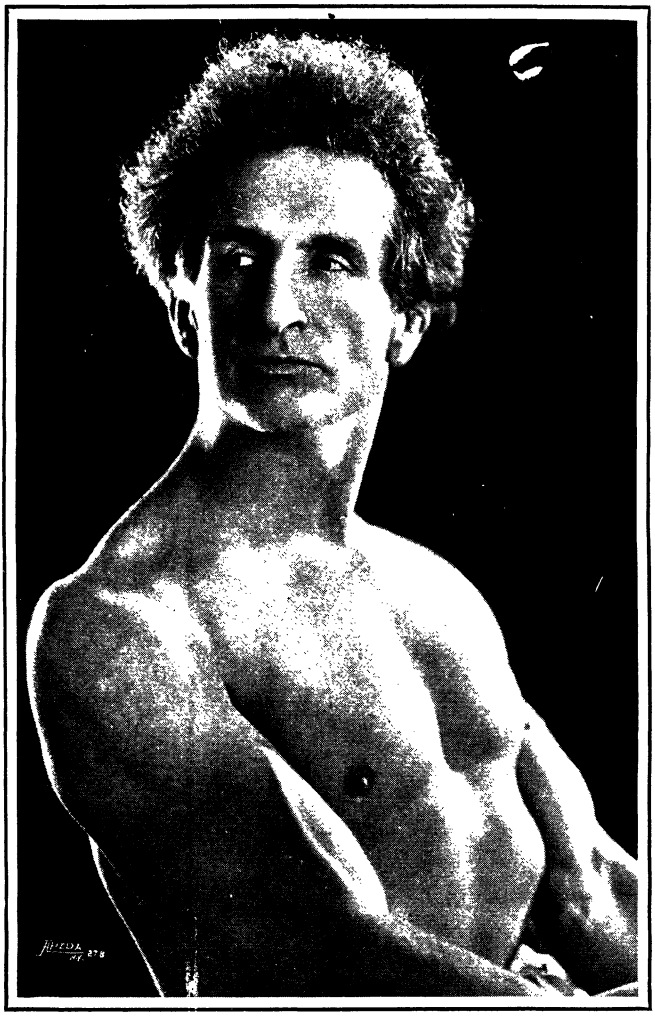

Bernarr Macfadden as he was when this picture was taken at 56 years of age.

CONSTIPATION

Its Cause, Effect and Treatment

BY

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PREFACE

THE organ commonly known as the large bowel, large intestine or colon, performs the important and indispensable function of removing from the body not only its solid waste products which are derived from indigestible residues of the food consumed, but also metabolic wastes, epithelium and bacteria. These materials if not disposed of would remain to clog and poison the body.

Obvious as is the importance that a healthy functioning of the bowel be maintained, there is yet no disorder so prevalent as the condition called constipation. This is, in effect, a break down from some cause in the sewerage system of the body, resulting in retardation of the passage and undue retention of the solid waste products in the colon. Just as an inadequate sanitary arrangement for disposal of sewage in a city would react injuriously to the health of those living in the community, sometimes breeding and spreading serious disease,

so if the sanitary mechanism which does the work in an individual body is defective there may be disturbances in the general health of the individual.

Constipation until comparatively recently has been treated as if it were a distinct disease in itself; but it is merely a symptom, found in a great variety of diseases and disorders, though as the causes and conditions producing this symptom are numerous and varied, the correction of the symptom itself is so complex as not to be solved merely through the use of drug laxatives. It is such an universally prevalent condition of abnormal functioning that few, if any, escape trouble from it throughout their lives. Ever since the days of Hippocrates writers on subjects medical and hygienic have emphasized the harm that results from an abnormal retention of waste matter in the intestines. They have recognized the prominent position that the polluted digestive tract holds in the production or aggravation of both minor and grave disorders, and have urged that the intestinal tract be kept in a state of as complete cleanliness as possible, in order both to prevent and to cure disease.

Still other writers have expressed their belief that the importance of constipation as a factor for disturbing health or aggravating disease has been greatly over-estimated. My observation and experience, which have not been inconsiderable, have led me to believe that, while constipation may exist in a few cases without causing a vital disturbance of health, usually the condition produces a marked lowering of physical and mental efficiency, with frequently definite disease conditions following as a direct result.

I have considered this subject in considerable detail in this book, and any one suffering from constipation would do well to read and ponder every word. But there will, no doubt, be many who are anxious to start treatment and who will wish to gain a general grasp of the subject before considering it in all its details, so that they can proceed with the proper measures at once. For these persons I would suggest that they first read the sections that I have enumerated in the next paragraph, and then as soon as may be they can consider the details.

In Chapter II, read under the following

headings: "Definition" on page 17; "Normal Stools" on page 18; "Acute Constipation" on page 23, and "Chronic Constipation" on page 27.

In Chapter III, read the "Summary" on pages 100 to 103.

In Chapter IV, read under the heading "Symptoms" on page 104, and then read all the headings throughout the chapter but omit the details until later.

In Chapter V, read under the following headings and subheadings: "Treatment" on page 139; "Habit Formation—Solicitation" on page 141; "The Importance of Drinking Water" on page 145; and the entire sections on "Dietetic Treatment," "Exercise," "Hydrotherapy" and "Summary."

For those who are particularly interested in the subject of constipation in children I would suggest that they first read the section under this heading, which is on page 273.

Believing that in the majority of people health cannot be at its highest when intestinal sluggishness exists, also that eighty per cent of all cases of constipation can be corrected by

diet alone and that practically all of the remaining twenty percent can be corrected by a combination of diet and other simple hygienic measures, this volume has been prepared as another unit of my very valuable health library. My direct and indirect contact with and advice to suffering mankind has given me full confidence that the suggestions here presented, if put into practice, are capable not only of removing the one symptom of constipation but also many other symptoms and conditions, whether they be directly or indirectly associated with the constipation.

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Constipation

CHAPTER I

The Alimentary Canal

THE bowels are the sewerage pipes of the human body and their functioning is effected and regulated by a combined muscular and nervous interaction.

In order to understand more fully the nature of constipation, it will be of advantage to the reader to have presented a brief description of the anatomical relations of the various parts of the alimentary canal—that part of the body which has to do with the digestion of food, with the alteration of this food into suitable substances to perform various functions when absorbed into the body, and, to a very considerable extent, the elimination of waste. A brief description of the arrangement and the functions of these various parts will also be valuable in helping one to understand the

theory of the causes, the local and systemic effects, and the correction of constipation. Each part of the alimentary tract has a definite function to perform, and if these functions, in whole or in part, are affected in any way so as to suppress, retard or obstruct them, constipation will most probably result.

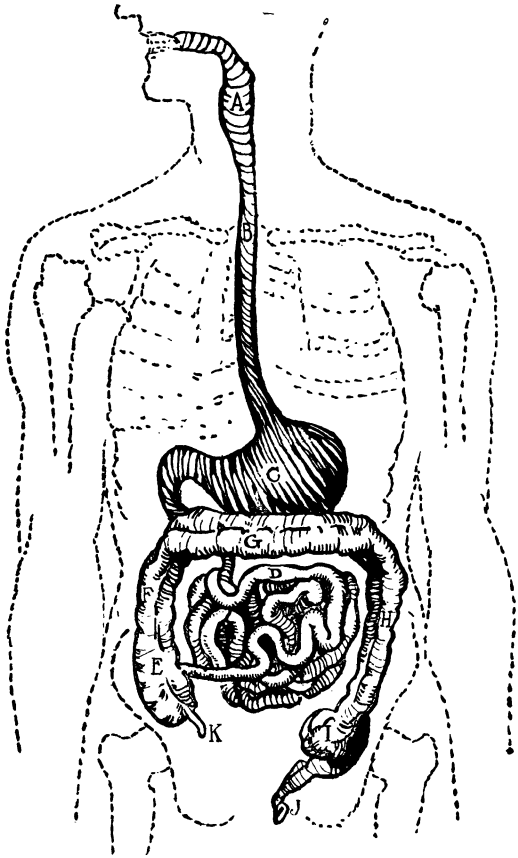
The Mouth—Mastication. When food is taken into the mouth it should receive here much of its preparation for digestion and absorption. The teeth are provided, constructed and arranged for grinding food. This food must be masticated or triturated to such a degree of fineness that the saliva and digestive juices of the stomach and intestines may reach every particle. Lack of adequate mastication or, as it is called, the bolting of food, is a very common cause not only of constipation but of numerous other disturbances of the alimentary canal. The act of mastication is completely under the control of the will; consequently there is no excuse for a lack of sufficient preparation of food in the oral cavity for digestion. Beyond this, every function of the alimentary canal is involuntary and beyond the control of the will, except the very

final function of waste evacuation. This latter may be entirely voluntarily produced or suppressed, though in normal conditions it is, to a considerable extent, a combination of voluntary and involuntary acts. It is undoubtedly just this voluntary control of the two ends of the digestive tube that is responsible, to a large extent, for much of our wide-spread constipation.

Saliva—Its Functions and Importance. The saliva is secreted in the mouth to moisten the food. Its secretion is stimulated not only by the presence of food in the mouth but by the taste of the food. This taste is naturally more acute when the food is broken up into minute particles. Very small particles are easily dissolved and they more readily reach and affect the taste buds of the tongue. The muscular action of mastication itself also stimulates a secretion of saliva. A considerable degree of starch digestion takes place before this class of food leaves the mouth, providing it is masticated sufficiently to allow the saliva to penetrate it thoroughly. This is an important part of the digestion, since starch undergoes little further change until it passes out

of the stomach into the intestines. Saliva is alkaline, which favors starch digestion, while the gastric secretion is acid—a chemical interference to starch digestion. There is, however, a continuation of this digestion to some extent in the stomach if the saliva has been thoroughly mixed with the food. But as soon as gastric acidity has increased to a certain point, the starches then lay in the stomach in the acid medium, which tends to produce starch fermentation, until the starches pass into the first part of the intestine. Since mastication helps the stomach to do its share of digestion more rapidly, the food will more quickly pass out of this organ if it has been properly prepared in the mouth, and therefore fermentation is much less liable to result. As fermentation is one cause of constipation, it will be seen how important is this simple voluntary first part of digestion.

The food is passed from the mouth into the pharynx and thence into the *esophagus;* this is a tube eight inches or more in length (in the adult), continuous with the *cardiac orifice* of the stomach, which is located slightly to the left of the center of the body immediately below and back of the angle of the lower ribs.



A—pharynx; B—esophagus; C—stomach; D—small intestines; E—beginning of large intestine, the large pouch below being the cecum; F—ascending colon; G—transverse colon; H—descending colon; I—sigmoid flexure; J—rectum and anal orifice; K—appendix.

The Stomach and Its Functions. In the stomach a large part of protein digestion is carried on. As already stated, when the food is thoroughly masticated by the teeth the work of the stomach is much facilitated; the digestive juices of the stomach work their way into all particles of the food and the necessary chemical digestive action is started at once. But whether or not this mastication is completed, the circular and longitudinal muscles of the stomach, by rhythmic and alternate contraction, produce a churning effect which moves all of the contents of the stomach backward and forward, or, rather, from one end of the stomach to the other, and back again. This helps to mix the food and the digestive juices thoroughly.

During this time the gastric juice is being continually secreted, and as it is of an acid nature, the entire contents of the stomach gradually become acid in reaction. When the chemical action has been carried on completely enough that the acidity of the whole mass is sufficiently high, this acidity stimulates the outlet of the stomach (the *pylorus*), which orifice opens and allows a small portion of the food to escape into the duodenum or first part

of the small intestine. The acidity then present in the duodenum, or the decreased alkalinity in the stomach, causes a closing of the pylorus, which remains closed until the stomach acidity has again reached a degree high enough to stimulate it to reopen. This process continues until the stomach has been emptied of its food contents and of its own secretions that are mixed with the foods. Some of these secretions are later reabsorbed with the digested food products.

Intestinal Digestion. As soon as the first of the food passes from the stomach into the duodenum it begins to undergo further change, brought about by the juices encountered in this section of the intestine. Here it comes in contact with intestinal juices, with bile, and with the secretion from the pancreas. The saliva contains a ferment that produces a chemical change only in the starches of the food; the stomach secretion contains hydrochloric acid and ferments which act mainly upon proteins and to some extent upon the protein walls of the fat cells; but the secretions encountered in the intestines contain ferments or digestive agents (also called enzymes) which act upon *all three* main classes

of foods—starches, proteins, and fats—and carry them through all changes of digestion until this process is concluded and the food is ready for absorption and assimilation.

The Small Intestines. The small intestine in the adult is about twenty feet in length. It is really one continuous tube but is arbitrarily divided, by anatomists, into three parts; the first part is about ten or eleven inches in length and is called the *duodenum*; the name means "twelve finger breadths" and refers to its length. The second division is about eight feet in length and is called the *jejunum*; this word means "hungry," as this part of the intestine is practically empty when the body is examined after death. The final portion is about twelve feet in length and is called the *ileum*; this word means "twisted or kinked."

The small intestines are convoluted or turned or folded upon themselves so as to lie in a comparatively small space in the abdomen. They do not join the large intestine end to end, but terminate at the side of the first portion of the large intestine at a point a few inches from its beginning, as shown in the illustration of the alimentary canal. The small portion of the large intestine back of this

point of junction is a closed or blind sack called the cecum. At its lower side is a small process called the *vermiform appendix;* this ranges from one-half inch to nine inches in length with an average of three to four inches, and its diameter varies from one-eighth to one-fourth of an inch.

The Large Intestines. The large intestine is about five feet in length, its caliber being considerably larger than that of the small intestine—decreasing from the cecum to the sigmoid flexure, where it dilates, and then is constricted again in the rectum. As with the small intestine, the large intestine also has three arbitrary divisions: the *cecum* (meaning "blind"), already mentioned; the *colon* (meaning "large intestine"), and the *rectum* (meaning "straight"). The cecum is in the right groin or lower right corner of the abdomen and is about two and one-half inches long and three inches across. From here the *ascending colon* extends upward to the under surface of the liver where it turns to the left and passes as the *transverse colon* across to the left side of the body at the inner surface of the spleen; here it turns downward and continues as the *descending colon* to the left groin

where it makes an inward and backward turn in the *sigmoid flexure* (meaning "S-shaped"), then continues on as the *rectum* and terminates in a guarded orifice, the *anus.* This orifice is held tightly closed at all times except when stimulation demands that it open to allow the passage out of collected refuse. This action of closing and opening is accomplished by circular bands of muscles, called *sphincters,* which are controlled by motor and sensory nerves. Normally the waste content rests in the sigmoid until there has been sufficient accumulation for it to move into the rectum, which is normally empty. An accumulation of waste matter in the lower rectum produces a stimulation of the sensory nerves of the mucous membrane and, by a circuitous reflex action, the sphincter muscles relax, permitting the passage of the contents from the canal.

Action In The Colon. It is highly necessary that as soon as the food is digested in the stomach it passes into the small intestines, and that as soon as it passes through the necessary digestive processes in the small intestine it be conveyed into the large intestine. Here the greater portion of the liquid is absorbed and the remaining portion becomes

semi-solid. The inner surface of the colon is a series of semi-lunar (half-moon shaped) folds which retard the onward progress of the contents. This is a special arrangement to delay passage of the food along the intestines, thus assuring the absorption of sufficient nourishment from the solidifying contents. Were the inner surface smooth the contents would rush to the rectum, making their premature evacuation necessary, and resulting in an extreme physical and economic loss.

The Evacuation Process. The exact manner in which evacuations are possible and in which they take place is as follows: The liver, if normally active, sends bile into the intestines which mixes with, softens, and lubricates the contents; back of the contents the peristaltic contractions of the longitudinal muscular fibers of the intestines produce a shortening of the intestines and the circular fibers produce a narrowing of the lumen, both of which progressively travel from above downward or toward the outlet, through the small and large intestines. At the same time there is a complete relaxation of the digestive canal *below* the mass of contents. In this way the contents are propelled gradually onward to the rectum.

When at stool deep breaths are usually drawn and held for a few seconds; this depresses the diaphragm, forcing it deeper into the abdomen, which in turn produces a downward pressure upon the intestines—mainly indirectly through the immediate pressure upon the liver, stomach and spleen; the external abdominal muscles contract and this action produces an anterior and lateral pressure. These pressures, from the sides, front, and above, together with the nerve impulses from the rectal contents, cause the anal sphincters to relax and open, and thus the waste from the consumed food is cast from the body.

Necessity for an Open Canal. But if anywhere along the course from the stomach to the anus there is a deficiency of functional activity, involving musculature, nerves, mucous membrane or secretions, or a mechanical interference with the churning and worm-like movements of the stomach or intestines, or a mechanical stoppage of the passageway, constipation will result and probably with its train of more or less serious symptoms.

Evacuation a Normal General Stimulant. Few people are aware of the animating effect that should be secured by bowel evacuation.

When the stools are mildly firm, well formed and cylindrical and of their natural diameter (which should be from one to one and a quarter inches), they naturally produce a fair degree of dilation of the sphincter muscles guarding the anal outlet. This is to a considerable extent a reflex relaxation, but even so there is a gentle dilation produced by the feces.

Individuals prostrated from numerous conditions, some in apparently lifeless conditions or the coma preceding death, have been aroused and awakened and started again on the road to health by manual or mechanical dilation of the anal sphincters. This effect is secured reflexly: the mild stimulation produced upon the sympathetic nerves of the sphincters travels upward to a ganglion at the extreme lower end of the sympathetic system of ganglia; it then travels upward throughout the sympathetic system, reaching also the cerebrospinal system—the brain and spinal cord. The result of this is a general feeling of increased buoyancy and general well-being; one feels "lighter," physical lassitude is reduced or overcome, and the general spirits rise: one is truly re-awakened and feels physically and mentally fit.

But this effect cannot be produced except when the bowel evacuations are normal in size and consistency. When they are extremely large and knotty they produce too great a stimulation and are inclined to make one more or less irritable. When they are soft they produce no dilation of the sphincters, consequently one does not secure the stimulation that is normal.

For these reasons efforts should be made not only to have the canal open freely but to have the stools normal in consistency. Bowels too loose are preferable in many ways to constipated bowels. But for an arousing of the entire functions by a normally stimulated sympathetic nervous system it is essential that the stools be kept at a "happy medium" in consistency.

Massage to the Prostate. It may have been especially designed by Nature that the prostate gland be situated in immediate contact with the rectum, that a gentle stimulating massage of this gland might be given regularly during bowel evacuations. At any rate this is the effect secured when the stools are of normal size and consistency. It is well known that a gentle massage of this organ has a mild sex-invigorating effect, providing the gland is

not inflamed. When the stools are well-formed and cylindrical, once or twice daily as the case may be, this well-formed fecal plug is passed over the prostate and gives it a much more natural and less irritating massage than can possibly be given by any other means. In constipation the stools are retained unduly long and give an irritating pressure to the prostate; and when they are passed they are usually hard and give too deep massage, which is irritating rather than soothing or normally tonic in effect. It is well to say here also that when the stools are soft there is no massage given to the gland and the individual loses the invigoration he should receive.

Some may secure the impression from this that frequent bowel evacuations will be beneficial, since by these either sex may secure the more frequent general stimulating effect of sphincter dilation, and the male sex will receive more frequent invigoration through prostate massage. I wish to say here that any function increased beyond normal will prove harmful directly or later by exhaustion of function. Any attempt to bring about more frequent bowel evacuations than normal for the individual will result either in soft, non-

stimulating stools, or in the harm of over-eating, with the danger of toxemia and over-stimulation; these conditions may then create pelvic congestions, with gradual enlargement of the prostate or with irritation or inflammation of this gland as the next step. In addition, toxemia and over-stimulation very frequently result in excitement of the sexual functions with the probability of sexual excesses, with their long train of symptoms. And, of course, the over-eating either aggravates constipation or creates fecal plugs of unnatural size and firmness, with direct injuries to the prostate resulting from their passage or attempted passage, also their long retention. The benefits of prostatic massage by bowel passage can be secured only by a diet normal in amount and variety, with freedom from constipation or the opposite tendency.

CHAPTER II

The Nature of Constipation

CONSTIPATION is frequently called costiveness, and means literally a stopping of the intestines. It may be defined as a sufficiently unnatural retention of the contents at some part of the alimentary canal that there is an absorption into the blood of more toxic substances than can be effectually neutralized by certain organs designed to change the toxins into harmless substances. Or, in other words, it is "a condition in which the evacuation from the bowels are of insufficient frequency and amount, more or less fecal matter being retained in the intestines." If there is a movement daily but of such small amount that there is gradually an accumulation within the intestines it is called *costiveness.* In severe cases which result in the complete closing up of the bowels it is spoken of as *obstipation.* But to the layman there is little or no differentiation between these and other degrees of intestinal inactivity. They are all, and properly so, considered as *constipation.*

Normal Stools. There is no definite line

that can be drawn between constipation and health. There have been people in large numbers who have remained in apparently average good health, who have had two or three stools daily for long periods of time. In fact, more than one daily stool is a good safety valve for some very hearty eaters if they cannot be induced to eat more moderately and rationally. But on a normal diet the bowels will not act so frequently and should not be forced to do so, as some people in ignorance attempt to do. There are others who have had a movement but once in forty-eight hours, or in longer periods of time, but with no apparent diminution of health or strength. This, in many cases, is normal also, because if one's diet is very limited or if the diet contains little waste and the digestion is so perfect that most of the food is digested and assimilated there will be little residue to expel, thus requiring expulsion at rather infrequent intervals. But in general it may be said that where one's diet is normal in quantity and quality there should be at least one good evacuation in twenty-four hours. The normal stool under these circumstances should be well formed, smooth and not

knotty, cylindrical and not spherical in form, from an inch to an inch and a quarter in diameter, and totaling from six to eight ounces in weight, and be of medium brown color.

In the histories of chronic diseases we find that eighty percent of the chronic sufferers have or have had constipation. This may be found as a cause or as a symptom of the existing disease, but it may be simply an associate symptom resulting from general weakness of the body. I believe there is no doubt that constipation may be the cause of numerous acute and chronic disorders, but the fact that it exists does not indicate that it *is* a cause of any symptom. In fact, constipation itself may be merely a result of some other disorder.

Types of Constipation. The colon is the receptacle for the waste that becomes feces, and it is here that the mass becomes solidified. Dry feces are rarely found in the first part of the colon—the cecum or blind pouch. One may find large tumor masses of feces, however, at either the hepatic or splenic flexure; or a doughy, sausage-like mass in the upper part of the abdomen, above the navel; or, in the left groin may be felt an irregular lumpy mass.

Intestinal stasis may manifest itself in a variety of ways. Many people disclaim a diagnosis of constipation when they are having frequent desires and frequent stools. But in these cases there may be extremely small evacuations at each time, there being accumulations steadily increasing in the intestinal canal. In other cases there is practically no desire, the bowels being inactive and apparently "dead"; the stools are large, hard, knotty, and dry as if ed. Usually the dryer the feces the more straining is required for their expulsion. Again there may be the fairly normal desire but with feces so hard and the passage so difficult as to cause a flow of blood from the mucous membrane of the rectum or anus; there may be fissures in and soreness of the anus constantly. Again there may be very light-colored stools associated with other symptoms of torpid liver, including a grayish-white coated tongue. In other cases there is a fairly frequent though rather faint desire for evacuation, but the stools are extremely small and ribbon-like and probably are passed only with great strain; in these cases the odor is usually extremely disagreeable.

Types of Stools. The stools themselves may be used not only as a valuable means to determine the condition of the digestive tract, but they may also be of help in arriving at the diagnosis of an abnormal condition of some associate or neighboring organ. For instance:

Flat stools usually indicate hemorrhoids, uterine fibroids, enlarged prostate, or prolapsed, retroflexed or retroverted uterus.

Pipe-like stools usually indicate prolapsus of the anus, or they may indicate starvation, pressure of hard dry feces, or spasm of the colon.

Scybala (dry, hard, round feces) frequently indicate diabetes, but may indicate a severe case of intestinal atony with retention of feces, or ulcer of the stomach. They are frequently present with drug addicts.

Pale or putty-like stools, under the ordinary diet, usually indicate jaundice, especially obstructive jaundice. But they may also indicate long retention of feces, though usually this condition results in darkening of the color. The milk diet or a milk and vegetable diet may also produce the pale feces.

Slate-colored stools result when iron, bis-

muth, charcoal and manganese are taken internally, and are present in constipation more frequently than when the stools are normal.

Offensive stools usually indicate retained feces, undigested food, fermentative processes, large consumption of meat with putrefaction, or jaundice, or rickets; they are also present when certain odorous foods such as onions and garlic have been consumed.

Tarry stools usually result from decomposed blood in the intestinal canal, and frequently indicate cancer of the stomach, duodenum, or intestines; also ulcer of the esophagus, stomach, duodenum or intestines; cancer of the liver, bleeder's disease (hemophilia), or leukemia. When one is placed on the Salisbury meat diet he may have a very dark stool. Blackberries, huckleberries, black cherries and red wine also darken the stool.

Bright blood in stools occasionally results from injuries in the lower intestines by constipation, though rectal ulcer or cancer or internal hemorrhoids may result in the same.

Concretions may be scybala of stone-like hardness—masses of feces from which all moisture has been absorbed; or they may be

gall stones or pancreatic stones; large doses of olive oil also produce stones of fatty acid; (it is the passing of these stones, in cases of true gall stones where the olive oil treatment has been employed, that has led largely to the belief that olive oil is an effective remedy for gall stones).

Sand in stools sometimes results from mucous colitis; also cancer of the colon. It is said that a feast of bananas will produce it, in appearance, also a large number of figs.

All of these varieties of stools may appear in constipation. It will be seen that some may be the cause of the constipation, while some will be produced by it; in others the condition that is responsible for them will likewise be responsible for the constipation, and still others appear entirely independent of constipation.

ACUTE CONSTIPATION

Constipation may be either acute or chronic. I am applying the term "acute constipation" to that form that appears rather suddenly, is usually of short duration, and

fairly easily responds to slight and simple natural remedies.

There are forms of acute constipation, however, that result from pathological changes that finally reach a degree where they interfere with the opening through some part of the canal, with functioning of the nerves, nerve centers, or muscles of peristalsis, with the secretion of bile or its passage into the intestine, or with the action of the diaphragm or external abdominal muscles, or from reflex action, or a combination of these causes. The symptoms and general conditions resulting from, associated with, or causing such acute intestinal stasis are usually of such grave or serious nature as to demand urgent and expert care by a physician or, possibly, a surgeon.

In the other and usual forms of acute constipation the trouble usually lies within the rectum or lower colon, and there will probably be no tendency toward abnormal action of the digestive apparatus above the point of blocking, as is apt to result from chronic constipation.

Marked emotions, especially those of a de-

pressing nature, a change of food or water, a train or motor trip, or a period of enforced idleness for an otherwise active individual, as well as numerous other causes will bring about acute constipation in some individuals at certain times.

In the average person the acute condition will result in only slight inconvenience or perhaps in no symptoms at all. In very susceptible individuals, those of lazy habits, those who eat excessively of unwholesome foods, and the generally obese, there may be many of the general symptoms to be mentioned later under Symptoms of Constipation, Chapter IV.

There is this peculiarity about the human body: it tends to become more or less immune to general disturbances from slighter disorders, especially when these disorders are continued over a considerable period of time. This accounts for the almost complete lack of symptoms in some people who have fairly severe acute or, in some cases, even severe protracted cases of constipation. Other individuals who are rarely constipated may, during the duration of the severe attacks, experience general

symptoms of a more or less exciting or serious character. This is largely because their systems have not undergone a "period of immunization," and the toxins when absorbed through the mucous membrane of the intestines have full effect upon their bodies. The effects also depend to a considerable extent upon the nature of the toxins produced (which is governed largely by the kinds of foods consumed), and upon the general susceptibility of the individual to symptoms from any abnormal condition. If an individual's diet is what it should be, no harm will result and there will be no occasion for worry when there is an occasional skipping of a day's evacuation. The more toxic the diet and the more defective the elimination through other channels, the more necessary are regular bowel evacuations, and the more marked will be the symptoms from even an acute or brief constipation.

If an acute case is not relieved within a short time by removal of the cause it may lead to a chronic form of the disorder. For this reason acute cases should be corrected within as short a time as possible, and by natural

means; for if drugs are used then usually begins a chronic condition.

CHRONIC CONSTIPATION

Chronic constipation is the form with which we have most to deal. Acute cases are a frequent source of chronic intestinal stasis, mainly for the reason that, usually, everything is done to remedy the trouble except what should be done—removal of the cause. Drug laxatives, taken so trustingly and innocently by thousands for the correction of acute bowel sluggishness, are one of the most productive sources of our chronic cases of constipation. However, there are many who find themselves victims of more or less severe chronic constipation before they are aware of the condition, since in many instances the trouble begins so insidiously and increases so gradually that it does not arouse one's suspicions until after it has become deep-seated.

To the average person constipation is merely constipation—the same condition with all. So far as bowel evacuations are concerned this may be largely true, but a study of the causes,

symptoms and effects will clearly show that there is much variety in types and manifestations.

Besides the usual forms which will be more definitely described in the following chapter, there is the constipation of the aged, which differs somewhat from that kind of constipation that appears before senility, as to cause and chances of remedying. This *senile constipation* is the result of a general reduction of hardiness and the inactive lives of this class of individuals. Their external and internal muscular tone is materially reduced and their digestive secretions are below normal not only in quantity but also in quality. Much depends upon the inherent vitality of such patients, the degree of general senility, the presence or absence of marked pathological changes, and the duration of the constipation, as to what results may be secured by any method of treatment.

Then there is the constipation of infancy and childhood, which likewise has its own special features. But, as with all other abnormal functioning and symptoms resulting therefrom in the early years, the response to

proper treatment is usually very prompt. Few factors of treatment are necessary and these do not require application in their more rigid forms. The average parents consult a family physician as soon as constipation or any other digestive disorders develop in their children and begin at once to give the prescribed laxative; or they visit the drug store and stock up with a supply of patent children's remedies—perhaps the kind that "children cry for," or are supposed to; possibly they have their own home remedies, herb teas, etc. In any case they fail to approach the cause, but they do *not* fail to begin the establishment of more or less chronic and severe constipation as well as other digestive disturbances, starting the tiny infant or small child on a long train of abnormal conditions from which it may never be free—and from which it *will* never be free unless some radical change is made in the care or in the whole mode of living in later years.

CHAPTER III

Causes of Constipation

THERE are a thousand and one causes of constipation, practically all of them being preventable or correctable. A considerable variety of these will be enumerated here, and then I shall give a summary to show how closely related the various causes may be. Many of the minor ones tend to produce the few main causes that will require consideration when it comes to treatment of the disorder. In many cases it is necessary to observe many of the little causes, any single one of which would have slight effect upon an otherwise properly cared-for body but which, when several of them are taken together, create the intestinal disturbance.

GENERAL CAUSES

Heredity. It is claimed that in certain individuals there is apparently a constitutional basis for the trouble. In some cases the re-

duced activity of the bowels seems to be a family complaint passed down from generation to generation. In other words, the individual's peculiarity or tendency to sluggishness is thought to be hereditary. But this "hereditary tendency" is most likely nothing but a continuation from generation to generation of the same dietetic and hygienic errors. This is the explanation of many so-called "hereditary" diseases and susceptibilities. Constipation is more frequently present in *brunettes* than those of fair complexion, and complexion is hereditary; but it cannot be said that dark complexioned people directly inherit constipation. There are certain peculiarities of secretions in brunettes which cause them to respond more unfavorably to certain dietetic errors, and this accounts for the more frequent development of intestinal and certain other digestive disorders, including constipation. Practically all of these cases of constipation can be corrected or controlled by diet alone.

Environment. One's *environment* doubtless has much to do with the state of bowel elimination, when we consider that environ-

ment encompasses all external physical factors which may affect an individual in any way and to any degree. Surroundings have a very marked influence upon one's mental processes and upon his equanimity, as well as upon his physical body. Usually one becomes so adapted to his environment that his system functions comparatively normally, even when this environment is such that it might be expected to have an adverse influence. A change of environment, not necessarily from good to bad, may be a cause of sluggishness of bowel eliminations. This change may alter in no degree the general physical activity but may involve only a change in climate or soil, especially when the change is to a chalky soil, or probably in drinking water. Most landsmen become constipated when taking a sea voyage. Usually constipation resulting from change of environment is transient, especially in those who have been previously free from bowel irregularities.

DIET

As eighty percent of all cases of constipa-

tion can be corrected by diet alone it must appear that this high percentage of cases *results* from improper foods or eating habits. There are many dietetic causes of constipation; and dietetic errors that would cause this condition in one individual may not do so in another. Hence the personal equation or individual characteristics and idiosyncrasies must be taken into consideration. In some cases there will be from one to several gross errors, in others several minor errors, while some people seem to err in every respect so far as their foods are concerned. The degree of constipation and the effects resulting from it may bear apparently no relation to the grossness or multiplicity of errors of diet. It all seems to be largely a question of individuals and what might be called their immunity or their special susceptibility.

People undoubtedly vary considerably in their food requirements, and it is necessary to take into consideration the age, sex, temperament, race, personal habits and occupation, as well as the climate and season of the year, before it can be determined what would be a "balanced diet" for any particular individual.

There can be no question, however, that a diet that does not contain proteins, carbohydrates and fats, as well as the mineral elements and the "accessory food substances" (the vitamins) in sufficient amounts for the particular individual will provide inadequate nourishment for some certain function or functions of the body, and some of these will suffer in consequence. Usually a diet containing inadequacy of any certain element has an excess of some other element, thus causing an extra amount of work to be done by some organ or organs. In other words, the diet must be well-balanced for each individual, and all the factors mentioned above must be taken into consideration. But as I have stated, there are many dietetic errors that may be responsible for bowel inactivity, and these will be presented in greater detail below.

Indigestible Foods. It is difficult to group any particular class of food articles together and call them indigestible, because here again the personal equation enters into the problem. An article of food that may be digested with perfect ease by one individual may cause even violent acute indigestion in another; again, an article that may digest normally when used

alone or in certain combinations may cause digestive disturbances when included in certain other combinations.

Any food which does not digest in the normal time and manner, that does not yield the usual amount of both food elements and waste, and that causes any degree of disturbance of digestive or other functions, may be considered indigestible—for the individual in whom it produces these effects. Usually the constipating tendencies of such foods are the result of an undue amount of residual matter, which inflates the intestines, injures the mucous membrane and interferes with the normal secretions of the digestive canal.

Devitalized Foods. Devitalized foods and demineralized foods are without doubt one of the most pronounced causes of constipation. The processes involved in "refining" and preparing foods for modern markets and for consumption result in the removal not only of vital nourishing elements but of elements which should be retained in order to maintain the normal chemical processes of body fluids and of the cells—especially the vitamins. These prepared foods form adhesive masses

also, free from lubricating and stimulating qualities and literally and figuratively they "stick to the ribs." The prepared flours and starches are among the most seriously altered and constipating foods, since all the stimulating elements have been removed. This includes our white flours, our so-called graham flour, macaroni, spaghetti and noodles, and necessarily includes all of the white flour products such as are used in the great mass of pastry.

Young children especially are liable to the constipating effects of faulty foods.

Vitamin Deficiency. The exact nature of vitamins is not definitely understood, but exhaustive studies and experiments by many investigators disclose facts that prove their vital importance. These accessory food substances have been found to be absolutely necessary to the growth, health, and proper functioning of the body. One, called water-soluble vitamin, or Vitamin B_2 is of extreme importance to the body. When it is deficient the body fails to grow normally, as it controls to some extent body growth; but its deficiency also prevents normal absorption of food material from the

digestive canal, and this results in the enlargement of the intestinal contents and sluggishness of peristalsis.

Sugars and Starches in Excess. Our super-refined sugars, whether they be made from cane or beets, come in the class of devitalized, demineralized foods. We are continually using increasing amounts of sugar and sugar products, and these are coming to be a more and more prolific cause of intestinal disturbances, including stasis. Sugar provides no stimulation whatsoever to intestinal muscular activity; it irritates the mucous membranes and produces catarrhal inflammations; and it robs the blood of nourishing elements, since it is absorbed quickly and keeps the blood in a state of saturation, thus preventing it from absorbing genuinely beneficial elements. Unrefined sugars provide a certain amount of nourishment in addition to flavor and sweetening, but used in more than the smallest amounts even these are injurious enough. The constipating effect of an over-abundance of these foods is produced in still another way—by their drawing so much of the intestinal fluid to them for their solution and absorption that

the bowel contents are deprived of sufficient moisture to keep them soft and pliable.

