the body; it is called the Os Hyoides, and serves as an attachment for the muscles of the tongue.

The bones of the spinal column are so formed as to admit the passage of the spinal cord, and between each vertebra is a highly elastic, cushion-like substance, which admits free motion of the body. The curvatures of the spinal column, of which there are four, serve to diminish the shock produced by falling, running, etc. Were it not for this provision, the brain would be exposed to a great deal of injury. The Pelvis, commonly called the hip bones, contains the several lower bones of the spinal column. The innominata during youth consist of three separate pieces on each side, but as age advances they coalesce and form one bone; a deep socket, called the Acetabulum, is found near their junction, which serves as a receptacle for the head of the thigh bone.

The bones of the upper extremity are sixty-four in number, and are classified as follows: The Scapula, Clavi-

cle, Humerus, Ulna, Radius, Carpus, Metacarpus, and Phalanges.

The scapula, or shoulder blade, is situated at the back part of the shoulder, and attached to the back and upper part of the chest. The clavicle, or collar bone, is situated at the upper part of the chest, between the sternum and the scapula, and connects with both; it prevents the arms from sliding forward.

The humerus, the first bone of the arm, is situated between the scapula and the forearm, which contains two bones, the ulna and radius, the ulna being situated on the inner side and the radius on the outer side of the forearm.

The Carpus, or wrist, is composed of eight bones arranged in two rows. The metacarpus, or palm of the hand, is composed of five bones, situated between the carpus and fingers. The phalanges, fourteen in number, are the bones of the fingers and thumb, the fingers each having three, and the thumb two bones.

The bones of the lower extremities, sixty-five in number, are classed as follows: The Femur, Patella, Tibia, Fibula, Tarsus, Metatarsus, and Phalanges.

The femur, or thigh bone, is the longest in the body; it has a large, round head, which is received into the acetabulum, forming a ball and socket joint.

The patella, or knee-pan, is the most complicated articulation in the whole body; it serves a very important purpose, as it is a protection to the joint and increases the leverage of the muscles attached to it.

The tibia, or shin bone, lies on the inside of the lower limb, while the fibula is situated on the outer side and parallel to it.

The tarsus, or instep, is composed of seven bones, and corresponds to the carpus of the upper extremities. The metatarsus, the middle of the foot, bears a close resemblance to the metacarpus, and consists of five bones situated between the tarsus and phalanges. The phalanges, the toes, consist of fourteen bones, arranged in a manner similar to those of the fingers.

Cartilage is softer than bone, and ligaments are softer than cartilage; their function is to bind the bones together.

The Synovial membrane, which covers the cartilages, secretes a lubricating fluid, which enables the bones and ligaments to move freely upon each other; when this fluid is secreted in excess, it produces a disease known as Dropsy of the joints. All the bones and their accessories are abundantly supplied with nerves and veins.

CHAPTER II

The Muscles

There are about five hundred muscles in the human body. They are those organs by which motion is produced, and are commonly known as flesh. A muscle is composed

Fig. 2.—The Muscular System.

of bundles of fibers, parallel to each other, and terminate in what is called Tendon, which is attached to the bone so

firmly that the bone will break before the tendon will give way. The muscles are divided into two classes, the voluntary and the involuntary; there are some, however, which cannot properly be classed with either, termed intermediate.

The voluntary muscles are chiefly controlled by the will; they are of a different color than the others, and stronger. The involuntary muscles are influenced by the nervous system, and their action pertains to the nutritive function of the body; they differ from the voluntary muscles in the net-work arrangement of their fibers. The intermediate muscles, which control respiration, are both voluntary and involuntary; for, while we may suspend breathing for a short while, the organic muscles will assert their instinctive control. The voluntary muscles are well supplied with nerves, while the involuntary are not so numerously furnished. The color of a muscle is due to the blood contained therein.

Muscle is capable of great contraction and expansion, and if not carried to extremes, exercise will add much to their bulk.

CHAPTER III

The Digestive Organs

Digestion signifies the act of separating or distributing, hence its application to the process by which food is made available for nutritive purposes. The organs of digestion are mouth, tongue, teeth, salivary glands, pharynx, esophagus, and the stomach and intestines, with their glands, the liver, pancreas, lacteals and the thoracic duct.

As the teeth play an important part in the process of digestion, it is necessary to preserve them as much as possible by keeping them free from all agents that tend to impair their vitality. The introduction of very hot or cold materials, the using of gritty substances for cleansing, are all highly injurious.

The salivary glands are six in number, three on each side of the mouth, which secretes the saliva, a fluid which moistens the food, and forms part of the ingredients which are necessary to digestion. The Parotid, which is the largest of the salivary glands, is located in front of and below the ear. The Submaxillary lies midway between the angle of the lower jaw and the middle of the chin. The Sublingual lies just below the tongue.

The pharynx is the upper part of the throat, and of which the esophagus is a continuation leading down to the stomach. At the beginning of the esophagus is the epiglottis, which lies at the top of the windpipe, which leads to the lungs; it is composed of cartilage, and serves the purpose of a valve to close the opening of the tube called the Larynx, which leads into the lungs. The epiglottis operates involuntarily, and prevents food from entering the lungs.

The epiglottis is situated in front of the pharynx. There is a partition called the Diaphragm, which is composed of cartilage, that separates the organs of the chest from the stomach and intestines; it is of the shape of a basin with the concave side down; there are openings in it to admit the passage of the esophagus and arteries, veins, etc. The stomach is capable of great distention to accommodate the amount of its contents. It is of pear shape, and is situated obliquely in reference to the body, its base lying at the left side, while the apex is directed toward

the right; it has two openings, one on top, by which the esophagus enters, and the other at the small end, from which the food passes into the small intestine. At this opening is a small valve, called the Pyloric valve, which opens outward, and prevents food from re-entering the stomach. The stomach contains the glands called Gastric, which secrete the gastric juice, which, mixed with the food, aids in the process of digestion.

The stomach possesses the peculiarity of what is termed the peristaltic movement. It is a sort of wave-like movement imparted by certain muscles, which thoroughly mixes the food before passing it out. The first part of the small intestine is called the Duodenum. At about the middle of it, and six inches or so from the stomach, the duct that conveys the bile and pancreatic juice enters. The succeeding portion of the intestine is divided into the Jejunum and Ileum, though there is no particular difference in them. The ileum is the last part of the small intestine, and where it opens into the large intestine there is a valve called the Ileocecal, which, like the pyloric, opens outward, thus preventing the contents from returning to the small intestine. There is a like movement of the intestines as obtains in the stomach, which moves the contents onward to the point of exit from the body.

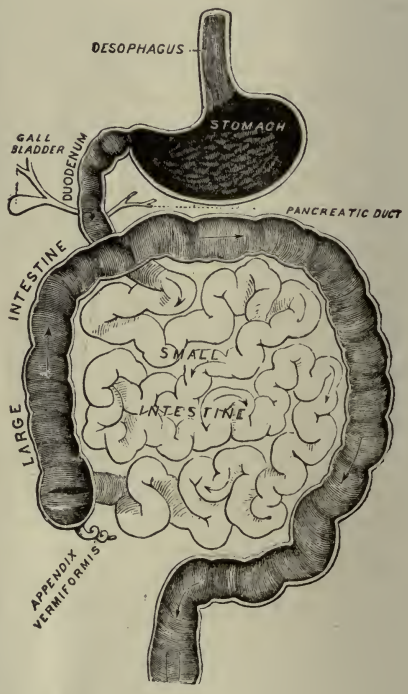

FIG. 3.—The Stomach and Intestines.

The process of digestion is carried on throughout the length of the small intestine, and part of the large one; combined, they are about twenty-five feet in length.

The large intestine is known as the Colon; it ascends on the right side, called the ascending colon; crosses to the left side, called the transverse, and descends on the left

side, which is called the descending colon. Close to and below where the small intestine enters lies the Vermiform Appendix, which gives rise to that now common disease called Appendicitis.

There are certain absorbent vessels in the large intestine that take up the balance of the nutrients that have escaped the action of the absorbents in the small intestine and distribute them to the blood.

The liver is the largest organ in the body, and in an adult weighs about four pounds; it is located chiefly on the right side, immediately below the diaphragm; it has two lobes, the right one being four times larger than the left. In the lower surface lies the Gall Bladder, which contains

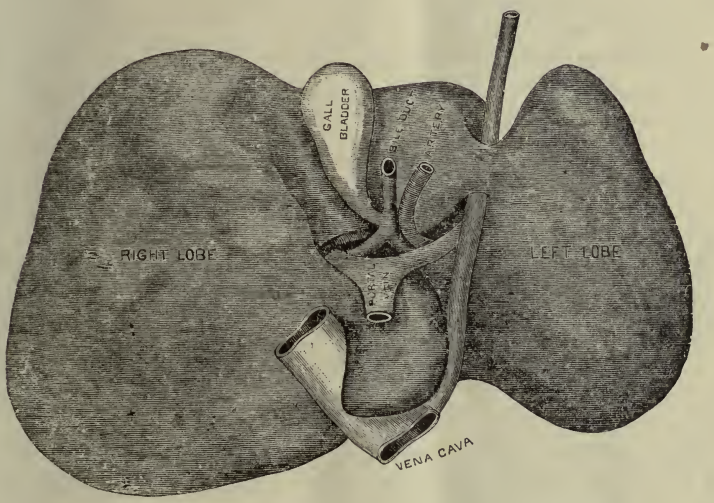

Fig. 4.—Under Surface of the Liver.

the bile, a fluid which serves the purpose of lubricating the intestines and also as an aid to digestion.

The liver performs another very important office in extracting waste matter from the blood, and depositing it in the intestine.

The Pancreas is a much smaller organ than the liver, weighing about three ounces; it secretes the fluid called pancreatic, which is similar in character to the saliva, and is very important in the process of digestion.

The Spleen, of which little is accurately known, lies a little to the left of the pancreas. It secretes a fluid, but what effect it has on digestion is problematical; it is supposed to exert a certain influence on the blood.

There is a constant waste of the body, and it is necessary to repair it, hence we eat.

The food taken into the stomach must be converted into blood before it can be transferred to the tissues, and as we have seen, this is accomplished by digestion.

It is from the blood, which goes to every part of the body, that restoration proceeds, and in order to preserve health the blood must be pure; and if the different organs fail in performing their function, or some substance is introduced that they cannot neutralize, illness follows, and it becomes necessary to resort to medicine to restore them to their normal condition.

The body is composed of different chemical substances, and the food must contain elements of which the body is deficient. Therefore one kind of food is not sufficient; there must be a variety.

An ordinary healthy man passes out of his bowels daily, on an average, five ounces of material, a large portion of which is fluid.

The kidneys pass out about fifty-six ounces; the skin, about twenty-five ounces, and the lungs about thirty-four ounces. This waste must be restored or the body will waste away.

The chief waste is from the kidneys, and is a substance called urea, which is composed of four elements: carbon, hydrogen, oxygen, and nitrogen.

These four elements represent the consumption that has been going on in the body to produce the force necessary to sustain life.

The purpose of food, then, is to restore an amount of the four elements equal to that used up; to repair the waste.

Absorption is the vital function by which nutritive material is selected and imbibed for the sustenance of the body. This is accomplished by what is termed the Villi of the intestines, which are small, hair-like bodies with which the intestines are lined. Through their agency the food, after having gone through the change of condition by the action of the fluids of the stomach, liver, pancreas, etc., is conveyed by an intricate process to the blood, whose vessels also act as an absorbent.

CHAPTER IV

The Circulation

The blood is the life-giving principle of the body, and from it repairment is made. The total amount in the body differs; in a healthy person it is about one-thirteenth of the weight of the body. It has four constituents: fibrin, albumen, and salts. There are two kinds of corpuscles, the red and the white.

The blood that flows through the veins is of a dark red, while that of the arteries is much lighter in color. The reason of this is the corpuscles contain both oxygen and carbonic acid in solution. When carbonic acid predominates, as it does in the veins, it is caused by the action of the blood in its course through the body in taking up the waste properties. The blood is carried on to the lungs, which purify it, and is then pushed on to the heart, which pumps it on again through the body. The circulation of the blood is carried on by the heart, arteries, and veins. The blood leaves the heart through comparatively large tubes, which grow smaller and smaller, ending at the extremities of the body in what are termed Capillaries, so small as to be invisible to the naked eye.

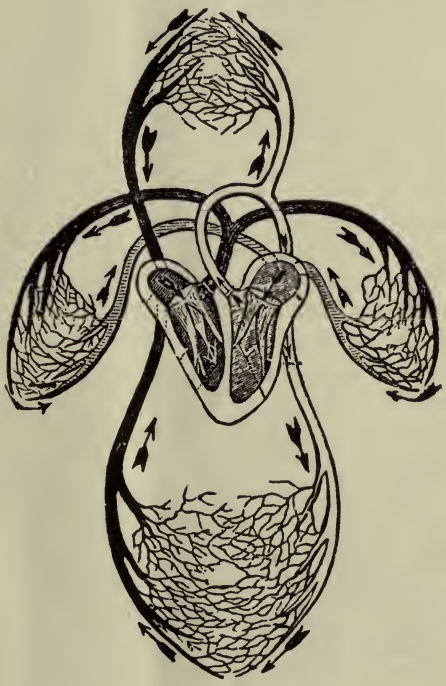

Fig. 5.—The Circulation.

The blood may be sufficient in quantity, but deficient in quality. Some particular element may be lacking; for instance, the disease known as Scurvy is due to absence from the blood of certain salts, or citric acid; or some substance

of a poisonous nature may be present. The liver may have failed in its work to extract certain substances; or some material may have gained entrance by the food, or air, and in other ways, to vitiate the quality of the blood and impair its value as nourishment.

The tissues not only remove from the blood what they require, but transfer to it the waste products of their activity; therefore as fresh blood must be supplied, it must carry away in turn the impurities. In order that the blood may be propelled through the arteries and veins, there must be some organ to act in this capacity, and such office is performed by the heart. The heart is about the size of one's fist, and is situated a little to the left of the center of the chest. It is of a conical shape, the base directed upward and backward toward the right side, while the point is down and forward. It possesses four compartments, or chambers; the two upper ones are called Auricles, and the two lower ones Ventricles. There are valves which guard the opening to the ventricle from the auricle, but there is no communication between the right and left sides.

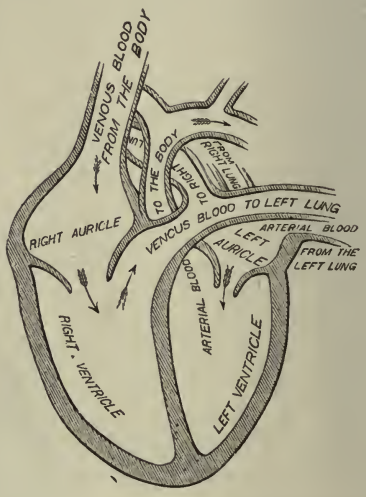

FIG. 6.—The Course of the Blood through the Heart.

To make it clear, we will follow the course of the blood from the heart, beginning at the right side. The blood is entering the right auricle from the upper and lower Vena Cavas, as they are called, and when it is filled the pressure causes it to flow into the right ventricle, which already contains a supply of blood, and is considerably larger than the auricle. The Tricuspid valve prevents the return of the blood to the auricle, and as the ventricle is filled it contracts and part of the blood is forced out through the valve at the opening of the Pulmonary artery, which opens outward, and closes at each beat of the ventricle, thus preventing the return of the blood.

The blood is forced on through the pulmonary artery to the lungs, where the air which those organs contain

purifies it, and it is sent back to the left auricle of the heart through the pulmonary vein. From the left auricle the blood passes to the left ventricle, and from there it is pumped into the Aorta, an artery. As the blood passes through the aorta it is distributed throughout the body through many different channels branching out from it; these channels grow smaller and smaller and finally merge into a net-work of minute capillaries. This is where the change of arterial to venous blood takes place, and the beginning of the veins, which are practically a continuation of the arteries. The blood is then carried through many different channels, which grow larger and larger, and finally unite into two large veins called the Vena Cavas, which lead to the right auricle of the heart, and the blood has completed the circuit of the body.

All of the blood passes through the heart in less than three minutes. The arteries carry the blood from the heart, while the veins carry it to it.

Human blood differs from any other animal, and can readily be distinguished.

The heart is capable of exerting force enough to raise the blood to a height of six feet, and six ounces of the fluid are expelled from the ventricle at each pulsation.

The arteries are usually found empty after death, while the veins remain full.

There are valves at intervals throughout the veins, which prevent the blood from flowing backward.

There are a set of vessels called Lymphatics, which are necessary to the nourishment of the body. The watery parts of food containing sugar, salts, etc., can be taken up by the blood capillaries, but the fats cannot.

In the small intestine fat is acted upon by the bile and pancreatic juice, and as a result of that action the fat no longer floats in large globules among the food, but is made into a milk-like mixture, called Chyle. This chyle is separated from the contents of the intestinal canal by the small villi, already referred to, and sucked up into the Lacteals, which spread out all over the body. The material that enters the lacteals is conveyed to what is called the Mesentery, a net-work of vessels located in the back part of the body, and to which the intestines are attached. Among the meshes of the mesentery are numerous lymphatic glands, which are about the size of an almond; here the chyle undergoes a change and is then carried along to the root of the neck through the Thoracic duct, and is conveyed thence to the Jugular vein.

CHAPTER V

The Lungs

The lungs occupy with the heart the upper part of the chest. They are of a very spongy nature, and capable of being compressed into a small space, or of being greatly distended. Into the tissues of the lungs run a great number of small tubes called Bronchial tubes. These tubes as they enter the tissue grow smaller and smaller, and end in a spongy mass of minute sacs, upon whose outer walls are a net-work of blood capillaries. When the air we breathe enters the little sacs of the lungs, the oxygen it contains passes through their thin walls into the blood, while the carbonic acid, which is in the blood, is given back in exchange, and it goes out with the breath exhaled. The body would soon die if deprived of oxygen, hence the necessity of pure air. It would be impossible for a person to commit suicide by refusing to breathe, for the involuntary muscles would prove stronger than his will; yet he could starve himself to death by refusing to eat.

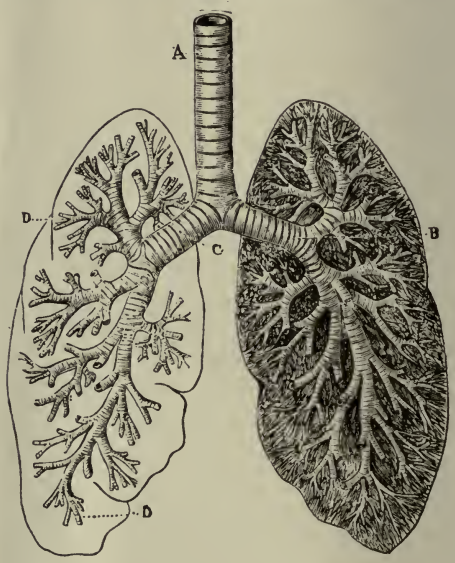

Fig. 7.—The Lungs.

A. Wind Pipe.
B. Left Bronchial Tube.
C. Right " "
D. Branches of "

The diaphragm, previously spoken of, plays a very important part in respiration, as it is one of the muscles that controls the lungs, in addition to being a partition between the chest and abdomen.

To illustrate the necessity of fresh air, I will relate a story of facts that occurred on board of one of the ocean

steamers, the *Londonderry,* in the year of 1848, on her passage from Liverpool to America.

On account of stormy weather, the captain ordered the passengers below into the hold; the hatches were closed, and in the morning seventy-two dead bodies were found, while the balance were in a state of collapse.

The poisonous matter exhaled from the lungs is so deadly that if a small portion be injected beneath the skin of a rabbit, it would result in death.

Connected with the function of respiration is the voice, an organ called the Larynx, so prominent in the throat of some persons, and commonly called the Adam's apple.

The Glottis, as it is properly termed, is bounded on each side by the edges of thin, elastic, membranous folds called the Vocal cords. The pitch of the voice is regulated by these cords; the shorter or tighter these cords are, the higher will be the pitch.

CHAPTER VI

The Kidneys and Skin

The main work of the kidneys is to extract urea from the blood; they also extract a large quantity of water. The excretion passes down through a tube that leads from each kidney, called the ureters, to the bladder, and thence from the body. It amounts to about three pints daily. The kidneys are of a bean shape, and about four inches in length and two in thickness. They are composed of numerous small tubes made up of tiny cells, which unite and open up in a pocket on the side of the kidney, from whence the contents are carried to the bladder. The amount of material secreted by the kidneys varies in accordance to the amount of water consumed, and the external temperature; also to the extent of exercise indulged in. The skin and kidneys co-operate to this extent: if considerable water is removed in the shape of sweat by the skin, less is expelled by the kidneys. In cold weather the skin is less active, and a greater quantity is thrown on the kidneys. Nervous disorders also affect the quantity. The function of the bladder is to collect and retain the urine until a certain quantity is collected and then to expel it in a stream. The urine enters the bladder drop by drop, and is passed off at will. There is a muscle at the base of the bladder called the Sphincter, which prevents its contents from returning to the ureters.

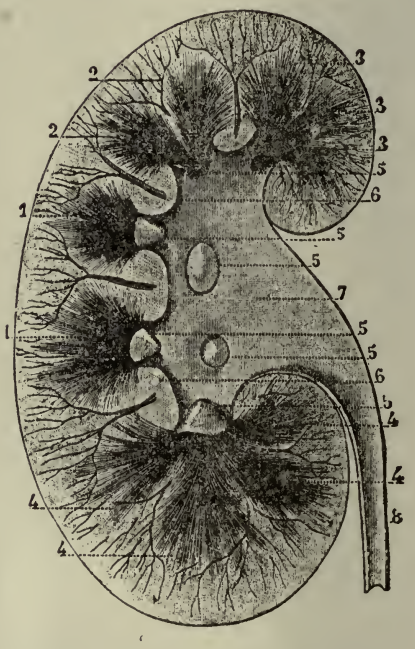

Fig. 8.—Vertical Section through Kidney.