Sugar and Starch Deficiency. The diet of the average person is not apt to be lacking in these foods, but those who eat excessively of meat and fats are sometimes "fed up" on these to such an extent that they do not care for other foods. We have seen that the pancreas in its secretion supplies a ferment for the digestion of each primary food element or class of food. But it will not supply its secretion or at least the ferment for any particular class of food if this food is not taken into the body, as the body is always working in an economical way. If starches and natural sugars are not made a part of the diet, or if they are consumed in insufficient amounts the ferment for this food will not be secreted. Thus the entire secretion of the pancreas will in time be reduced in amount and effectiveness. As this secretion is necessary to aid in the formation of fatty acid and glycerin, which help to keep the bowel contents soft and peristalsis active, the feces become hard and peristalsis difficult.

Deficiency of Fats. In a like manner a diet that is lacking in fats or oils will reduce

the pancreatic activity, or if the secretion is passed into the canal there will be nothing for the production of the glycerin and soap—which, as has been stated, are necessary for normal peristalsis and consistency of bowel contents. Diarrhea may be the initial abnormal condition of the bowels, but obstinate constipation will soon take its place. An *excess* of fats and oils will in time produce constipation because of the indigestion resulting, or from the reaction following the diarrhea which first appears.

Over-eating. It is a fact that cannot be refuted that over-eating is one of our most prominent causes of constipation. Before the age of thirty-five or forty is the time of life when this injustice is committed against the body to a greater and more serious extent. There is sad truth in the statement that thousands of people "dig their graves with their teeth". While I can conceive of absolutely no place in the human economy nor in our social system for alcohol in any form, I am convinced that some of the most vehement antagonists of alcohol, as well as countless thousands of others, are constantly intoxicated

through their intemperate eating habits. I believe also that intemperate eating has produced and will continue to produce more universal and widespread physical disabilities than alcohol ever has produced or ever will produce.

Excessive foods produce excessive wastes, and disturb digestive functions, with autotoxemia as a result—from accumulation of both wastes and undigested foods. The indigestion, putrefaction, fermentation and retention stretch the colon walls and decrease intestinal muscular tone, which further increases inactivity, this allowing still greater collection of waste in the digestive tube. Thus is established and maintained a vicious circle.

Under-eating. It may seem, from what has just been said concerning the tendency to over-eat, that we would find few cases where an insufficient amount of food was the cause of bowel inactivity, and it is true that this is not especially common. However, there are some people who use an excess of the predigested foods, which are too completely absorbed and which provide practically no residue, and this lack of residual material causes directly an intestinal sluggishness. A lack of

normal stimulation and of the exercise of peristalsis will result in loss of muscle tone as certainly as will over-stimulation and over-distention, though the effect will be less difficult to correct. Those who have passed middle life, especially those who have entered the period of physical decline, are usually the people who resort to "light" foods and to those which furnish inadequate bulk.

Protein Excess. The average diet consists of an excess of protein foods which, because of wrong combinations, undergo putrefaction with resulting irritation to intestinal mucous membrane. Not only this, but the over-use of proteins is bound to result in indigestion and this will further delay the passage of the bowel contents; putrefaction and its attendant fermentation will produce gas, with its dilation of the intestinal walls, especially the colon; impairment of the contractility of the bowel muscles will result from this, and stagnation will be the final direct effect. Protein is deficiently stimulating to the peristaltic action, and when taken in excess, especially with the conventional diet, it must

necessarily create or aggravate sluggishness throughout the alimentary canal.

Protein Deficiency. Usually one will have little trouble from constipation when his diet contains a deficiency of protein; but such a diet will in time produce general malnutrition, which will lower the tone of all tissues, including the bowel muscles. This, of course, would result in a lethargic condition of the intestinal canal. However, as there is so little likelihood of one securing a lack of this element, and as the dangers of an excess are so much more to be feared, one may well give little or no consideration to this cause of constipation.

Deficiency of Cellulose or Roughage. The start of a large number of cases of constipation is food containing a deficiency of bulk or residue. The waste from the average diet does not produce sufficient stimulation to bring about natural intestinal activity, as this diet is markedly deficient in green vegetables which supply indigestible cellulose, in fresh fruits which have chemical elements and residue especially effective as gentle stimulants

to intestinal peristalsis, and in the coarser portions of cereals.

Excess of Roughage. The diet of many others contains a marked excess of coarse foods, with such quantities of residue that the nerves and mucous membranes of the intestines are *over*-stimulated, which in time results in a retardation of the intestinal functions. The use of a large amount of bran or other coarse cereals, or of a larger bulk of salad vegetables or of sweet laxative fruits than the system requires, will be very apt to result eventually in an aggravation of the constipation for which this excess food is sometimes taken as a "cure."

Fruit Deficiency. The average person uses practically no fruit with the possible exception of a few months in the summer. It is during the colder months when the diet is heavy and mainly of starches and proteins, that fruits are required more than at any other time of the year; yet they are used in still smaller amounts if at all. Some people believe that fruits thin the blood and that this effect is not to be desired when one must resist the cold. The fact is that blood circu-

lates more rapidly when it is less viscid and concentrated. In every respect fruits improve not only the quality and circulation of the blood but every function of the body, not the least of which is waste elimination. But an **excess of fruit** acids, or other astringent foods as vegetable acids and vinegar, may produce a constipation by their puckering, contracting effect upon the mucous membranes of the digestive tract, similar to but less than that produced by tea. It might be said, however, that recent experiments would seem to prove that it is practically impossible to eat so many oranges as to produce a bad effect.

Insufficient Mastication. With many other people the food itself may be well-balanced with respect to the elements, cellulose and digestible portions but it is not sufficiently masticated. When this is the case, the food may produce sufficient irritation as to set up a catarrhal inflammation or gastritis or dyspepsia; or it may result in consumption of a greater bulk than necessary, this further resulting in a dilation or prolapse of the stomach. It may also produce inflammatory changes throughout the length of the intestines. Over-

stimulation eventually results in reduced functioning of one or more portions of the intestinal canal, and constipation is produced. Coarse foods in large amounts, foods poorly masticated, drugs, alcohol, spices, condiments, pickled foods, smoked foods, and all other unnatural foods are some of the stimulating substances taken into the intestinal tract which may give rise to constipation.

Water Insufficiency. Water is a marked intestinal stimulant of which the average person consumes far too little. It is unnecessary and possibly injurious to consume too large quantities, but it is more injurious to use less than the system requires. The tissues and cells of the body cannot function normally, they cannot absorb nourishment nor discard their waste, and they are not so responsive to nerve stimuli, when they are denied through the blood a sufficient amount of diluting, dissolving water. All functions are reduced when the intake of water is low. But of greater direct effect, so far as bowel activity is concerned, is the fact that water helps maintain normally soft and plastic feces,

through the absorption of the fluid by the undigested cellulose.

Excessively Dry Foods. As a lack of sufficient water retards bowel activity by tending to create a dry and hard condition of bowel contents, so will a diet that is very dry tend to give similar effects. Women especially are inclined to use an insufficiency of water or other fluids, except tea and coffee, with their meals or at other times during the day. Other people use an excess of foods practically free from moisture, such as breads, dry cereal, toast, crackers, cheese, and over-cooked foods. These foods should be avoided or used in very small amounts where there is a tendency to bowel sluggishness; or considerable water or other wholesome fluid should be taken to supply the moisture needed.

Irregularity of Meal Hours. Irregularity of meal hours is a cause of constipation in some cases. Someone has called the regularity of body functions the "periodicity of functions". As we have seen elsewhere, the body glands, organs, and tissues accustom themselves to certain habits, and the organs and associate organs of digestion are in the habit

of supplying their secretions at stated hours. The nerve centers that control the various functions are also habituated to respond regularly to accustomed stimuli and are "keyed up" to respond to the anticipated incentive. When this is not forthcoming or when it is supplied prematurely the functions are either beyond their period of keenest response or this period has not yet arrived. Were we living strictly in accordance with Nature our diet would contain enough of necessary residue, we would have sufficient water, and we would exercise enough to keep our intestinal activity at normal, regardless of irregularity of meal times. But since the modern diet keeps the bowels either constipated or on the verge of constipation, when a meal is delayed a few hours or advanced a few hours the rhythmic movement of the intestines and colon are disturbed and constipation may follow.

While I am convinced that one should eat only when hungry I am equally convinced that if one's diet is kept reduced to the *actual body requirements,* in each individual there will be developed a sufficient natural hunger that regular meals will be eagerly received

and fully digested. This kind of diet will also tend to keep the intestinal tract normal so that if it is necessary to postpone a meal there will be no marked disturbance of any function. But I can see no occasion for advancing a meal ahead of the usual hour, except when a meal or meals before have been omitted or reduced below the usual amount.

Tea-drinking. There is one cause of constipation that is rarely considered but which I believe to be rather frequent; this is the drinking of large amounts of tea. Tea contains tannin, which has a very pronounced astringent action, and when it is used in large amounts or in fairly small amounts frequently and over a considerable period of time it will produce a permanent contraction of the mucous membrane of the intestines, interfering thereby with secretions, with circulation, and with nerve and peristaltic action. Coffee also has this effect on some people, though to a less marked extent.

HABITS

Ignorance. Ignorance is responsible for

the prevalence of constipation as well as of numerous other abnormal conditions. The average person gives his bowels little if any consideration, and if their action is retarded the most ignorant form of treatment is adopted.

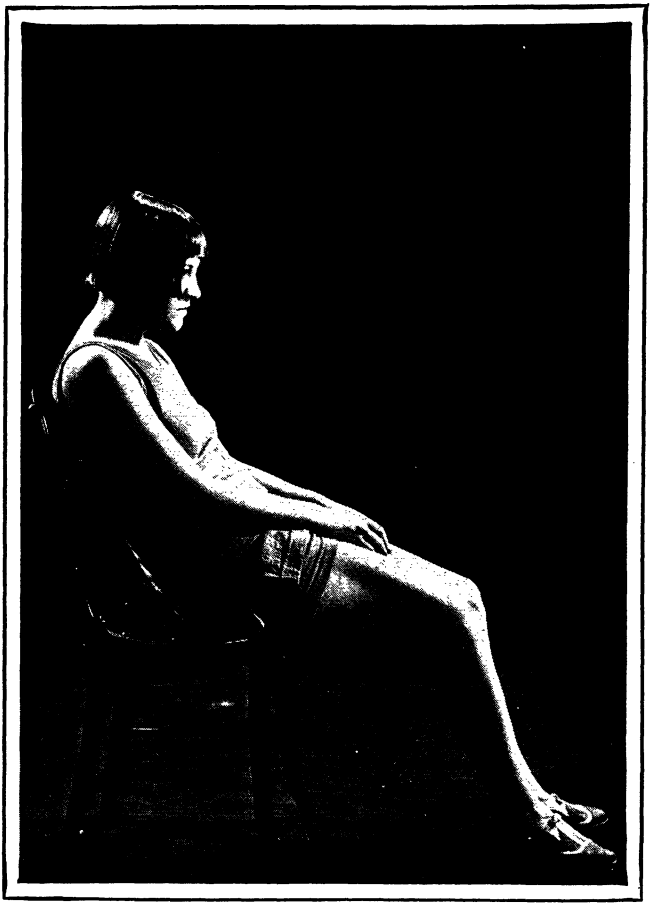
Drugs. Anyone who gives the least thought to the subject of digestion and of the process by which wastes are removed from the system cannot but realize that constipation corrected by drugs is constipation perpetuated. One of the most frequent causes of a chronic constipation resulting from an acute or very mild constipation is that coming from the abuse of cathartics or laxatives. Remedies for dyspepsia and mild gastritis, and other conditions of the intestinal tract usually considered mild, also give rise to a similar condition because of the damage they do to the mucous membrane and secretory cells.

Wherever there is constipation there is food-poisoning and this is not confined to the intestinal tract: it involves every cell of the body; and in order to correct this food-poisoning, as well as constipation, further treatment than drug stimulation of the intestines is absolutely

necessary. Even though the bowels may be forced by drugs to expel their contents, the food poisoning necessarily remains.

Insufficient Exercise — Sedentariness. Lack of sufficient exercise is also the result of ignorance. The human machine is a muscular machine to a considerable extent, and all functions are increased when the muscles are kept in proper tone and decreased when muscle tone decreases.

Sedentary habits, or at least activity which does not bring into contraction the abdominal muscles, is a fruitful source of constipation. The people who are most affected by sedentary habits are those who eat too much and who neglect or postpone the calls of Nature. Those of the hothouse variety who enjoy luxury with no hardships, who have too much sleep on beds too soft, and who are confined in hot, poorly ventilated apartments without the tonic effect of fresh breezes and sunlight, are all subject to constipation; and they are prolific buyers of the ineffective so-called constipation remedies. The sedentary occupation of the average individual results in a soft, flabby condition of external muscles



The wrong sitting posture. Instead of sitting at edge of chair, bring thighs far back on chair seat so that the spine will follow more nearly the back of the chair; keep shoulders and head back, but without strain. With well trained muscles one assumes the proper position without spinal strain.

and no less so of the internal muscles, and in many cases the intestinal tract becomes sluggish in direct ratio to the decreased tone and sluggishness of the external muscles. Students and others who change from a physically active life to one of inactivity almost invariably have intestinal sluggishness.

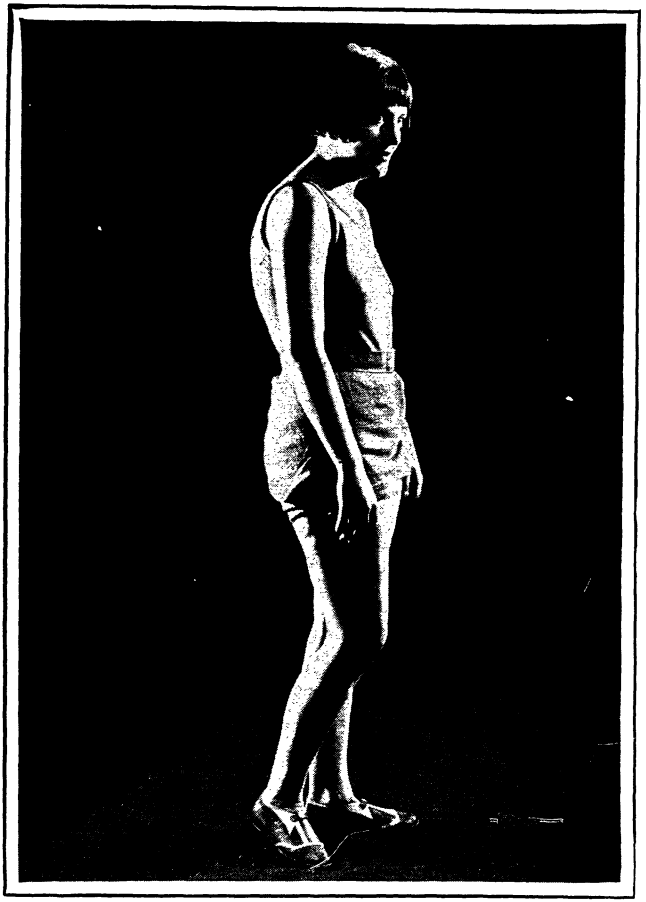
In these individuals of perpetual sedentary habits we have some of the most stubborn of all cases of intestinal stasis. In many of them the condition has existed for so long a time and has developed to such a degree that an actual obstruction of the bowels has resulted; and in many of them a weakness of the tissues and of the nerves and the pollution of the blood have become so marked that the restoration to a healthy condition is well nigh impossible.

While special exercises will be valuable in connection with general physical activity in the *correction* of constipation, no such special exercises would be necessary to *prevent* this trouble if the entire body were given sufficient muscular activity.

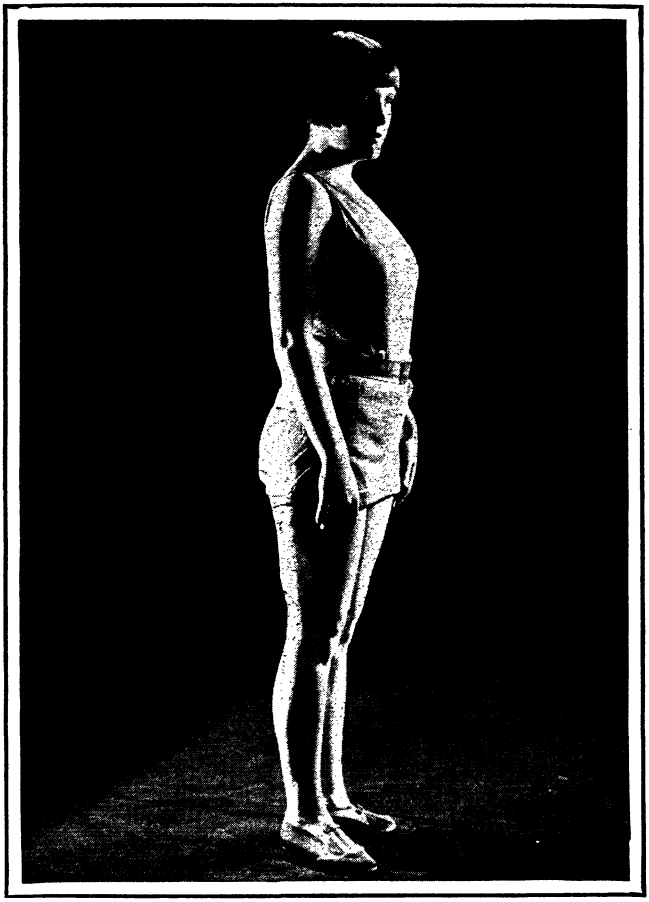
False Modesty. False modesty is still a cause of constipation but not so much so as

formerly. However, there are yet too many people who are ignorant of the danger resulting from suppression of evacuation-stimuli and whose sense of false modesty prevents them from excusing themselves from associations to respond to Nature's call. In these we find more or less pronounced constipation, frequently with a train of symptoms. Maturing girls are usually affected from this cause.

Postponing — Laziness. Postponing, regardless of the reason, produces similar results. Many times one is in some form of amusement or entertainment or occupation which he does not care to leave for the time being. Ignorance of the danger is responsible for the delay and the consequences. There have been numerous instances of where even a strong stimulus for evacuation has been controlled for some time—probably even for as short a time as fifteen or twenty minutes—following which a very large and dry fecal plug has formed far down in the rectum, making evacuation extremely difficult and sometimes impossible without artificial aid; and, strange as it may seem, the desire for evacuation does not return for a long time after this



The usual slouching posture of the improperly trained body. The sunken chest and protruding abdomen prevent the abdominal organs from maintaining their normal positions and functioning properly. The drooped shoulders constrict the chest, causing shallow breathing, weak lungs. Constipation is prevalent in those who hold this position.



The proper standing position, also the correct position of trunk while sitting. There is no strain and yet the chest is held high, shoulders back, head up; the whole body inclines slightly forward, and there is no sagging of abdominal organs, from the posture itself.

disregard and suppression of the normal inclinations, nor does it return with normal urgency.

Laziness leads to the same failure to respond immediately to the stimulus to evacuate the bowels, and the consequences are the same as where the stimulus is willfully suppressed.

Lack of Regular Time. Another extremely frequent cause of intestinal stasis is a lack of a stated daily time for emptying the bowels. As I have said elsewhere, many of the organs of the body are capable of forming habits, the intestines being among these; in fact they are more susceptible to habit formation than practically any other organ of the body; and when the regular daily evacuation habit has not been developed they may retain their contents for a much longer period of time than where this habit is established.

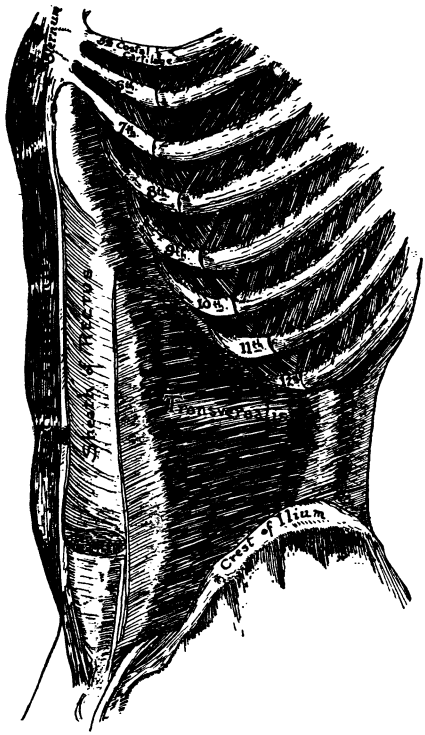
Modern Posture as a Cause. The natural position to assume during the act of defecation has been dispensed with because of the modern toilet seats. Even with the advent of outhouses this position changed from a natural, helpful one to an unnatural, negative position.

Before we resorted to toilet seats the position involved the low suspension of the pelvis with considerable pressure by the thighs upon the abdomen. The modern position raises the hips high and, though not necessarily so, usually places the abdomen free from the thighs. *This may be corrected* in one of two ways: A block or stool may be placed immediately in front of the toilet seat, raising the thighs so as to approximate the normal position; or one may lean far forward so as to secure the abdominal pressure by the thighs. The former position is the better remedy, but the latter will be satisfactory, and calls for no extra equipment.

Undue Straining. Many people have formed the habit of making considerable muscular effort to expel the bowel waste; they strain with all the power of the diaphragm and external abdominal and pelvic muscles. This is not only liable to produce hemorrhoids or prolapse of the rectum or anus, but is very apt to defeat its own purpose by causing an increased contraction of the sphincters. Light tension of the muscles mentioned is sometimes an aid and may be safely employed, but the

sphincters must be allowed to relax, or they fail to open.

FUNCTIONAL, ORGANIC AND GENERAL CAUSES



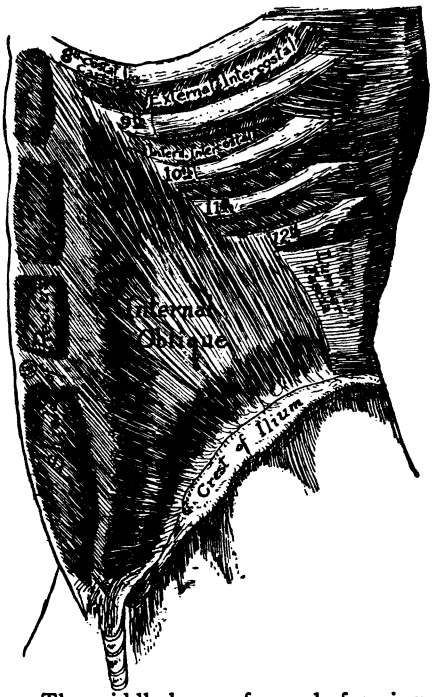
The internal layer of the abdominal muscular corset formed mainly by the transversalis muscle.

The Muscular Corset. As we have heretofore seen, in Chapter I, after food has been passed from the stomach into the intestines it is gradually forced along by the worm-like motion of this digestive tube. This action is produced by circular and longitudinal

muscles belonging to the sympathetic (autonomic, vegetative, or involuntary) nervous system, the normal intestine having a more or less constant worm-like or peristaltic movement whether containing food or empty. When empty the movements are naturally slighter, because the stimulation is slight. For normal activity it is necessary that the intestines be stimulated only sufficiently for them to carry on their work with the amount of food they contain. But, naturally, they must be stimulated to the required degree and be capable of responding to the stimulation. Where they are over-stimulated by any cause (some of the causes previously mentioned), there will result in time the condition that follows all over-stimulation—a reduction of activity through enervation, exhaustion, or partial paralysis of the nerves.

Enervation and Muscular Atony. When the nerve supply of any muscle is lessened from any cause the muscle itself is weakened, but in many cases there are other factors at work to produce weakness of the muscles of the intestines, even when the nerves are normal in action. These other factors are any

influences which produce a relaxation or dilation of the intestines, especially of the colon. Food in excess, foods which ferment and produce a large amount of gas, retention of food, or frequent injection of large amounts of water will so dilate the intestines and stretch and weaken the muscles that the minute blood vessels contained within the muscles and mucous membranes will be obliterated or squeezed so that they cannot feed the muscles and tissues properly. This produces



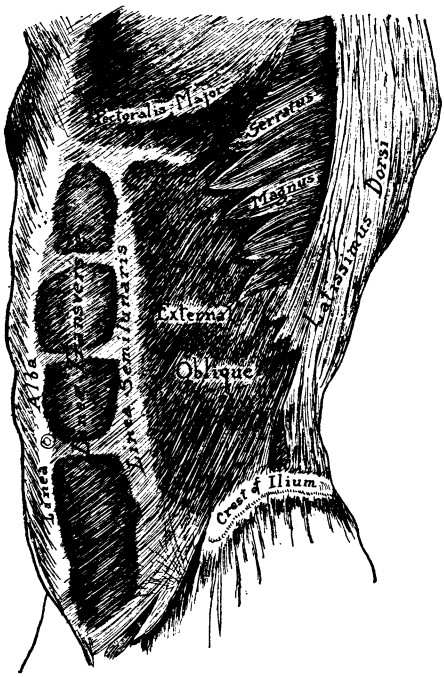
The middle layer of muscle forming the natural abdominal corset—the internal oblique.

atony of the muscles, and the lack of nourishment will in time result in a deadening of the nerve endings themselves so that even fairly complete functional paralysis will eventually result.

This effect upon the nerve endings may pass backward over the nerves until the spinal cord itself, at the point where these nerves originate, is greatly reduced in vitality and ability to transmit normal impulses. In many cases these areas of the spinal cord are so affected that all cells here are weakened, which condition then results in feeble impulses or a total lack of impulses to the superficial or external voluntary muscles of the abdomen, as well as to the involuntary muscles of the intestines. This results in a weakened, flabby muscular corset, which prevents proper support of the abdominal organs and voluntary pressure and impetus by these muscles to the intestines during the act of defecation.

Thus, from the causes which tend to destroy the elasticity of the colon itself, may come a whole train of conditions, any one of which is sufficient to cause and perpetuate constipation; and when constipation is once established

it directly and reflexly affects the entire alimentary canal, disturbing the muscular action and modifying or reducing the digestive secretions. These altered conditions themselves then perpetuate and aggravate the constipation and a constant *vicious circle* is established and maintained thereafter.



The external muscle of the abdominal corset—the external oblique. This also shows the other muscles and the markings immediately below the skin of the abdomen.

Obesity. Other frequent causes of weakness of the voluntary or external abdominal muscles are numerous. One of these is the accumulation of a large amount of fat in the abdominal

walls; this draws the abdomen downward and outward by the sheer weight of the excess tissues. In these cases there is frequently or perhaps usually the added weight of a considerable amount of fat *within* the abdominal cavity, especially on the omentum, which suspends like an apron down from the anterior surface of the stomach to the lower part of the abdomen and then swings upward to attach to the under and posterior surface of the transverse colon, then upward and backward to the posterior surface of the abdominal cavity. When this is weighted with fat it helps to force the abdomen outward as well as the stomach and colon downward.

Frequent Pregnancies. Frequent pregnancies also dilate the abdomen and stretch and weaken the abdominal muscles as they become thinner. The thinner they become the more poorly nourished they become, and this further weakens them and makes them liable to still greater relaxation and prolapse. This dilating effect can be overcome to a considerable extent, however, if the woman will exercise regularly between pregnancies and will take the proper exercises during pregnancy.

Strains and Injuries. Weak abdominal walls may be made to protrude and give less than the normal support by lifting and straining or by any means which increases intra-abdominal pressure. Protracted coughing from colds or other conditions may be one cause. Whatever the cause, when the muscular corset loses its ability to hold the abdominal structures in normal position in relation to each other, the organic activity will be reduced and intestinal sluggishness invariably will be the ultimate consequence.

REDUCED FUNCTIONING (HYPOFUNCTIONING)

Another set of causes of constipation is any disease of the digestive tract itself which results in reduction of the functioning processes.

In the Stomach. Stomach activity may be reduced as a result of dyspepsia, ulcer, cancer, etc. While in some of these the secretions may be increased in amount, or the motor activity accelerated, these changes are temporary and spasmodic only, and all processes are eventually defective. A reduction in amount

or quality of the hydrochloric acid or an absence of this secretion materially lessens stomach digestion and produces or aggravates constipation. This is a frequent result of gastric catarrh. There may be a dilation of the stomach called, technically, *gastrectasia,* or a more or less marked prolapse of the stomach without weakness of the abdominal corset. In some very thin individuals, also in some fat individuals, the stomach may be so greatly prolapsed that its greater curvature will rest within the pelvis. In these cases of dilation or prolapse the functional processes are naturally greatly retarded; digestion is delayed and the passage of the food into the intestinal tract is materially retarded, with constipation following as a natural consequence.

In the Intestines—Reduction or Altering of Intestinal Secretions. Any factor which reduces the amount or quality of the secretions will naturally delay the passage of the contents of the intestines and colon.

Catarrhal Inflammations. Inflammations are the most frequent cause, and catarrh is the most frequent form of inflammation. Usually in case of catarrh of the stomach there

will be catarrh of the intestines. Catarrh of the intestines, especially, may result in constipation because of the interference with secretion by intestinal glands and mucous membranes and with muscular activity. But constipation may likewise *result* in the catarrhal condition, from the accumulation of toxic materials and the direct irritation to the intestinal lining. In fact, as will be seen later, constipation may be practically the first abnormal function of the body, but may result in one or more extremely serious abnormal conditions.

There may be a combination of constipation in one part of the bowel and a diarrhea, due to catarrh of another part. The diarrhea, because of the greater concern which it creates, may conceal the constipation.

Dry Colitis. A dry colitis will produce constipation, since the secretions are materially reduced. Inflammations may produce this dry condition of the colon, but many times the constipation itself produces it; thus the condition of the colon becomes such as to perpetuate the constipation, and again a vicious circle is produced. Usually in these cases

when normal bowel action can be established by hygienic care the colon again secretes its normal fluid and will no longer be dry.

Perspiration. Where the perspiration is profuse the fluids of the entire body may be diminished and constipation may result when the intestinal secretions are called upon and thus reduced.

Pain. Pain is rarely considered as a cause of constipation but during considerable pain, rheumatic or otherwise, the secretions are greatly retarded or entirely suppressed, especially when the pain is in the abdominal region, as in the abdominal walls, loins, or internally as in the diaphragm, pelvis, etc. There is also a disturbance of functions generally, through abnormal nerve reactions resulting from pain; and when present it will almost invariably produce a constipation that will not be overcome until the pain subsides.

Emotions. Worry, fright, anger, grief and other depressing emotions, and physical or mental exhaustion will sufficiently reduce the intestinal secretions as to produce a delay in bowel action. We can readily see the effect produced by these upon the secretions when

we observe how dry the mouth becomes through a suppression of the salivary secretion during these emotions and conditions.

Thyroid Gland Deficiency. As far back as 1899, E. Hertoghe, a Belgian physician, in articles on hypothyroidism described the influence of the thyroid in causing chronic intestinal stasis. The effect of this condition upon the intestines is the reduction of the secretions of the canal, which results in dry and hardened bowel contents; whereas when the thyroid secretion is normal the intestines are stimulated naturally to secrete their normal amount of fluids to keep the feces soft and plastic.

Liver Torpidity—Bile Deficiency. Authorities differ in their opinion as to the extent a torpid liver plays in the production of constipation; but almost all agree that at least fifty percent of the cases of intestinal stasis are due to, or associated with, liver disorders, and some authorities claim as high as ninety percent.

An inactive liver results in a marked decrease in the amount of bile secreted and passed into the bowel. The bile has several

functions, among which are: a stimulant to peristalsis; activator of intestinal secretions, thus helping to maintain normal moisture in the canal; helps in the emulsification of food fats; an intestinal antiseptic, thus preventing intestinal putrefaction with its many harmful effects upon bowel functions. It is one of the main stimulants to intestinal peristalsis and one of the most important agents of lubrication, and when absent or secreted in deficient amounts the movements of the contents of the canal are certain to be greatly retarded. But the bile also has a very decided stimulating effect upon the pancreas and causes this most important digestive gland to secrete its fluid, with its various ferments, in adequate amounts. Without this normal amount, digestion of all food is delayed.

Over two-hundred years ago a famous Scotch surgeon, Arbuthnot, in *The Nature and Choice of Ailments* wrote "The inactivity of the gall occasions constipation of the belly". His opinion that an inactive liver and its resulting deficiency of bile are prominent factors in the causation of intestinal constipation is now known to be a definite truth. An ab-

normal *quality* of bile may have a similar effect.

Torpidity of the liver results from overwork of the organ by an excessive diet of the rich and heavy foods and by this abuse being continued over a considerable period of time. A genuinely pathological or structural change may take place in this organ as a result of inflammation produced in the effort of the liver to perform all the excessive work that is demanded of it.

Obstructive jaundice is a frequent cause of constipation, since in this condition the intestinal tract is denied its requisite amount of bile which, among other functions, serves to soften the bowel contents and lubricate the intestinal canal.

Other chronic affections of the liver may have the same result, among these being hepatic congestion, and atrophy or cirrhosis of the liver. Besides reducing bile quantity and quality, these produce a congestion of the veins carrying blood from the intestines to the liver, which leads to congestion in the intestinal mucous membrane, with a thickening secretion also stimulates the peristaltic wave

of this membrane. Such a condition impairs secretion and peristaltic action of the intestines.

Reduced Appendix Secretion. Another form of constipation from reduced secretions is that resulting from an insufficient appendicular function. This organ is supposed by many to have no definite function except to swell the bank account of surgeons; but by others it is thought to have a secretion, more or less oily in character, which stimulates the mucous membrane of the colon to throw onto the colon surface a mucous secretion to aid it in passing on its contents by lubrication; this secretion also stimulates the peristallic wave and helps regulate bowel action in this way. Intestinal inflammation and acute or chronic appendicitis (not to mention its surgical removal), cause a reduction or loss of this secretion, without which there is a dry colon, causing the feces to accumulate at the rectum where their moisture is eventually completely absorbed, making them hard and bullet-like.

Pancreas Secretions. Functional or organic disease of the pancreas (the secretion of which, as we saw in Chapter I, contains

enzymes for the digestion of all classes of foods) may so reduce or alter the secretions of this organ as to delay or prevent digestion of some of the food elements, especially the fats. One of the ferments of the pancreas is steapsin, or lipase, which acts upon the food fats, helping with the bile to break them up into fatty acids and glycerin. The former (fatty acids) unite with the alkalies of the intestinal contents to form a soap. Dr. W. H. Porter in "Eating To Live Long", makes the claim that the glycerin formed by the steapsin upon fats has a similar effect on the bowels to glycerin injected directly into the bowel—that of a lubricant. In fact, both the glycerin and the soap are lubricants and help materially to produce normal passage of the bowel contents along the canal. They help also to maintain soft feces. This may result in diarrhea, but constipation will be the more probable result.

Pituitary Secretion Deficiency. The pituitary gland is a small gland of internal secretion about the size of a pea, situated at the base of the brain. Schaefer in his work "Endocrinology" claims that the pituitary sup-

plies a secretion (called a hormone, as are the secretions of all internal secretion glands—because of their stimulating effect upon other similar secreting glands and other tissues) which has the effect of maintaining muscular tone of the intestinal tract and of stimulating intestinal peristalsis. When this secretion or hormone is deficient in amount or quality the muscular tone is lowered, hence the muscular power is reduced.

General Diseases—Fevers. There are many general diseases that have the effect of lessening the internal secretions or inhibiting normal peristaltic action of the intestines; these are especially the fevers. In some of these fevers, either general, or local within the intestines, there is frequently rapid absorption of the fluid in the intestinal canal with the production of hardened feces which are difficult to expel.