1, 2, 3 and 4, Absorbents.
5, Points of Absorbents.
6, Columns.
7, Urinal Reservoir.
8, Ureter to Bladder.

There are few parts of the body more actively engaged than the skin in removing waste material from the system. It consists of two layers, the Cutis vera, or true skin, and the Epidermis, or cuticle. The true skin is composed of fibers, which are more densely woven near the surface than deeper in the structure. Upon the external surface are little conical prominences known as Papille, and are irregularly distributed throughout the body, being more numerous at the ends of the fingers. Although all parts of the skin are sensitive, the papille are extremely so. Each papille contains not only a minute artery and vein, but also a loop of nerves. They are easily noticed in what is termed goose-flesh. The skin contains, in addition, numerous lymphatic vessels, so minute as to be invisible to the naked eye.

Winding in and out over the true skin are the Sudoriferous glands, which secrete the perspiration, and whose office is two-fold; they remove noxious matter from the system and diminish animal heat, and thereby equalize the temperature of the body.

The cuticle being destitute of nerves and blood vessels, is not sensitive. It consists of horny scales, which are continually dropping off, new ones being supplied by the true skin below.

CHAPTER VII

The Nerves

The latest scientific definition of life is nerve force. This is the form of energy that gives to the body power of thought and action. It is the absence of this energy that transmutes what was at one moment an active, vital machine into an inert, lifeless form. Although no visible change has taken place, the heart has ceased to beat; the blood no longer flows through the veins to nourish, develop and sustain, and all the other organs have ceased their labor. What has caused this marvelous change? What is the element in the living that is absent in the dead?

There is no secret in the framework of bone, held together by sinews and muscles; nor in its covering of flesh; nor in the system of organs within this frame, or in the several duties they perform. The energy that gives them life, what is it? Nerve force. It is an indefinable form of energy that is generated in the cells of the brain and spinal cord, and sent out through the system of nerves to give power to the organs, as electricity is sent out through wires to furnish light, power, and heat. The nerves are divided into two grand divisions, the Cerebro-Spinal, and the Sympathetic or Ganglionic. The first control all of our voluntary acts, while the second act automatically, which control the action of the heart, digestive organs, kidneys, etc. The cerebro-spinal nerves preside over the animal functions, while the office of the ganglionic nerves is to regulate nutrition.

While these two systems are anatomically distinct, there is more or less intimate connection between them, and because of this relationship influences that affect one will act upon the other, as, for example, the heart, over which we possess no will power, will be agitated through fear and other emotions. The nerves, like the blood vessels and lacteals, form a net-work over the surface of the whole body, and no part can be touched without coming in contact with them.

The nerves have their origin in the brain and spinal cord, and both sets have the same covering, and run parallel to each other.

We will have to discuss the brain, now, in order to understand the nerves better. The brain is divided into

three distinct departments: the Cerebrum, which occupies the top and front of the skull, and part of the back, and the Cerebellum, in the back; then, just below, the Medulla Oblongata. The brain contains two kinds of tissue, one gray and the other white. It is the function of the gray matter to receive the impressions, and to formulate ideas and commands, while the white matter, which is thread-like in structure, is to carry them to the required point. The gray matter may be likened to the battery which generates, and the white matter to the wires that convey the electricity. The cerebrum is the organ of mind, where the intellect is, and where all voluntary motion and acts have their origin. It is the largest division of the brain, being three times larger than the other two combined. The function of the cerebellum, which is of the same structure, is to preside over the co-ordination of muscular motion. The medulla oblongata is the gradually changing connection between the brain and the spinal cord, and while not endowed with

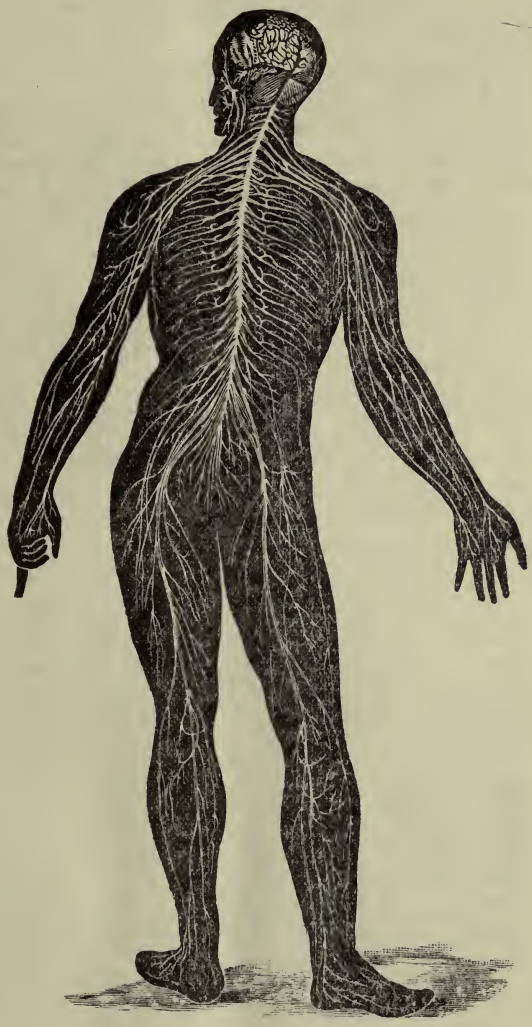

FIG. 9.—The Nervous System.

the intellectual faculties or possibilities of the cerebrum, it is the center of life, because from it originate the nerves which control many of the vital functions. The spinal cord is a continuation of this part of the brain, and in its course it is continually sending off nerves to different parts of the body. The nerves, like the wires of the electric machine, must form a complete circuit. It must have means to return to the seat of generation. Throughout the body are small sacs, which come under the control of the ganglionic nerves; in fact, are a part of them. They are practically small brains, and act locally, so to speak. If food be introduced into the stomach, an impression is made on a nerve in the walls of that organ, and it acts on the food at the command of the little sac. This impression is not carried to the brain, as in the case of the voluntary nerves, for we have no direct power to change its action. To sum up, the function of all the organs directed by the will are controlled by the cerebro-spinal, and those over which we have no control are governed by the ganglionic nerves.

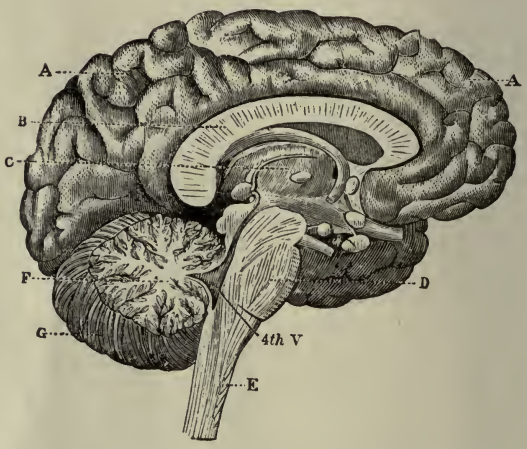

FIG. 10.—Inside Surface of Left Lobe of Brain.

A, Convolutions.
B, Nervous Matter.
C, Optic Mass.
D, Nerve Matter.
E, Spinal Cord.
F, Cerebellum.
G, Convolutions of Cerebellum.
4th Ventricle or Space.

CHAPTER VIII

General Remarks Appertaining to Health

Any material taken into the stomach and causing disorder is liable to result in illness of different kinds to other organs, on account of their close connection. Hence the necessity of care in the selection of proper food and drink, and exposure to influences that tend to lower vitality.

It has been said that what is food for one is often poison for another, so it is dependent on individual judgment to decide what course to pursue. Much depends upon the constitutional temperament, the existing condition of the organs, etc.

It may occur to the reader that by absolutely correct living one should live indefinitely, for we know that the body is being supplied with material that has been cast off, as constantly as required. We see some who have lived a long time and then die, who were free of any organic disease.

As age advances, the bones and arteries become hardened, the blood flows with less speed, and the different organs lose their elasticity; vitality wanes little by little from no apparent cause, and finally death ensues.

We may assume that certain wastes were not wholly renewed, or that some ingredients were added to parts which gradually changed their structure until eventually they ceased to perform their duties entirely.

Our conduct should be such as the conditions demand. We should be moderate in all things.

So live that when the summons come you will depart this life with few regrets, and leave behind memories that will stimulate others to emulate your example.

In all ages of the world the attention of the wisest of men has been directed to the great problem of life. What am I? For what purpose have I been created? Why am I here?

"Know thyself" was written ages ago, and it is the most vital question before man today. It is impossible for any one man to know it all, but any one can learn much that will materially benefit him, by a little study, which becomes a habit; it may be at first a little irksome, but as we proceed we soon discover it to be a pleasant duty. Our desire to learn more increases with every addition to our

knowledge, and through wisdom's channel life is brighter and better.

By knowledge of his anatomy, man is capable of prolonging his life, and enjoying it better, for he will then avoid many things that are harmful.

Let us take up, briefly, a discussion of the human body and its functional requirements.

A very important part is the skin, the one concerned in eliminating the waste from the system through the pores; if these become clogged, the poison is left in the body, and illness follows; thus we learn the necessity of cleanliness.

The bones come next, the composition of which is mostly lime. As they are the frame which supports the body, they must be strong, and if the food we eat be deficient in lime they grow soft.

The muscles are next to follow. They control all of our movements, and as they depend on the blood for nourishment, and as the blood supply is in turn dependent on the food taken into the stomach, it is necessary that all the elements requisite for proper sustenance should be used for this purpose.

It is estimated that no particle that is in our system today will be there seven years hence, and some of the parts are renewed more often, such as the finger nails, which are renewed two or three times a year. This process of carrying off and rebuilding is accomplished by the organs known as the nutritive apparatus, of which there are three parts, the digestive, the respiratory, and the circulatory systems.

The digestive organs comprise the teeth, the stomach, the intestines, etc. The teeth grind the food, and after being mixed with the saliva the pulpy mass enters the stomach, where it mixes with the gastric juice, and is then carried into the intestine in the form of what is called Chyme; it is then acted upon by the bile and pancreatic juice, which convert it into what is termed Chyle, a milk-like fluid, a great portion of which is absorbed by the villi and carried into the blood.

The heart receives the blood coming from the body, mixed with the fluid food from the intestines, and sends it to the lungs, whence, after many important changes, it is returned to the heart to be sent on its journey throughout the body. As the blood makes this grand circuit, each member of the body takes from it whatever it may need. The bones one portion, the muscles another, the nerves another, and so on to every part. This tour is not only

one of distribution, but one of collection as well, for it gathers up all the waste particles that are to be expelled in various ways.

It has been seen that the blood came back to one of the four chambers of the heart from various parts of the body, loaded with impurities. This mixture is not fit to go out into the body again, so it goes to the lungs, where it is purified by the air we breathe.

The air we breathe is composed of about one-fifth oxygen, the substance needed to purify the blood.

The walls of the little air tubes in the lungs, also the walls of the blood vessels, are so thin that the impure gases pass through and mix with the air, while the oxygen passes into the blood, making it bright red, healthy. The air, laden with impurities from the blood, is expelled in the act of expiration.

The operation of the lungs is very rapid, and as all of the blood must pass through them once in every three minutes or less, some idea may be formed of the amount of work they perform, and the necessity of pure air.

We know that the nerves are the origin of all action, but how they control our movements is not fully understood. The carpenter in driving a nail is told by the optic nerve the exact location of it, and the motor nerve carries orders to the arm to hit it, but we cannot tell precisely how this is done.

How expressive is the face of man! How clearly it announces the thoughts and sentiments of the mind! Love, hate, anger, and joy are plainly depicted. Guilt shrinks from detection, innocence declares its confidence, and hope shines out in bright expectation.

Bearing in mind, then, that the brain and nerves are the instruments of the thinking mind, and are also wound in with every process of the body, we can easily understand the necessity of keeping them in a healthy condition. Sound mind, sound intellect, and sound physique, these three go hand in hand. It is impossible for an unhealthy person to perform wholesome mental labor. All of the men mentioned in history as leaders in their time have carefully watched over the condition of their bodies.

It is surprising to what heights man may climb by judicious use of the talents with which he is endowed. There is nothing worth having which he cannot acquire if he but make up his mind fully to accomplish it.

We must ever be on our guard against temptation to exceed the limit of safety, and check the desire to indulge

in harmful pleasures. Never go to extremes in anything. Always keep a reserved force in store with which to meet emergencies.

The great majority of people eat too much. We are creatures of habit, and think that because the usual time of indulgence has arrived we must eat, regardless of the inevitable result, and many of the ills from which man suffers can be traced to that baneful habit.

Nature will notify a healthy person when to partake of food, and the quantity necessary. Better to leave the table a little hungry than to overload the stomach.

Man is an imitative creature, and is prone to follow the leader. Don't be led; act independently, and be guided by the dictates of your own conscience, which is usually right. Men differ in constitution, and cannot judge correctly by the conduct of others.

Each of our faculties can be improved by cultivation, and it is the duty of man to aim at perfection.

The chase after the almighty dollar engrosses so much of the time of the majority that they neglect to attend to the very details which are necessary to obtain it. Health is wealth, and no amount of riches can buy it.

CHAPTER IX

Common Ills and Their Remedies

It should be understood that in all cases of disease a reliable physician should be consulted.

It is not, therefore, intended by presenting the following information to supersede the important and necessary practice of the medical man, but to afford relief until such a time as his services are needed. In cases where the ailment may be of a slight character, or in which remote residence, or other circumstances, may deny the privilege of medical attendance, the following particulars will be found of the utmost value. There are many ills that will yield to simple treatment, and it is not necessary to call in a doctor every time one feels "a little out of sorts."

However, in all cases where there are complications, where there is serious organic trouble, a skilful physician is necessary, and full confidence should be accorded him.

A common cold if attended to in time will avert possible disaster, and the means of restoration are within the reach of all. The cause of colds can, with proper precaution, be rendered harmless, for they are the result, usually, of the neglect of the simple rules of health, by carelessness in exposing the body to needless danger.

We should avoid wetting the feet and remaining inactive and exposing the body to drafts, especially while the body is warm from exercise.

In the case of a cold that has not become deep-seated, its progress can be prevented, and a cure effected by bathing the feet in hot water, to which has been added a quantity of mustard, then take a 10-grain dose of Dover's powder, followed in a short while with a hot drink, and then get into bed. If this course is followed, the cold will usually be broken up.

In the absence of the powder, Quinine, a five-grain dose, may be taken with good result. The bowels must be kept in order at all times. If there is a tendency to constipation, a physic should be taken.

Fever may be said to be a general term, under which are included several forms of disease, and is one of the most common, and frequently one of the most complicated complaints to which the body is liable. It affects the system generally, and is rather a symptom than a disease.

A person suffering from a fever should remain in bed and take the following:
Rochelle Salt, 1 oz. Carbonate of Magnesia, 1 dr.
Peppermint Water, 6 ozs.
Mix, and take a teaspoonful every three hours.

A good tonic that costs little can be made as follows:
Sulphate of Quinine, 1 dr. Leptandrin, 1 dr.
Tartaric Acid, 1 dr.
A sufficient quantity of alcoholic extract of black Cohosh to moisten so as to make into pills. Mix well together, and divide into 4-grain pills, and take one three times a day.

Headache is caused by different disorders, and is quite common. If from a common cold, the snuff formula below will be found of benefit:
Pulverized Bay Berry, 1 oz. Peruvian Bark, 1 oz.
Blood Root, 1 oz.
Mix well in a mortar, and use several times a day.

If a headache is caused by too much blood in the head, avoid all food of a heating nature, and bathe the feet in hot water, to which has been added a little mustard or cayenne pepper, and take of the following mixture:
Pulverized Cayenne, 60 grs. Quinine, 10 grs.
Ipecac, 15 grs. Pulverized Opium, 10 grs.
Make into thirty pills, and take one at night and one in the morning.

Headache from constipation and gastric derangement may be relieved by the following:
Podophyllin, 20 grs. Gamboge, 20 grs.
Scammony, 20 grs. Rhubarb, 20 grs.
Cayenne, 20 grs.
Take sufficient extract of Mandrake to form into 25 pills, and take three at night and three in the morning.

For what is usually termed a sick headache, bathe the head in an equal portion of each of Spirits of Camphor, Vinegar, and water, then take of the following:
Super-carbonic of Soda, ½ dr. Prepared Charcoal, 1 dr.
Water, 1 oz.
Paregoric, 1 dr.
Mix, and take in one dose, and repeat in fifteen minutes if not relieved.

Nervous headache is a form of Neuralgia, for which take:

Extract of Aconite, ½ gr. Extract of Stramonium, ⅛ gr.
Valerianate of Quinine, ¼ gr.

Mix, and take in one pill. If the case is severe, and continues, repeat in every hour until relieved. Drink freely of the following teas: Skull-cap, or Catnip.

Toothache, if the tooth is not too badly decayed, will be relieved by a pill made of Gum Camphor and Opium, and inserted in the cavity. A decayed tooth should be filled by a competent dentist.

For Quinsy take a small handful of Sage, and as much of Sumach berries or bark, and put into three pints of water and boil down to one pint, then add a teaspoonful each of Pulverized Alum and Saltpetre. Strain, and sweeten with Honey, and gargle the throat with the mixture frequently.

Pain in the side caused by what is termed False Pleurisy will be overcome by the following:

Oil of Sassafras, 1½ ozs. Oil of Hemlock, 1½ ozs.
Oil of Origanum, 1 oz. Laudanum, 1 oz.

Mix, and rub on the affected part.

For Asthma, use:

Lobelia Seed, 1 oz. Skunk Cabbage Balls, 1 oz.
High Cranberry Bark, 2 ozs. Stramonium Seed, ½ oz.
Capsicum, ½ oz. Alcohol, 5 pints

Mix, and let stand two weeks, shaking frequently. Dose: From twenty to fifty drops three times a day, or during the paroxysm as often as necessary.

Piles are probably the most common of all the ills, and in order to render any local application effective the bowels must be regulated, for which the following is beneficial:

Equal parts of Flowers of Sulphur and Cream of Tartar, taken in doses of a teaspoonful once a day in molasses, as required.

Rub on the affected parts a salve made as follows:

Lard, 2ozs. Sulphur, 1 dr.

Mix, and rub between two plates of lead until it is well blackened.

Pain in the back is common, and is often blamed on the kidneys when they are not involved. The symptoms of kidney trouble are usually chills in the back and loins, extending to the bladder, which is aggravated by pressure. There is sometimes nausea, a desire to vomit. The urine is scanty, highly colored, and often bloody. In all cases where the kidneys are involved a physician should be consulted.

The following is recommended for backache:
Sweet Spirits of Nitre, 2 ozs. Spirits of Turpentine, 1 oz.
Oil of Sweet Almonds, 2 ozs.
Mix, and take a teaspoonful every three or four hours, in Spearmint tea.

The following remedy was originally purchased at great expense, and will be found of value in many cases where a liniment is required. It is invaluable in all surface pains, such as neuralgia, rheumatism, toothache, etc.:
Alcohol, 1 oz. Chloroform, ⅝ oz.
Gum Camphor, ½ oz. Oil of Cloves, ½ dr.
Oil of Lavender, 1 dr. Sulphuric Ether, ¾ oz.
Laudanum, ⅛ oz.
Mix thoroughly together, and rub in well.

Dyspepsia is one of the most common diseases with which the physician meets. Those who are of sedentary habits, who have little opportunity for exercise, are more subject to it than others. It is the result of indigestion, and is often caused by imperfect mastication of food. We eat too hastily, and the food enters the stomach in such a condition that the mass is imperfectly acted upon by the gastric juices, and it is not all passed out in time, but remains in the stomach, where it putrefies. Eating late at night just before retiring, anger, great joy, all the emotions, in fact, are fruitful causes of Dyspepsia, as is also eating after great bodily fatigue. It is not necessary to admonish any one what not to eat, as we all soon discover what is objectionable, and, besides, no set rule can be laid down, because what would be harmful to some might prove beneficial to others. In acidity of the stomach, the following is of benefit:
Powdered Bay Berry Bark, 1 oz. Bicarbonate of Soda, 1 oz.
Powdered Golden Seal, 1 oz.
Powdered Prickly Ash Bark, 1 oz. Powdered Bitter Root, 1 oz.
Mix, and take from one-half to one teaspoonful three times a day.

For chronic cases take:
Powdered Blue Flag, 1 oz. Powdered Mandrake, 1 oz.
Powdered Bitter Root, 1 oz. Powdered Blood Root, ½ oz.
Capsicum, 2 dr.
Mix, and take as above.

For chronic constipation take:
Oxide of Bismuth, 12 grs. Aloes, 24 grs.
Make into twelve pills with molasses, and take four at night on going to bed until the stomach is strengthened.

The liver is usually out of order in all cases of dyspepsia, and the following will correct the trouble: One-half drachm each of Extract of Gentian and Powdered Rhubarb, and four grains of Blue Mass.

Make into twenty pills, and take one three times a day, until relieved.

The following bitters are valuable in dyspepsia:
Peruvian Bark, 1 oz. Gentian Root, 1 oz.
Orange Peel, ½ oz. Coriander Seed, ½ oz.
Bruise all together in a mortar, and put them in a quart of French brandy, and let stand for four or five days, then take a teaspoonful in a glass of water an hour before meals.

Constipation is very common, and should be avoided, as the majority of the ills from which we suffer are caused by failure to evacuate the bowels.