Chronic Lead Poisoning. It has long been known that one of the most stubborn forms of constipation, in fact an obstipation, is produced by chronic lead poisoning. Painters especially are subject to this form of constipation and many of these have had to seek

other occupations in order for a cure to be established, and to prevent recurrence. In this case the secretions are markedly diminished, but the alteration involves also the intestinal musculature, and the nerve action may be reduced, even to complete paralysis. The kidneys may be greatly contracted also. This explains the extreme stubbornness of this form of constipation.

The Enema Habit. I have prescribed and recommended the enema in thousands of cases, because I believe in its effectiveness as a temporary means of cleansing the lower bowel; and, through the removal of interference with the entire intestinal peristaltic wave, it is effective to some extent as an indirect cleanser of the small intestine. I believe in its harmlessness also, when it is properly employed as to frequency, amount and temperature of water, and the method of use. But I have seen some extremely intractible cases of constipation as a result of an irrational employment of the internal bath.

Some individuals use an enema a few times and, finding that they feel decidedly more alert both mentally and physically, they get into the

habit of taking a bowel-cleansing treatment frequently, feeling that if a few applications of such treatment are effective the regular use would be beneficial; and they usually use too much water, possibly at too high a temperature, and inject it with greater force than by gravity alone. I shall say here merely that the enema *may* be productive of extreme dilation of the colon, sigmoid and rectum with marked atony of the muscles of these structures, with severe constipation as a result. A complete explanation of the possible harmful effects of this means of relief will be found in Chapter V under "Hydrotherapy—Water Treatment."

INCREASED FUNCTIONING (HYPERFUNCTIONING)

Spastic Constipation. In any age, but especially in or near middle life, there is a severe and very slowly yielding form of constipation resulting from a contracted state of the bowel; this is frequently called *spasmodic* or *spastic constipation.* Sometimes the bowel is contracted to such an extent that there is but a pencil-size canal. The discharge from the

bowels in these cases is very acid and usually of foul odor. In some cases we find this condition after certain cases of ulcerated colitis or chronic dysentery, also in erratic, hysterical and neurasthenic women, especially when suffering from pelvic disturbances. The symptom complex of many of these patients is markedly neurotic in type. This form is found in a large number of old persons also, with no apparent definite cause.

It has been claimed by some observers that this is the result of an internal secretion disorder which produces an over-tone of muscles in certain sections of the intestines. The general condition of which this is a symptom is called, by these observers, *vagotonia,* meaning excessive "tension" of the vagus nerve, one of the main sympathetic nerves of the viscera or abdominal organs. Probably in some cases this cause may be responsible for the condition; but as a removal of intestinal contents and toxemia usually corrects the condition in time, it would indicate that this particular variety of constipation is the result of certain types of intestinal decomposition or fermentation which irritate the mucous membrane and

the nerves and muscles of the intestines in such a way as to bring about the internal muscular spasms.

Following chronic dysentery or an ulcerated colitis we occasionally find the spastic type of constipation. This bears out the theory that intestinal toxemia is the cause, or at least a cause, of this type.

Many times the action of the main portion of the colon is retarded by a dilation of weakened muscular walls while at the same time the extreme lower portions of the colon are held in a state of spasm or fairly permanent contraction, thus giving a double cause for constipation but producing the main features of spastic constipation. The most characteristic sign of this is feces fairly hard and round, or small and sausage-shaped masses.

Muscular Spasms. There are numerous conditions which produce muscular spasm in the anal sphincters, the rectum, and the sigmoid. Among these conditions are: an irritable prostate gland, uterine diseases, ulceration within the rectum, and strictures. By reflex action from the area directly affected, the intestinal tract at its lower extremity is

held in a state of spastic contraction, which retards either the complete downward descent of the fecal content or its escape from the rectum. Spasmodic or reflex strictures will have an effect similar to organic strictures, though the response to treatment of these cases is much more rapid and satisfactory.

NERVOUS DISORDERS

Neurasthenia—Hypochondriasis. Some individuals seem to have no other cause for their intestinal torpidity than "pure nervousness". At times their bowels may be in apparently normal condition while at other times they are extremely sluggish, and this latter condition may be for the greater part of the time. It may alternate or be relieved occasionally by short sessions of diarrhea. These are people who become neurasthenics and hypochondriacs and spend so much time and energy, not to say money, toward the relief of constipation. It is in this class of patients where we most frequently find *worry* as a contributing cause of the disorder. The constant worry over bowel inactivity, as well as

over the thousand and one other symptoms, is sufficient in itself in a considerable number of cases to bring about a condition of genuine constipation or to aggravate a mild constipation into a severe one. Their constipation is usually the result of a lack of nerve force transmitted to the intestinal muscles—a condition technically referred to as "nervous inhibition". In such cases the constipation and the nervous disorder react upon one another: the constipation aggravating the nervous disorder and the latter intensifying the constipation—a condition that demands thorough treatment to rehabilitate bodily health.

Spinal Causes. In a considerable number of cases there are spinal ligamentous or deep muscular contractions, or a combination of both of these, which interferes directly with the spinal nerves leading to the intestines, probably giving a certain degree of pressure to them or irritating them by the constant tension of fibres connected to the nerve sheaths. This interferes with the nerve supply to the intestinal muscles and mucous membranes and with the circulation to these structures; they fail to receive normal nerve impulses or if such

impulses are received the intestines fail to respond to them because of their muscular weakness.

Sphincter Spasms. "Tight sphincters" is a recognized cause of constipation. Some causes of these tight sphincters have already been mentioned and include irritating intestinal contents, irritable prostate, etc. But some of these cases of spastic sphincters or of contractions elsewhere within the intestinal tract, as well as many other conditions responsible for constipation, are primarily the result of abnormal conditions in the spinal column. Occasionally there may even be a subluxation of the vertebrae—an actual slipping of one or more vertebrae out of alignment.

That this spinal theory in regard to constipation is true, one need only to come in contact with numerous cases of more or less severe constipation, many of them of long duration, that have been corrected by spinal manipulative treatment alone; or in some cases by deep spinal massage.

Strictures of various areas have either a direct effect, as when located within or near the intestinal tract, or an indirect or reflex action

when located elsewhere. When spastic sphincters exist the trouble is not only localized in these sphincters but the entire intestinal peristaltic wave is reflexly retarded and the contents more or less stagnate. We need only to note the effect of a very minute injection into the rectum, or the insertion of a small suppository or a rectal dilator, to secure a demonstration of the direct connection between the sphincter muscles or the mucous membrane of the rectum and the peristaltic wave higher up.

Abnormal Nerve Functioning

Every organ in the body functions through nerve action, and every organ or structure of the abdomen receives its main nerve supply from the spinal column. If this supply is interfered with, at or near its source, there will be either an irritation with increased action or a suppression of impulses with more or less partial paralysis or inactivity. If this involves the intestines there will be constipation or diarrhea as a primary result and constipation always as the later result. If it involves the diaphragm this structure may descend less

feebly during respiration and this important muscle is prevented from aiding the intestines.

Central Nervous System. Any other organ or structure that has to do with intestinal activity, whether in regard to the secretions, position, or muscular activity, may be sufficiently disturbed as to result in constipation. Certain conditions of excess irritability of the central nervous system or of the sympathetic nervous system, or conditions of more or less inactivity from very slight to complete paralysis, may result in intestinal stasis. In insanity there is very apt to be severe constipation, or frequently merely a failure to respond to body demands.

Tubercular Meningitis. Certain conditions of the brain produce very marked constipation; for instance, tubercular meningitis has as a symptom constipation of a more pronounced character than any other condition having an equal degree of fever. Brain tumors are also productive of obstinate degrees of constipation.

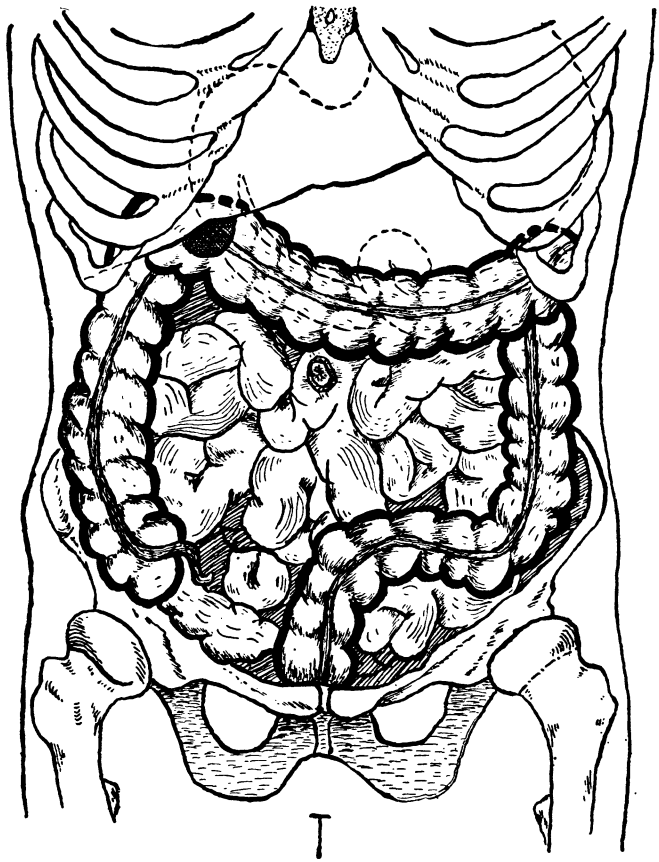
Spinal Cord Diseases. Certain diseases of the spinal cord also have as a symptom obstinate constipation, as, for instance, locomotor

ataxia, and apoplexy of the spinal cord. These results are due to a direct inhibition of the peristaltic function through the nerve centers, either of the brain or cord.

MECHANICAL AND STRUCTURAL DEFECTS

Ptosis, or Prolapse. The correct action or functioning of any organ depends upon its normal structure, no less than upon its correct innervation. When for any reason the organ is prolapsed no function will be perfect, though it may continue to perform its duties sufficiently that the individual may be unaware of any abnormality; but in time the retarded function will be certain to result in more marked symptoms or in other conditions so pronounced that its damage will be unmistakable.

The stomach is very subject to prolapse but not more so than the large intestine. The convolutions of the small intestine are naturally very irregular and they occupy most of the center of the abdominal cavity and, except for the duodenum or first part, are rarely pro-



Showing the normal position of the large intestine or colon in relation to the small intestines and also to the stomach. For a better understanding of the extent of the stomach see figure on page 241.

lapsed, or at least their prolapse is not readily discernible.

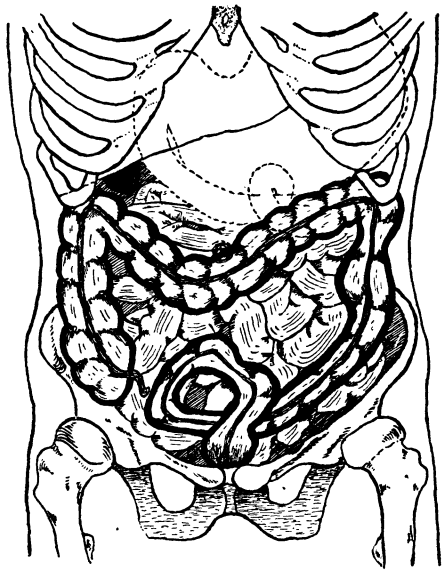
Some of the worst cases of constipation are the result of sagging of some of the abdominal viscera. One of the well known physicians of an earlier generation used to say in attempting to explain life's vicissitudes that we needed less to fear the "many slips twixt the cup and the lip" than the "many twists twixt the mouth and the rectum." One of the great English Surgeons (Dr. Arbuthnot Lane), by clinical experience and the radiograph, has determined numerous points along the gastro-intestinal tract that are most subject to ptosis or prolapsus. These points are:

(1) The end of the duodenum farthest from the stomach, at which point there may be a very abrupt kink. This may result in a dilation of practically the entire duodenum.

(2) The ileum at its connection with the cecum. This is really a kink produced in the ileum by a dropping of the cecum, rather than a dropping of the ileum itself.

(3) The left extremity of the transverse section of the colon or large intestine—at the splenic flexure. The colon at this point is

fixed but the ascending colon may be very low, causing the transverse colon to ascend diagonally from right to left across the abdomen instead of directly across the abdomen. This fixed point of the splenic flexure makes it necessary for the contents to climb high when the colon sags.

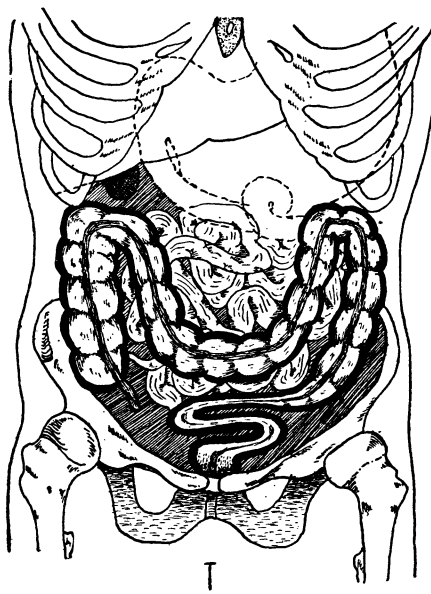


Showing a mild prolapsus of the transverse colon; also a very long sigmoid colon and rectum; either of these conditions may exist alone.

(4) The next point down the colon is the sigmoid loop. The peculiar arrangement of this gives one the impression that it was designed especially to retard materially the onward progress of the

intestinal contents. Such is very probably true, in order that the whole amount of nourishing elements will be absorbed from food; and it is only the lack of proper dietetic habits that make it a contributing cause of constipation.

(5) Finally, there is in some instances a marked elongation of the rectum itself, which naturally requires a longer time for the accumulation of a sufficient fecal mass for stimulation to evacuation.

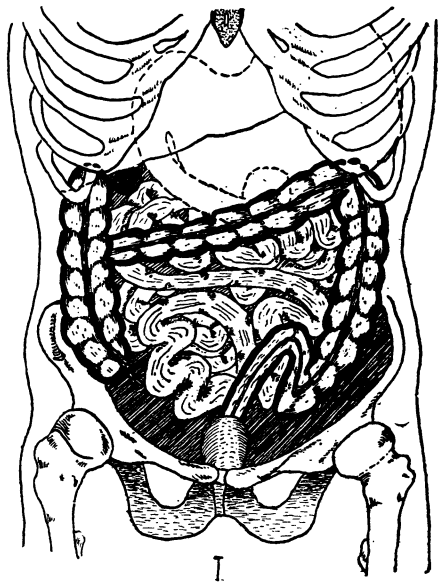


Showing a more marked prolapsus of the transverse colon; also different positions of the long sigmoid and rectum.

Still another point to be mentioned is the hepatic or liver flexure of the colon. Sometimes

this flexure falls forward and may be almost as low as the right groin, causing the ascending colon to loop over on itself. Normally the hepatic flexure should be as firmly fixed to the posterior wall of the abdominal cavity as is the splenic flexure.

Ballooning, or Dilation. Ballooning of the colon has the same effect as prolapse. It may be so dilated that a normal amount of contents is not sufficiently stimulative to create normal peristaltic waves, or the musculature may be so weak that the peristal-



Showing a kink at the hepatic (liver) flexure, by prolapse of the colon at this point; also somewhat prolapsed sigmoid and elongated rectum.

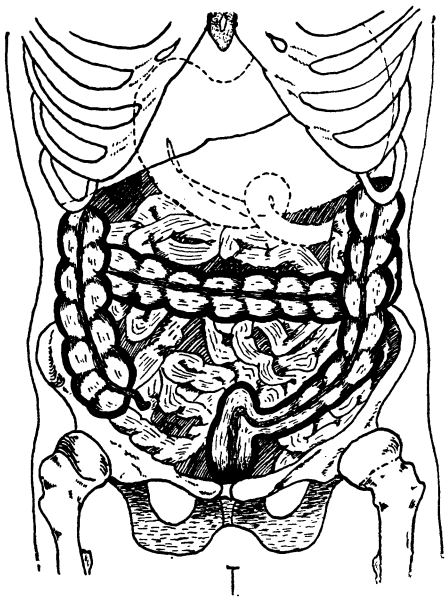
tic waves are inefficient. It is usually dietetic errors or the abuse of the internal bath which produces this condition, though sometimes it results from strictures of the rectum or from very tight anal sphincters which cause a retention of the colon contents until they have assumed sufficiently large portions to affect a stretching of the colon.

In some instances atony of the rectum results in the dilation of this section of the colon to great size. It may sometimes reach a diameter of four or five inches.

Strictures. There are certain definite mechanical or structural causes of constipation, sometimes more direct than many of those thus far referred to. Strictures from many causes are fairly frequent causes of constipation. These may result from inflammations (the usual cause) or from operations and operation scars. They are different from adhesions in that they are within the lumen of the canal, and when they are in the intestines they draw together the walls of the tube and thus reduce the size of the opening. They may also extend across the opening, sometimes as direct adhesive bands, and may even occlude the canal.

But strictures farther up in the digestive canal may also be responsible for the development of intestinal stasis—probably by making it impossible for the individual to use any but liquid or very soft foods, as in stricture of the esophagus, or by interfering with the passage of more solid contents, as in stricture of the pylorus, or exit of the stomach.

Adhesions and Bands. *Adhesions* that unite the outer wall of one section of the intestine to that of another, or the intestines to some other abdominal organ or structure — possibly,



Showing kinks at both hepatic and splenic colon flexures, through prolapse of the colon; also somewhat dilated rectum.

though rarely, to the wall of the abdomen itself —produce a direct mechanical interference to the lumen of the intestine or to the normal peristaltic action. These adhesions result from numerous causes, among which are peritonitis, perityphlitis (inflammation about the cecum), appendicitis, and other severe intestinal inflammations; also pelvic inflammations or major abdominal operations. The inflammation may produce *bands* of tissue, more or less ligamentous in structure, uniting some part of the intestine with some other part or structure; these are similar to adhesions and produce the same results.

Intussusception—Invagination. In some rather rare instances one section of the intestine will dilate and "swallow" an adjoining section. This is more frequent in children than in adults. Naturally this enclosure of one layer of intestine within another will prevent the transmission of the peristaltic wave and an absolute stasis of the contents is certain to result. This condition calls for prompt and effective treatment, not infrequently surgical.

Twists and Kinks (Volvulus). The inflammations mentioned as producing adhesions

or bands may result in certain twists or kinks in the small or large intestine, and when one of these occurs it has the same effect as the invagination just mentioned—the complete blocking of the canal.

Strangulated Hernia. When a part of the gut protrudes through a hernial opening and becomes kinked or locked in this position, a condition similar in symptoms and effects to intussusception is produced. One of these symptoms is obstinate constipation; in fact, an absolute blocking of the intestinal canal—and there is also vomiting, with in time fecal vomiting. This is a very serious condition and calls for prompt action—not so much merely to produce normal bowel movements, but to prevent gangrene from pressure, and blocked circulation of the part of the gut that protrudes through the hernial opening.

Prolapse. Prolapse has already been mentioned and will be referred to here only because of the direct pressure and interference it may produce.

Growths and Tumors

Abnormal growths or tumors are frequent

causes of constipation because of the pressure they yield upon the intestines, directly narrowing the lumen, or of pressure upon another organ in such a way that this organ will interfere with the caliber of the intestinal tract. They are also sometimes so situated that they interfere with secretory functions. These growths may be either in the intestines themselves or they may be anywhere outside of the intestines in or about the abdomen. They may be pathological or physiological.

Hemorrhoids—Other Tumors. Hemorrhoids are one form of pathological tumor on a small scale. These come and go in some instances, with alternating constipation and normal bowels; especially when they are the internal variety they more or less occlude the anal canal. Other tumor masses are cancer, fibroids, etc., all of which may have as a direct or indirect effect a more or less severe condition of constipation. They may be located in the uterus, ovary, prostate, rectum, or elsewhere. Sometimes when these tumors or hemorrhoids are located within the rectum or at the anus, or when there are fissures in the anus or rectum, it is frequently the pain which produces

the constipation or which causes the individual to suppress bowel action in order to prevent suffering. In other cases the irritation is sufficient to produce spasms and the result is similar to spastic constipation.

Pregnancy. The most pronounced case of physiological tumor is pregnancy. It is universally known that the pregnant woman is frequently obstinately constipated as a result of the interference with the peristaltic action of the intestines and by pressure against the sigmoid and rectum. Probably in some cases the disturbance of internal secretions during pregnancy may be responsible for a general reduction of physiological processes, among which would be bowel elimination. Extra-uterine pregnancy (pregnancy in the ovary, Fallopian tube, or abdominal cavity) will have the same constipating tendency, though usually more pronounced at an earlier stage than in normal pregnancy.

Enlarged Prostate and Uterine Malpositions. A condition having the same effect as a tumor is an enlarged prostate gland or a prolapsed, retroflexed, or retroverted uterus. These structures are normally in immediate

contact with the thin wall of the rectum and any enlargement or backward displacement naturally reduces the lumen of the rectum and delays defecation. Prostatitis, because of its irritability, may reflexly disturb rectal and sphincter action also and result in constipation.

Foreign Bodies and Coccyx Deflection. In rare instances foreign bodies may find their way into the lower bowel and directly interfere with the peristalsis or the onward progress of the bowel contents. The coccyx or extreme lower tip of the spinal column is in direct contact posteriorly with the rectum. In rare cases this bone may be bent far forward, from falls or other injuries, and have the same effect as a tumor pressing from the outside, thus lessening the caliber of the intestine.

External Constrictions. Then there are constrictions which in some cases are responsible for constipation. Contractions of the abdominal wall and of the chest by corsets or tight lacing of girdles, stays and tightly drawn belts directly interfere with the downward descent of the diaphragm produced by deep abdominal breaths. This reduces the massage effect of respiration and the activity of the

intestinal canal is thereby materially lessened. A further effect of these is the removal of the lateral and anterior pressure of the external abdominal muscles, or of rendering these muscles so weak that their pressure effect is too slight to be of value.

Malformations. In some few instances there are inherited or acquired malformations of the intestines which interfere with one or more of their processes and constipation may be a constant condition.

Localized Rectal Swellings. In the rectum there may be a number of conditions besides those already mentioned, which delay bowel evacuation. Certain of the sphincter muscles or rectal valves may be hypertrophied or enlarged as a result of chronic colitis or ulceration or some other inflammation. The anal sphincters themselves may be enlarged. Such swelling naturally interferes by lessening the size of the canal, but they also render the muscles more sluggish to respond to the relaxing impulses necessary for normal, regular evacuation; furthermore, they reflexly disturb peristalsis farther up the canal delaying the passage of waste to the rectum.

GENERAL AND ORGANIC DISEASES

Cretinism. Cretinism, a congenital condition of thick-set dwarfishness, with absence of thyroid gland and many characteristic signs of sub-functioning of vital organs and glands, has, usually, a constant and intractible constipation.

Anemia. Anemia, whether primary or secondary, is frequently associated with constipation, sometimes as a cause of it. In other cases the two conditions arise from the same general causes. Anemia is frequently the result of dietetic or hygienic errors.

Diabetes. Diabetes produces an intestinal stasis sometimes fairly obstinate in nature. This may be because of the digestive secretions of the pancreas being deficient in amount or defective in quality, or it may be the result of general metabolic decline. Diabetes is almost always the result of an excessive diet, in connection with poor hygienic care.

Arteriosclerosis. Arteriosclerosis in time produces a constipation in many cases through the direct interference with the blood supply to

the intestinal mucosa and musculature, as the blood vessels of these structures become thickened and hardened. Every case of arteriosclerosis can be prevented, likewise materially benefitted, by proper diet, etc.

Lithemia—Gout—Rheumatism. In lithemia, or the condition where the blood contains an excess of uric acid and from which gout, rheumatism, eczema, bronchitis, asthma, or other symptoms may be the result, there is always sluggishness of bowel action and of other eliminative functions. This sluggishness may be and usually is a cause of the lithemia, but the condition itself perpetuates and increases the inactivity. In gout and rheumatism there is invariably a constipation before the onset of the acute attacks. This bowel inactivity is doubtless a prominent factor in producing these attacks, by producing or increasing the toxicosis. But because of the pain itself and the aggravation of it by motion, the constipation is aggravated and the sufferer fails to respond to the infrequent and rather feeble urge to evacuate the bowel contents until, usually, a drug cathartic makes the responses urgent. These conditions will never develop

if one's mode of life in every way is health-maintaining and disease-preventing.

Chronic Organic Diseases. Chronic diseases of the heart, lungs, kidneys and liver create a congestion in the veins which drain the intestines, which results in a sluggishness of muscular action, thus retarding peristalsis and bringing on constipation. These organic diseases do not develop where one's personal hygiene is constructive and conservative, and not destructive.

INDICATIONS OF CONSTIPATION

From the numerous causes mentioned we find that constipation may indicate anyone or more of the following: Abdominal tumor; adhesions; amenorrhea; anemia; anal fissure; apoplexy of the spinal cord; ascites; atony of the bowel or stomach; cancer of the bowels, kidneys, pancreas, rectum, stomach, or uterus; cirrhosis of the liver or stomach; concretions; cretinism; diabetes; dilated colon or stomach; duodenal or intestinal catarrh; gout; hemorrhoids; strangulated hernia; hysteria; influenza; insanity; intussusception (swallowing of

one part of the intestine by another); jaundice; kinked bowel (volvulus); lead poisoning; lithemia or presence of uric acid in the blood; locomotor ataxia; meningitis; mucous colitis; neurasthenia; ovarian tumors; paralysis—acute ascending, intestinal, or of the diaphragm; peritonitis; pregnancy, normal or in the Fallopian tube, prostatic hypertrophy (enlargement); prostatitis; prolapse of stomach, intestine, colon, sigmoid, or rectum; retroflexion or retroversion of the uterus; scybala or hard fecal concretions; stricture—of the bowel, esophagus, pylorus or rectum; sweating, when excessive; tumor of the brain; ulcer of the stomach.

SUMMARY

From the great variety of causes enumerated above one might imagine that an almost equal variety of treatment would be necessary in order to affect all cases favorably. As a matter of fact, for practical purposes there are comparatively few causes of constipation that we really need to consider. Many of the lesser causes tend to produce the few main causes that will require consideration.

I have explained how dietetic errors and wrong habits directly produce constipation and how they produce other conditions which cause, perpetuate, or aggravate the intestinal sluggishness. I have explained how many of the functional, organic, and general causes may themselves result from dietetic faults and habit blunders.

But some of the mechanical and structural causes are also the direct result of the same faults. Pelvic and abdominal inflammations, tumor growths, etc., while they cause structural change and become mechanical causes of constipation when fully developed, would not even begin to develop if one's mode of living were in all respects according to Nature, and not injurious.

Organic diseases are the direct result of devitalizing food and habits, or are the indirect result of them through a more direct cause, which may be acute or chronic "infections."

If one lived in such a way as to keep his blood in a normal condition, free from toxins and plentifully supplied with disease-combating or disease-preventing elements, it is doubtful if one could develop constipation,

even from constant association with lead and paints and other substances containing this constipating mineral element.

One's nerves would be at a normal tone, neither hyperfunctioning nor hypofunctioning, if there were no habits, dietetic or otherwise, to take them from the normal. The spine and spinal nerves and muscles would, in the majority of cases, function normally and without unnatural irritability and contractions, or sluggishness and relaxation.

Except for the spinal cases resulting from injuries of various kinds, for the comparatively few congenital malformations and defects of the alimentary canal or spine, for those resulting from operations (which themselves may have been performed for conditions preventable by correct diet and habits), and for the cases resulting from destruction of tissue, as in some spinal paralyses and organic diseases, there are practically no cases of constipation that cannot be said to result from one of two or three causes.

Briefly summed up, then, we may say that practically all cases of constipation or intestinal stasis are due simply to neglect of ordi-

nary common sense hygiene— to *wrong foods,* to *wrong eating,* and to *wrong habits of life.* The various injurious foods and combinations of foods and the wrong habits may vary considerably, so again we sum up our causes into just three: *nervous excitability, enervation,* and *muscular atony* or relaxation. Whatever the other causes, they usually result in an irritability of nerves or a loss of nerve impulses, or in weakness of the intestinal muscles; and the nerve excitability, resulting in hypertonic muscles, is comparatively uncommon, and when present will in time, if allowed to continue, result in atonicity through lowering of nerve impulses, as a result of exhaustion.

Therefore, in Chapter V, which is devoted to the treatment of constipation, we shall for the most part confine our attention to means of normalizing the nerves controlling intestinal activity and the muscles of the intestinal tract and abdomen particularly.

CHAPTER IV

Symptoms, Results and Effects

SYMPTOMS

DR. ARBUTHNOT LANE of London says: "Chronic intestinal stasis, which I believe to be the prime factor in the production of very many diseased conditions, is of enormous importance and we cannot spend too much time or thought in unraveling the many problems which it presents."

There is a surprisingly wide difference in the way individuals are affected by constipation, due apparently to the degree of susceptibility or to an absence of this factor. Even with the most persistent constipation, some persons may continue to enjoy excellent health, while with very mild or acute cases other people may have very marked symptoms. However, the usual case of retention of waste and residues in the intestinal tract, for a longer time than a particular individual is accustomed to, will give rise to discomfort and other unpleasant symptoms.

Pressure symptoms will result naturally from a mass in the rectum; but the toxic effects that result are not so much from the rectal accumulation—which are in solid condition and naturally covered with a protective coating of mucous—as from an absorption of poisonous materials higher up in the bowels, where the contents are liquid.

The nature of these symptoms depends to a considerable extent upon the nature of foods consumed. Some foods will produce certain abnormal products and combinations of toxins that have a decidedly different effect than those of other foods which produce different toxins. Whatever the effects, they are largely due to autotoxemia. Toxemia or autointoxication has recently become recognized as a more or less direct cause of many diseases, perhaps particularly those of mental or nervous character, at any rate they are far more pronounced in those of nervous temperament.

The symptoms that are usually or at least frequently present as a result of this intestinal stasis and general toxic condition are headaches, dizziness, mental sluggishness or depression; coated tongue, foul breath and taste in

the mouth, and loss of appetite; scattered or general itching, restlessness; general lassitude, debility and a feeling of tiredness; yet sometimes the lack of elimination of waste and the products of body metabolism produce an irritation of the brain and a mental awakeness sufficient to prevent normal sleep. One may have such marked insomnia or at least sufficiently disturbed sleep that the general constant fatigue may result from this inadequate rest. Dreams, especially of an erratic nature, will come to constipated individuals, and small children may have night terrors or nightmares from no other cause than intestinal torpidity, and the resulting intestinal disturbance.

The digestion becomes more and more defective as the stomach cannot take care of its duties, while being prevented from disposing normally of its digested products. Greater and greater discomfort after meals frequently follows, and there is a sense of weight in the abdomen, probably direct in the stomach. The skin, particularly of girls, becomes "muddy," earthy and sallow, with frequently dark rings under the eyes, and pimples and acne are frequent in both sexes.

RESULT AND EFFECTS: GENERAL

One of the most important considerations in regard to constipation is the effect it produces when there is general disease. There is no case of acute or chronic disease, regardless of what organ or structure or extent of the body is affected, that is not materially aggravated or prolonged by intestinal stasis.

Abscesses, acne, eczema, hives and psoriasis, adenoids, asthma, boils and carbuncles, cramps, deafness, eye troubles, goiter, gonorrhea, hay-fever, headache, heart and kidney disorders, impotence, lung and bronchial affections, menstrual and other pelvic troubles—especially ovarian and prostatic troubles—neuralgias and neuritis, varicocele and other varicosities, etc., are the more or less local troubles that are affected; acidosis, anemia and other blood disorders, convulsions of whatever nature, diabetes, fevers, insanity, paralysis and other nerve disorders and general diseases—these and others are all made worse or more difficult of correction by a retention of digestive waste products through constipation.

Repair of Wounds. The repair of wounds,

including those made by surgical operations, is much less rapid, and infection is much more liable, because of the contaminated blood, and because the blood has not been able to absorb from the intestinal tract sufficient of the reparative elements. Broken bones heal more slowly in these cases, and tumors, growths and inflammations anywhere in the body reduce or decrease less rapidly or increase more rapidly.

Colds, Catarrh and Susceptibility to Temperature Changes. Because of the blood-pollution by the insufficient elimination in constipation, one is more susceptible to colds, therefore the *results* of colds may be said to be due somewhat directly to the constipation; and, in fact, more or less serious results are frequently directly traceable to colds which were in turn traceable to constipation. The same may be said of catarrh.

The toxins absorbed and the viscous (thick) blood thus produced result in such constriction of the peripheral capillaries or the circulation within these minute vessels that the blood of the skin and extremities is not kept in normally rapid circulation; one suffers, because of this, from cold extremities and general chilliness.

The toxins that should escape through an active skin are retained to produce extra work for mucous membranes of the intestines, lungs and for the kidneys, so that catarrh of mucous membranes is a logical result, as are coughs, bronchitis, kidney weakness, etc.

Because of the unbalanced circulation and of the toxins present in the body one may have transient flushes, even though ordinarily easily chilled. One does not react well to either extreme in outside temperature—being colder than the average individual in cold weather and sometimes suffocatingly hot in warm weather—because the whole heating and ventilating mechanisms are out of adjustment.

High Blood Pressure—High Tension—Arteriosclerosis. As stated, the excess of toxins absorbed from and retained by the inactive bowel more or less occludes the superficial blood vessels; this makes it necessary for the heart to beat much stronger than is natural in its endeavor to continue the circulation at normal rate. The combination of increased heart action and increased resistance raises the blood pressure. This will in time produce arteriosclerosis or hardening of the arteries, as Na-

ture, in an effort to guard against perpetual increased pressure against them, fortifies the arterial walls. The absorbed toxins themselves add to the development of thickened arterial walls. Some of these, of an earthy mineral nature, are precipitated into these structures from the blood as it proceeds more and more slowly through the vessels. Headache and nosebleed may be fairly frequent symptoms of the arteriosclerosis or increased tension.

Low Blood Pressure—Low Tension. The heart may, instead of beating with greater force, merely beat more rapidly, tending in time to a more or less permanent functional disturbance, as a result of the over-work, or from the toxins or both.

The heart may become irritable—easily upset, palpitating, with occasional skipping of beats. In this condition and in the other functional and organic disturbances, and in those individuals who develop more marked general depression instead of increased tension, there will be a low blood pressure, with all the attendant reduction of functional activity. At night while reclining the heart beat may be heard in the ear on the pillow and

this may disturb the sleep and equanimity.

Premature Senility. The absorption of toxins and consequent pollution of the blood; the partial occlusion of the capillary system, with reduction of general metabolism and elimination, and of dry, defectively nourished skin; and the hardening or abnormal relaxation of the arteries, not to mention the effect upon the sexual organs, frequently produce the premature aging in individuals with a susceptibility to this class of symptoms. Constipation is one of the most prominent causes of lines and wrinkles in certain people and of the aging not due to years.

Goiter—Internal Secretion Disturbances. We have long known that goiter may be the direct result of toxins absorbed from some source. Intestinal stasis and putrefaction of intestinal contents may or may not be the beginning of thyroid disturbance and goiter, but any case of goiter or abnormal thyroid functioning is always aggravated greatly by polluted blood from a clogged, inactive colon. And as the thyroid gland secretes a vitally necessary internal secretion that, besides its general tonic effect, is a regulator of other internal

secretion glands, when it is caused to secrete abnormally there will be a general disturbance of all the internal secretions. The normal balance of these secretions being positively essential to health, their unbalance starts a train of abnormal conditions the extent of which can never be foretold; even the mental and psychic forces may be greatly altered.

Rheumatism—Rheumatoid Arthritis—Tuberculosis. The latter two of these conditions, and appendicitis, are considered by Dr. Lane of London to be due largely to intestinal stasis, and in regard to them he has this to say: "In my experience a patient cannot develop either of these diseases (except in case of tubercle by innoculation), unless the resisting power to the entry of organisms, or, in other words, the vitality of the tissues of the body, has been depressed by poisons which circulate through them in chronic intestinal stasis."

I agree with Dr. Lane as to the influence of the intestinal inactivity in the production of these diseases, but in these, as in other diseases, I hold that the "organisms" referred to (the germs) are merely the result of and rarely

the cause of the disease or the disease symptoms.

Immediately before the onset of *typhoid fever* there may be a diarrhea, which may lead one erroneously to exclude constipation as a cause, but I believe there is no case of typhoid fever without a period of constipation beforehand. If the intestinal tract is kept clean typhoid fever cannot develop. As with typhoid fever, no case of *appendicitis* can develop where constipation does not exist. By this I do not mean that a daily bowel movement may suffice; it is necessary, to prevent this condition as well as any other symptom or effect of constipation, that the bowel elimination be *in direct proportion to the intake of solid nutriment.*

Rheumatism and gout, and a number of other diseases and abnormal conditions resulting from lithemia or the rheumatic or gouty diathesis (tendency), are also invariably due to constipation as at least an associate factor, and are many times due to no other cause than constipation.

Pains, Unclassified. In fact pains for which no definite inflammatory condition ex-

ists may be the result directly or indirectly of costiveness. There may be pains in the back, especially in the lumbar region; pains in either the left or right side; at the pit of the stomach; in the groin; or in the rectum or perenium; or even down the thigh. Colic may also be a painful condition resulting from constipation. The joints may become stiffened and the seat of pains that are indeterminate in character, and there may be a crunching, creaking noise and sensation when the joints are flexed and extended.

Vision and Hearing. The specks before the eyes that follow constantly the shifting of the eyes, are due in many cases to toxins absorbed from a constipated bowel. The failing vision in many of these and other cases is due in large measure to the decline of body fluids and structures and functions resulting from the aging effect of the toxins retained and absorbed. Cataracts and other eye diseases and inflammation and eye fatigue are aggravated by, due to, or made possible by this same sluggishness.

Hearing defects, however, are usually not so closely related to constipation, but any de-

fect, whether in hearing or of an inflammatory nature as in discharge, etc., is aggravated by it or their relief is more retarded and complications more liable.

RESULTS AND EFFECTS: LOCAL

Some of the general symptoms and effects that have been considered appear in many individuals with a certain susceptibility before or without the development of local symptoms and effects other than the infrequent or insufficent bowel evacuation. But in a considerable number of constipation victims there will be local manifestations of a more or less marked degree, as the result both of the pressure of the retained rectal and colon contents and the irritation and toxemia. These symptoms and effects naturally vary in different cases, because of the varying nature and extent of the accumulations and the toxemia produced, and the individual susceptibility.

Local Effect from Pressure

Local Distention—Dilation. As is to be expected, the first local effect of retained feces will be a distention of the rectum and,

if a sufficient amount of residue be retained, of the colon. Usually this will be temporary at first and the structures will return to normal when evacuation has been brought about. However, even in acute cases where there has been considerable undue stretching of the musculature of the gut, there will be some loss of tone with incomplete return toward normal.

But in chronic cases there is very apt to be, and usually is, a dilation of the part of the canal subjected to the distention, and in time a more or less complete atony of muscles and mucous membrane will result.

Hemorrhoids (Piles). The pressure of retained residue in the rectum upon the mesenteric and hemorrhoidal veins prevents their drainage, with resulting engorgement of them. The mucous membrane and other structures will also be engorged and this, together with the absorption of toxins to further reduce their tone, will give rise to some form and degree of piles, or hemorrhoids. This pressure and the irritation coming from it may also set up an inflammation, the resulting swelling of which may produce such a distention of the local tissues and blood vessels as to result in the

hemorrhoidal distention. The congestion of these vessels may also be the result of a torpid liver, but this may likewise be partially the result of the rectal congestion. A torpid liver may produce or aggravate piles by backing up the drainage.

Ulceration — Typhlitis — Enteritis. Ulceration of the rectum or colon or both may be a direct result of waste retention. Sometimes catarrhal inflammation confines itself to a local area, especially in a region of the ileocecal valve; inflammation here is called *Typhlitis.* This may increase and become a perityphlitis, which is a peritonitis involving the cecum and appendix. Inflammation of the cecum and appendix is one of the most common of all outcomes of constipation.

One or more sacculi, or small pouches along the colon, may be arbitrarily selected by the contents as a place of hiding. More and more accumulations take place until the sacculi are greatly distended. Direct injury may result to the mucous membrane or the contents of the bowel may undergo such fermentation and putrefactive processes as to result in congestion of the tissues from irritation. This then

becomes a point of "infection" which may spread over the colon; or it may be the point of local inflammation with, as a next step, ulceration. Even perforation may result in some cases when the ulceration is sufficiently extensive and the intestinal contents kept toxic in nature.

Enteritis is very frequently present as a consequence of intestinal inactivity. This also is brought about usually by the fermentation and putrefaction producing an irritation and from this follows the local engorgement of the mucous membrane and its blood vessels. This is the reason for the frequent alternation between constipation and diarrhea in some cases.

While many operations have disclosed that the appendix does become inflamed, swollen, even pus-filled, there have been innumerable operations for appendicitis when this little organ was perfectly normal, but where the cecum, or the tissues immediately around the cecum, were inflamed. It is impossible to determine, except by operation, which structures are inflamed, since the symptoms may be identical. I may say here that unless the pains considered characteristic of appendicitis are

the result of an acute pus appendix, operation is rarely necessary, and many times not even then.

Strictures. The inflammation may be so extensive that when by some means the intestinal canal is cleared sufficiently for healing to take place, the scarred tissue draws the walls of the intestines sufficiently to reduce their caliber greatly, thus resulting in partial occlusion of the gut. Sometimes the healing of the inflammation directly draws together the walls of the affected part of the intestine, with the same effect.

Impaction—Occlusion. A result that may be expected in severe constipation is fecal impaction. When the rectum does not expel its contents regularly moisture is absorbed, since one of the functions of the colon is to take up the prepared nourishment present in the colon in liquid form. This absorption normally semi-solidifies the contents but when it is carried beyond the normal the contents may become extremely large and of stony hardness; this may end in direct occlusion of the bowel and nothing short of digital (finger) or other manipulation will break up sufficiently for

passage such masses as sometimes accumulate. Finish such treatment by an oil enema.

Fissures—Fistulas. The former are small and painful cracks, sometimes becoming ulcers, and are usually located immediately within the anus. Generally there will be a small external pile situated behind the fissure. This condition is caused by constipation, commonly of the variety associated with hard knotty feces that injure the mucous membrane.

Fistulas are abnormal canals between the rectum and the surface, though they may not completely connect the two points. They come from either the rectal or surface side and extend varying distances outward or inward. When the opening is internal, whether complete or blind, it is located just above the internal sphincter. Some injury to the mucous membranes of the rectum is the original direct cause, but constipation is almost always the cause of this mucous-membrane injury, especially when the stools are large and hard. The bowel may be so polluted by foul waste that an abscess forms at the side of the injury as a result of the irritation and lack of normal cir-

culation of pure blood to bring about a hasty repair.

Prolapsus Ani — or Prolapsus Recti. This condition usually occurs in children but may happen at any age. It consists of a protrusion of the mucous membrane of the lower rectum through the anus. Sometimes even the muscular coat will protrude. General weakness may be the root of the trouble but constipation is frequently an immediate cause, especially when the bowel activity has continued sufficiently long to lower the tone of the tissues, or when the constipated bowel has become subjected to sufficiently irritating contents to produce diarrhea, with rectal relaxation.

Tile-like Coating of Colon. I have known several cases where the prolonged retention of food waste in the colon has resulted in *complete* absorption of the fluid contents; the accompanying reduced activity of the intestinal muscles has permitted a tile-like coating to be constructed or deposited around the entire wall of this part of the gut. In some instances this has been at least one-quarter of an inch thick. Naturally in these cases the

peristaltic wave of the bowel has been absolutely checked or at least it has had no effect upon the contents free within the channel remaining. In these cases and where there have been accumulations in the sacculi along the sides of the colon, a certain amount of liquid contents flows along the center of the gut. These cases are very subject at times to a fairly severe diarrhea and in some instances the cause of the diarrhea escapes detection for a long time.

Women seem to be more subject to this form of constipation-diarrhea than men; and where they have given a history of constipation for a long time with occasional attacks of diarrhea present, possibly nausea and vomiting, this condition should be suspected and a thorough examination of the intestinal tract, especially of the colon, should be made. Not infrequently fever, at times symptoms of typhoid fever, are observed in cases of this type.

Enteroliths. These are intestinal "stones" appearing most frequently in elderly people, though they may occur at any age. They result from accumulation and long retention

of feces in the sacculi along the margins of the colon, the moisture being entirely absorbed—similar to the condition described above. There may be particles broken off or by other means expelled occasionally, or they may be small when formed in isolated pockets. By some these are thought to be accumulations around a nucleus of cellulose or other indigestible substance, but they would not be possible without constipation. In their passage they may produce considerable pain, possibly fissures or fistulas, and they may also irritate the prostate and seminal vesicles in males.

Flatulence—Rumblings. Flatulence, or an accumulation of gas in the stomach or intestines or both, is one of the most frequent effects of constipation. Gases may be produced by chemical changes taking place in the long-retained feces, or the blocking of the rectum may so long delay action higher up that fermentation results with a development of gases in considerable amounts. This delay in action may even affect the stomach and fermentation take place there. The gases may be retained and produce bloating and distention with more or less pain; or they may be

belched from the stomach; or sometimes passed from the anal exit; but they may be absorbed into the blood with a production or aggravation of autotoxemia. If they are retained in the intestines their constant shifting may result in the abdominal rumblings or noises frequently heard—called borborygmi. This latter condition, however, may result in those cases with tile-like linings or any other case associated with occasional diarrhea.

Hernia—Rupture. This condition cannot be said to be due to constipation, but the undue straining that is usually exerted to free a constipated bowel, by the marked increase of intra-abdominal pressure, may be a direct cause of an enlargement of the hernial opening. And even more serious complications may be brought about by constipation: The delayed peristaltic action and the congestion may so lower the intestinal tone that they make it more probable that a loop of the "lazy gut" will enter the hernial opening, possibly to become strangulated, then gangrenous.

Sacral and Ovarian Neuralgia. An overloaded sigmoid or rectum is not infrequently the cause of neuralgia of the sacral and

ovarian nerves by pressure upon the lower spinal nerve plexus or, in case of a prolapsed ovary, directly upon this gland or its nerves.

Special Effects Upon the Pelvic Organs

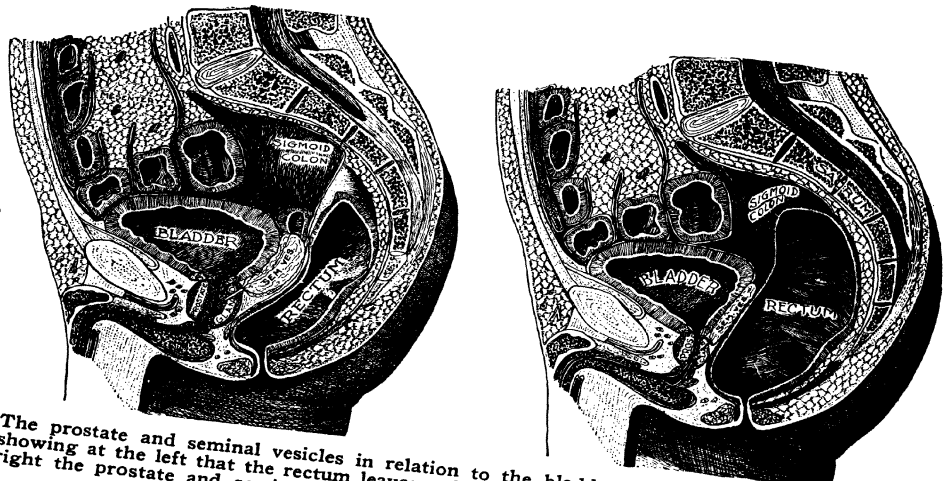
Very few people consider the danger of constipation to the pelvic organs of both sexes. Without doubt Nature has provided sufficient room for all of the pelvic organs in health, with room enough for them to perform their various functions; but the close proximity of the numerous organs makes any blockade capable of producing the initial step in disorders that may eventually result in more or less complete destruction of functional ability. The ultimate result in these cases is not confined to the pelvis itself but involves practically every organ, tissue and structure in the body, with a wide variety of symptoms and disorders.

Effects Upon Either Sex. *Bladder Weakness—Enuresis.* In either sex the crowding of the hollow bladder may be so marked as to limit directly its capacity, thus requiring emptying more frequently than normal. The pressure and resulting congestion or the absorption of toxic material may produce suffi-

cient irritation to give rise to an inflammation which, if not relieved by cleansing the bowels of the irritating contents, may lead to general inflammation of the organs with possibly an extension upward to the kidneys.

Effects Upon the Male. *Prostatic Trouble.* The male is very frequently subject to involuntary escape of procreative fluids as a result of the extreme pressure on the prostate and seminal vesicles by large masses of waste in the rectum. The pelvic organs must be especially strong if these results do not come from severe constipation. This pressure and resulting loss is much more pronounced when there is considerable straining, with its increase of the already considerable pressure. This creates a marked irritability of the prostate and the seminal vesicles, establishing in some instances prematurity and in others a prostatic hypertrophy and the thickening or hardening of the vesicles. It will be clearly seen how this is possible by observing the illustrations of the normal and of the constipated male rectum.

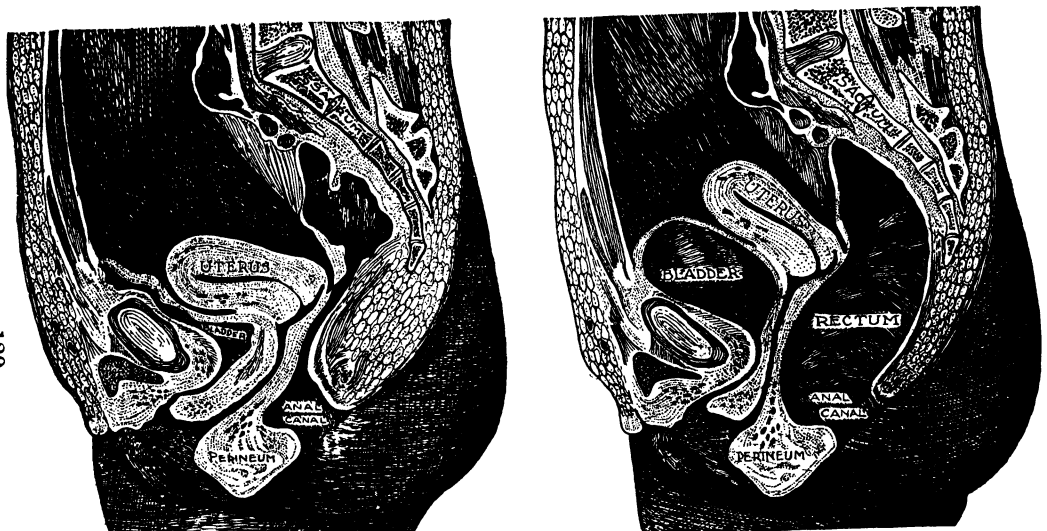
Varicocele. It is a well known fact that one of the most frequent causes of varicocele



The prostate and seminal vesicles in relation to the bladder and the normal rectum, showing at the left that the rectum leaves sufficient room for these structures. At the right the prostate and seminal vesicles are shown reduced in size by pressure of an over-filled rectum.

in the male is constipation. This is explainable by the fact that the left spermatic vein passes upward behind but in close contact with the rectum. A loaded rectum will then create such pressure upon this vein that it cannot drain the blood from the left side of the scrotum at normal rate; congestion is thereby produced in the scrotum and the testicle, with gradual enlargement of the left veins of the scrotum, and varicocele is the result. This may lead eventually even to atrophy of the affected testicle.

Effects Upon the Female. *Prolapsus.* By observing the illustration of the female pelvis one may readily understand how serious constipation may be to the female pelvic organs. It will be observed that the vagina is directly in front of the rectum and that the uterus is slightly above. Constipation may practically obliterate the vagina by filling and enlarging the rectum and the enlarged rectal contents may press the uterus considerably above its normal position. This will weaken the uterine supports and when the fecal prop is removed the uterus may sag much below its normal fairly high position in the pelvis.



The vagina and uterus are shown at the left in relation to the empty rectum; the uterus is low in the abdominal cavity and practically horizontal. A normally filled rectum should merely press the uterus forward. At the right is shown the uterus forced high into the abdominal cavity by an over-filled rectum. This condition gives a great stretch to the uterine supports and tends to cause displacement.

Congestion—Malpositions. In numerous instances, especially in constipation, the rectum may be to one side or other of the uterus and may press the uterus to the opposite side or may press it directly forward, probably producing a permanent displacement of the organ. When the uterus is in one of these malpositions it more easily becomes congested, swollen and inflamed—a condition causing proliferation of the tissue cells, which adds increased weight to the organ. In some cases this increased size and weight may in turn produce a fairly severe and serious occlusion of the rectal canal, thus preventing or hindering escape of its fecal contents. Here, again, will be produced a vicious circle—a constipation producing uterine congestion or malposition, this in turn aggravating the constipation and likewise further aggravating the uterine pathology, and so on *ad infinitum.*

In numerous instances these effects in the female are produced through a sense of false modesty only. Young maturing girls especially often fail to respond to the calls of Nature when they are urgent, and as a result the rectal contents increase, become hard and

firm and yield greater and greater pressure, with the results mentioned.

Dysmenorrhea — Painful Menstruation. Many cases of painful menstruation, or dysmenorrhea, and the sensation of fullness and distention in the organ of the female pelvis are strictly the result of this constipation pressure.

Leucorrhea. The most prominent cause of leucorrhea is pelvic congestion, which produces a "low grade inflammation" of the mucous membrane of the vagina and of that lining the uterus. As constipation produces this congestion it is, therefore, indirectly the cause of leucorrhea. But if the leucorrhea is the outcome of other irritation or of general impairment of health, constipation will aggravate it, and delay or prevent its correction.

Chlorosis. Chlorosis, or "green sickness," not infrequently results from, or at least is associated with, fairly severe and protracted cases of constipation in girls, and their entire system may become extremely flabby, soft, and tone-less.

Local from Irritation and Autotoxemia

Liver Congestion—Jaundice. Occasion-

ally an obstinate case of constipation is responsible for the development of jaundice. The functions of various organs, especially those that have to do with digestion, are retarded during constipation, partly because of the direct blocking of the fecal mass and partly by the toxemia produced. The liver is one of these organs which frequently becomes less active; but, as food is usually continued to be consumed, bile is constantly produced and the liver becomes congested, and the blood is forced to take up some of the bile elements. There may be an extension of catarrhal inflammation up the bile ducts from the duodenum. In the attempt to dispose of this secretion-excretion, Nature passes it, together with other waste matters, through the excretory pores of the skin. This gives rise to the greenish tint observed in jaundice. The odors emanating from such a person are usually extremely unpleasant— much more so than in the usual case of jaundice. The undergarments, even after a day's wear, appear to have been dyed a greenish-yellow. It is surprising to many that these individuals usually suffer little inconvenience or few symptoms; this is

explainable by the fact that Nature is expelling the waste elements, even though not through the normal, natural channel.

Duodenal and Intestinal Catarrh—Tuberculosis. I have mentioned a general catarrhal condition as being produced or aggravated by constipation; but local catarrh of the mucous membrane lining the entire digestive canal may follow an irritation by poisonous substances too long retained, also by the general toxemia due to the absorption of these poisons. But a catarrhal condition may be the cause of constipation also, as we have already seen. Catarrh of the digestive canal reduces the digestive secretions or their quality and effectiveness, also the absorption of nutriment and the elimination of waste; but it causes an increase of the mucous secretions, which accounts for the more or less persistent loose, watery stools that are noticed after the condition has developed. As *tuberculosis* is practically invariably incubated in the alimentary canal, and as catarrh is one of the fore-runners of this universal plague, it will be understood how constipation may be an underlying cause of tuberculosis, and why the

intestinal activity should be restored to normal so as to prevent the development, or to bring about a correction of either of these diseased conditions.

Mucous Colitis. A condition which has some appearances of catarrh is mucous colitis, a sub-acute or chronic inflammation of the mucous membrane of the colon. Large slimy masses resembling shreds and patches of membrane may be passed rather frequently, this condition usually alternating with constipation; there are usually colicky pains during the periods of diarrhea. Patients who have this ailment are usually neurotic or neurasthenic, or at least they become so after the disorder has continued for some time. If the intestinal mucous membranes are not irritated by constipation and by fermentation, putrefaction, and the resulting abnormal gases and chemical compositions, it would not become inflamed to such an extent as to produce the chronic state of colitis.

Germs. While I am convinced that germs are present as scavengers only, in practically all cases of whatever abnormality, these germs do sometimes produce substances in the

process of their activity which may be and probably frequently are injurious. Efforts should always be made to keep the intestinal tract clean, because of the direct harmful effect of the presence of waste substances and their absorption, but also that there may be established no breeding place for germs. For the undue retention of decomposing wastes in a constipated bowel makes the generation of germs more assured and encourages their multiplication; it makes possible their extension beyond the limits of their normal habitat; and their harmful products may be absorbed and scattered throughout the system, with an aggravation of toxemia and a lowering of various organic activities.

INDIRECT EFFECTS

Upon the Kidneys—Bright's Disease—Enuresis. The work of the kidneys is to carry off in solution many of the toxic elements resulting from digestion and the body metabolism. In cases of constipation these elements are markedly increased and concentrated, and the more severe the constipation the more serious may be an irritation of the

delicate lining of the kidney tubules. In fact, these tubules may be so irritated as to become inflamed, and Bright's disease will be the outcome.

In any case of constipation, even before or without the development of structural change in the kidneys, the urine is usually dark and the specific gravity is high. The well-known "brick dust deposit" in urine that has been allowed to stand is more frequently the result of constipation than of any other cause. Urination is more frequent than normal, especially in women, but there may be in others a retention of urine, or a greater difficulty in evacuating the bladder contents because of the rectal impaction. Sometimes it is only during the relaxation of sleep that the bladder is more easily emptied and this condition results in enuresis, or bed-wetting, especially in children.

It is claimed by some authorities that germs may reach the kidney pelvis by migration and thus set up the inflammation resulting in nephritis. This I do not believe, or, if it does occur it does so extremely rarely. The inflammation is the outcome of demanding and

forcing the kidneys to eliminate such concentration of toxic elements that their structure is partially destroyed through the resulting inflammation—and germs are present wherever there is inflammation and vitally lowered or destroyed cells. The same condition that leads to this inflammation pollutes the blood stream to such an extent that the kidneys cannot repair quickly and normally, and their structural change therefore increases. In this manner also, in cases of susceptibility, constipation may bring about nephritis or Bright's disease as a sequel.

General Wasting and Cachexia. As a consequence of habitual constipation and the various functional and structural effects upon the digestive organs due to it, a condition of slow starvation may develop, with loss of body tissues and energy. Naturally, the greater the degree of functional inactivity and structural change the more pronounced will be the effects upon the entire body. As the result of the peculiar starvation and blood changes and toxins absorbed into the body, and those produced in the abnormally functioning cells, there appears in these cases a peculiar lifeless

grayish tint to the skin, known as cachexia.

REMOTE EFFECTS

Mastitis or inflammation of the breast, chronic inflammation of the pancreas, gall stones, and abnormal growths may be present in certain cases as indirect remote effects of long-continued constipation, especially when the diet is particularly "heavy" and consists of foods and combinations which produce more markedly poisonous substances.

Thus it will be seen that innumerable symptoms and results may be brought about by reduced activity of the intestinal canal, especially of the large intestine or colon. A comparatively slight sluggish condition is very liable to produce serious disorders in those people especially susceptible, and when the blood is polluted by the average conventional diet, which is far greater in amount than is required to maintain all processes within the body, and when the constipation is continued over a long period of time, the consequences are much more apt to be extremely serious in nature regardless of the susceptibility.

CHAPTER V

TREATMENT

FROM all the causes that have been given for constipation, as well as the multitude of symptoms produced by this order, one may well wonder if the trouble can possibly be corrected. Dr. Watson of Edinburgh has roughly grouped the cases into three classes: First, fairly mild cases that respond to simplest measures; second, those of a severe nature yet which, by protracted, conscientious following of strict hygienic measures eventually yield; and a third group that have developed complicating structural changes which require surgical interference for the correction of them and the constipation. While this classification may be satisfactory in a way, the gradations of severity in constipation are such that they really cannot be grouped; there is every form and degree of constipation from the very mildest to the most severe. And while I will admit that there are cases demanding surgical work, I cannot admit that this surgery must be performed for the symp-

tom of constipation; it is only when constipation is one of numerous symptoms resulting from a condition of tumor, adhesions, etc., that surgery may be required.

Fortunately (so far as relief and correction are concerned) the great majority of cases are due practically entirely to errors in diet and hygiene. Wrong living in these respects may have been continued sufficiently long that constipation has resulted in fairly widespread changes in structure or function or both, but the proper regimen continued with sufficient energy and duration will slowly undo damage created, and not only constipation but the direct, indirect and remote results may likewise be remedied or greatly relieved. In any case the cause should be searched for and, if found, properly treated. I wish to emphasize the fact that there is *no* case of constipation, except those rare ones which result from injury, organic destruction and markedly abnormal structures, that can be corrected by any means that does not include correction of one's mode of life. In all cases hygienic methods of living and an outdoor life of a proper nature must be adopted, and there must be a

reduction of stress, strain, worry, depressing emotions, and dissipation of energies.

In any individual, *prevention* of constipation should be assured if possible. But whatever factors will be instrumental in preventing it will be helpful in correcting the disease after it has become established.

I shall not consider here the treatment of those cases of constipation that depend upon structural defect, except those produced by or associated with constipation of long standing—atony, prolapse, and dilations. Cases resulting from tumors, adhesions and strictures *may* be remedied or greatly relieved without surgical interference, but treatment to accomplish these benefits would be so different and specific for the individual case, and would probably require such direct assistance from some one thoroughly understanding the conditions and treatment, that it would be impracticable to attempt to give needed suggestions in this volume. Happily these cases are extremely rare.

Habit formation—Solicitation. As mentioned earlier, we find that the various organs of the body are very susceptible to habit-form-

ation. As the habit of postponement may *produce* constipation, soliciting the bowels regularly when constipation exists will help to train them back to the habit of evacuation. At some specified time during the day, preferably immediately or shortly after breakfast, the constipated person should isolate himself in a convenient and comfortable health room and concentrate his thoughts upon the one act of bowel evacuation. He should remain on the toilet for from fifteen to twenty or even thirty minutes each time. Some people take a newspaper, book or some other reading material to the toilet room and more or less concentrate the mind upon the subject of the printed matter. Others take some special personal problem with them and attempt to unravel it at this time. Such habits must be corrected when one is attempting to overcome constipation. When aware that he would be for some time in inconvenient circumstances for relieving the bowels, one who has noticed no desire to vacate the bowels has been able to bring about satisfactory evacuation merely by concentrating upon the act. This result has been secured in innumerable instances, and

the method will prove surprisingly effective in many cases, as a part of the treatment.

For some time a case of pronounced constipation may show no response whatever to this solicitation, but if persisted in it will yield results, especially if efforts are made at the same time to correct other causes of the condition. Consequently when any attempt to secure results by this simple means fails, one should not be discouraged but should continue day after day in the attempt. But if results are unsatisfactory at first one should wait until the same time the following day or until the specified time later in the day.

While immediately after breakfast is usually the best time for this attempt, in some instances it may be better after the evening meal. If one is a hearty eater and still constipated, the attempt may be made at each end of the day. In any case it should be made always at fixed hours.

After the bowels have discharged a part of their content there may be a feeling that the act has been completed and yet another mass of waste may be retained in the immediate extremity of the rectum. One should not be in

haste to leave the toilet stool, as in these cases where masses are retained the response of the nerves of the rectum will become blunted and they will later fail to respond. Therefore all residue that is in the rectum should be evacuated before the act can be considered complete.

Respond to Nature's Call. Many people find themselves in some duty or pleasure which they do not care to leave for the moment, and unless the call to evacuate is extremely urgent they postpone the relief until a more opportune time. When the time comes that they can spare the few minutes necessary it is very probable that the call has subsided; at any rate, they have succeeded in blunting and reducing the responsiveness of the rectal nerves, and in postponing just so much longer the complete correction of their trouble. Parents and school teachers are responsible for many severe cases of constipation in children because they demand of the children that they wait. Particular care should be taken to secure relief for the child at the first moment it seeks such relief. In this way a host of more serious troubles may be prevented in later childhood and, in fact,

throughout life. Whenever there is the slightest call to relieve the bowels, this call should be given preference over all other demands upon one's time; for every postponement hastens the development or aggravation of constipation or materially retards any tendency to correction of the trouble.

Importance of Drinking Water. Many cases of constipation are the result of an insufficent quantity of water. It is not necessary for one to take extremely large quantities of this fluid, but from six to eight glasses should be taken during each day. I have been informed that some Japanese make a habit of drinking at least a gallon of water a day. This appears to me to be an excessive amount, or at least more than is required for the maintenance of body fluids and proper fluidity of the intestinal contents. A glass of water every two hours during waking hours would be a good plan to adopt, but whether or not the water is taken at regular intervals, there should be a daily consumption of an equal amount. Never use it to wash down deficiently masticated food, but take it when the mouth is empty, with or between meals.

Hot Water. A glass or two of warm or hot water before retiring may help to retain sufficient moisture in the intestinal tract that by morning there will be a natural call for evacuation. The night time is the logical time for drinking hot water, since it is the period of relaxation; and the additional relaxation created by the hot drink will not tend to defeat any other means employed for the correction of constipation. Taken in the morning hot water may prove effective as a laxative for a few times, but this effect will be less and less pronounced and the relaxation produced by it will tend in time to aggravate the condition.

Cold Water. A glass or two of cool or cold water (not iced) before breakfast will frequently so stimulate the peristaltic action of the intestines that their contents will be passed on fairly rapidly to the rectum and there seek their escape. Cold water at night may be satisfactory for maintaining the fluid content of the bowels, and it may be taken with safety, but in some instances it has a tendency to prevent complete relaxation, for a short time at least; also in some cases it may have the effect of stimulating the bowels to increased peristal-

tic action, resulting in a stimulation to evacuate during the sleep, when one is not so apt to detect the call. This condition, if repeated without response, is very apt to result in a dulling of the rectal nerves and an aggravation rather than a correction of constipation. In the morning, then, when it is desired to recover tone from the relaxation of sleep, the cold water will prove of value—not merely in its action upon the bowels alone, but upon the whole digestive tract and the entire system generally.

DIETETIC TREATMENT

I believe my statement will not be disputed when I say that *at least seventy-five percent of all cases of constipation result from wrong diet*—either poor food, harmful combinations, improper preparation, or insufficient mastication, etc. It will be seen, then, that diet will be the biggest single factor in the correction of the trouble. Our modern, super-refined foods cannot but tend toward the development of the condition, and where the condition is established such foods will not only retard but absolutely prevent its correction.

In other cases, instead of foods from which all cellulose has been removed, there has been an *over-use of the coarse foods,* which results in such continuous irritation that the nerves are eventually exhausted and fail to respond—and there may be actual inflammation.

Thorough Mastication. As bolting the food is a frequent cause of constipation, any one suffering from this disorder must avoid such an inclination and must insure thorough insalivation of his food.

The majority of people think all that is required is for food to be in small particles, soft and mushy and easily swallowed. This is responsible not only for countless cases of constipation, but for disorders of all kinds. It must be remembered that the stomach has no teeth and that it can do only a fairly limited amount of trituration or refining of the foods which enter it. Foods that do not require mastication for making them soft and fine should either be eliminated from the diet or should receive special attention in the matter of mastication, that the saliva may be incorporated with them as much as with foods that absolutely demand mastication.

The mixture of saliva with the food in the mouth is of equal if not greater importance than the mere softness of the food. The more thorough the mastication, the more plentiful will be the supply of saliva and the greater the natural nerve stimulation necessary for the secretion of digestive juices throughout the digestive canal. This insures greater moisture in the canal, as well as a more plentiful supply of digestive ferments, and tends to more nearly normal peristaltic movements and more thorough and regular evacuation.

Moderation. Moderation in the use of food may seem to some an ineffective means of correcting constipation, but I wish to assure my readers that, as many cases of constipation are the result of inhibition of nerve impulses and undue stimulation through an *overloading* of the digestive canal, these will be corrected where the quantity of food is reduced to that amount which less completely fills the intestinal tract.

Few are aware of the fact that the more one masticates his food, the less he can consume. When food is thoroughly masticated the taste buds are stimulated by the various flavors; in

time they cease to be stimulated, which indicates that the appetite has been appeased. These can only be stimulated further by a change of food—by those foods having different or stronger flavor than those already consumed. This accounts for the ability and tendency to take desserts and other dishes of various kinds after one has filled his stomach to an uncomfortable degree. If highly spiced foods are taken as appetizers, or if condiments are added to the food, the taste buds are further stimulated and a greater quantity can be consumed. This over-crowding has, as I have previously stated, a direct effect in producing constipation.

The amount of food at each meal must be kept sufficiently low that there will be no feeling of fullness or distress; in fact, it is best to end the meal while still slightly hungry. There should be no piece-mealing, especially when this condition is being remedied. Food taken into the stomach after the process of digestion is well established disturbs the rhythm of the intestinal peristalsis and cannot fail to defeat the corrective tendency of a moderate quantity of foods of a proper character,

as well as the other means being employed to overcome the trouble.

The Fast. The probabilities are that you have never given the digestive organs of your body a rest, yet at frequent intervals you have given your brain and muscles a rest. The intestines need a rest no less than do other parts of the body, but especially is this true after they have been over-worked for years until they are more or less exhausted. You have whipped them into action innumerable times by drugs, coarse foods, enemas, etc; give them now the treatment they should have had long ago—a rest from activity.

A complete rest of the intestinal tract is best accomplished by means of the fast. During this procedure solid contents are expelled and no additional solid substance is added. This freedom from the process of digestion allows the mucous membranes, the muscles, and the nerves of the intestinal tract to recover their tone and their functional powers.

Those who are acquainted with the fast are fully aware of the paradoxical increase of strength of organs and structures during the period of abstention from food. As the ali-

mentary canal is the only structure of the body *directly* affected by food, this fast brings about a more direct and radical change upon the various structures of this canal than upon any other part of the body, and in a shorter period of time. When the diet following the fast is of a proper character the increased tone secured by the fast not only will be retained but added to.

Preparatory Bowel Cleansing. I heartily condemn drug laxatives as ordinarily employed, but in the case of stubborn constipation the beginning of the radical treatment—the fast—may, with benefit, consist of an effective dose of some saline laxative. Such laxatives secure their results by drawing into the intestinal tract, from the blood and adjacent tissues, a considerable portion of the body fluid. They also stimulate the mucous membrane of the intestines to secrete more mucus, in order to dilute further the mildly irritating laxative. This increased fluid in the intestinal tract and the increased peristalsis thereby produced hastens the expulsion of the solid content. While the reactive effect of such a laxative—a still further decrease in functional

activity—is the same as that from any laxative or cathartic taken at any other time, the effect is usually entirely overcome within twenty-four hours or so. The diet during this time and for some time after should consist of nothing but water, or at most the juice of a few oranges or of a small amount of other fruit; and the reaction is full established without detriment. But when one is eating regularly, this reaction to further reduced functional activity invariably results in an aggravated condition of sluggishness and retention.

The bowels require an absolute rest for a longer or shorter period of time. The laxative removes from them the solid material upon which they would be obliged to function, or at least from which the toxic elements would be absorbed. After they have been emptied by the laxative, there is nothing to interfere with their relaxation and rest and the start toward recovery of nerve and muscle tone. This laxative is especially recommended for the more aggravated cases of constipation, where retention of waste and resulting toxic effects are marked. *But it should be taken once only, at the beginning of the fast.*

The fast or fruit juice diet, in addition to cleansing the intestinal tract and allowing recovery of tone, prepares the entire digestive apparatus for the milk diet or any other further corrective diet that may follow; thus is insured a more complete digestion and absorption of the nourishing elements which are necessary for maintaining the intestinal tone and for a more satisfactory elimination of waste elements.