Do not under any circumstances neglect to attend to a call of nature in this respect. Form the habit of going to the toilet at a certain time every morning; even should the desire to evacuate fail to manifest itself, persist, and nature will establish a habit of vital importance.

Proper exercise should be taken every day, and the right kind of food selected. Fruit, coarse bread and soup are excellent articles of diet for one subject to constipation, and salt meats, pastry, cheese, and highly seasoned dishes should be avoided.

A mixture of Rhubarb, 2 parts; Bicarbonate of Potassa, 1 part, mixed into 6-grain doses, and taken in a little warm water three times a day, one hour before each meal, will act favorably.

When the bowels become loose, the following will be of benefit:
Compound syrup of Rhubarb and Potassa, 4 ozs.
Essence of Peppermint, 1 dr. Paregoric, 4 dr.
A teaspoonful three times a day.

For Ague:
Quinine, 20 grs. Dover's Powders, 10 grs.
Sub-carbonate of Iron, 10 grs.
Mix with mucilage of Gum Arabic, and form into 20 pills. Take two each hour, commencing five hours before the chill should set in; then take one night and morning, until all are taken.

For sore throat: One-half pint of strong sage tea, two tablespoonfuls each of strained honey, salt and vinegar. Take a teaspoonful of cayenne, and mix with the tea first, then add the other ingredients. Bottle, and use as a gargle several times a day.

For felons: Take half a pint of sweet oil, and put into it a piece of plug tobacco about the size of a half dollar, and stew until it is crisp, then squeeze the tobacco out, and add one ounce of red lead, and boil until black. When partly cooled, add one ounce of powdered camphor gum, and wrap around the affected part.

Another Cure for Felon: Wind a cloth loosely about the finger, leaving the end open, then pour in black gunpowder enough to cover the part afflicted, and keep it moist with strong Spirits of Camphor.

For Warts and Corns: Take a small piece of Potash, and let it stand in the air until it slacks, then thicken it to a paste with pulverized Gum Arabic. Pare off the top of corn or wart, and apply the paste, and let it stand for about ten minutes; then wash off and soak in vinegar. Wear well-fitting shoes, and you will not be troubled with corns.

For Stomach Worms: Take one-half ounce each of Manna, Carolina Pink root, Senna leaf, and American Worm seed; bruise and pour on one pint of boiling water, then steep, but do not boil. Sweeten, and add a pint of milk. A child may take one gill three times a day, before meals, until the bowels move freely. If no favorable results ensue, wait a day and increase the dose, continuing until the end is accomplished.

For Tape Worm: Pulverized Pumpkin seeds, two ounces every four hours, for four or five days; if necessary, take a cathartic to move the bowels freely. One ounce of Turpentine in Castor Oil is also effective.

To stop the flow of blood from a slight cut, take equal parts of salt and wheat flour, and sprinkle on dry. If an

artery be cut, the blood will flow in spurts, and will be of a bright red color; and to stop it, use a compress between the cut and heart; if a vein be severed, the blood will be of a dark red color, and flow steadily, and it must be compressed on the side away from the heart.

For burns: Equal parts of turpentine, beeswax, and sweet oil. Melt the wax and oil together, and when a little cool add the turpentine, and stir until cold. This is an excellent salve for cuts and bruises, also.

Palpitation of the Heart can be stopped temporarily by drinking Soda Water.

For old Sores and Ulcers: One ounce each of Beeswax and Rosin, mixed with four ounces of Mutton Tallow or Lard. After melting, pour in one drachm of pulverized Verdigris, and stir until cold. First thoroughly clean the sore with warm water and soap. If there be any proud flesh, sprinkle over with finely powdered Alum, and remove as much as possible without causing bleeding, then apply the ointment.

Another ointment may be made as follows: Equal parts of Tincture of Myrrh, Aloes, and Blood Root, added to the above ointment.

Chronic cases of Heartburn can be relieved with the following: Mix a teaspoonful of prepared Chalk with five grains of Ginger, and take in milk or water. Heartburn is a misnomer, as it has no connection with the heart, being caused by acidity of the stomach.

Hiccough is sometimes difficult to control, and the following will usually relieve: Twenty drops of Sal Volatile and fifteen drops of Ether, in a wine glass of Camphor water.

In severe cases, thirty drops of Laudanum in water.

For a Sore Throat: Wrap a piece of flannel about the throat on retiring, and gargle with a strong solution of Alum.

For Sprains: One ounce each of Spirits of Camphor. Vinegar, and Spirits of Turpentine, rubbed in thoroughly, after having soaked the affected part in very cold water for an hour or more.

It is very important in using liniments, ointments, etc., to rub them in thoroughly. The rubbing itself is of a curative nature, and it greatly assists in the action of medicine.

Chapter X

Poisons and Their Antidotes

In cases of poisoning, haste is imperative, and the first thing to do is to administer an emetic to empty the stomach, then give about a tablespoonful of salt mixed with mustard, in warm water, or cold will answer.

Putting the finger in the throat and moving it about will usually be effective.

Also salad oil in warm water, or three or four grains of tobacco.

After the stomach has been emptied, administer the following antidotes:

Poisons	Antidotes
Arsenic, or any preparation of. Any of each,	The white of eggs. Lime water. Chalk and water. Hydrate of iron.
Alcohol, etc.,	Dash cold water on the head, and give diluted Ammonia water.
Ammonia,	Lemon juice, diluted Vinegar, or Acetic acid.
Nitric, or any of the burning acids,	Magnesia, or Soap water.
Antimony,	Tea made of Peruvian bark, or Galls, or White Oak bark; give freely.
Alkali Volatile,	Drink freely of water with Lemon juice or Vinegar in it.
Citric and Acetic acid,	Chalk, or Magnesia water, Flaxseed tea, or Lime water.
Carbolic acid,	Flour and water, or any glutinous drink.
Cantharides,	Drink freely of milk or Camphor water, a tablespoonful, and rub the Spirits on the outside.

Poisons	Antidotes
Carbonate of soda,	Soap, or Mucilage drink.
Caustic potash,	Drink freely of Lemonade or diluted Vinegar.
Chloral hydrate,	Dash cold water on head and face, and apply artificial respiration.
Chloride of lime,	Lemonade, or diluted Vinegar, and physic.
Cobalt,	Soap, or Mucilaginous drinks.
Corrosive sublimate,	Milk, or white of eggs, freely.
Creosote,	Starch or flour mixed with water, or white of eggs.
Copperas,	White of eggs.
Absinthe,	Drink freely of Flaxseed tea.
Belladonna,	Drink freely of Lemonade or Vinegar water.
Bitter almonds, and Peach kernels,	Spirits of Hartshorn, strong Coffee, and cold applications to the stomach.
Blue vitrol, and Sulphuric acid,	Magnesia, Soap, Chalk, or Lime water, then give Mucilage water or milk.
Fish (Ptomaine),	Strong physic, then any alkaline drink.
Fowler's solution,	Sweet oil, butter and milk.
Poison oak, or Ivy,	Apply to affected part a strong solution of Sugar of Lead.
Opium, Laudanum, etc.,	Strong Coffee, and keep the patient awake at all hazards.
Lime,	Vinegar water, or Lemon juice.

POISONS	ANTIDOTES
Lunar caustic,	Milk, freely, then physic.
Lye,	Vinegar, or Olive oil.
Mercury,	White of eggs.
Morphine,	Strong Coffee, and keep patient awake.
Muriatic acid,	Magnesia, or soap water.
Mushrooms,	Epsom salts, and stimulate.
Nitrate of silver,	Salt water freely.
Phosphorus,	Milk, or Magnesia, and follow with Flaxseed tea.
Paris green, Nux vomica, etc.,	Hydrate of iron, white of eggs, Lime water, or Chalk and water.
Prussic acid (the deadliest of poisons),	Coffee; inhale Ammonia, Camphor, or Vinegar, and pour water on the head and back.
Strychnine,	White of eggs, Lime water, Hydrate of iron.
Tobacco,	Whiskey and water.
Tartaric acid,	Magnesia, or Soap water.

PROPORTIONAL DOSES OF MEDICINES

A full dose for ages above 21 years of age up to the age of 65, and above that age graduate in reverse order:

At 7 weeks of age,	One-fifteenth.
At 7 months,	One-twelfth.
Under two years,	One-eighth.
Under three,	One-sixth.
Under four,	One-fourth.
Under seven,	One-third.
Under fourteen,	One-half.
Under twenty,	Two-fifths.

CHAPTER XI

Latin Names of Drugs and Their Equivalent in English

Latin	English
Acacia.	Gum arabic.
Acetum.	Vinegar.
Acidum citricum.	Citric acid.
Acidum hydrocyanicum.	Prussic acid.
Acidum oxalicum.	Oxalic acid.
Acidum tartaricum.	Tartaric acid.
Adeps.	Lard.
Allium sativum.	Garlic.
Alumen.	Alum.
Amygdala dulcis.	Sweet almonds.
Apocynum cannabinum.	Indian hemp.
Aqua ammoniæ.	Ammonia.
Aqua calcis.	Lime water.
Argenti natras.	Caustic.
Aristiochia serpentaria.	Snake root.
Arnica montana.	Arnica flowers.
Atropa belladonna.	Deadly night shade.
Aurantii cortex.	Orange peel.
Avenæ farina.	Oatmeal.
Avenæ sativa.	Oats.
Butyrum.	Butter.
Calamus aromaticus.	Calamus.
Calcis chloridum.	Chloride of lime.
Cantharis vesicatoria.	Cantharides.
Capsicum annuum.	Red pepper.
Carbo ligni.	Charcoal.
Caryopyllus aromaticus.	Cloves.
Cassia maralandica.	Senna.
Cephaelis ipecacauanha.	Ipecac.
Cera alba.	White wax.
Cera flava.	Yellow wax.
Cerevislar fermentum.	Yeast.
Certraria islandica.	Iceland moss.
Chloroformi.	Chloroform.
Cinchonia rupia.	Peruvian bark.
Conolvolus jalapa.	Jalap.
Cornus florida.	Dogwood.
Creosotum.	Creosote.
Creta preparata.	Prepared chalk.