Length of the Fast. It would be highly inadvisable to attempt to suggest the length of this fast or fruit juice diet. The duration and severity of constipation and the local and general systemic effects resulting from it, also the natural vitality of the patient, must all be taken into consideration in determining the length of time without solid food. Ordinarily the more severe and serious the constipation and its effects, the longer will the fast be necessary; and, strange as it may seem, the easier will the fast be to the patient. This is accounted for by the fact that the greater the accumulation of toxic elements in the system the more is a fast or other restricted dietetic measure required, and because the body will

utilize the stored up tissue or wastes as fuel. Where the condition is of comparatively short duration or but slight, with few or insignificant symptoms, a shorter fast or fruit or other limited diet will usually suffice. Mild cases may require only two or three days of complete rest from all solid food, whereas some severe cases will demand from seven to ten days or longer of this rest.

The Milk Diet. From my years of experience with thousands of cases of chronic and acute diseases I have found most of them associated with some degree of constipation. I have seen also countless cases of constipation alone, which as yet had produced no further reduction of functional activity or physical efficiency. The majority of all these cases have been made normal or greatly benefited by the fast and milk diet, and for this reason I am giving this diet procedure preference in consideration. The milk diet is the most logical diet to follow the fast, and this is also the most logical and satisfactory diet for the restoration of muscle and nerve tone, normal quality, quantity and circulation of the blood, and normal quantity and effectiveness of digestive secretions. As

all of these results must be secured before constipation is permanently corrected, I recommend, therefore, the milk diet for all cases where it is at all possible to follow it.

Owing to a lack of any cellulose or rough fibrous material in the residue of milk, with sometimes a formation of feces of marble smoothness (but not hardness), the rectal nerves, which in constipation are less responsive than normal, may not be stimulated sufficiently to create normal evacuation, and the diet may *apparently* be aggravating or at least not correcting the intestinal sluggishness. But this lack of irritation is exactly what is desired in many cases. Have no fear that the intestines are further losing their responsiveness. As a convalescent patient gradually recovers general strength so are the rectal nerves and muscles slowly but surely recovering their lost tone and their ability to function normally.

However, there is so much to the subject of the milk diet that it is impossible to incorporate complete instructions for its use in this volume. For the benefit of those who wish to follow it, I may say that usually it may easily be followed while one is engaged in his usual

occupation. Briefly, the points to consider are quantity, method of taking, and a correction of the temporary bowel inactivity while the intestinal structures are being gradually restored to normal. The purest of milk obtainable should be used—that from any breed of cows other than Jersey or Guernsey; it should be taken unpasteurized if possible, though if pasteurized milk is used the results will be satisfactory if the juice of an orange or two is taken daily, and possibly a small amount of lemon juice taken directly with the milk. On an average, men require from five to six and a half quarts and women from four and a half to five and a half quarts daily. The dosage is one glass of eight ounces every thirty or forty minutes, for about twelve hours daily. A half-pint or at most a pint enema of warm or cool water, repeated immediately if necessary, will take care of any delayed activity of the bowels. No other food is taken with the milk except the fruit juices mentioned. The lemon juice will prove to be almost a panacea for all the minor digestive disturbances that may temporarily result from or while on the milk diet.

How long this diet will be required also depends upon the severity of the constipation, its duration and effects, and the responsiveness of the patient. Some few people will require the diet for two or three weeks only; others for a period of six to ten weeks; and where the colon and rectum have undergone extensive dilation and prolapsus or both it may be necessary to repeat the fast or fruit diet after a period of six weeks or so on the milk, with a repetition also of the milk diet for a few weeks longer. It is impossible to determine beforehand just how long will be required to establish the desired results. Every week the milk diet is adding additional tone to the digestive structures and bringing the patient that much nearer to freedom from intestinal stasis and the resulting symptoms and conditions. Some patients naturally respond to any particular treatment—whether it be dietetic, exercise, manipulative, hydrotherapy, or what not—much more readily than others.

Changing from the Milk Diet. After this diet has been taken sufficiently long to reestablish the desired condition of the intestinal tract, or until a considerable improvement has

been made, or as long as convenience will permit, it is extremely important that the diet following be so adjusted that the benefit derived from the previous treatment will not be undone. Where possible the milk should be taken, as during the entire milk diet, during the mornings of at least four or five days, preferably for two or three weeks, half the quantity previously consumed being taken up to one or two p. m.; from this time until five or six p. m. nothing but an occasional glass of water should be consumed. But at the usual supper (dinner) time a meal consisting of a vegetable soup, fresh vegetables cooked and raw, and a slice or two of bread made from finely ground whole wheat flour may be taken. One or two eggs, not fried, or pot cheese or a handful of nutmeats thoroughly masticated may be added to the meal if the weight and vitality are somewhat below normal. In the place of soup a small serving of prunes, apple sauce, apricots, peaches, rhubarb, berries or melon, or a glass of buttermilk or well-beaten clabbered milk (sumik) may be substituted.

Full Solid Diet. Later, when one desires to change completely from the milk, the two or

three meal plan may be adopted. In either case the *evening meal* should be similar to the one suggested above. The *morning meal,* when three meals are taken, may consist of a small dish of whole grain cereal, such as thoroughly cooked whole grain wheat taken with a spoonful of honey or a couple of ounces of seeded or seedless raisins or prunes, and a glass of any kind of milk desired; or the cereal may be omitted and the sweet fruit or milk taken with fresh fruit. The *noon-day* meal may be similar to either the breakfast or evening meal as desired, or it may be a large raw vegetable salad with rye or whole wheat bread and a glass of buttermilk or water; or a vegetable salad, with sweet fruit or melon and sour milk or soup. Olive oil may be used liberally on the salad, if desired. In case *two meals* are taken the morning meal may be an entire grain cereal with sweet fruit, berries, or melon and some form of milk; two, three, or four glasses of milk may easily be taken at this meal after the milk diet and the increased residue resulting from it will be helpful in maintaining normal bowel evacuation.

In a considerable number of people a small

amount of milk seems to have a constipating tendency, but the rest treatment and the milk diet already prescribed will have corrected this tendency; and if some whole grain cereals and laxative fruits and vegetables are taken as part of the diet the milk should no longer be constipating.

Whether or not the milk diet is taken for your constipation, the rest to the bowels by the fast, or by giving them only fruit juices if only for a day or two, should initiate the treatment for re-awakening the bowels to normal action, though without doubt many cases are corrected without this fasting period. I favor it for all cases because of more rapid, favorable results—as well as because practically every one *needs* such a rest from over-feeding.

If the milk diet is not used then take a solid food diet, being careful in your selection of foods and in the quantity consumed, as well as in thorough mastication. The meals mentioned under the two or three meal plan, with modification, may be used when the milk as a strict diet is not taken. And these meals may be used with safety and benefit in case the fast is not taken in any form.

In order to simplify the subject of diet I am dividing foods for constipation into two classes—those to use and those to avoid:

FOODS PERMISSIBLE	FOODS TO AVOID
Soups: The vegetable soups made from asparagus, celery, green peas, green corn, onions, spinach, or combinations of these; in some cases of beans, split pea and tomatoes.	*Soups:* Fat soups, meat broths, bouillon.
Meats: Beef especially, poultry, sweet breads. Rarely liver, and sea foods other than fish to be taken.	*Meats:* Pork, immature meats, salt, smoked and pickled meats and fish; fried meats, usually shell food.
Meat Substitutes: Eggs any way but fried, nuts, thoroughly masticated, pot cheese.	*Meat Substitutes:* Navy and kidney beans, fried eggs, cheese except cottage (pot) cheese.
Vegetables: Asparagus, beans—shell and string—beets, cabbage, celery, cresses, kale, lettuce, onions, parsnips, radishes, spinach, tomatoes.	*Vegetables:* Navy and kidney beans, and potatoes other than baked or boiled in skins; squash and turnips in some cases. Raw turnips may be used.
Cereals: Oatmeal, shredded wheat, whole wheat (bran and all), whole grains of barley and rye; unpolished rice; bran in some cases, usually in small amounts.	*Cereals:* Refined flour products — macaroni, spaghetti, noodles; polished rice, tapioca, pearl barley.
Breads: Boston brown, whole corn-meal, graham, rye, whole wheat; oatmeal crackers also and in some cases bran bread and pumpernickle.	*Breads:* White flour bread, degerminated corn-meal breads, white rolls, buns, biscuits, griddle cakes, etc.
Fats: Butter, cream, olive oil.	*Fat:* Meat fats and fat meats.
Sugars: Honey, brown sugar, maple and milk sugars.	*Sugars:* Sirups, molasses, jellies.

Foods Permissible and to Avoid (Continued)

Fruits: Mildly acid and sub-acid fruits, and dates, figs, prunes, raisins; canned fruits if re-cooked.	*Fruits:* Fruit jams, preserves, and in most cases marmalades and bananas.
Desserts: Ripe fruits, stewed fruits and berries, baked apples, occasionally ice cream.	*Desserts:* Chocolate and rich puddings, pastries—cake, pie, etc.; bleached sulphurized fruits, confectioneries, corn-starch, custards in some cases.
Beverages: Buttermilk, cider, diluted fruit juices, especially grape coffee, honey-tea, koumys, lemonade, milk, sumik.	*Beverages:* Carbonated beverages, chocolate, cocoa, coffee, tea, alcoholic beverages.
Condiments: Lemon juice, pure mayonnaise, some salt.	*Condiments:* Pepper, spices, horse radish, mustard, ketchup, condiments, pickles of all kinds including piccalilli, chow-chow, etc.

In general avoid rich concoctions; highly seasoned dishes; those requiring long preparation; large varieties; mushy, pasty foods; and concentrated foods—those from which the fibrous elements have been removed. When meats are taken they should be cooked rare, but in most cases it is better not to use meat.

The Uncooked Diet. If the various cooked foods and combinations thus far described are tried without benefit, especially when some of the other factors of treatment are used, then it may be advisable to adopt a diet that to the average individual will appear rather unusual.

For such cases I would advise the use of uncooked foods.

Uncooked or natural foods are capable of producing greater vitality because of the more abundant vital food elements they contain. They have more satisfying flavors and stimulate the flow of digestive secretions more than do most other foods that are prepared without stimulating spices and condiments. They also require more thorough mastication. The digestion is therefore benefited in several ways, and the bowel activity will be more nearly normal. These results are in addition to the effect of the natural stimulating cellulose of the uncooked foods.

A small cup half or two-thirds full of raw rolled oat or wheat flakes, with a small amount of sweet fruit and possibly nuts, moistened slightly with milk is a markedly nourishing dish, and at the same time is a normal stimulant to the intestinal tract. If one has a distaste for the strictly raw cereals used in this manner it is very probable that the taste may be cultivated, or one might take one cupful of the flaked cereal preferred, add to it a similar quantity of water, then bring it to the boiling

point. As soon as this heat has been secured the food is ready to serve, and can be eaten with any sweet fruit desired and with cream or milk as suggested above.

The whole grains of wheat, oats, barley and rye may be used in this manner. Or they may be soaked overnight in a small quantity of cold water; in the morning place on the stove and let them simmer gradually for several hours or until the grain is soft. Do not add so much water that any part of it must be poured off the grain. Fifteen minutes or half an hour before taking the grain from the stove add the desired sweet fruit. Many recommend that the grain be eaten without any liquid, though when thus taken even more thorough mastication is required. It is usually better to have these grains lightly moistened.

I would advise that as nearly as possible these special dishes make up the entire meal, with the exception of one juicy fruit such as an apple, pear or peach, or even an orange. As a rule one of these dishes may be eaten to the extent of one's desires without harm, if it constitutes the entire meal; and if a really serious case of constipation exists it is fre-

quently necessary that one eat a fairly large quantity of the form of food desired. But one meal a day of these foods would be sufficient, as they are rather pronounced in their stimulating effect. For the other meal or two simple combinations of uncooked foods may be used, without special attention to their laxative qualities.

As already mentioned, there are many other articles of food which can be added to an uncooked diet. The vegetables and fruits which can be eaten raw are in large numbers and these are extremely useful.

In regard to foods and their effect upon the digestive canal it may be said that, as a rule, those foods easiest of digestion and assimilation tend to constipation while those less easily or less completely digested and assimilated have a greater tendency to prevent or relieve this condition. An *over*-use of laxative foods may eventually produce constipation; but they may also be a source of considerable economic loss, as during the period of the body reaction to them they are inclined to carry from the intestinal tract considerable nutritive material. This is due to the incorporation of these gen-

eral food elements with the cellulose or woody fiber which is undigested, as much as to the fairly hasty evacuation of waste following consumption of such excessively laxative substances.

Meat. I do not believe that it is necessary for the formerly heavy consumer of meat, or for most others for that matter, to abstain entirely from meat as an article of diet. But the average person uses it in such large quantities and with such great variety of other foods that it undergoes putrefaction, which helps to create fermentation of other food. Besides, it has a very low stimulating power upon the intestines. For these reasons it is best that only a small amount of meat be taken, especially when attempting to correct constipation, or that it be eliminated entirely from the diet until the bowel actions have approached normal. When taken it should not be fried, and I am convinced that immature meats should be avoided. Whenever meat is a part of the meal the main bulk of that meal should be leafy vegetables or a considerable quantity of berries or melon, with from one to three glasses of fairly hot water. White bread, potatoes,

rice, macaroni, pastries, spices, tea and coffee should form no part of a meal in which meat is used; and some of these, of course, should be rigidly excluded from all meals, most particularly by those subject to constipation.

Gems and Muffins. As the average individual is more or less "lost" without some bread or bread substitute and, as bran and whole wheat are effective laxatives, a satisfactory bread, gem, or muffin will be a good addition to one's diet. The following recipes are given for the benefit of those desiring them:

Whole Wheat Gems.

1 quart whole wheat flour
1 quart water
1 tablespoonful melted butter
2 tablespoonfuls sugar
2 tablespoonfuls baking powder
A pinch of salt

Beat thoroughly and put into hot greased gem pans; bake twenty minutes in hot oven.

Whole Wheat Muffins.

1½ cups whole wheat flour
1 teaspoonful pure olive oil
1 tablespoonful honey or sugar
1 egg
1 cup milk
1 teaspoonful baking powder
1 saltspoonful salt

Beat the olive oil, honey or sugar, and egg

together, then add the cup of milk; mix well the flour, baking powder, and salt, then mix all together; bake in muffin pans in a hot oven for twenty minutes. This portion will make twelve muffins.

Bran Gems No. 1.

2 cups wheat bran
1 cup bran meal
1 cup milk
½ cup hot water
¾ cup molasses
½ teaspoonful soda
1 tablespoonful butter
Salt to taste

Dissolve the soda in the hot water; then add the molasses, butter, salt, milk, bran and meal; mix thoroughly; put in well greased gem pans and bake forty-five minutes in medium slow oven.

Bran Gems No. 2.

2 cups bran
1 cup Graham flour
1 cup milk
½ cup honey or dissolved brown sugar
½ teaspoonful baking soda, dissolved in hot water
1 teaspoonful butter
Salt to taste

Mix thoroughly; put in well-buttered gem pans and bake for forty-five minutes in medium slow oven.

Bran-fruit Wafers.

1 pound dates, raisins, prunes or figs, or a pound of any two of these
Bran, a pint to a quart
1 pint of water
½ cup of honey—strained or comb honey.

Soak the fruit over night in the water, press the pulp into the water, then strain; add the honey and thoroughly mix; add to this water all the bran that can be lightly moistened by it; roll the moistened bran to one-quarter inch thick on buttered paper in large bread pans; press bread knife or other steel lengthwise and crossways into the bran so as to form squares or oblong sections; place pans on back of stove or in a very slow oven where the bran will dry *but not bake;* when thoroughly dry break into sections and store in dry place.

If desired, the ground pulp of the prunes or dates may be added to the bran.

Orange Peel. Orange peel may be prepared in such a manner as to be beneficial to those afflicted with constipation. The peel should be boiled in water for thirty minutes or so to release the oil, which is more or less irritating to the digestive tract; the water is then discarded and the rinds sweetened if desired. This gives a clean indigestible mass of cellu-

lose upon which the digestive apparatus may work.

Grapes and Berries. The French say of the grape that "it not only dilutes thick blood but sends the circulation to the surface, giving color to the pale cheek; it removes obstructions from the liver and lungs, aids digestion, brings the stomach and bowels into a healthy state, dislodges gravel and calculi from the kidneys, and confers vigor and health upon the prostrate system." It is certain that the grape is a valuable fruit, in health and disease, and should be used freely, when in season.

In constipation the entire grape should be taken; however, as the skin contains a slightly astringent juice, it may be necessary for some few people to discard this part of the fruit. Only when there is stomach or intestinal irritation or inflammation need the seeds be expelled. From one to three pounds of grapes may be taken daily, but not with a meal or other foods; the grapes should constitute a meal or two of the day by themselves, or as part of a simple combination with nuts or sweet fruits only.

Grape juice alone is often an effective intes-

tinal activator. This is especially so if it is taken in the form of what some call grape coffee. This is made by filling a cup about one-third full of grape juice, sweetening it with a teaspoonful of sugar or honey, and filling the cup with hot water. If one or two cups of this are taken immediately after a meal (that contains little starch), the action of the bowels is usually greatly stimulated.

Blackberries, raspberries, strawberries and currants, in fact practically all berries with the exception of gooseberries, are laxative in nature and should be used freely, in season. But these should not be covered with sugar; they should be taken "straight," or with a small amount of brown sugar, and alone, or with some fruit, nuts, or a small amount of whole grain cereals.

Yeast. Baker's yeast, while not classed as a strict article of food, may be taken with considerable benefit in some cases, as it seems to alter the "intestinal flora" favorably. It has been found of greatest benefit in those obstinate cases which ordinary treatment has not favorably affected. It has none of the irritating laxative properties of cathartics and yet

frequently aids in producing natural and regular elimination of waste. Both dried brewer's yeast and the ordinary compressed yeast are used. It is of some value in troubles of the digestive canal, especially catarrh of this canal, whether the catarrh be the cause or the result of constipation. It is not to be used in acute digestive disorders.

In taking this product small pieces may be broken from a fresh cake and taken plain. By this plan a liking for the yeast may be developed, as it is somewhat like cream cheese. Some prefer the addition of a small amount of salt. Fresh yeast may be mixed with a little butter and spread on fresh hot toast or toasted crackers, or it may be dissolved in water or malted milk or in fruit juices. If it is allowed to stand for a few moments submerged in the preferred liquid, it may be completely dissolved by a little stirring. If it has a tendency to produce gas, as it may do in a few cases, dissolving it in a half cup of hot or boiling water will destroy the fermenting power and yet retain the beneficial properties; but it is less inclined to produce gas if taken before meals on an empty stomach. As yeast

is not a medicine, there is no danger of an "over-dose," as we usually understand this term in regard to drugs. If the small cakes are used, from one to three may be taken daily; other preparations in similar or smaller quantities. Children usually may be given half the quantity used by adults.

While much of a favorable nature has been written on the subject of yeast, I believe that if the diet and mode of life in general approach normal this product will not be required.

SAMPLE MENUS

In summing up the dietetic treatment, I give here a sample diet schedule for the day for the average case of constipation. In milder and more severe cases the schedule will need to be altered to fit the individual case.

On rising: One to two glasses of water, preferably cold (not iced), or one orange, one apple, or one pear, or the water and the fruit or a glass of dilute fruit juice.

Breakfast, (twenty or thirty minutes later): A dry ready-prepared cereal with a small amount of either sweet fruit such as dates, raisins, prunes or figs, or of dried

peaches or apricots or apple sauce. A dry-cooked cereal may be used, especially entire wheat grains or oatmeal. On the prepared cereals use cream or rich milk in small amounts, but if cooked cereals are preferred it is better to have them dry—without additional moistening. One or two glasses of milk may be taken slowly, or grape coffee or cereal coffee with honey instead of sugar may be used.

The cereal may be omitted and acid fruit taken in its stead; or milk and acid fruit, or milk and sweet fruit alone may be taken; fruits to use are the sweet fruits mentioned and oranges, grapefruit, peaches, pears, apples, plums, or berries. In some cases the mixture of one quart of hot water, the juice of one lemon and a half teaspoonful of salt may constitute the entire breakfast, or may be used immediately upon arising, with breakfast an hour or more later.

The breakfast outlined may constitute the first of two or three meals, according to the plan selected, which may be determined to a considerable extent by the occupation and general condition of nourishment and vitality of the patient.

Mid-forenoon: One or two glasses of naturally cold water—preferably two glasses. Avoid ice water.

Dinner: Vegetable soup; two vegetables—one to be green; vegetable salad with olive oil; muffins of bran or whole wheat, or bran wafers, with butter; sweet or dried fruits, cereal or grape coffee or buttermilk. One or more of the laxative foods may be omitted. This meal may be the large meal of the day.

Mid-afternoon: One or two glasses of naturally cold water.

Supper: For the third meal, taken at least three hours before retiring, have a green vegetable salad composed of leafy vegetables, with one or more finely chopped or grated tuberous vegetables if desired. I give these combinations as suggestions: lettuce, tomatoes and onions; lettuce, tomatoes and celery, or asparagus; lettuce, tomatoes, celery, onions, and cucumbers. Grated carrots may replace any vegetable or be added to any combination given; carrots and lettuce alone; carrots and raw cabbage; or apples and celery: either of these, with or without chopped nuts, will form a satisfactory salad. Olive oil and a small

amount of lemon juice, or mayonnaise may be used as dressing.

With the salad may be taken the heavy portion of the diet, whether it be a small amount of meat, fish, eggs, nuts or legumes. Omit the nuts on the salad when protein is taken as a separate dish. Whole wheat bread or gems, muffins or wafers may be taken, though it would be well to have this meal simple in combination, as mentioned under "Meat," page 167. A vegetable soup may begin the meal, or a cereal coffee be taken at the end of the meal; or in case meat is not included, a glass of buttermilk or sumik may be taken at the completion of the meal.

Before retiring: A glass of water, an apple, an orange, prunes, dried figs or one or two wafers with half a glass or a glass of water, may be taken in stubborn cases; but do not have fruit at this time and also upon arising. As mentioned earlier, hot water alone, when taken at night, is a good aid in bringing about normal morning evacuations.

Substitutions may be made if any article given is not procurable. If any particular article of food has been found to disagree in

any way do not take it merely because it is good for the average individual or helpful in the average case of constipation.

When normal bowel action has become well established, omit the most markedly laxative article from one meal, then from each meal when possible without losing the improvement secured. As frequently stated, too much cellulose steadily used will in time aggravate the condition for which it is taken; but the diet should never be totally devoid of this indigestible material.

It will be noticed that menu variation is considerable, since the fruits and vegetables selected may be changed to suit taste, requirements, and necessity. The diet will vary necessarily with different individuals. Nothing has been omitted from the diet that is of value in maintaining full nourishment and complete strength and health. Pastries, sweets and rich desserts, appetizers, etc., are purposely excluded, as they have no place in a remedial diet, nor, in fact, in any diet.

INTESTINAL ACTIVATORS OTHER THAN FOODS

Mineral Oil. In many cases of constipa-

tion, especially of the spastic and the dry colon types, mineral oil has been found to be a considerable relief. There are numerous mineral oils on the market, each sold under a specific trade name. But Liquid Petroleum is the name selected by the U. S. Pharmacopeia to designate particularly mineral oil, other names being liquid paraffin, paraffin oil, Russian oil, Russian mineral oil, etc. For constipation these oils have an advantage over oils of vegetable and animal origin in that they are not digested and absorbed. They perform no function within the physical economy other than lubrication of the walls of the alimentary tract. Dr. W. Arbuthnot Lane, the great English surgeon, highly endorses liquid petroleum for use in all cases of constipation. He recommends the regular use of the oil to persons in health, and particularly if there is a tendency to constipation. He prescribes and recommends a dessertspoonful every night before retiring. As the oil is not laxative or purgative it does not quickly excite action to the bowels as do some drugs; it simply lubricates the intestinal walls, and, as several days may elapse before the oil takes effect, its use

must therefore be continued. It will be valueless if used haphazardly; if it is used at all it should be taken regularly and continuously, at least until its use is no longer required.

On the other hand, there are some physicians who question the value of mineral oil, holding that it is a foreign substance, that it does not always agree with one and sometimes causes the formation of gas. My own opinion coincides with this and is also that the oil is inclined to coat the particles of food in the intestines and thus prevent their complete digestion by the digestive juices. Also it does work for the intestines that these should be made to do normally without assistance. Yet great numbers of persons declare that it has offered them the solution of their constipation problem. It is certain that it will prevent stagnation of the bowel contents and in this way it hinders decomposition. It is decidedly less injurious than drug laxatives and cathartics that secure their action through irritation, but it should be necessary only with those individuals who will not readjust their dietetic and other habits.

Agar-agar. Agar-agar, or Japanese Seaweed, is now used quite extensively, either

alone or mixed with the diet, as a simple mechanical means of correcting constipation. This material is somewhat like bran in appearance, but its effect is secured through its ability to absorb and hold in its porous cellulose structure large amounts of moisture. Its stimulating effect upon the nerve ganglia and upon the intestinal mucous membrane is very slight, so that its use is not inclined to overstimulate these nerves greatly and thus aggravate a constipation tendency. A tablespoonful or more may be taken with a little water or the material may be added to the cereal or to any other dish of the meal. Some companies combine the agar-agar with the mineral oil, making an emulsion that combines the effects of these substances. If no laxative drugs are combined in this emulsion it may be used temporarily in some more or less stubborn cases.

Bear in mind, however, that these are not curative any more than is liquid petroleum. A measure that is truly curative is one that is not perpetually and continuously required—one which will continue its good effects even though for any reason temporarily discontinued. In

order to cleanse once thoroughly the intestinal tract the liquid petroleum or agar-agar may be used by those who are more satisfied when "taking something"; but the use of either should not become a mental habit; they should be dispensed with as soon as possible. It seems scarcely rational to demand perpetually of the digestive system that it receive, manipulate, and pass on some article or substance from which the rest of the physical organism receives no benefit whatever in the way of food elements.

HARMFUL AGENTS

Mineral Waters. There are some agents used to bring about intestinal activity which, to the deluded individual, appear to be corrective; for instance, mineral waters. People will take these for years, changing from one to another when the effect of the one is reduced, as will be the case with all of them; for they are merely drug compositions, even though coming direct from the earth. Nature has placed certain minerals and mineral salts in various parts of the earth and the water in certain underground veins, in coming in contact

with these substances, dissolves them and takes them up in solution. It is these salts which produce the laxative effects. But the salts are inorganic and the mineral waters containing them are as truly drug-laxative as are Epsom salts, Rochelle salts, etc.

There are certain other mineral waters which are not laxative in themselves though fairly heavily laden with mineral substance. Their effects upon the intestines are due merely to the consumption of large quantities of them by the individual who believes that the waters themselves have some corrective or remedial qualities. Frequently these are taken in the otherwise wholesome environment of a social watering spa, where physical activity is inclined to be somewhat greater than usual. The several glasses of water consumed daily, together with a greater activity, and cheerful, pleasing environment, etc., are responsible for the happy results; but these results are temporary if there has been no change in one's mode of living that will be persisted in after discontinuance of the water-drinking.

Tobacco. Many men are deluded into believing that they have found an efficient pre-

ventive of or relief from constipation in tobacco-smoking, possibly tobacco-chewing. A considerable number find that a cigar or pipe, or possibly a cigarette or "chew" of tobacco, shortly after a meal, especially after breakfast, will bring about a desired bowel evacuation. Tobacco may produce this effect, but it will not continue to do so indefinitely. The results are secured through the efforts of Nature to remove an unnatural irritating substance from the body. In other words, the effect is produced in the same way that many other drugs secure their effect: by excitation and stimulation of the nerves to remove from the system that which has only a detrimental effect; for tobacco is a drug, its continued use being possible only through "toleration" of the body for it.

Harmful Laxative Foods. With some people coffee will have a laxative effect; and with other people certain articles of food which are not strictly wholesome foods, among which may be mentioned pancakes or flapjacks, sauer kraut, chilli con carni, beer, etc., will have a similar effect. The effects secured by the use of these articles of so-called food will

usually be brought about by marked stimulation and by an effort of the system to remove that which may be harmful, also possibly by fermentation, resulting in loose stools.

As a rule we may consider any substance which, when taken into the digestive tract, produces a fairly quick laxative action to be irritant, securing its effects mainly through the efforts of the body to expel it. However, there are certain wholesome foods which have this fairly quick action in certain individuals, and their use in these cases will very probably be beneficial rather than otherwise. Especially will this hastened action be normal and harmless when produced by such recognized beneficial and natural foods as the fresh fruits and vegetables.

But even certain of these in a very few cases are directly irritant because of the degree of idiosyncrasy or susceptibility of the person. Except in an emergency one should not habitually take into the mouth and stomach anything which empties the bowels quickly. Whenever this sudden action occurs there will be a reverse action, or reaction, with lessened speed of physiological processes, that is very

apt to bring on, perpetuate, or aggravate constipation.

EXERCISE

Next in importance to diet and early response to the calls of Nature is exercise. While the muscles of the intestinal tract, except for the very outlet gates, are wholly involuntary and beyond the control of the will, their tone depends to a considerable extent, as we have seen, upon the tone of the external muscles. In addition to this, the tone of the internal muscles depends upon normal quality, quantity and circulation of the blood, which cannot be secured in a body denied sufficient action of the skeletal muscles. Furthermore, exercise of the proper kind produces a massage effect upon the inner abdominal organs and the intestines. Not only are the muscles surrounding the abdomen brought into play prominently, but the diaphragm, which presses downward upon the intestines, is made to take greater excursions into the abdomen at each breath, and its action is more rapid and more vigorous where exercise of such nature is taken as to quicken and deepen the respiration.

In the adoption of a system of exercise to be used in connection with other means for the correction of intestinal stasis, it is necessary that one select exercises within his strength; the system should be general while at the same time directly corrective; it should be pleasureable and one that can be adhered to at least until results are secured; in fact it should become a part of the permanent daily schedule. One should not expect to find one or more exercises that call into use just the muscles necessary to strengthen, tone up, and naturally stimulate the bowels. Even if such an exercise could be found it would not be sufficient. Entire body tone must be maintained, but at the same time exercises that have a more pronounced effect upon the muscles surrounding the organs of digestion should be included in the system of exercise adopted.

Walking. There are exercises that do not involve, except to a slight degree, the abdominal organs, which still are extremely valuable in the correction of constipation. Their results are secured partly through the increase in the action of the diaphragm but also partly by their vibrating effect upon the entire body

and the stimulation of the circulation and of general metabolic processes. Chief among these exercises is *walking*. The rhythmic elevation and lowering of the body has the effect of mildly shaking up the intestines and their contents, helping gas to escape and the solid contents to move out of the kinks and pockets and gradually downward toward and into the rectum. The more rapid the walking, up to three and a half or four miles an hour, the greater will be the direct effect in the average case. Lazy strolling will not produce the desired results in the average individual but may be effective in those who have previously denied themselves all forms of exercise. If possible one should devote at least an hour a day to exercise, and if five to eight or ten miles a day can be covered by walking the general functional activity will be greatly increased. The length of the walk, also the length of the stride and the speed, will depend largely upon the individual's condition. It is the mild stimulation of long-continued exercise which many cases of constipation require, and this is provided by walking. In walking one should sway the body and secure a slight body rota-

tion at each stride; also the hip of the advancing leg should be moved forward as the opposite shoulder rotates forward, in order that the muscles of the trunk may be brought into action to an appreciable extent.

Running. Running produces the effect of walking, only more quickly and to a more decided extent. It is not possible for some people, but those who have no contra-indication to it would find all physical troubles greatly reduced if they would take at least a short run daily or frequently. The alternate walk and short run is perhaps the best combination of exercises for a single effect. When running out of doors or on an indoor track or floor is impossible, the standing run may be taken in any room provided with sufficient circulation of air. In fact, the standing run is sometimes more effective because in this exercise one may bring the knees up to the chest at each step, thus securing direct compression upon the abdomen and its contents, as well as a more decided vibration and internal massage.

Rope-skipping. Rope-skipping is one of the most valuable forms of exercise to stimulate the intestines as well as to benefit heart,

lungs, and other vital organs. The movements of the arms add somewhat to the benefit of the exercise. One should begin with a small amount of this exercise (also of the standing run) and gradually increase in speed and duration as the heart and lungs respond. Avoid the jar of landing on the heels when taking these exercises. Those who have hernia or more than a slight degree of prolapsus of abdominal or pelvic organs should not attempt these exercises until, by other means, there has been a reduction of the structural defect. The same precautions will not hold, however, for one with varicocele; these exercises and also walking and outdoor running are among the best for the reduction of varicocele, at least of its uncomfortable sensations.

Jumping. Another especially valuable exercise is that of jumping slightly, just as one would when jumping a rope. The light jar of this particular exercise accelerates the activities of the functional organs and will be found very valuable as a means of arousing intestinal activity. As a rule it is a good plan to take this exercise upon arising, and it will be found more effective if one takes one or two

glasses of water before beginning the exercise; the water may be hot or natural cold. The exercise should be continued on each occasion until a slight feeling of fatigue is noticed. At first, unless one is fairly strong, it may be found difficult to jump more than from fifty to one hundred times without feeling fatigued, though ordinarily the exercise should be continued from one hundred to three hundred times, resting when feeling especially tired. However, the same precautions given under rope-skipping should be observed here. The combination of the stationary run and jumping is perhaps even more satisfactory than the jumping alone.

Sports. All outdoor sports will be of value, but among the most helpful are rowing and horse-back riding. Rowing provides good abdominal massage, also excellent strengthening and stimulating back exercise, beneficial in constipation. Some wise physician said many years ago that "the best thing for the inside of a man is the outside of a horse." It is probably not the best thing but it is very beneficial, particularly where the liver needs stirring into greater activity. Riding should

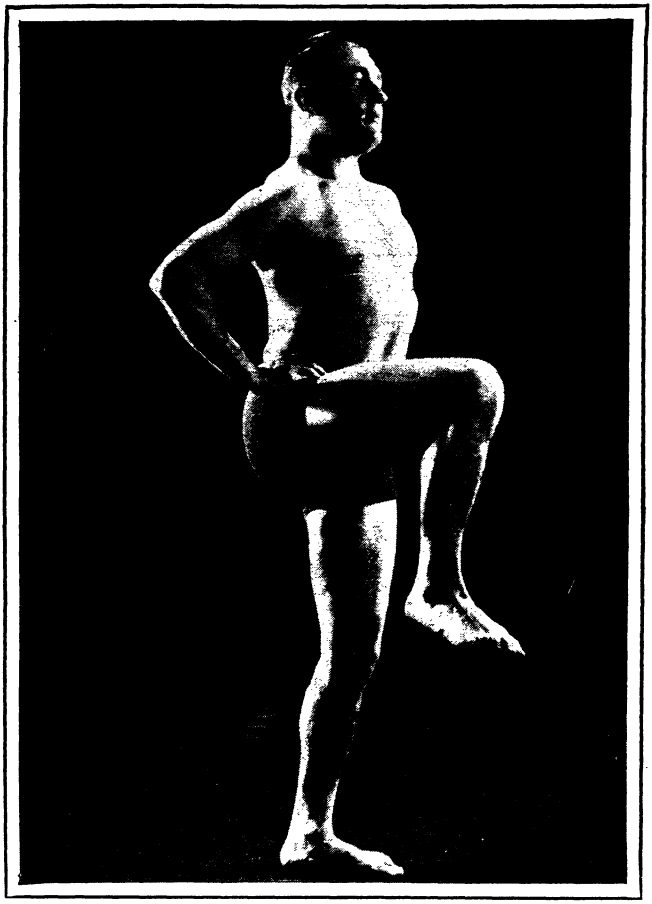
not be taken to the exclusion of other exercise, however. Tennis, volley ball, handball, squash, swimming, and such sports which call for occasional rapid motion, together with body flexions and activity of the large muscles, should be of extreme value in any system of exercise, where one is not prevented by some condition from indulging in them. The dosage must be regulated and should not exceed one's vigor. Hunting, fishing, especially game, fresh-water fishing, and cross-country tramping are especially commendable, since they bring in the valuable features of walking and with a desirable freedom from the probability of self-concentration.