LATIN	ENGLISH
Crocus sativas.	Saffron.
Cupri sulphas.	Bluestone.
Datura stramonium.	Thorn apple.
Eupatorium perfoliatum.	Boneset.
Ferri ferrocyanuretum.	Prussian blue.
Ferri sulphas.	Green vitrol.
Gaultheria procumbens.	Wintergreen.
Glycerina.	Glycerine.
Glycyrrhhiza glabra.	Licorice.
Hamamelis virginiana.	Witch hazel.
Hydrargryri corrosive chloridum.	Corrosive sublimate.
Hydrargryri chloride mite.	Calomel.
Hydrargryri oxidum rubrum.	Red precipitate.
Hydrastic canadenis.	Golden seal.
Iodinum.	Iodine.
Laurus camphora.	Camphor.
Lappa minor.	Burdock.
Leptrandra virginica.	Culvers root.
Linum usitatissmum.	Flaxseed.
Lotii hydrargryri nigra.	Black wash.
Lupulina.	Hops.
Magnesia carbonas.	Magnesia.
Magnesia sulphas.	Epsom salts.
Maranta arundinacea.	Arrow root.
Marrinbium vulgare.	Horehound.
Mel despumatum.	Honey.
Mentha piperita.	Peppermint.
Mentha pulegium.	Pennyroyal.
Moschus moschiverus.	Musk.
Myristica moschata.	Nutmeg.
Narthex asafœtida.	Asafœtida.
Oleum amygdalæ.	Oil of almonds.
Oleum morrhuæ.	Cod liver oil.
Oleum olivæ.	Olive oil.
Oleum ricini.	Castor oil.
Oleum terebinthinas.	Turpentine.
Oleum tigleum.	Croton oil.
Papaver somniferum.	Poppy heads.
Pigmentum indicum.	Indigo.
Pilulæ massæ hydrargryri.	Blue mass.
Piper nigrum.	Black pepper.
Phytolacca.	Poke.

Latin	English
Plumbi acetas.	Sugar of lead.
Pottassi nitras.	Saltpetre.
Pottassi supertartras.	Cream of tartar.
Prunas virginiana.	Wild cherry.
Pulv ipecac et opii.	Dover's powders.
Quercus alba.	White oak.
Rheuma officinale.	Rhubarb.
Rhus taxicodendron.	Poison oak.
Saccharum album.	White sugar.
Saccharum laxtis.	Sugar of milk.
Sagus rumphii.	Sago.
Sanguinaria canadensis.	Bloodroot.
Sinapis alba.	White mustard.
Sinapis nigra.	Black mustard.
Sodæ chloridum.	Salt.
Similax officinale.	Sarsaparilla.
Sodæ biboras.	Borax.
Sodæ carbonas.	Carbonate of soda.
Sodæ et potassii tartras.	Rochelle salts.
Sodæ phosphas.	Phosphate of soda.
Sodæ sulphas.	Glauber salts.
Solanum dulcamara.	Bitter sweet.
Stillingia.	Queen root.
Sulphur rotundum.	Sulphur.
Theobroma cacao.	Chocolate.
Tinctura opii.	Laudanum.
Tinctura opii camphorata.	Paregoric.
Ulmas fulva.	Slippery elm.
Xanthroxylum	Prickly ash.
Zingiber offinalis.	Ginger.

CHAPTER XII

Formulas of Patent Medicines

Dr. Pierce's Golden Medical Discovery

Fluid Extract of Cinchona,	4 ozs.
Fluid Extract of Colombo,	1 oz.
Fluid Extract of Guiac,	2 ozs.
Fluid Extract of Licorice,	1 oz.
Tincture of Opium,	¼ oz.
Podophyllin (Resinoid),	30 grs.
Glycerine,	1 pint

Dissolve the podophyllin in alcohol, then add the other ingredients. Thoroughly mix, and take a teaspoonful twice a day.

Peruna

Alcohol,	1 pt.
Cubebs,	1 dr.
Burnt Sugar,	½ oz.
Water,	3 pts.

Cascarets

Cascarine,	12½ grs.
Podophyllin,	8 grs.
Aloin,	12½ grs.
Belladonna,	8 grs.
Sugar,	8 ozs.

B. B. B.

Buchu,	½ oz.
Uva Ursi,	2½ drs.
Extract of Cubebs,	3 drs.
Alcohol,	4 ozs.
Oil of Peppermint,	1 dr.

Haarlem Oil

Oil of Turpentine,	1 pt.
Linseed Oil,	½ pt.
Balsam of Sulphur,	1 gill
Barbadoes Tar,	½ gill
Crude Oil of Amber,	1 oz.

Centaur Liniment

Oil of Sassafras,	2 ozs.	Oil of Wormwood,	2 ozs.
Oil of Spike,	3 ozs.	Oil of Tansy,	2 drs.
Oil of Peppermint,	1 oz.	Aqua Ammonia,	2 ozs.
Oil of Petroleum,	3 ozs.	Tincture of Opium,	2 ozs.
Oil of Cloves,	2 drs.	Opodeldoc,	2 ozs.
Oil of Cinnamon,	2 ozs.	Gum Camphor,	2 ozs.
Oil of Cedar,	2 ozs.	Chloroform,	2 ozs.
Oil of Origanum,	2 ozs.	Alcohol,	1 gal.

Lightning Liniment

Glycerine,	1 oz.	Extract of Aconite,	1 gr.
Alcohol,	4 ozs.	Oil of Mustard,	1 dr.

This is a valuable liniment for rheumatism,

Mexican Mustang Liniment

Petroleum, 2 ozs. Brandy, 1 dr.
Aqua Ammonia, 1 oz.

Hamlin's Wizard Oil

Tincture of Camphor,	2 ozs.	Aqua Ammonia,	½ oz.
Tincture of Opium,	½ oz.	Chloroform,	2 drs.
Powdered Cayenne,	½ oz.	Oil of Sassafras,	½ oz.
Alcohol,	½ oz.	Turpentine,	1 dr.
Oil of Cloves,	1 dr.		

Radway's Ready Relief

Tincture of Capsicum,	1 oz.	Aqua Ammonia,	½ oz.
Spirits of Camphor,	2 ozs.	Alcohol,	½ oz.
Soap Liniment,	1½ ozs.		

Perry Davis' Pain Killer

Tincture of Capsicum,	1 oz.
Spirits of Camphor,	2 ozs.
Tincture of Guaiac,	½ oz.
Tincture of Myrrh,	½ oz.
Alcohol,	4 ozs.

St. Jacob's Oil

Ether,	1 oz.
Alcohol,	1 oz.
Burnt Sugar,	1 oz.
Water,	1 oz.

Ayer's Cherry Pectoral

Tincture of Bloodroot,	2 ozs.	Wine of Ipecac,	3 drs.
		Acetate of Morphia,	4 grs.
Antimonial Wine,	3 drs.		

Wine of Cardui

Fresh Cocoa leaves, 3 ozs. Port Wine, 1 pt.

Dr. Pierce's Favorite Prescription

Tincture of Digitalis,	2 parts	Savin,	10 parts
		Cinnamon,	5 parts
Tincture of Opium,	2 parts	Agaric,	5 parts
Oil of Anise,	8 parts	Alcohol,	45 parts
Peruvian Bark,	10 parts	Water,	220 parts
Gum Arabic,	10 parts		

Warner's Safe Cure

Powdered Saltpetre, 2 drs. Alcohol, 3 ozs.
Liverwort, 1 oz.

Chamberlain's Relief

Tincture of Capsicum,	1 oz.	Tincture of Guaiac,	1 oz.
Spirits of Camphor,	¾ oz.	Alcohol,	1 oz.

S. S. S.

Tincture of Cardamon Seed	1 oz.	Extract of Zanthoxylon,	½ oz.
Tincture of Cinnamon,	¼ oz.	Extract of Sarsaparilla,	1 oz.
Acetate of Potash,	1 oz.	Extract of Phytolacca,	1 oz.
Iodide of Potash,	1 oz.	Alcohol,	4 ozs.
Extract of Culvers Root,	1 oz.	Sugar,	1½ lb.
		Water,	36 ozs.

Pile Ointment

Stramonium Ointment, 1 oz. Carbonate of Lead, ½ oz.
Sulphate of Morphia, 15 grs. Olive Oil, 20 drops

Magnetic Ointment

Prepared Lard,	8 ozs.	Simmer on stove, then
Raisins,	3 ozs.	strain. Good for Salt
Fine Cut Tobacco,	3 ozs.	Rheum, Tetter, etc.

Anderson's Soothing Ointment

Oxide of Bismuth,	½ oz.	Vaseline,	4½ ozs.
Oleic Acid,	4 ozs.	Oil of Rose, to perfume.	
White Wax,	1½ ozs.		

Iodoform Ointment

Iodoform,	10 grs.	Cosmolins,	1 oz.
Oil of Eucalyptus,	1 dr.		

Green Mountain Salve

Powdered Verdigris,	1 oz.	Balsam Fir,	1 oz.
Oil of Wormwood,	½ oz.	Mutton Tallow,	4 ozs.
Venice Turpentine,	1½ ozs.	Beeswax,	4 ozs.
Oil of Red Cedar,	1 oz.	Burgundy Pitch,	4 ozs.
Oil of Origanum,	1 oz.	Resin,	5 lbs.
Oil of Hemlock,	1 oz.		

Melt the resin, pitch, tallow, and balsam together; then add the oils with the verdigris, together with the other ingredients, and mix thoroughly. This is one of the best salves made.

CHAPTER XIII

Household Recipes

An excellent cold cream can be made as follows:

Oil of Sweet Almonds,	8 ozs.	White Wax,	4 drs.
Rose Water,	8 ozs.	Pulverized Borax,	20 grs.
Spermaceti,	6 drs.	Attar of Roses,	8 drops

Melt the spermaceti, wax and oil of almonds together by gentle heat; then dissolve the borax in the rose water, and add slowly to the melted mixture while on the fire; then take off and stir until cool, and add the attar of roses.

For Chapped Hands

Carbolic Acid,	30 grs.	Yolk of one egg.	
Glycerine,	3 ozs.		

Put in a bottle, and shake well.

Hair Tonic

Tincture of Cantharides,	2 drs.	Cinnamon,	15 drops
		Lavender,	1¼ drs.
Oil of Bergamont,	3 ozs.	Aqua Ammonia,	4 drs.
Castor Oil,	3 ozs.		

Alcohol sufficient to make one quart.

Hair Oil

Oil of Cotton Seed,	1 pt.	Oil of Rosemary,	1 dr.
Oil of Fennel,	¼ oz.	Oil of Cinnamon,	3 drs.
Oil of Sassafras,	¼ oz.	Oil of Cloves,	1 dr.
Oil of Thyme,	1 dr.	Oil of Lavender,	1 dr.

Sea Foam Shampoo

Sulphuric Ether,	1 oz.
Alcohol,	1 oz.
Glycerine,	1 oz.
Aqua Ammonia,	1 dr.

Dissolve 2 ozs. of Castile Soap in 1 qt. of rain water, and add the other ingredients.

Tooth Powder

Prepared Chalk,	1 lb.	Orris Root,	4 ozs.
Powdered Borax,	8 ozs.	Mix well, and strain.	
Myrrh,	4 ozs.		

Health Bread

1 cup of Milk.
½ cup of Water.
2 cups of Bran.
1 cup of Graham Flour.
1 tablespoonful of Sugar.
2 tablespoonfuls of Butter.
1 teaspoonful of Salt.

Heat the milk, then add the sugar and butter; when lukewarm, add the yeast, softened in one half cup of water; then add the salt, bran, and flour. Beat well, and let rise until double in bulk, then divide into two loaves, knead and put in two pans. Let rise again and bake in a moderate oven.