The question is frequently asked if bicycle riding is equal in value to walking, horse-back riding, or certain other sports. I say emphatically, No! It brings into action mainly the thigh muscles and those of the hips and lower back; the position of the trunk is not only fairly rigid but inclined forward to such an extent that the abdomen is compressed and the ribs are cramped, so that diaphragm motions are deficient on account of the improper breathing. It is not so detrimental when the

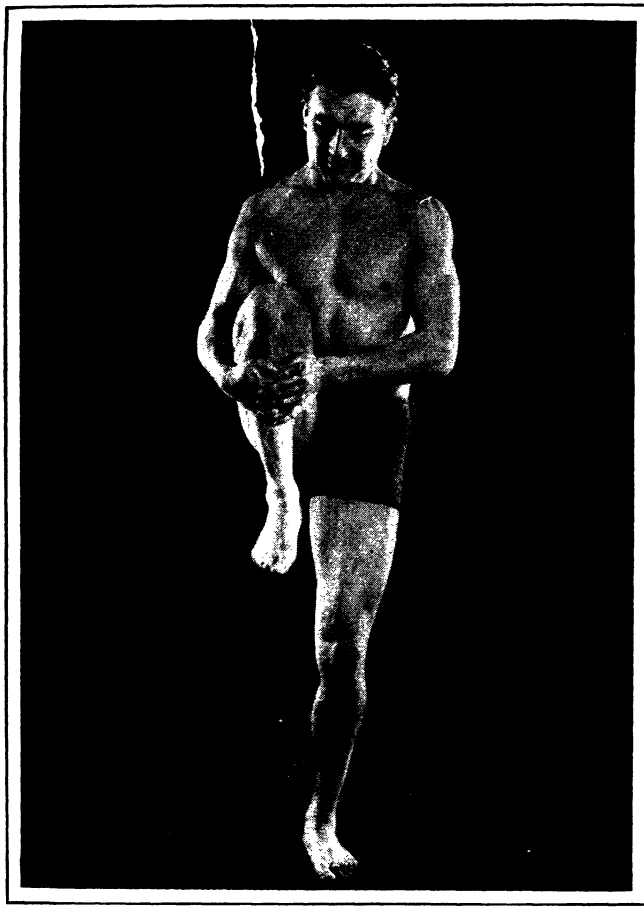
position is upright, and may really be commended when one combines it with walking and running beside the wheel.

Special Exercises. There are certain movements that may be taken which have a direct mechanical effect upon the alimentary canal, and which will have a marked inclination to assist the general exercise in remedying intestinal sluggishness. Among these exercises are several which have been illustrated especially for this book. They will not be enumerated in text form. Any one can probably devise his own system of special exercise that will prove quite effective. These special exercises should not be relied upon entirely. *The physical activity must be general,* as well as local and specific.

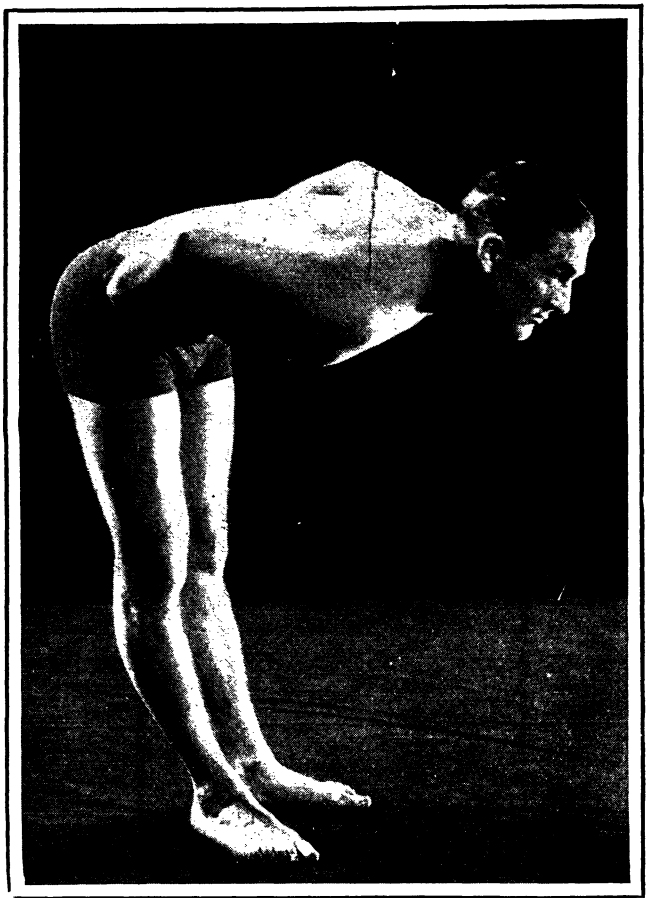
It may be repeated here that the various movements that tend to strengthen the muscles of the abdominal region give marked additional vigor to the internal organs. One should realize the importance of strengthening the natural abdominal corset—for the direct stimulating effect of the exercises to the internal organs, but equally for holding these organs in proper position to function normally.



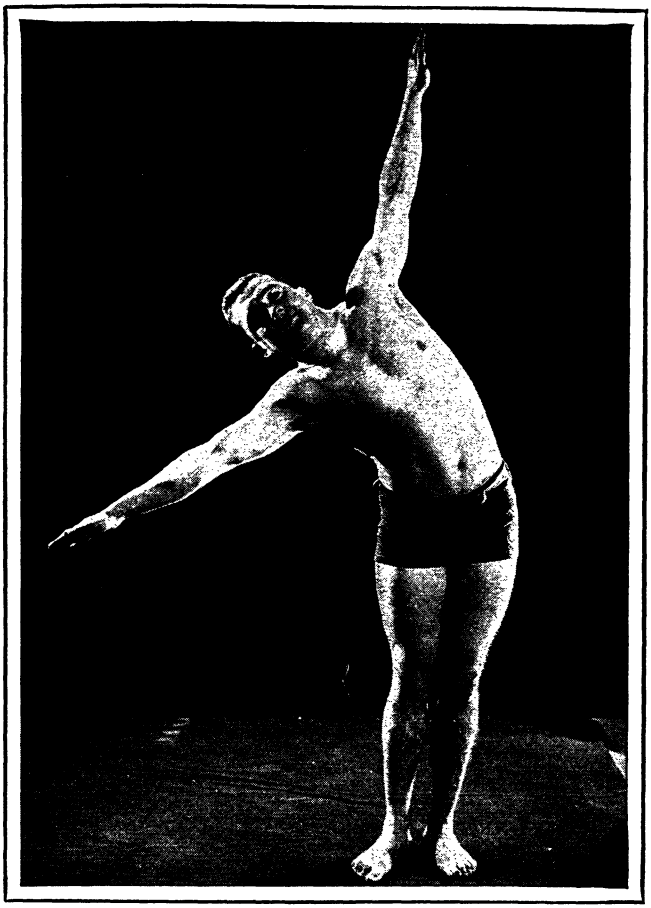
Standing erect, hands on hips; raise one knee as high as possible as shown; lower while exhaling and inhale and repeat, or alternate right and left. Continue for ten to twenty times with each leg.



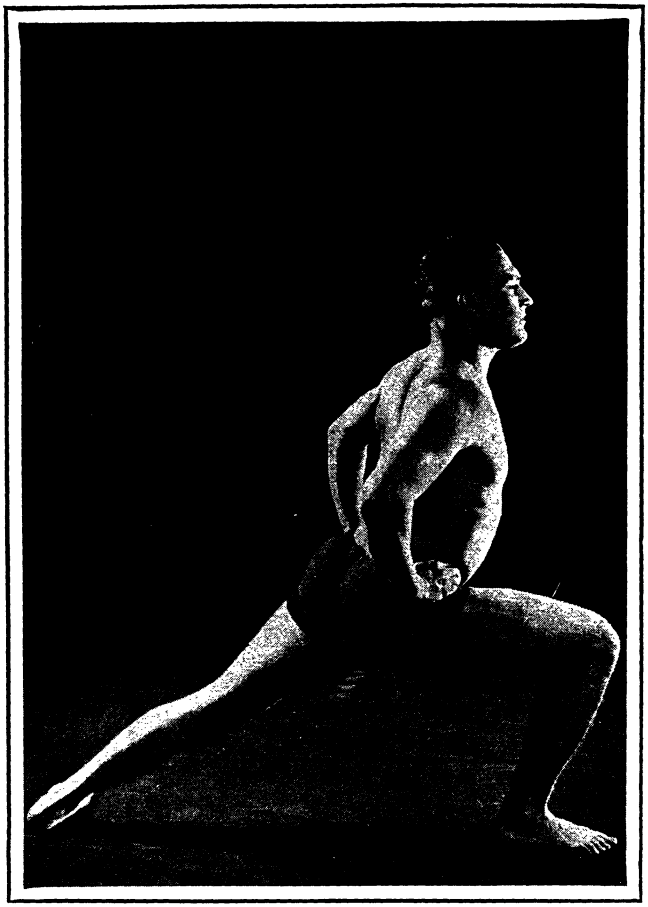
Raise right knee, clasp it with locked hands and press thigh into abodmen. Lower and repeat; alternate. The movement is made more effective by giving an additional pressure after reaching the limit of motion of thigh against abdomen.



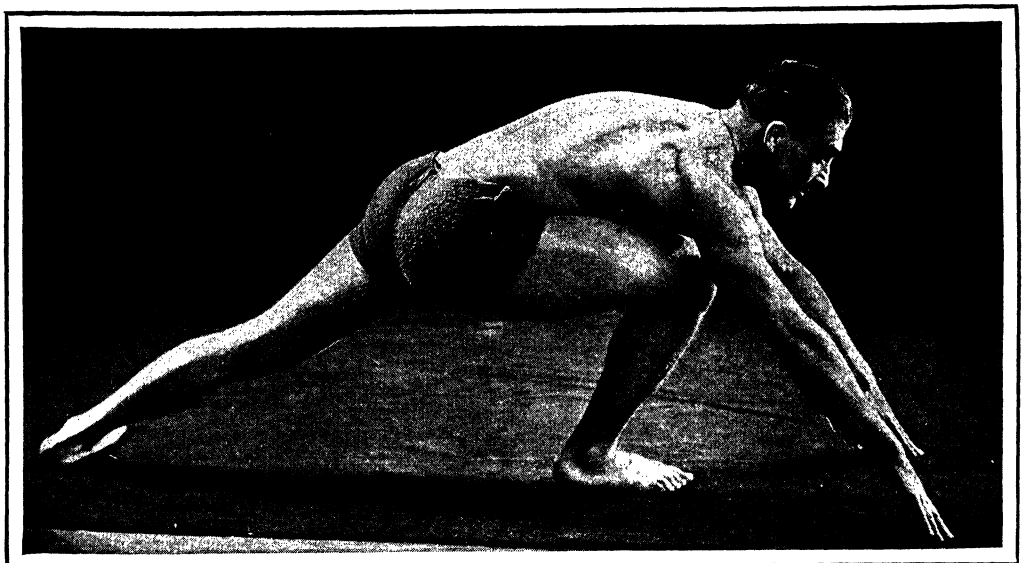
Standing erect, hands on hips; bend the trunk forward as far as possible but keep the head up and shoulders back, exhaling at the same time; raise while inhaling, and repeat ten to twenty times.



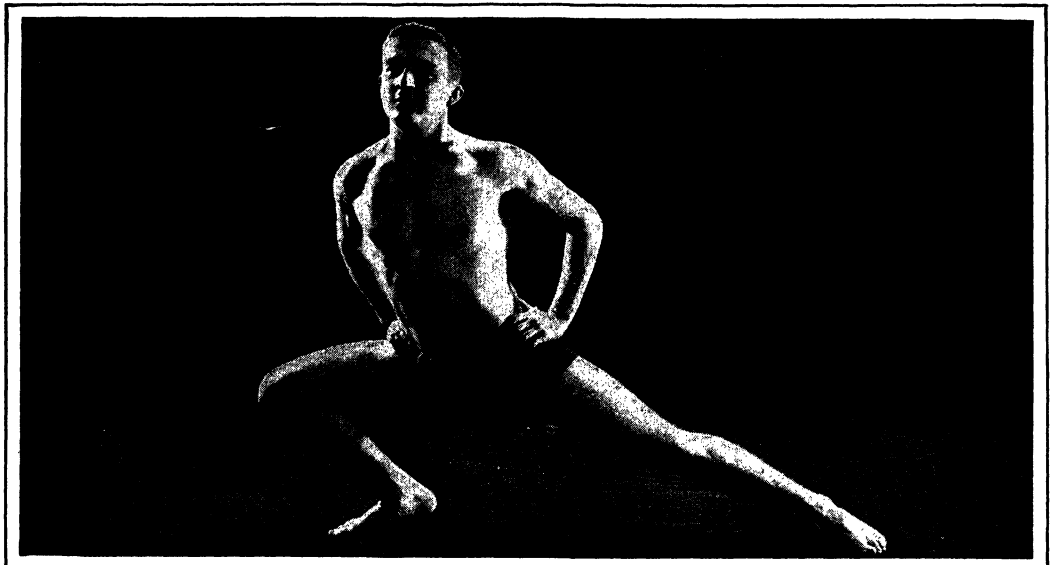
Standing erect, arms at the sides; bring arms quickly to a horizontal position and bend far to right as shown without rotating the trunk on the hips, inhaling while bending; come to the vertical and drop the hands, exhaling; repeat to the opposite side; eight to ten counts to each side.



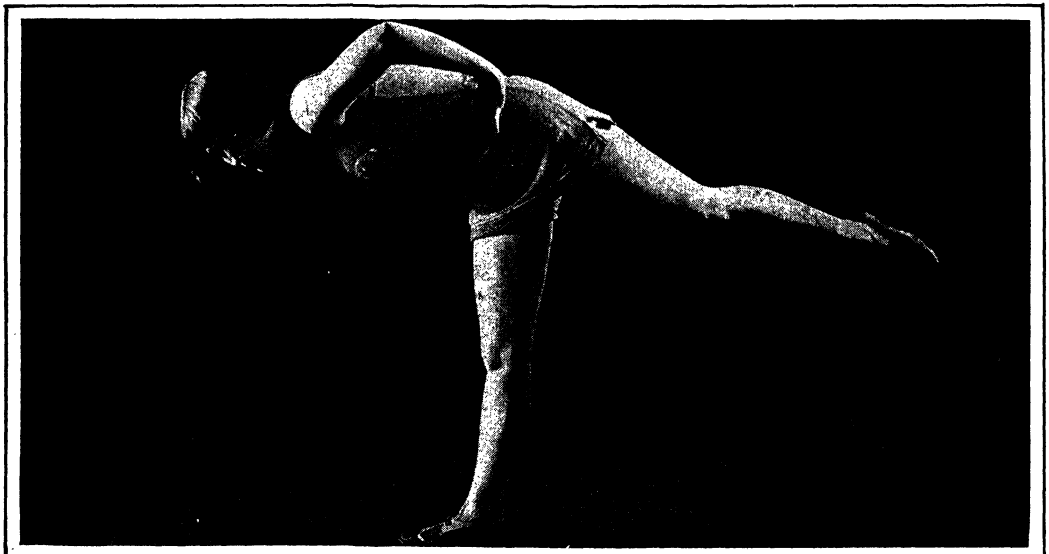
Standing erect, hands on hips, charge or lunge far forward with the right foot to position shown, taking a deep breath; bend the forward knee to about right angles, but keep the rear leg straight; then, while holding the lunge position, continue as illustrated on next page.



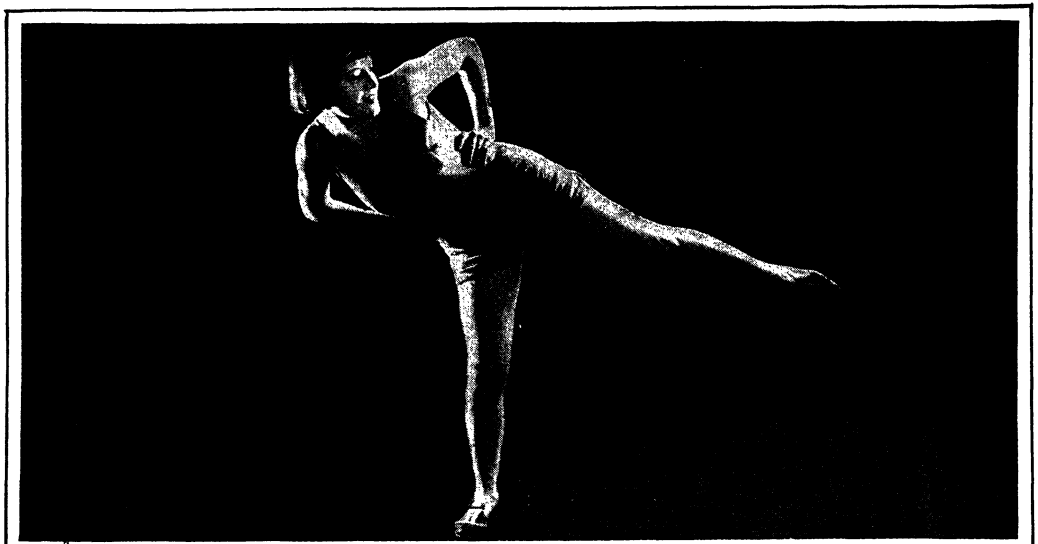
Continuing from exercise on preceding page, exhale and bend over the right knee and reach as far forward with the fingers on the floor as possible. Resume position as taken on the lunge, then recover charge (feet together); alternate right and left five to eight counts.



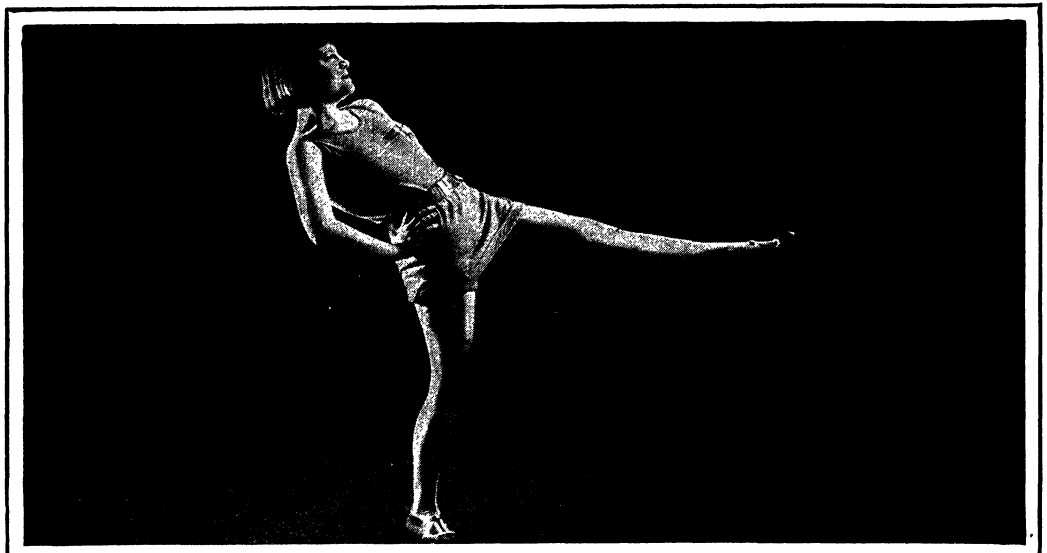
Standing erect, hands on hips, lunge far directly to the right to position shown, taking a deep breath; then, holding lunge position, bend over to right, extending hands as far to right as possible, similar to immediately preceding movement. Alternate sides.



Standing erect, hands on hips; exhale and raise the left leg backward while leaning trunk forward, attempting to bring trunk and raised leg to horizontal. Do slowly. Lower leg and come to erect position while inhaling; raise right leg in the same manner.

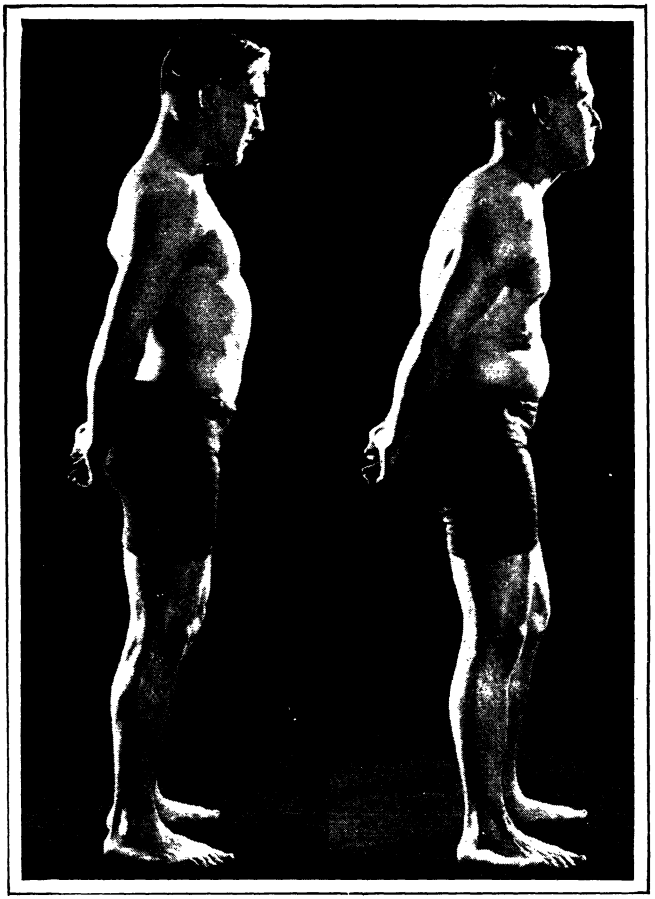


Standing erect, hands on hips; exhale and raise left leg out to the side and upward while bending the trunk far to the right—slowly. Lower leg and come to erect position while inhaling. Raise right leg in same manner while bending left.

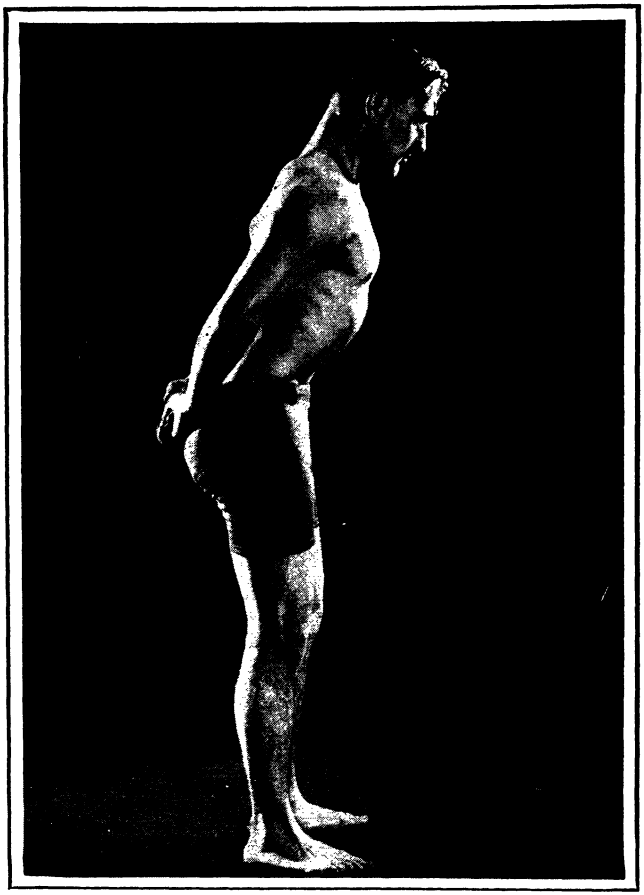


Standing erect, hands on hips; inhale and raise left leg high upward to the front while bending well backward—slowly. Lower leg and come to erect position while exhaling. Raise the right leg in same manner.

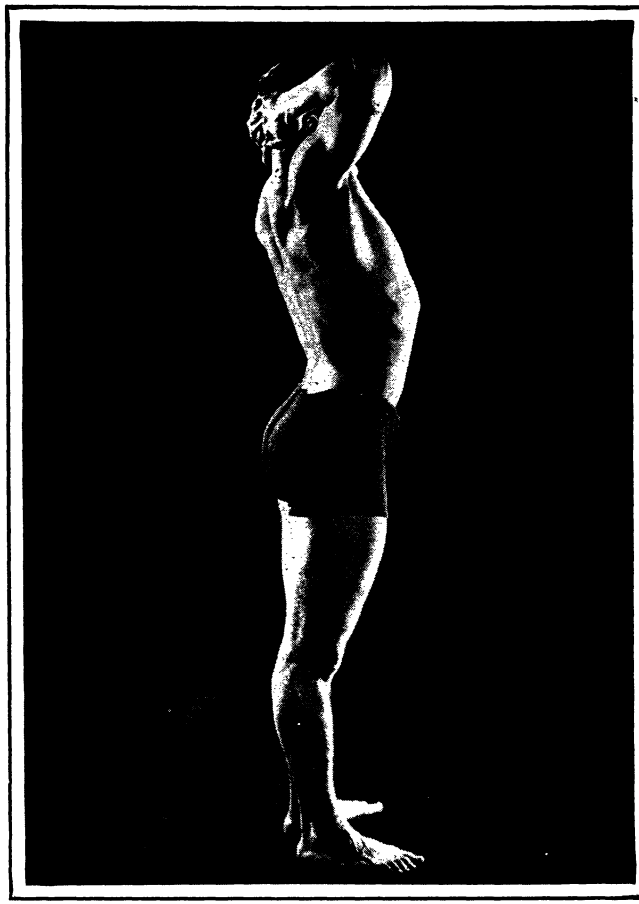
A very effective "muscle control" movement that will be good in constipation if mastered. Stand erect, feet slightly apart; exhale, bending slightly forward; draw the abdomen well in, then contract the central vertical muscles of the abdomen by quickly flexing forward slightly more; relax and repeat several times.



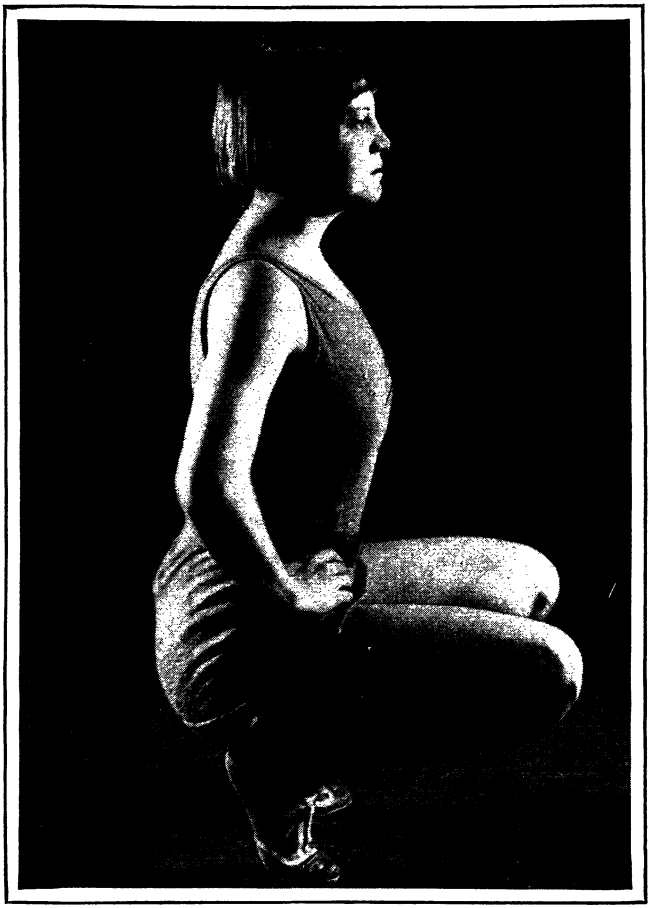
Stand erect, the abdomen natural; then quickly draw in the abdomen as far as possible and then shift the point of greatest contraction from below upward and from above downward, in a "muscle rolling" movement. This is difficult to illustrate and to learn, but very effective.



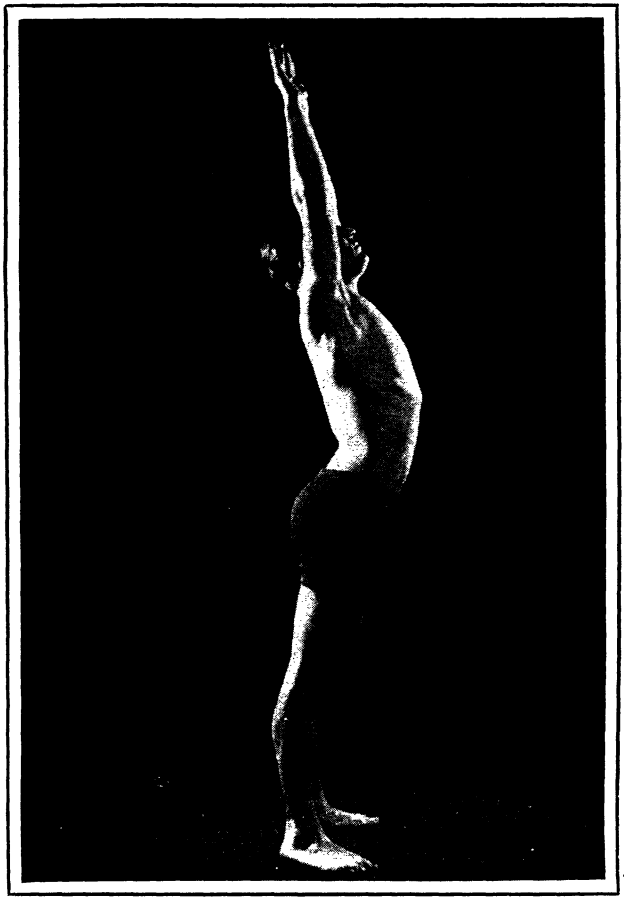
Standing, exhale all the air possible from the lungs; hold this position (about five seconds) while rapidly forcing the abdominal walls in and out. Perform the same movement after a deep breath has been taken and held.



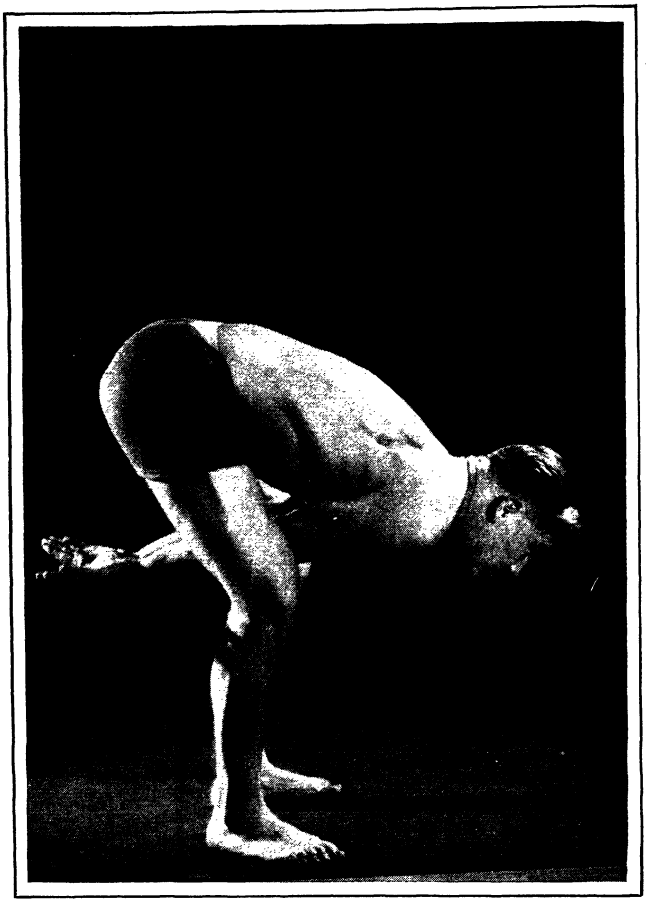
Standing erect, fingers clasped behind head but relaxed; bring elbows well back, contracting all spinal muscles while at the same time bringing the head slightly backward, resisting this motion with hands, to position illustrated; inhale while bringing shoulders and head back; relax, exhale, and repeat.



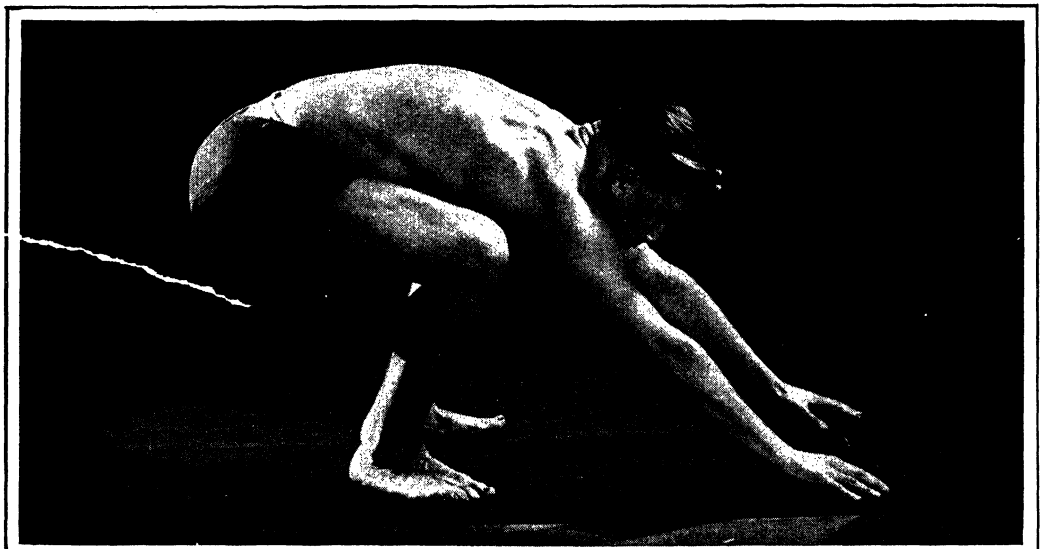
Standing erect, hands on hips; slowly lower body by bending knees until the hips rest on raised heels, as illustrated; have the knees slightly apart and keep the body vertical; raise the body while inhaling, and repeat five to eight times, exhaling on the squat.



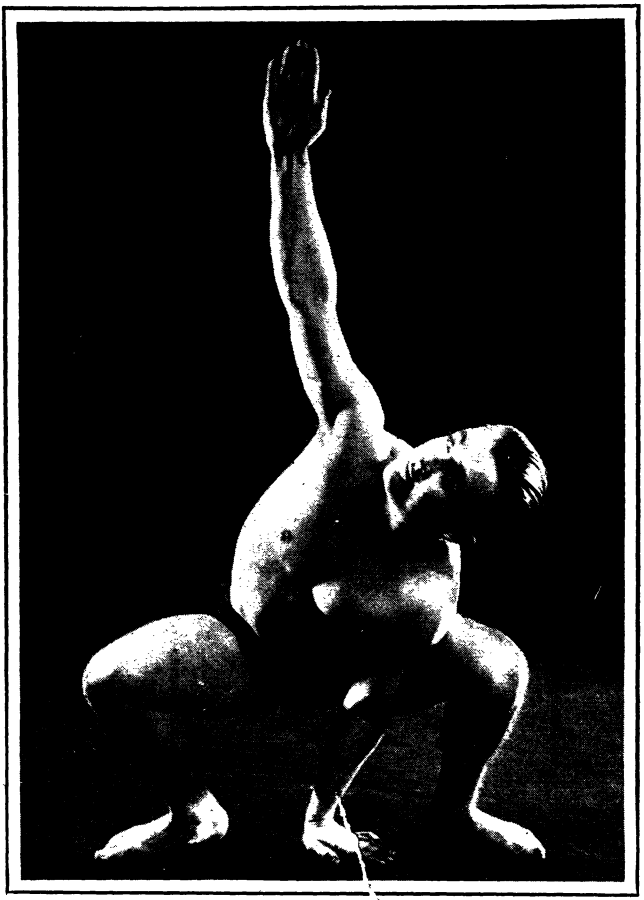
Stand with feet slightly apart, arms extended overhead, body erect or slightly backward with spine well arched and head well up and back, as shown. (See next illustration.)



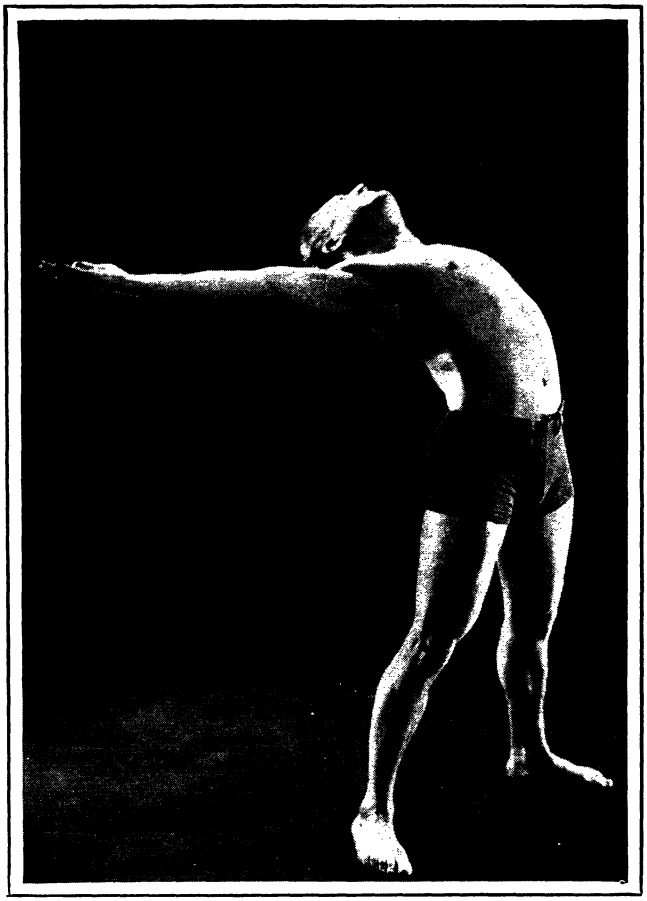
First move is bending far downward, doubling the body forward as far as possible, the hands between the thighs, knees only slightly bent; keep the arms straight; then raise to the upright position, as in previous illustration. (See next illustration.)



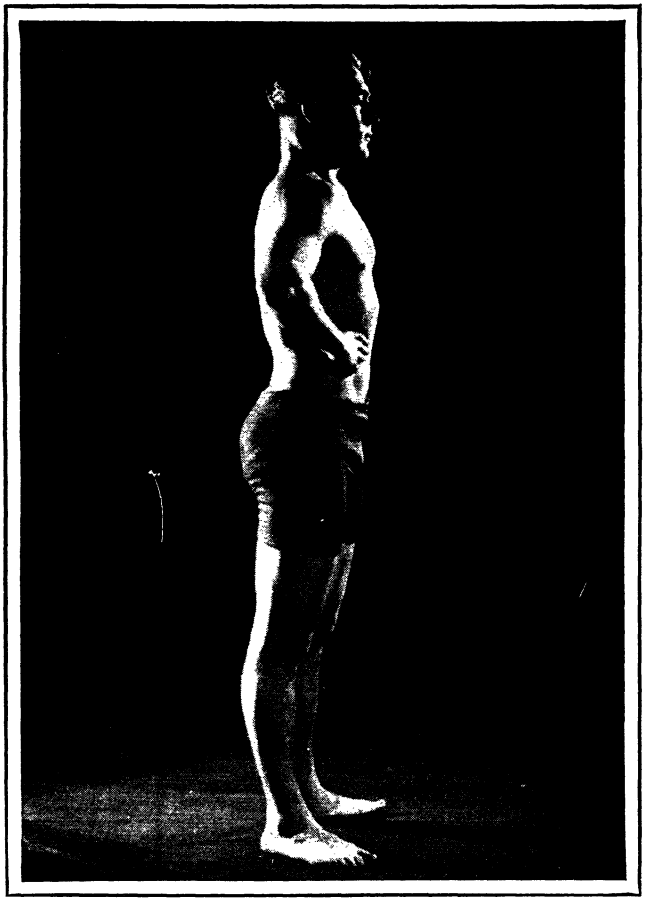
Next move, starting from erect position, arms extended overhead, is squatting without raising the heels and touching the floor as far forward as possible; raise to erect position, and alternate the bending forward and the half-squat.



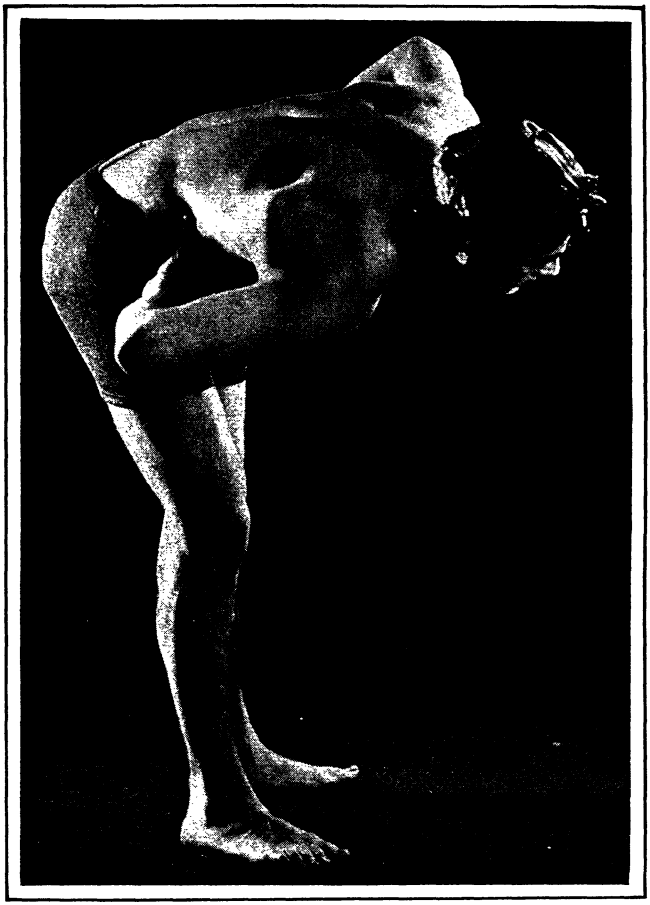
Standing with feet apart, arms out to the sides, squat and bring left hand midway between feet while raising right hand, watching this hand as illustrated; exhale during squat; raise with arms out and inhale; repeat by reversing position of the hands and continue alternating four to eight counts each way.



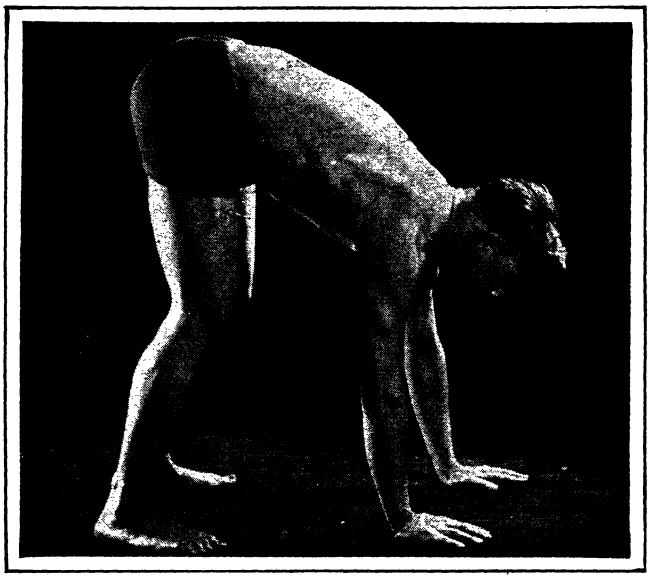
Stand erect, feet apart, hands at sides; bend backward, bringing arms to position shown, while inhaling; then bend forward, arching back as much as possible, and bring the hands far back between the legs while exhaling; continue backward and forward, bending ten to fifteen times each way.



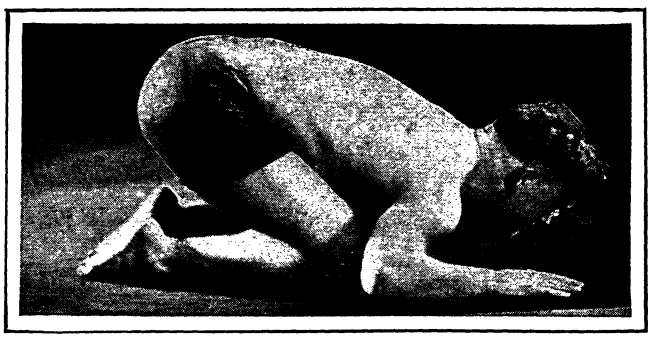
Standing, feet slightly apart, palms about lower ribs, fingers forward, thumbs to rear. Secure a comfortable grasp with edge and palm surface of fore-finger and thumb, giving gentle pressure only. (See next illustration.)



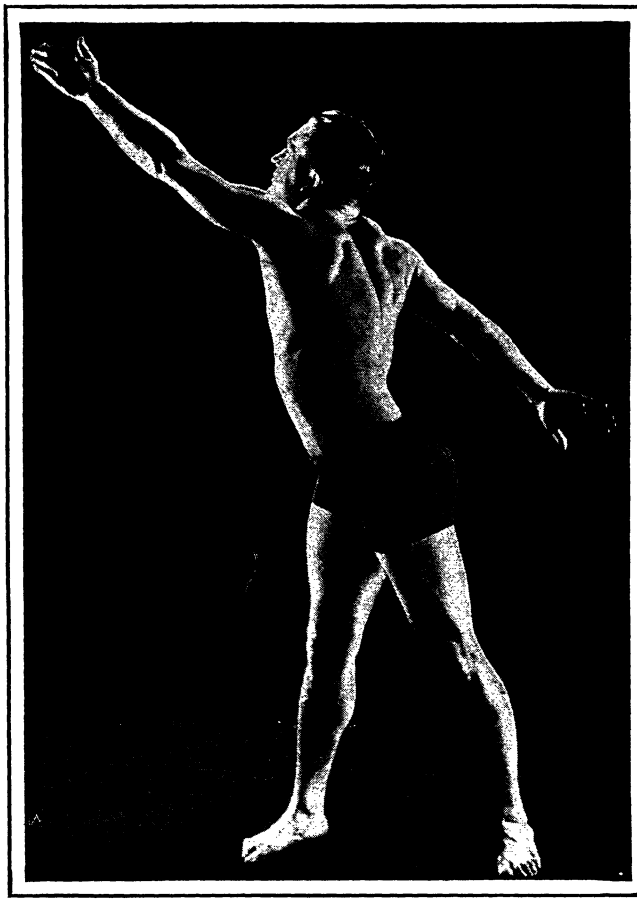
Bend diagonally forward to the right, pressing into the abdomen against the liver with the right hand; go far forward and downward; in rising to the erect, *suddenly* release pressure of the right hand. Alternate in bending diagonally toward the left.



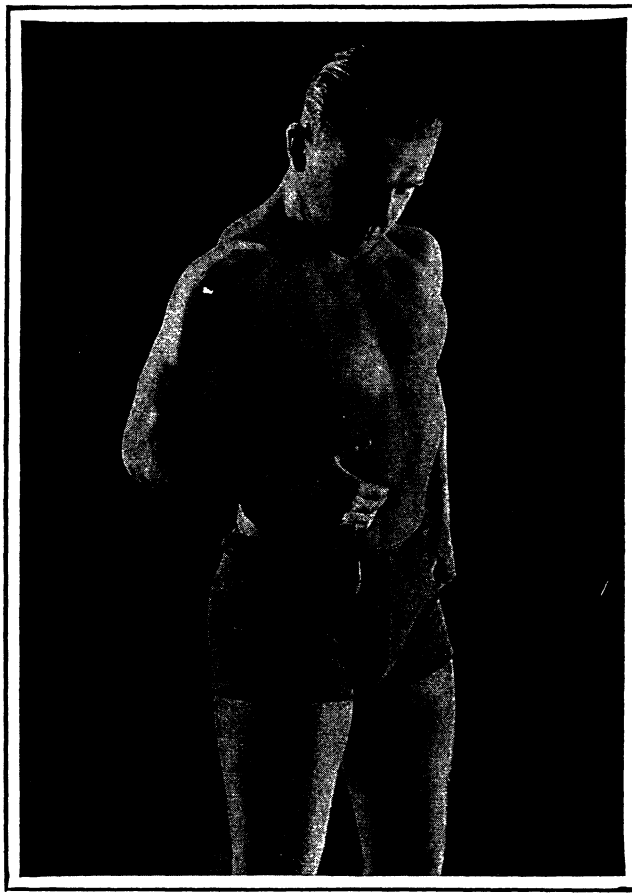
This is walking on all fours. After a few minutes of this exercise drop to position shown below.



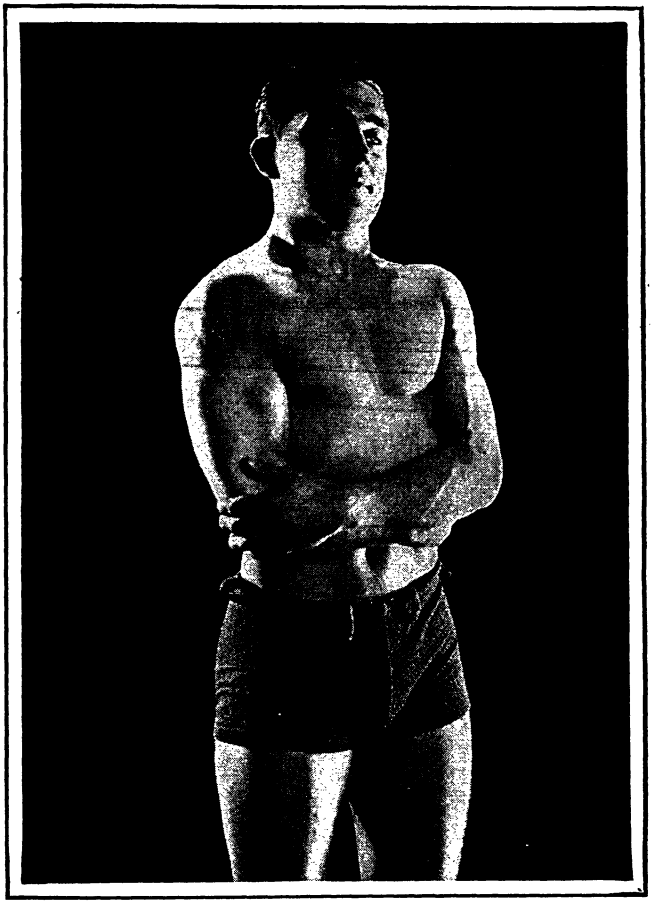
Keep the knees well under the chest, the thighs pressing into the abodmen, the hips lower than shown in illustration.



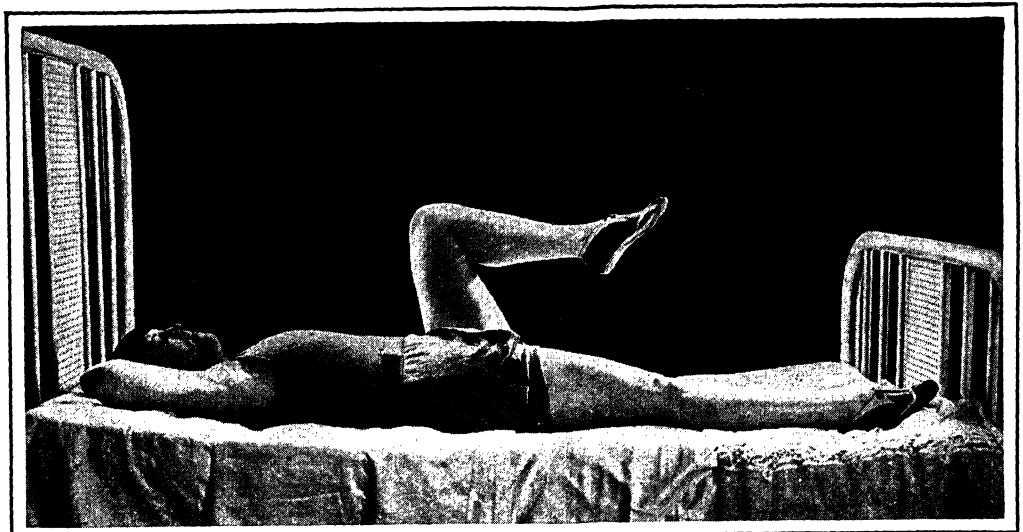
Stand erect, feet apart, hands at sides; stretch the left arm far to right over right foot, the right arm far to rear as shown; then reverse, extending right hand over left foot, left arm backward; repeat five to ten times to each side. Exhale while rotating to side and inhale when turning to front.



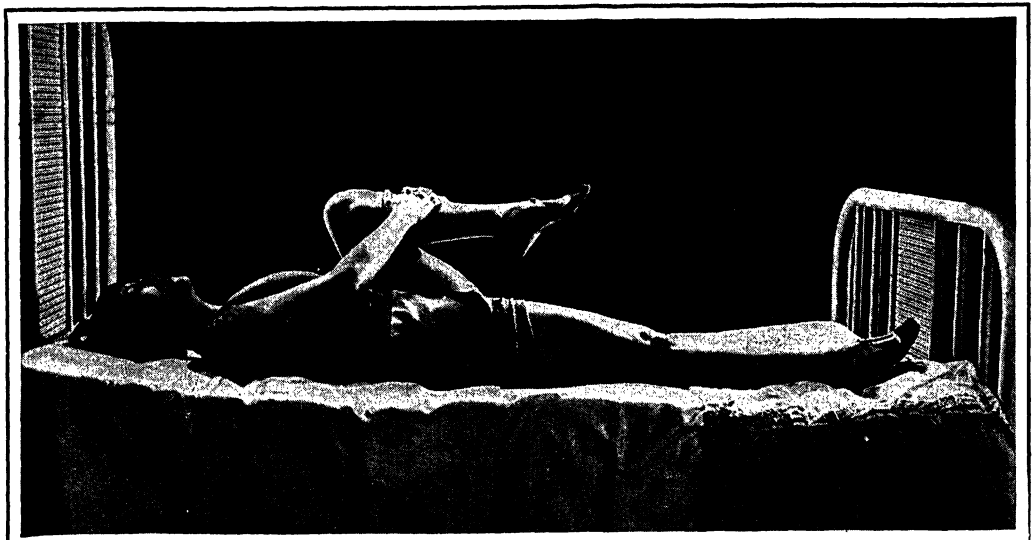
Place right hand on the soft part of the abdomen, immediately below the lower ribs and, while exhaling, exert fairly deep pressure here; relax and inhale, and repeat several times; then do the same on the left side, using the left hand as before the right was used.



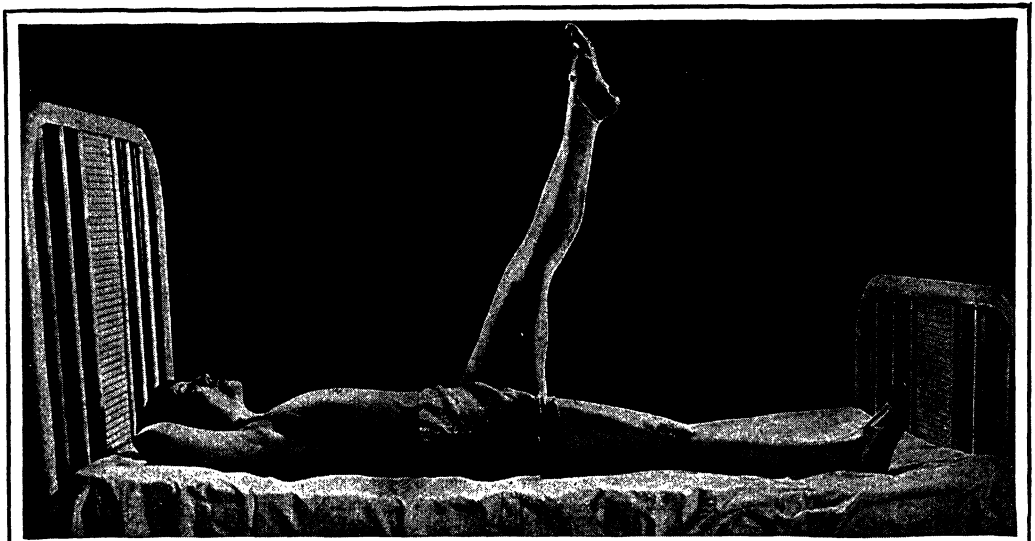
Hold arms folded lightly over the abdomen immediately below the ribs, as shown; exhale and exert pressure with the forearms; relax and inhale, and repeat; the body may be bent slightly forward if care is taken not to contract the abdominal muscles.



Lying on back, legs extended, hands behind head; raise left knee, making the knee movement fairly rapidly and bringing knee far upward; lower, and repeat; then with right knee, or alternate left and right. Relax fully and repeat. Exhale when raising knee, inhale when lowering it.



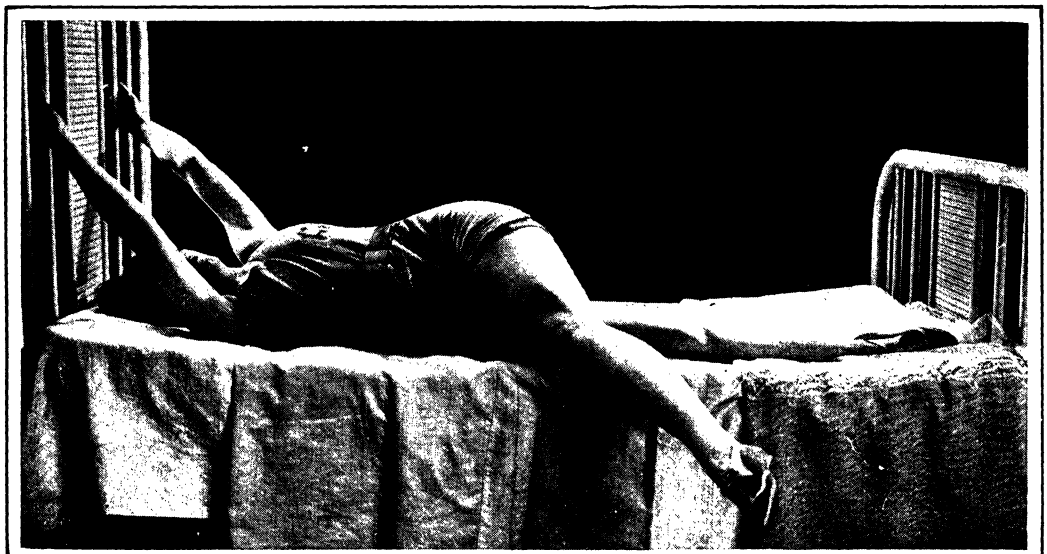
Lying on back, legs extended, arms at side; raise left knee, then grasp below the knee with both hands; while exhaling pull down on the hands; release hands and extend leg while inhaling, and repeat several times; then with the right leg. Relax and repeat with both knees.



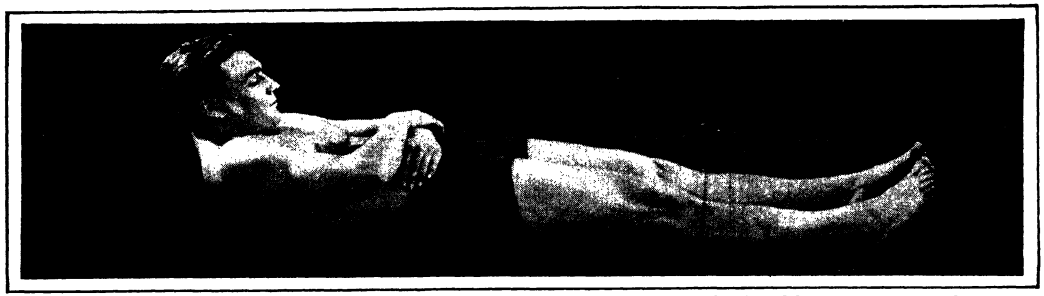
Lying on back, legs extended, hands behind head or at sides; raise left leg, keeping the knee straight and exhale; lower while inhaling and repeat ten to fifteen times; then with right leg, or alternate right and left. Relax, then raise both legs together five to eight times.

Lying on back, feet extended, hands at sides or on hips; first exhale and raise the head only; lower, and repeat ten to fifteen times; then raise head and shoulders, as shown, preferably without aid of the elbows; lower, inhale, and repeat.

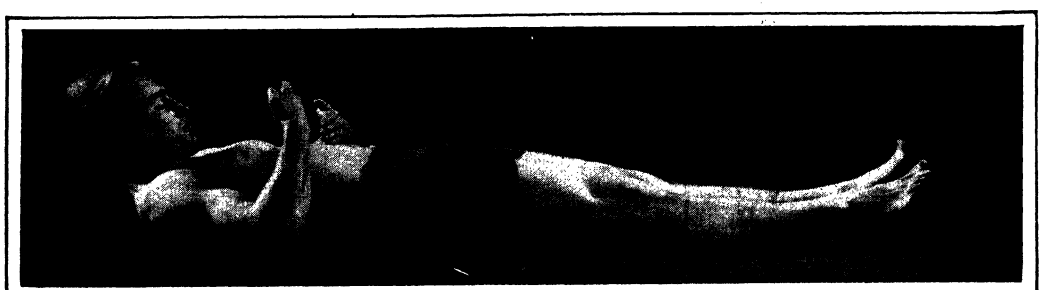
Lying on back, feet extended, hands on hips; exhale and rise to sitting position, lower and inhale. If necessary place a pillow over feet. When stronger, fold arms over chest. and still later clasp hands behind head. Vary by extending fingers forward or beyond toes when upright.



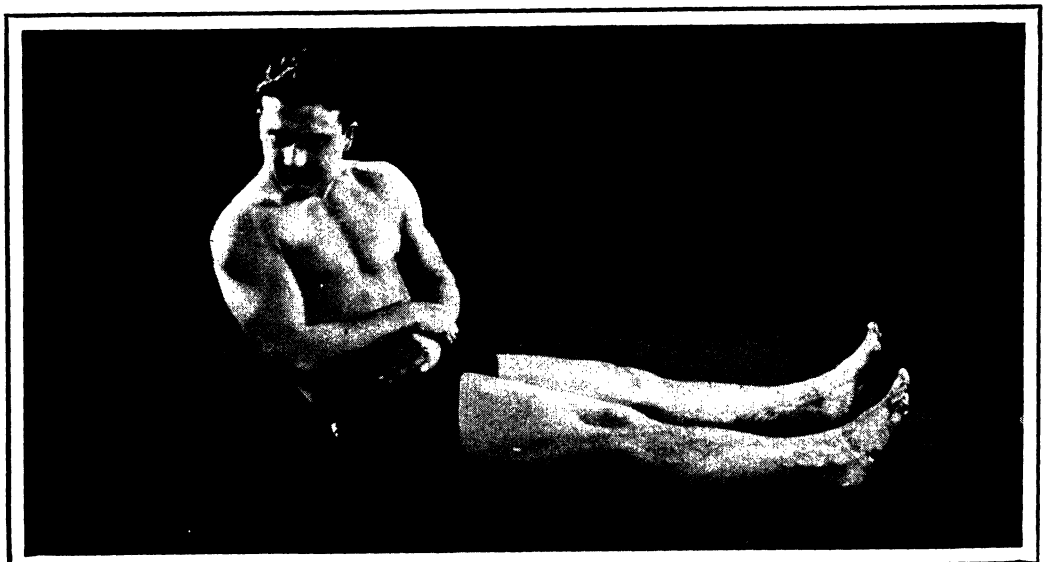
Lying on back, feet extended, grasp head of bed to keep trunk in back-reclining position; extend left leg far across to right side while exhaling; return to position while inhaling and repeat ten times; then extend right leg to left, or alternate left and right.



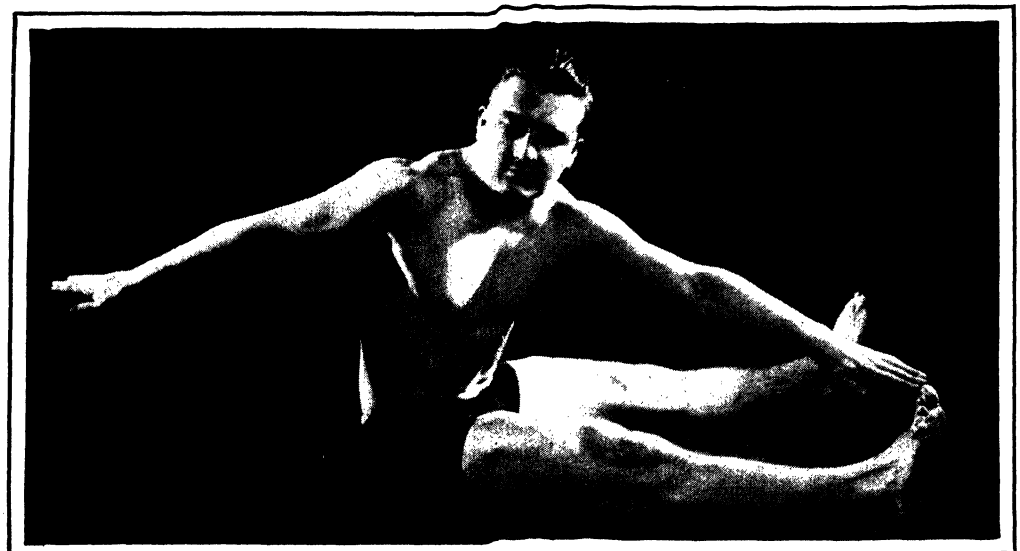
Lying flat on back, hands crossed over abdomen; raise head and shoulders, lower and repeat.



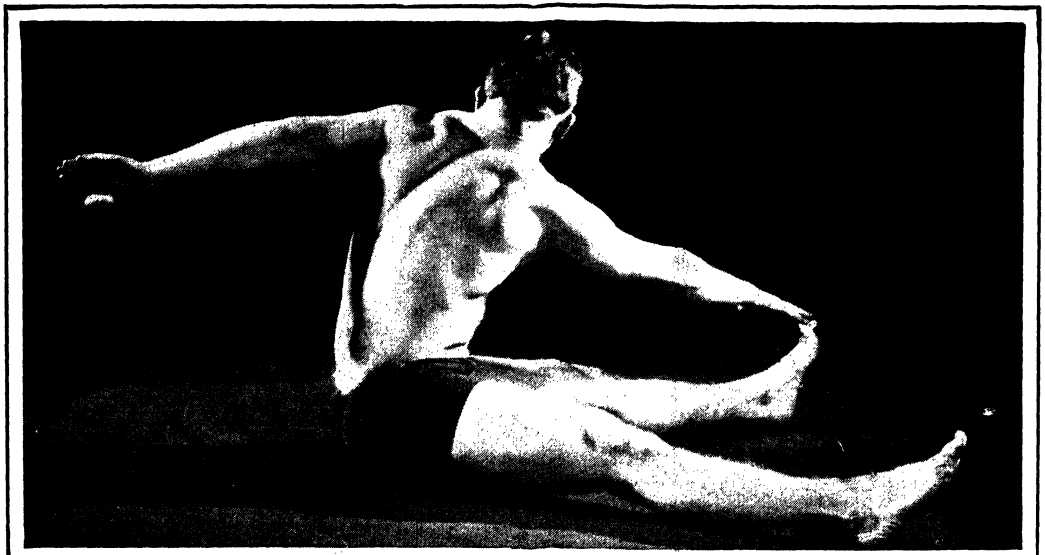
At finish of exercise hold head and shoulders up and with edges of hands lightly tap abdomen and lower ribs.



Lying flat on back, hands crossed over abdomen; bring the body to the upright position, then rotate from right to left, and from left to right. Place the feet under a pillow or other support if necessary.

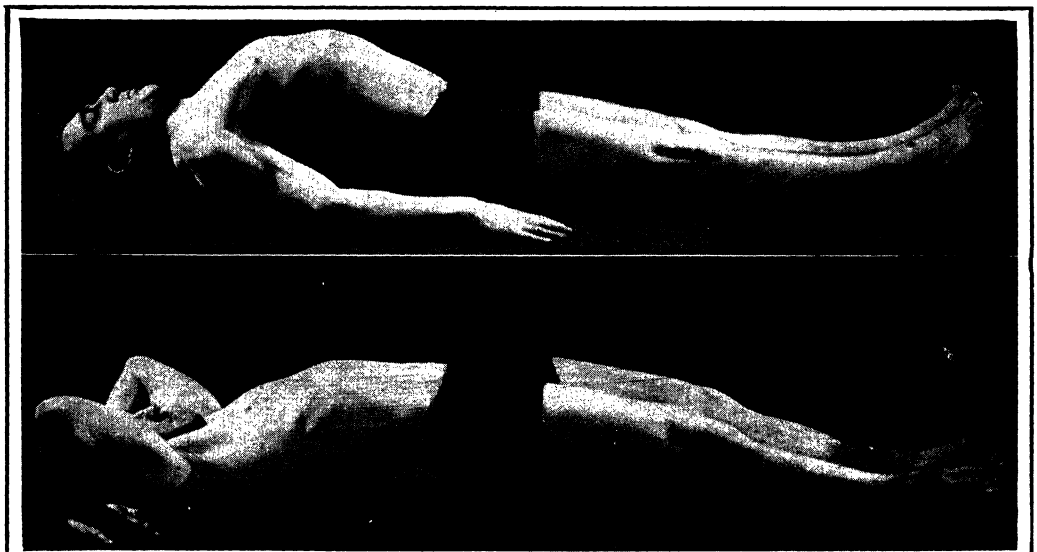


Sitting on the floor or other hard surface, feet slightly apart, arms horizontally to the sides; rotate to right until the left fingers touch the right toes. (See next illustration.)

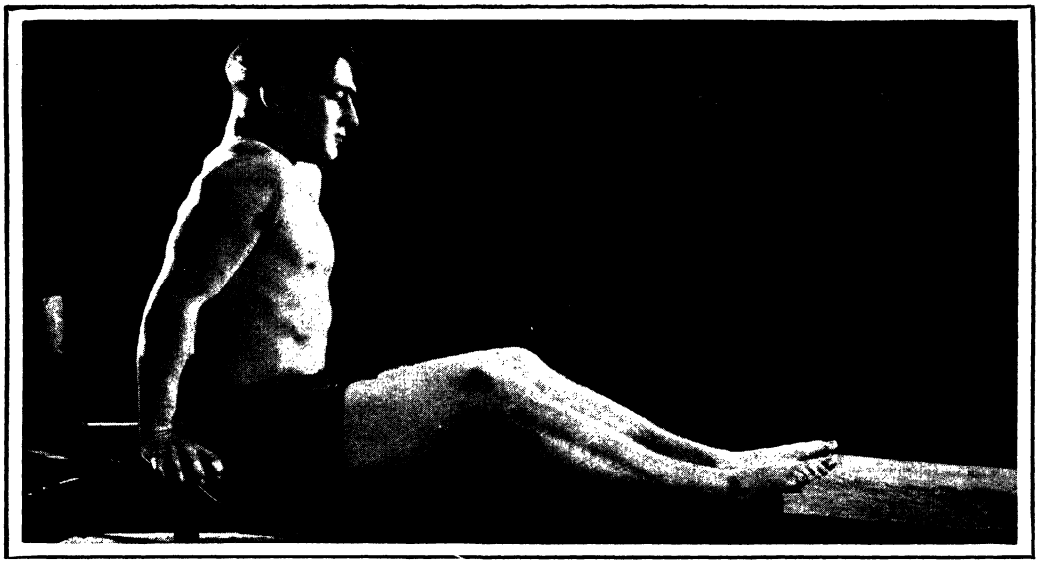


Continuing from preceding exercise now rotate in the opposite direction, touching the left toes with the right fingers. Make the movement slow and secure as complete rotation as possible. Alternate ten or twelve times to each side.