Bran Gems

1 cup of Flour.
1 Cup of Milk.
2 cups of Bran.
1 Egg.
2 tablespoonfuls of Butter.
1 tablespoonful of Sugar.
1 teaspoonful of Salt.
3 teaspoonfuls of Baking Powder.

Sift the flour with the salt, sugar, and baking powder; add beaten egg, milk, and bran, and beat thoroughly; then pour in the melted butter, and pour into hot gem pans, and bake in hot oven.

Cream Pie

1 cup of Sour Cream.
¾ cup of Sugar.
1 teaspoonful of Ground Cloves.
½ cup of Raisins.
¼ cup of Currants.
½ teaspoonful of Cinnamon.
2 Eggs.

Separate the eggs, and to the beaten yolks add raisins and currants, chopped very fine, then sugar, cream, and spices. Line a pie plate with rich paste, and bake the mixture with only one crust, using the whites of the eggs for a meringue.

Popovers with Chocolate Sauce

1 cup of Milk.
1 cup of Flour.
½ teaspoonful of Salt.
1 Egg.

Put flour, milk, egg, and salt in a deep bowl, beat well and pour into hot gem pans that have been well buttered. Serve with the following sauce:

1 square of Chocolate.
1 cup of Milk.
1 cup of Sugar.
1 teaspoonful of Vanilla.
½ teaspoonful of Salt.
1 teaspoonful Corn Starch.
1 tablespoonful of Butter.

Melt chocolate with tablespoonful of water; when bubbling, add milk, salt, butter, and sugar; when boiling, thicken with corn starch, wet with a little water or milk. Cook until raw starch is gone, and flavor.

Cottage Pudding

2¼ cups of Flour.
1 cup of Milk.
½ cup of Sugar.
2 tablespoonfuls of Butter
1 Egg.
½ teaspoonful of Salt.
¼ teaspoonful of Almond Extract.
1 teaspoonful of Vanilla Extract.
2½ teaspoonfuls of Baking Powder.

Beat butter and sugar together, then add the egg, well beaten, then the milk and flour sifted with all the dry ingredients; flavor with the almonds and vanilla, and bake 45 minutes in a moderate oven. Serve with the chocolate sauce.

Maple Frosting

1 lb. of Maple Sugar.
1 cup of Water.
The Beaten Whites of Two Eggs.

Boil sugar and water until it will spin a thin thread; pour on the egg whites slowly, beating all the time; when stiff enough to spread, pour on cakes.

Nice rolls can be made with the same dough as bread, except use cream or milk instead of water, and roll into desired shape.

Boiled Rice.—Clean rice in cold water, then put one cup of it into two cups of boiling water, and let it boil rapidly until tender; drain at once and put into a warm oven until dry.

Steamed rice should be put in a steamer and cooked for about an hour, without stirring. Rice should not be more than three inches deep in a vessel, as its weight will make it soggy.

Rice and raisins make a very palatable dish, and it may be prepared as follows: Cook as directed for steamed rice, but as soon as it has swelled, before it has softened, stir into it softly, with a fork, a cupful of raisins or currants, and serve with cream.

In preparing macaroni for cooking, do not wash it; if dusty, wipe off with a dry rag, break into pieces and put into plenty of boiling water, as it absorbs a great deal; when tender, put in a colander and strain, and pour cold water through it to prevent it from sticking together. It can be seasoned to suit the taste. Macaroni is very useful in soups, and is a valuable adjunct to many dishes.

Macaroni with tomato sauce is made by the same process as the preceding, then prepare tomatoes by stewing and pressing through a colander and strain; then thicken with a little flour, about a tablespoonful to the pint, season, and, if desirable, add a little cream. Fruit of any kind is a pleasant accompaniment to macaroni.

Corn Puffs.—Mix the yolk of one egg with a cup of milk, then add a cup of flour, one-half cup of fine corn meal, and one-fourth cup of sugar; mix thoroughly; place the batter where it will cool, then beat until full of air bubbles, then put in carefully the well-beaten white of the egg, and pour into well-heated irons, and bake in a moderate oven thirty or forty minutes.

Nut Crisps.—Mix together 1½ cups of coarse graham flour, and ½ cup of finely ground nuts. Make into a stiff dough with cold water; knead well and roll into very thin wafers, shape and bake on perforated tins until lightly browned on both sides.

Baked Pears.—Pare, halve and remove seeds, and place in a shallow earthen dish, using one cup of water to each two quarts of the fruit; cover, and bake in a moderate oven until tender, and serve with sugar and cream.

Potatoes with Celery.—Pare and slice the potatoes, and put in stew pan with one-quarter as much of minced celery; put in sufficient milk to cover, and stew until tender.

Ginger Bread.—Mix two pounds of flour with one-half ounce of carbonate of magnesia, then add one pint of molasses, one-half pound of sugar, two ounces of melted butter, two drachms of tartaric acid; make a stiff paste, and add two drachms each of nutmeg and cinnamon; let stand one hour, and bake slowly.

CHAPTER XIV

Useful Information

To Resharpen Old Files.—Dissolve four ounces of saleratus in one quart of water, and boil the files in this solution for half an hour; take out, wash and dry; then stand in the following preparation: Water, one quart, and four ounces of sulphuric acid. Coarse files should remain in the solution for twelve hours; fine ones, about three. If a file is not too dull, it can be cleaned with benzole and a scratch brush.

To destroy the taste of castor oil, beat in with the white of an egg until thoroughly mixed.

To remove the odor of onions from the breath, eat a little parsley with a little vinegar in it.

Management of Brooms.—Wet in boiling soapsuds once a week, and they will be tougher and last longer.

To Exterminate Ants.—Powdered borax sprinkled about their haunts will drive them away.

To Purify Water in a Cistern.—Two ounces of permanganate of potassa put in the cistern will purify the water.

To Destroy Bed Bugs.—Equal parts of turpentine and coal oil will destroy them.

Waterproof Composition for Leather.—Dissolve by heat one ounce of pure India rubber shavings in one quart of neats foot oil, and add two ounces of tallow, and rub in the leather thoroughly.

To Prevent Iodine from Staining.—Add a few drops of liquid carbolic acid to the mixture.

Simple Cure for a Felon.—As soon as the soreness appears, wrap the part with a rag saturated with tincture of lobelia.

How to Preserve Meat.—Put in a vessel and cover with sour milk or buttermilk.

To Saw or Cut Glass.—Keep the cutting tool or saw moistened with camphorized oil of turpentine.

Composition to Toughen Steel.—Resin, 2 lbs.; Tallow, 2 lbs.; Black Pitch, 1 lb. Melt together and dip the metal in the mixture while hot.

The following is a fair estimate of the quantity of paint required for a given surface:

First coat, which will cover 65 square yards of surface:
10 lbs. white lead.
1 oz. red lead.
2 ozs. litharge.
4 pts. linseed oil.

Second coat, which will cover 100 square yards:
10 lbs. white lead.
2 ozs. litharge.
2½ pts. linseed oil.
1½ pts. turpentine.

Third coat, which will cover 113 square yards:
10 lbs. white lead.
2 ozs. litharge.
2 pts. linseed oil.
2 pts. turpentine.

With ordinary paints, new wood and iron work requires four coats; old paint, two coats for inside, and three for outside.

How to Mix Paints for Colors

Buff.—White, red, yellow, ochre.
Chestnut.—Red, black, yellow.
Chocolate.—Raw umber, red, black.
Claret.—Red, umber, black.
Copper.—Black, yellow, red.
Dove.—White, vermilion, blue, yellow.
Drab.—White, yellow, red, black.
Fawn.—White, yellow, red.
Flesh.—White, yellow, vermilion.
Gray.—White, black.
Lemon.—White, yellow.
Olive.—Yellow, blue, black, white.
Orange.—Yellow, red.
Peach.—White, vermilion.
Purple.—Violet, red, white.
Rose.—White, madder lake.
Snuff.—Yellow, Van Dyke brown
Violet.—Red, blue, white.

To Remove Paint from Cloth.—Saturate the stain with equal parts of turpentine and ammonia until they become soft, then wash with soap and water.

To Remove Old Paint from Iron or Wood.—One gallon of hot water, to which add one-half pound of sal soda. Mix well, and apply hot.

To Remove Old Putty.—Apply nitric or muriatic acid.

Paint for Blackboards.—Dissolve four ounces of glue in one quart of water, then put in three ounces of flour of emery and sufficient lampblack to color. Stir until there are no lumps, and apply with a woolen rag wrapped tightly in a roll. Three coats are sufficient.

To Revive the Colors of Old Paintings.—Mix two ounces of linseed oil with one ounce of methylated chloroform and apply a little over the painting, after having washed it with clean water and a soft rag; then wipe off the composition the following day.

To Clean Silverware.—Never use soap, as it dulls the luster; when it requires cleaning, rub it with chamois leather and prepared chalk, made into a paste with a little water.

To Clean Marble.—Mix two parts of common soda with one part each of fine chalk and pumice, and mix with water. After applying, wash off with soap and water.

To Keep Milk Sweet, and to Make Sour Milk Sweet.—Put in it a small quantity of carbonate of magnesia.

To Cut a Circular Hole in Glass.—Scratch the glass with a file or engraver's tool, the desired shape, then bend a piece of wire the same shape, heat it red hot and lay it on the scratch; then lay the glass on the surface of water in a vessel; immerse so as to let the water come up to the glass and it will usually break at the place where the wire is.

To Preserve Iron from Rust.—Make a paste of linseed oil and whiting, and apply.

Facts for Builders

One thousand shingles laid 4 inches to the weather will cover 100 square feet of surface, and 5 pounds of nails will fasten them on.

One-fifth more of siding, or flooring, is needed than the number of square feet of surface to be covered, because of the lap.

Two bushels of sand to one of cement will cover a space 3½ square yards, one inch thick.

Oil for lubricating delicate machinery, and that will not gum, may be made as follows: Take equal parts each of zinc and lead shavings, and put into good Florence olive oil, and put in a cool place until the oil is colorless, and it will be ready for use.

A spoonful of ox gall in a gallon of water will set the color of any fabric.

To Render Leather Waterproof.—Boiled linseed oil, 16 parts; spirits of turpentine, 4 parts; beeswax, 1 part, and 1 part of resin, melted, and used hot.

To Make Ice.—Nearly fill a gallon stone jar with hot spring water (leaving room for about a pint), and put in two ounces of refined nitre; the bottle must then be stopped closely, making it air-tight, then let it down into a deep well. In about four hours it will be frozen, but the bottle must be broken to obtain the ice. However, if a vessel be used that has a larger mouth than bottom, and tapers, the ice can be removed by applying heat, and the vessel can be used again. The process can be hastened by raising the vessel up and down in the water.

Incombustible Cloth.—Dissolve one part of sal ammonia in four parts of water, and soak the fabric in the solution.

If in doubt regarding the nature of mushrooms, sprinkle a little salt on the under side, and if they are poisonous they will turn yellow; if not, they will turn black.

To Destroy Flies.—One drachm each of powdered black pepper and brown sugar, and two drachms of milk or cream. Mix and place in a saucer.

To Heal Bruises on Trees.—Make a preparation of two parts of tar to one part of brick dust, and apply.

To Polish Wood.—Take a piece of pumice stone and water and pass over the work until the rising of the grain is cut down, then take powdered tripoli and boiled linseed oil and polish to a bright finish.

To Make Soft Soap.—Take ten pounds of potash and soak in ten gallons of hot water until dissolved, then add six pounds of grease and boil; put in a barrel and add fifteen gallons of water.

To Waterproof Cloth.—Take fifteen parts of boiled linseed oil and three quarts of ground litharge, and one part of beeswax. Mix, and apply to the fabric with a brush. Stretch the cloth on a frame before applying.

To Make Good Black Ink.—Boil one pound of logwood chips in one and one-half gallons of water until reduced to two quarts; pour off, and then put in one and one-half gallons of water on the chips and boil as before, which will make one gallon in all; mix the two liquids and add one-half ounce of bichromate of potash, and one-quarter of an ounce of prussiate of potash, and one-half ounce of prussian blue; boil again, strain and bottle.

To Make Good Red Ink.—Take an ounce vial and put into it a teaspoonful of ammonia, and gum arabic about the size of a bean; then add six grains of number 40 carmine, and five grains of number 8 carmine, fill up with soft water and it will soon be ready for use.

To Make Russian Cement, for Mending Crockery, Glassware, Etc.—Dissolve pure Russian isinglass in soft water, which will require about twelve hours. When it has softened, put on the stove and boil to the right consistency. Use a double vessel to prevent burning.

Paste for Labels on Tin.—One cup of water to three tablespoonfuls of flour, to which add two tablespoonfuls of molasses, then boil.

Rat Poison.—Mix two ounces of carbonate of barytes with one pound of lard or grease, and spread thickly on bread, then put near their holes; water should be put nearby, as it hastens the action of the poison, and the carcasses can be recovered.

A Good Whitewash for Rooms.—Soak two ounces of glue in water overnight, then mix four pounds of whiting in cold water; heat the glue until dissolved, and pour into the solution while hot; after mixing well, add sufficient water to work easily with a brush, and apply.

Stucco Whitewash.—Slack one-half bushel of lime with boiling water, and cover the vessel for a few moments until well slacked; dissolve one peck of salt in water and add to the lime, then add three pounds of rice boiled to a thin paste, and pour in hot, stirring all the time; then add one-half pound of Spanish whiting, and one pound of glue that has been well dissolved; then add five gallons of hot water, cover the vessel and let stand for a few days. This will last for years, and is well worth the trouble of preparing.

To Preserve Eggs.—Make a solution of water glass and submerge the eggs in it.

Another preservative is to take three gallons of water and add five pounds of fresh slacked lime and one-half as much salt; stir until mixed, and put the eggs in carefully so as not to crack the shells.

It is claimed that if the small end of an egg is full of wrinkles it will produce a male; if smooth, a female.

If one teaspoonful of cayenne pepper be put in the food for about twelve hens, it will increase the egg production.

Egg Omelette.—Three eggs, one tablespoonful of flour and one cup of milk; beat the eggs and flour together, then stir in the milk; fry with butter; for a larger quantity, add a little salt.

To Reckon the Cost of Coal, Etc.—Multiply the number of pounds by one-half the price per ton, and point off three places to the left.

To Measure Grain.—Level the grain, then multiply the length, width and depth together, and the product by 8, and point off one place to the left.

To Write on Eggs. Immerse the egg in melted wax and write on it with any pointed instrument, then apply to the writing vinegar, or diluted hydrochloric acid, and wash off.

Number of Trees Required per Acre

15 ft. apart each way, 200	4 ft. apart each way, 2,720
18 ft. apart each way, 135	5 ft. apart each way, 1,742
20 ft. apart each way, 110	6 ft. apart each way, 1,200
25 ft. apart each way, 70	8 ft. apart each way, 680
30 ft. apart each way, 50	10 ft. apart each way, 430
33 ft. apart each way, 40	12 ft. apart each way, 325

Panes of glass may be easily removed by applying a little soft soap.

Do not let pearl or ivory handled knives touch the water when cleaning them, as this is the cause of their cracking.

About 500 cubic feet of settled hay will make a ton, and 700 cubic feet of loose hay.

The deepest hole ever bored in the earth is at Potsdam, which is 5,500 feet in depth.

The flight of wild ducks is estimated at 90 miles an hour; of the swift, 200 miles; the carrier pigeon, 40; the swallow, 60, and the migratory birds in crossing the ocean, at 120 miles an hour.

In northern Siberia the ground is frozen to a depth of 660 feet and thaws to a depth of but 3 or 4 feet in summer. Below 660 feet, internal heat begins.

To Write on Glass.—Cover the glass with beeswax or soap, and write whatever is desired on the covered surface with any pointed tool, then apply hydrofluoric acid along the design, and the marks will remain indelibly stamped on the surface of the glass.

A ton of pure gold is valued at $692,799.21. The weight of a million dollars of gold coin is 3,685.8 pounds.

A ton of pure silver is valued at $37,704.84. The weight of a million dollars in silver coin is 58,929.9 pounds.

How to Find the Height by Measuring the Shadow.—Measure the shadow of a pole standing upright, and also the shadow of the desired object; then multiply the length of the pole by the length of the shadow of the object, and divide the product by the length of the shadow of the pole.

The Effect of Changing the Evener of Double-trees.—In moving the center pin of an evener one inch toward the end pins it changes the draft twice as much as it does to move one of the end pins one inch toward the center pin. Or, in other words, moving the center pin changes the draft twice as much as changing one of the end pins or clevises.

If the center pin of an ordinary evener, which is 42 inches in length, is moved one inch from the center to the right or left, the horse pulling on the short end will draw one-twentieth more than the one on the long end. If one of the end pins is moved one inch, the difference will be one-fortieth.

The draft on a 14-inch plow plowing 4 inches deep is about 1,000 pounds; 5 inches deep, 1,250 pounds; 6 inches deep, 1,500 pounds.

To Tame a Horse.—Take finely grated horse castor, oils of cumin and rhodium; keep in separate bottles well corked. Put some of the cumin on your hand and approach the horse on the windy side. When he comes toward you, rub some of the cumin on his nose and give him some of the castor on anything he is fond of, and put some of the rhodium on his tongue. A timid horse should be handled very carefully; much patience is necessary in order to gain his confidence. It is a good plan to confine him in an enclosure, take a whip, and when he turns his rump toward you, snap it at his heels, but desist as soon as he turns his head toward you.

To Cure Horses of Jumping Fences.—The writer once owned a valuable colt which nothing would cure of breaking down and jumping fences, which often injured him. Everything was tried until one day, in speaking of it to an old horseman, he recommended the following method, which was tried and worked successfully: Pass a strong surcingle about the horse's body just back of the fore legs, and run a long halter strap from his head in between his legs and beneath the surcingle back to one of his hind feet, to which fasten, using a broad strap about his ankle. The strap should be changed occasionally to the other foot to avoid chafing.

To Cure a Horse of Pulling at the Halter.—Take a small rope and pass it under his tail, and carry the two ends forward, crossing them on his back, and tie in front of his chest. Run the halter strap through the hole, or ring, in the manger and tie to the rope in front. He won't pull back many times after he discovers it is self-punishment.

To Prevent a Horse Kicking in the Stall.—Fasten a small chain about two feet long to each hind foot, and he will soon be cured of his kicking.

To Cure a Horse of Balking.—Take him out of the rig and whirl him around in a short circle a number of times as fast as possible. It usually takes two men to do this, one to use a whip on him and keep him going.

Cure for Harness Galls.—White lead and linseed oil mixed as for paint, and applied with a brush. An excellent remedy.

Rary's Liniment.—Four ounces each of sulphuric ether, hartshorn, oil of origanum, alcohol, and sweet oil. Put in a bottle and shake well before using. In cases of sprains, etc., rub well on affected parts, and then wrap with flannel bandage.

To Produce a White Spot on a Horse.—Shave off the hair, and apply oil of vitrol. This will produce an inflammation, which will yield to an application of a weak solution of copperas water.

To Drive Flies from a Stable.—Scatter chloride of lime on the floor.

Cure for Colic.—Three ounces of turpentine and one ounce of laudanum mixed in one-half pint of warm water. If not relieved in one hour, repeat the dose, adding one-half of an ounce of best powdered aloes well dissolved.

Cure for Bots.—First give 2 quarts of milk and 1 quart of molasses, mixed; then 15 minutes after give warm sage tea, 2 quarts; 30 minutes after give 3 pints of currier's oil, or enough to produce a physic. If the oil cannot be obtained, use lard with 3 or 4 ounces of salt added.

Cure for Bone Spavin.—One ounce each of corrosive sublimate, quicksilver, and iodine, and lard enough to form a paste. Rub the quicksilver and iodine together, then add the sublimate, then the lard, and mix thoroughly. Shave off the hair the size of the bone enlargement; then grease all around it, but not where the hair is shaved off; this prevents the action of the medicine, except upon the spavin; then rub in as much of the salve as will lie upon a ten-cent piece, each morning for four mornings. In about eight days the spavin should come out. Wash out the sore well with soapsuds, and apply a healing salve, which will be found in another part of this book.

The Nile River, in Africa, has a fall of but 6 inches in every 1,000 miles. Its rise begins in June, and continues to the middle of August, attaining an elevation of 26 feet, overflowing the valley of Egypt 12 miles wide, which is the cause of much fever. The retirement of the river leaves a deposit of about four inches in a century, and encroaches on the sea 16 feet each year. Bricks have been found at a depth of 60 feet, which shows the great antiquity of the country. The soil is the richest in the world.

The Temple of Diana, at Ephesus, was 425 feet high and 225 feet broad. It had 127 columns, each 60 feet high, to support the roof. It was 200 years in building.

The largest of the Egyptian pyramids is 540 feet high, and it is 693 feet on the sides. Its base covers 11 acres. The layers of stone are 208 in number, many of them being 30 feet long, 4 feet broad and 3 feet thick.

In the Temple of the Sun, at Baalbec, are stones more than 60 feet long, 24 feet thick and 16 feet broad. Each one contains 23,000 cubic feet and no one knows how they were transported from the quarries.

Six of the enormous columns are 72 feet high, composed of 3 stones, each 7 feet in diameter. Sesostris is credited with having transported from the mountains of Arabia one rock 32 feet wide and 240 feet long.

During modern times a block of granite weighing 1,217 tons, now used as the pedestal of the equestrian statue of Peter the Great, at Petrograd, was transported 4 miles by land over a railway and 13 miles by water.

Waters of the oceans, seas, etc., contain more organized beings than all the land.

The River Po carries to the sea every day a quantity of soil which can be imagined when we consider that 2,500 years ago Adria was on the sea shore, and at its mouth, while today it is 20 miles from the sea.

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