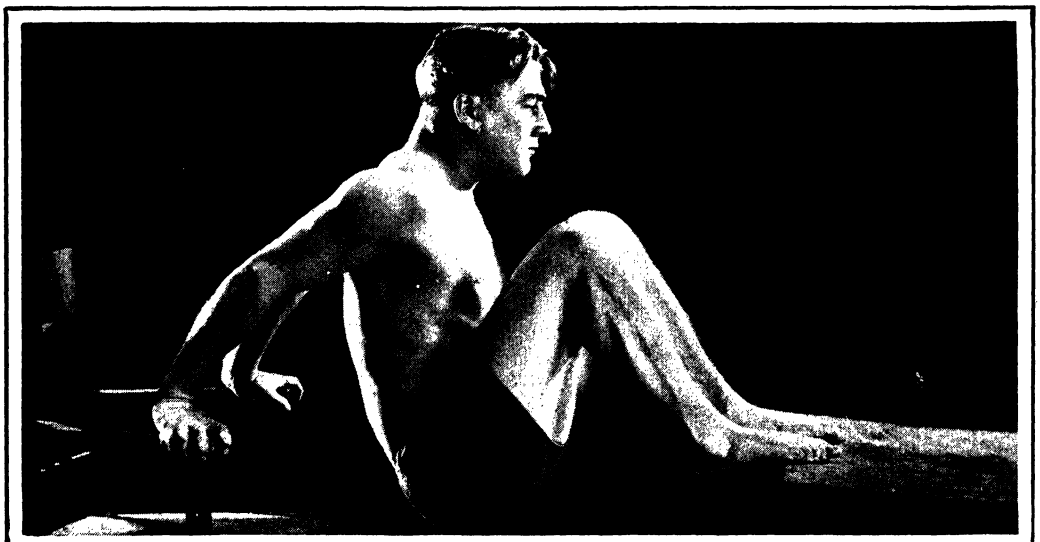
Lying flat on the floor, hands clasped behind head, elbows at sides; raise left leg at the same time the head and shoulders are raised, and touch the left knee with the right elbow; lower and repeat or reverse. Exhale while rising up, inhale while reclining.



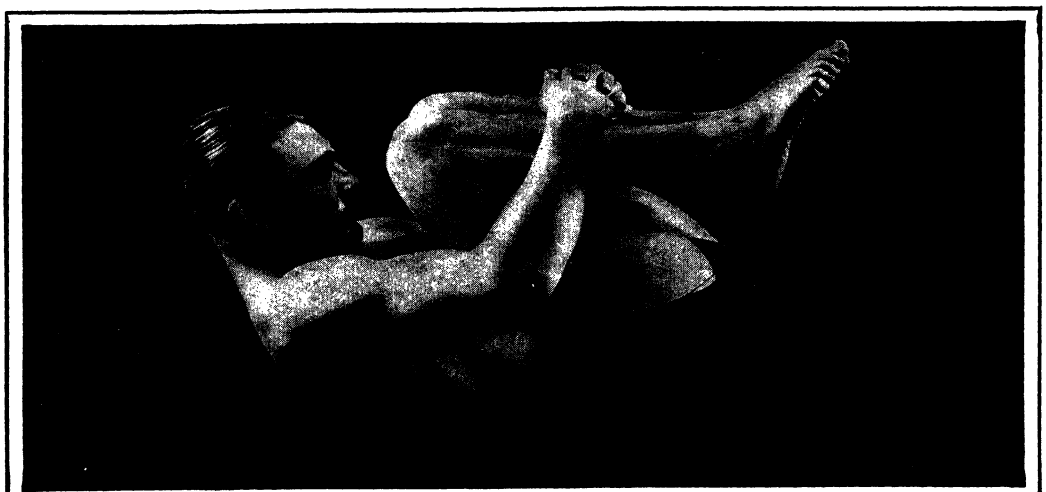
Lying flat on back; first movement, raise shoulders from floor by downward pressure of head and vigorous contraction of spinal muscles. In second movement (bottom), have hands in position shown; raise hips and shoulders by resting weight on heels, back of head and hands.



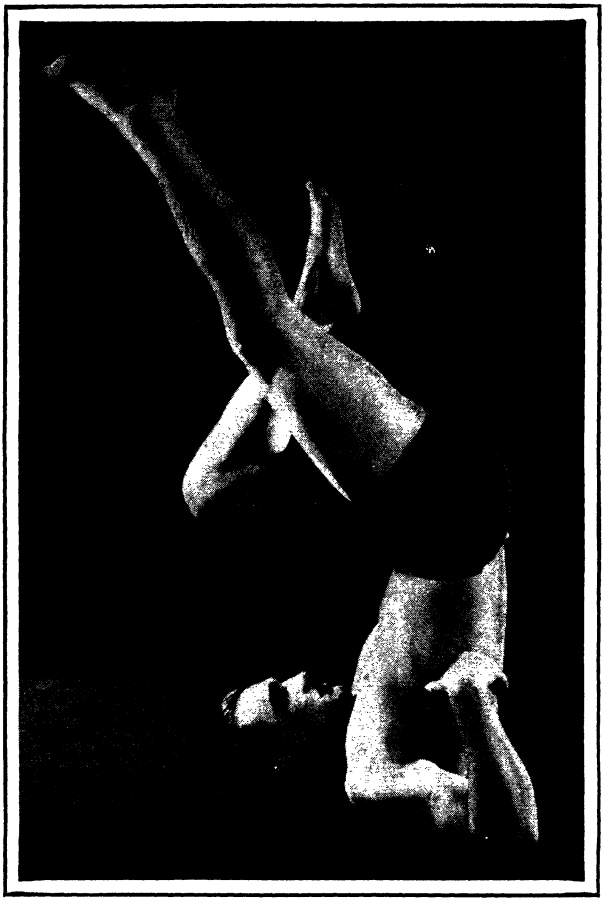
Place the feet on the side of bed with hands on arms of a large heavy rocker-less chair, arms and body vertical. Or place the feet on the foot of bathtub, the hands on the sides. (See next illustration.)



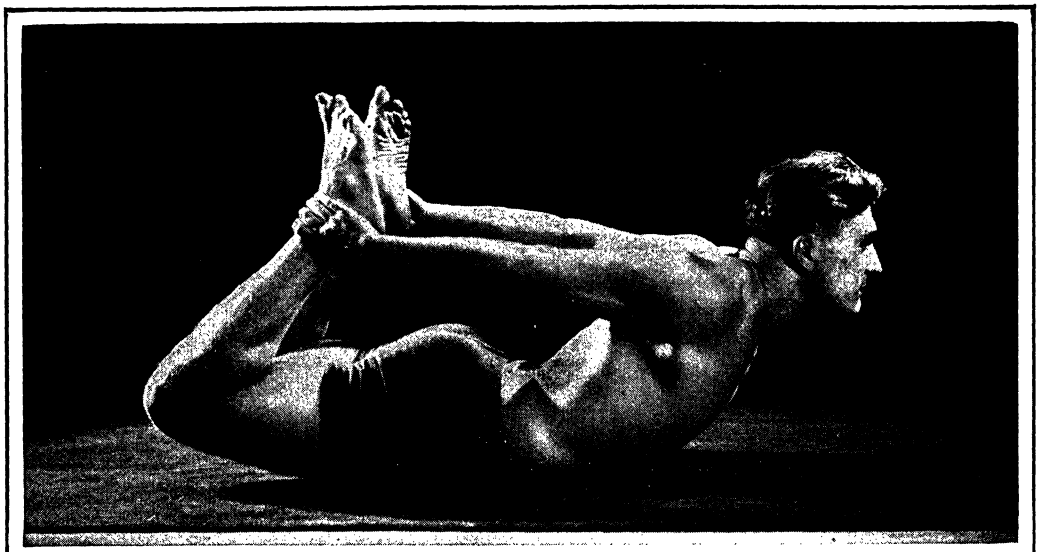
Move the body toward the feet, keeping the body vertical and giving considerable pressure by the thighs into the abdomen. A small pillow may be placed between the abdomen and the thighs to secure greater pressure.



Lying on back, bring knees up and clasp; while fully exhaling, draw them down while raising the head, extending it as far as possible toward the knees; relax, inhale and repeat. An excellent spine-stretching exercise, besides giving considerable pressure to the abdomen.



First lie on the back, then bring the feet up to touch the floor back of the head, or stop in the vertical position and perform the bicycle-riding movement with the legs in the air. Finish by extending feet back of head, then reclining.

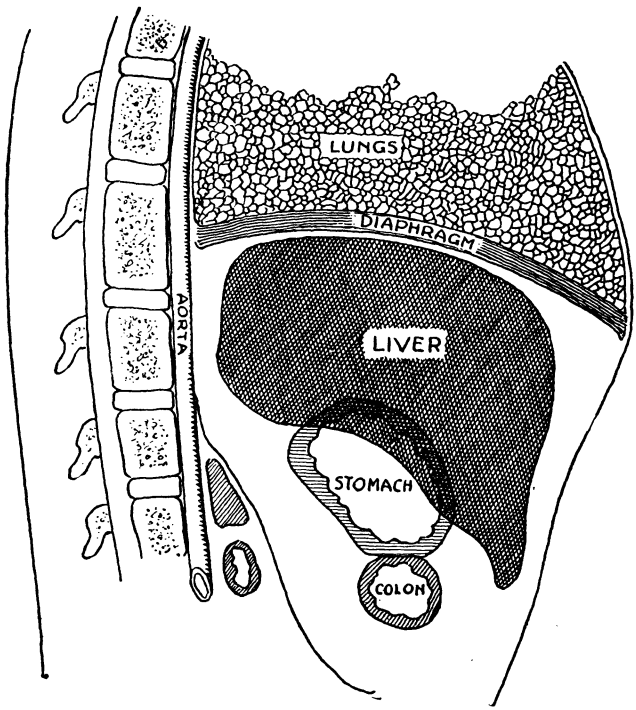


Lying face down, raise feet and reach back with the hands, grasping the ankles; now rock forward and backwards in a rocking-chair motion; also sway from side to side. A large pillow may be placed beneath the abdomen to secure greater pressure here.

The Diaphragm. Direct lung exercises will be of value by calling into greater action the diaphragm. The effect of this important muscle has already been stressed. Reading aloud and singing, and vigorous yells where opportunity offers, will not only secure direct action of this muscle but will stimulate mental activity and help to maintain a more optimistic, even youthful mental attitude. Rapid deep breathing for a few seconds is good. Or the following method will be helpful: take a full breath, then take a series of short rapid breaths while keeping the lungs well expanded —a full-breath panting movement; perform the same exercise with the lungs at normal, and again with the lungs compressed. This will not have the harmful tendency of holding the breath, as a small amount of air is inhaled rapidly and constantly. Constricting the abdomen with the hands while doing this exercise will be good also.

These breathing exercises as well as the stationary running, rope-skipping and jumping, and also the body-bending movements, may be made more effective by this method: drink from one to three or four glasses of

fairly warm water, then exercise for from three to five minutes; drink the same amount

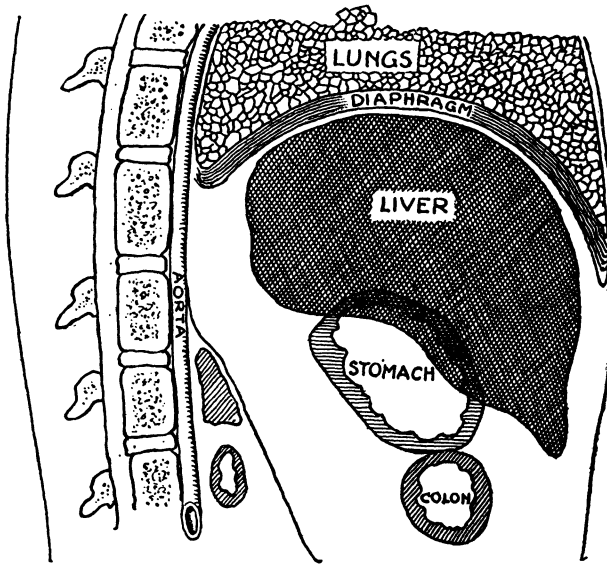


Showing the diaphragm in exhalation, in which it is somewhat flattened; this forces the liver down, also the stomach and colon.

of water again and repeat or vary the exercise; this may be repeated again if desired.

There will be no objection to continuing the exercise up to ten minutes between drinks.

The average person is inclined to resort to

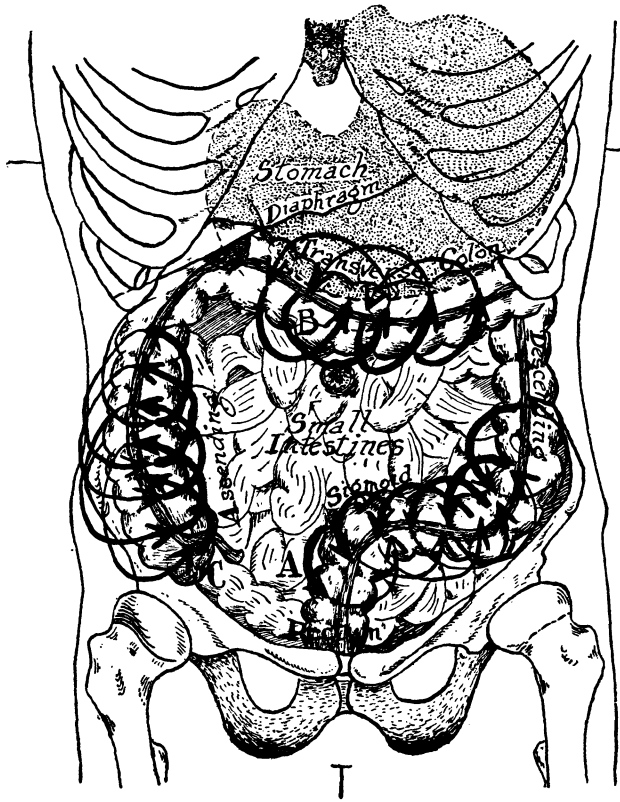


Diagrammatically illustrating the position of the diaphragm (made thicker in proportion for better showing) in relation to the lungs and liver during exhalation. Note the diaphragm domed upward.

methods that are easiest physically, but results will be only temporary unless one makes every effort to secure a complete return of normal tone of muscle, normal nerve impulses and

normal circulation of blood containing the required nourishing elements and devoid of toxic and other injurious elements.

Abdominal Massage. Deep massage of the abdominal region with the closed hands can also be recommended as of value. Tightly close the right hand and then, using the other hand to add to the pressure, press inward over the abdominal region, encircling the abdomen. Begin first at the lower left corner of the abdomen and make a series of small circles (without removing the hand from the flesh), with greatest pressure downward; let these small circles gradually approach the lower ribs of the left side; then carry them across the abdomen, letting the greatest pressure be toward the left; when reaching the lower ribs of the right side carry the small circles downward to the lower right corner of the abdomen, giving greatest pressure upward; lighter pressure may be given as the circles are carried across to the starting point. These small circles may be repeated several times. Then large circles over the abdomen may be made by beginning in the lower right-hand corner, bringing the pressure upward to the ribs, then across to the



Illustrating the direction of the massage pressure during the individual small circles—heavy pressure as shown by the heavy arrows, light pressure by the light arrows. Begin at A, complete the descending colon, across the transverse colon at B, and down to C on the ascending colon.

left ribs and downward to the previous starting point. These movements should be continued for several minutes daily. If preferred, the deep manipulation may be made with the finger tips.

Ball-Massage. A movement more or less similar to the massage with the closed hands is rolling the abdominal region with a large round fairly heavy ball. A ball of from four to six pounds in weight and six inches in diameter would be most satisfactory if procurable. It may be of any material and may be covered, or it may be used over light garments. A croquet ball, though small, may be used. The same small-circle movement should first be taken and then the larger circles. The objection to such means is that one is considerably more apt to keep his thoughts upon himself and his condition, which is decidedly undesirable.

Abdominal Vibration. Vibration of the abdomen will help to awaken dormant functions and may easily be accomplished by oneself. Lie on the back with the head and shoulders supported on a pillow, the abdominal muscles fully relaxed; place the palm

upon the abdomen, slowly moving in the direction of the colon (either from left to right or right to left) while as rapidly as possible vibrating the hand up and down. The liver may be rhythmically agitated in the same manner by placing the palm over the lower ribs.

Lying on the back and *holding* the head and shoulders slightly from the pillow, to flex the abdominal muscles fully, will make possible a heavier vibration, secured by lightly pounding over the entire abdominal and liver area with the side of the hands or with the closed fists. This latter movement should not be continued for more than a few seconds at a time.

The effects of the massage, manipulation, and vibration are somewhat similar to those of exercise, though they can by no means replace active exercise, except for those who are bedridden or in other ways physically prevented for the time being from taking exercise.

Kneading the Abdomen at Stool. A favorable time for abdominal kneading may be while soliciting bowel action. The palm of the hand may be placed over the abdomen and pressure given alternately from side to side

and circularly with the heel of the hand and the fingers. This will be more effective if one drinks a glass or two of water immediately before.

Electricity. Certain types of electrical treatment have been used with considerable value in constipation. Electricity is supposed to produce cell changes and some forms are supposed to produce a cell massage more or less similar to a gross massage. The sinusoidal current with two large electrodes—one on the abdomen and the other immediately opposite at the back—is considered the most beneficial. This produces a contraction of the external and internal muscles and the contractions may be regulated so that they appear regularly as in normal peristalsis. The ordinary Violet Ray, by experience, has proven of little or no benefit.

Rectal Dilation. Some authorities claim that chronic constipation resulting from atony is greatly relieved by mechanical dilation of the anal sphincters. One form of appliance is a rubber bag placed over a hollow hard rubber tube; this is inserted into the rectum and then by compressed air at mild pressure the

bag is somewhat distended. In some cases there is added to this a mechanism which fairly rapidly but gently vibrates the bag and tube. Usually this treatment is possible only in a sanitarium and I do not believe the results are so favorable that its use may be recommended. Dilation may be secured also by hard rubber dilators (which cannot be recommended), or by the fingers.

HYDROTHERAPY—WATER TREATMENTS

Many people have been able to correct constipation as well as numerous other physical disorders by the use of hydrotherapy alone. This is probably usually possible only at the beginning of abnormal conditions or before they have advanced to a serious degree. There are many admirable features of hydrotherapy, however, as its medium—water—is universal. Water is easily applied direct, or as a means of acquiring the desired temperature through the use of compresses, packs, etc. It is amenable to change to any desired temperature, and it may be used in three forms—solid, liquid and vapor.

Cold Baths. Cold water is an effective

means of naturally stimulating the musculature, nerves, and circulation of the body in general or of any particular area. Cold sponges to the entire body and especially to the abdominal region should be included in a regimen adopted for the correction of constipation. Those of lowered vitality may use the alternate hot and cold baths, but should always finish with lowered temperature; and as soon as possible the hot should be gradually reduced in temperature and duration until the cold only can be employed with full immediate reaction.

Sitz Bath. One of the most favorably effective single methods of using water in constipation is the sitz bath, which has a marked effect upon the abdominal and pelvic organs. A cold sitz bath of from one to three minutes daily, or every second day, will be of decided value as its effect is tonic upon the external muscles, upon the spine and nerves, and upon the internal mechanism, because of the marked increase in circulation which results after complete reaction is established. It may be necessary for those whose vitality is somewhat lowered to use hot sitz baths at first;

or the hot and cold sitz baths may be alternated two or three times. Some people respond satisfactorily to a fairly prolonged warm sitz bath followed by a brisk cold rub, splash, or spray with the portable hand spray over the immersed parts. Usually thorough drying and friction should follow any form of bath.

Natural Bath. Another method of using water, that is more or less similar to the sitz bath, is that described by Adolph Just, which he calls the "natural bath." Only three or four inches of cold water is in the tub in which the individual is seated. The water is slowly but constantly splashed with the hands over the abdomen for thirty seconds; then, as the water is escaping from the tub, one leg is extended in the water and quickly rubbed upward two or three times, then the other leg; then one hand quickly splashes the opposite arm, and it is splashed in turn; both hands are now used to splash the throat and chest; the water is then scooped up in the hands and allowed to flow down over the back (if the individual has considerable vitality and reactive ability). The bath is finished by rubbing

the body dry with the hands, or by the usual method of drying. This bath is very stimulating and will have a tonic effect upon the entire body. In treating constipation the complete bath may be omitted and this method employed merely to the abdominal area only.

Shower Bath. Another extremely valuable appliance for applying water is the shower bath. The average shower bath equipment as it is arranged, however, is not so serviceable as is the small portable hand shower. I believe that for constipation the correct method of using this convenience is to sit in the bath tub and with the hand spray held at several inches from the abdomen allow a fairly forcible cold spray to play over the entire abdominal area. The spray may be moved slowly or held at sufficient distance in order to cover this area. A cold spray given in this manner should continue for only two or three minutes. But a fairly hot spray may be given for five minutes, followed by a fairly cold spray for a minute or two, and alternate in this manner two or three times. By this treatment one secures the effect of temperature as well as the percussion, which has a mild massage effect, derived from

the force of the water. The water itself has a beneficial effect also. Except where there is abdominal or pelvic inflammation, drying should be vigorous.

If one is supplied with an over-head shower-bath equipment fully installed, it may be possible to take a treatment similar to that just described by reclining beneath the shower. The fairly hot bath may be taken in this manner for an hour or two, or longer, as given in the "blood-washing" or "Marathon" bath. The bowels will usually be relieved of contents, unless extremely constipated, after a bath such as this continued for a couple of hours. The thin and anemic and those of considerably lowered vitality should avoid such a bath except of short duration, say for ten to twenty minutes, or when under careful observation.

The Enema. Very frequently it is essential not only to cleanse the bowels at the beginning of treatment, but while the function is being restored it may be necessary to employ some means by which waste material can be removed rapidly and regularly enough that it may not pollute the blood stream

through toxic absorption. The usual method of accomplishing this cleansing is in the administration of drug laxatives, cathartics, and purgatives. The final results of such treatment are without exception an increase in the disorder. This cleansing can be secured as effectively by injections of small quantities of water—by the procedure which is known as the enema, or colon-flushing—without the tendency to perpetuate the constipation. No improvement can be suggested upon this simple means of temporarily relieving constipated bowels. It is a superior method for acute conditions calling for prompt removal of all intestinal means of blood contamination and, while it is by no means a cure, it is of considerable value in numerous chronic conditions, but especially in a chronic state of intestinal stasis.

This method of treatment has been condemned by a considerable number of physicians and laymen because of occasional undesirable results—and probably by physicians because it places a means of relief in the patient's hands without need of a physician's services. But the undesirable results have

come from an irrational application of what should be a harmless procedure. Large quantities of water injected into the colon and retained are very liable to result in chronic dilation of this structure, especially if employed frequently. Still more liable is this result to happen where fairly hot water is employed, as is frequently done. And the greater the force used in injecting the water (of whatever temperature), the greater the possibility of an over-distention of the colon, with a reduction of its elasticity and consequent more or less permanent dilation.

Very often the injection of but a pint or possibly a quart of water, at about body temperature (approximately 99 degrees Farenheit), will be sufficient to bring about a satisfactory activity of the lower bowel; and where this water is allowed to enter slowly by the gravity method, with the body in the proper position, there can be no danger of an undue stretching of the walls of the colon. In many cases, however, it is advisable to use a small amount of water at either a higher or lower temperature; in fact quite hot water; or water as low as forty-five degrees may be

taken safely providing it is quickly expelled, reaction is complete, and the method not repeated too frequently.

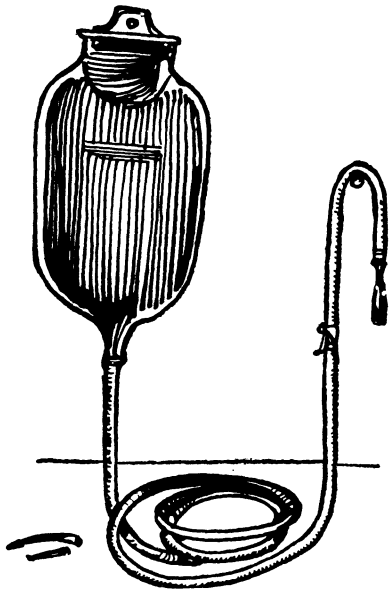
In employing hot or even very warm enemas or enemas of larger quantities of water, a small cold enema should be used immediately after expelling the first water. This is for the purpose of securing a stimulation of the nerves and muscles of the rectum in order to bring about a contraction of these latter tissues so as to overcome the relaxation previously produced. A single warm or hot enema, not followed by a cold one, would not tend to produce a permanent relaxation; this is likely to occur only where the enema is repeated several times. But even in the occasional instance it is preferable to secure a contraction of the rectal tissues by a small cold enema—say of half a pint—in order that the rectum will be quick to respond to the stimulus received from the next fecal mass.

I believe in the claim of some that it is not the hot water itself that does all the damage but that this water dissolves bowel contents and makes it possible for the toxic elements to be absorbed more readily through the villi

of the intestinal mucous membrane. For this reason the higher the temperature of the enema water the more quickly should it be evacuated after injection, as prolonged retention of a warm or hot enema may permit the absorption of a serious amount of poison. My contention is, however, that in addition to this effect the hot enema is capable of doing direct damage by sufficiently relaxing and dilating the tissues that the constipation will be prolonged or aggravated. When the cold water is used for toning effect it should be allowed to escape immediately in order that reaction may be more rapid and complete. Also the toning effect of this will then be more pronounced.

In a great number of severe cases of constipation it is advisable to resort immediately to the colon-flushing treatment as an initiatory and relieving measure. It should be remembered that this treatment is merely a means for securing *temporary* relief. I have had ample proof of its great value when actually needed; but the presence of constipation shows that the alimentary canal is not permitted to do its duty, and we must therefore

trace the cause direct to its origin and try to remedy it there rather than to continue at intervals to remove the obstruction—which, as already frequently stated, is often merely the result of remediable dietetic and hygienic errors.



Showing the ordinary fountain syringe bag, which is the best means of giving the enema.

Positions for the Enema. In injecting the enema one of several positions may be employed, but there are only two or three that allow the water to reach to the full extent of the colon. But regardless of the position assumed for the injection, *the water must be admitted slowly.* It is highly inadvisable to

use considerable force, as by an enema bag suspended at too great a height, or from a tube of considerable size. The ordinary fountain syringe and tube should be employed, and the bag should be suspended at a height of two or three feet above the hips. In some cases it may be advisable to pinch the tube to slow the water.

The most valuable and effective position is what is called the *knee-chest position.* In order to secure this position one stands on his knees and then lowers the body forward until the elbows or chest or both are on the floor, table, mattress, or wherever the enema is to be given. The closer that the shoulders can be brought to the level of the knees, and the more vertical the thighs are kept, the greater the incline and consequently the greater the force of gravity. In this position the colon is relieved of kinks also, allowing the water to reach all parts more easily. While in this position the abdomen may be gently kneaded or manipulated to ensure the water reaching the full length of the descending and transverse colon. This is the preferred position for those strong enough, and will be satisfactory

for all except the bed-ridden and those of extreme lowered vitality.

For these latter cases the position *on the back* with the hips elevated a foot or so above the shoulders will prove easier and yet fully effective. In this method the thighs are drawn up, with the feet resting on the support close to the hips.

There is a *combination of positions* that may be employed. In this method the patient lies on the left side, body horizontal or slightly sloping downward from hips to head, until most of the water is injected; then on the back, with the hips raised by pillows or other means, and finally on the right side. A glance at the illustration of the alimentary tract will show how this position allows the water first to travel upward in the descending colon, then across to the right in the transverse colon, and finally downward in the ascending colon. This shifting of position is never necessary when the knee-chest position is employed. When it is used it is a good plan to lie relaxed after the water has been injected and give or secure from the attendant slow, fairly deep, but easy massage of the abdomen in the nat-

ural direction of the colon. This necessitates the holding of the enema for several minutes and will therefore not apply when a very warm enema is given.

To Break the Enema Habit. In case one has become a victim of the enema or internal bath habit, as a result of employing it in an injudicious manner, and desires to break from the habit it will be necessary to undergo treatment similar to that required for restoring bowel tone and function lost from any other cause. The fruit diet followed by the milk diet will be the most satisfactory treatment, even though for a few days or weeks it may be necessary to use a half-pint or pint enema of cool or tepid water. In fact, whatever treatment is used it will frequently be necessary to continue for some time with the enema. It will also be equally necessary to reduce the amount used and the temperature of the water if this formerly was above one hundred degrees. The frequency of use must also be reduced.

If the enema has been used twice a day, as is sometimes the case, continue this plan for a short time but use only one half the amount

of water formerly used. After a week or so discontinue the enema at one end of the day, taking it only in the mornings or in the evenings. Later, say after a week or ten days, take the enema in the morning of one day and in the evening of the next day; then skip one day and begin again the following morning; in other words, take the injection about every thirty-six hours. When possible, change to once in forty-eight hours and from then on add a day or two to the intermission every week, or less if possible, until the enema is dispensed with entirely.

Follow the same plan in general if the enema has been taken but once a day: first reducing the amount of water, then lengthening the interval to thirty-six hours, then to forty-eight hours, etc.

In either case the diet should be somewhat laxative in character but not one that supplies sufficient bulk to stretch the already dilated colon. If the milk diet is not used, then any diet previously recommended for constipation may be followed, providing it contains enough of the strengthening foods, as whole grain, milk, sweet fruits, and vegetables, to

add tone to the intestinal musculature, and some laxative foods—mildly laxative foods being preferable.

Cleansing of Small Intestines. Where the cause is located higher up—in the small intestines—the enema procedure would be ineffective, as the water of the enema only in rare instances can pass upward beyond the gate, or (iliocecal) valve, separating the large and small intestines. Therefore the best means of remedying the trouble in such cases would be in the use of those foods and liquids, also other hygienic measures, which are inclined to accelerate functional activity of the stomach and small intestine. The mixture of hot water, lemon juice and salt, and the combination of several glasses of water followed by exercise and this repeated (these procedures mentioned previously), are very satisfactory for cleansing the small intestine.

Oil Injection. Especially in cases of spastic constipation the injection of oil into the rectum is a very effectual means of giving relief. With the patient lying on the back with the hips elevated, a pint or more of olive oil or cottonseed oil at body temperature may

be slowly injected; at least fifteen minutes should be required for this injection. It should be taken at night and the oil retained until morning. This may make it necessary to apply a loin-cloth so as to prevent oozing of the oil during the night.

If one is troubled with fissures or hemorrhoids in addition to constipation, the injection of an ounce or two of oil at body temperature, instead of the larger quantity, may be taken at night and retained until morning. This is frequently soothing and healing, and it lubricates the rectum and the rectal contents so that the passages are softer and more easily discharged, thus preventing greater injury as well as reducing the pain.

Compresses. A simple treatment that is effective in some cases is the use of two or three thicknesses of cotton cloth (such as old sheeting) wrung from tepid, cool or cold water applied to the abdomen and held in place by woolen flannel or a waterproof cloth. This may be applied at night and allowed to remain until morning, though its effect is equally as great or greater, when applied in the morning and retained the first half of the day. The

immediate temperature of the compress is of no great consequence, except that the colder it is when applied the greater will be the reaction when warmth is established. The body heat soon increases the temperature of the compress and it is the moist heat which has the tonic effect.

Plug-Removal in Impaction. In the emergency treatment of impaction that sometimes occurs either chronically or acutely in constipation, it is necessary that the plug be removed as quickly and completely yet as easily as possible. I have known a number of people, especially nervous women, to become hysterical as a result of this impaction. There is no occasion for such extreme excitement and it really aggravates the condition and makes it more difficult to secure relief, because of the increased tension and contraction of the rectal sphincters which it produces.

A small douche tip on a fountain syringe tubing may be oiled and gently inserted into the rectum alongside of the plug; fairly warm water flowing from this syringe tip usually will slowly disintegrate the plug and allow it to pass piece by piece. In some cases this is

not effective; here it is better to use warm oil, either sweet oil or castor oil. This may very quickly secure results, or the oil may have to be retained for some time. The patient should, if possible, be in the "natural posture" (seated in the squat position, to be mentioned later), and should be making *gentle* straining effort. The rectum may be oiled in order to lubricate it and assist it to relax better.

If this does not secure relief then the oil should be injected, the rectum lubricated externally as well as internally, and an oiled finger, small spoon handle, or special "scoop" inserted and gently used to break up the fecal mass. After this has been discharged, oil should be injected and allowed to remain for soothing the irritated membrane and making the next passage more assured and easier.

In some of the cases that lead to impaction, drugs, mineral waters, laxative foods, etc., have been consumed for the purpose of bringing about evacuation. After the plug has been removed a surprising amount of retained liquid substances may come forth in a veritable freshet of scalding, foul-smelling toxic material. This may produce extreme irritation of

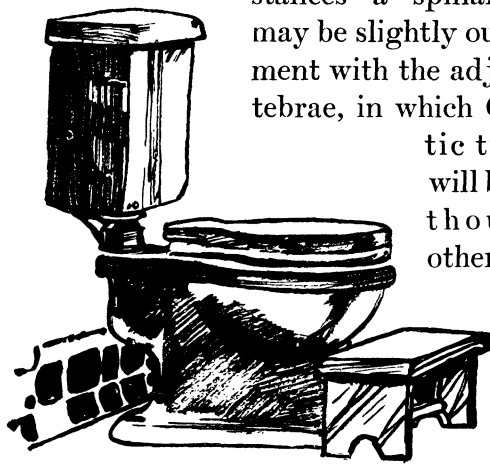
the rectum. After the discharge has subsided, a cleansing enema should be used, then a small amount of oil injected and retained. Then see that in the future there is no long retention of waste matter in the colon to result in impaction. People who are subject to impaction will find the small enema a positive preventive.

ASSOCIATE TREATMENT FACTORS

Spinal Friction and Massage. Daily friction with the hands or a coarse towel from one extremity of the spine to the other, but especially from the middle of the back downward, will help to tone up the nerves of the spine controlling digestion and bowel action. This friction should continue for five minutes or longer. Massage to this area will have still greater effect.

Spinal Manipulation. In numerous cases the spinal muscles and ligaments are so contracted, as a result of accidents, injuries, jars, strains, cold, posture (especially occupational posture), etc., that special manipulative treatment such as Naprapathic, Osteopathic, Swedish Manual, Mechanical Physcultopathy and Mechanotherapy are of great value in

bringing about relaxation and more normal nerve action and tone of these structures. Proper slow bending and rotation of the trunk will have this stretching and relaxing effect to some extent. In a few instances a spinal vertebra may be slightly out of alignment with the adjacent vertebrae, in which Chiropractic treatment will be of value, though the other forms of manipulation just mentioned usually will correct this condition also.



Showing the simple means for securing the natural position during defacation or bowel movements, the feet to be placed on the stool in front of the toilet seat.

Posture. Civilization is responsible for man's present unnatural posture while evacuating the bowel waste. This position on a high toilet seat places the thighs horizontal

and the trunk usually vertical or at most slightly diagonally forward, which is not conducive to free evacuation. The natural posture is the squatting position, with the trunk vertical and the thigh practically so. Such a posture has a tendency to straighten the kinks of the sigmoid and rectum and to secure greater direct pressure upon the colon and its contents. And, because of the contracted abdominal area, the effect of the diaphragm's contraction is more marked. A lessening of the extent of constipation would be secured, I believe, if the toilet seats were much lower or if a step for the feet were placed sufficiently high to bring about the natural position of the body while seated. A partially similar effect may be secured on the average toilet stool by leaning far forward. It may be advisable, in some instances, to lean forward with the arms folded between the thighs and the abdomen.

Comfort Privies. In rural districts the exposed and unsheltered privies are a fruitful source of constipation and are extremely unfit and inappropriate for the satisfactory cure of the condition. Especially is this true in the cases of delicate women. Wherever possible

care should be taken that the water closet is made easily accessible and that it be made comfortable so far as warmth is concerned. When one is combatting constipation, especially by the solicitation method, it is doubtful if results will be satisfactory if one is shivering and contracted from cold. The exposed privies should be made wind proof, even with a coating of tar paper if necessary. A ventilating device should be provided to carry off the odors and make the privies more comfortable during hot weather.

Suppositories. I do not believe that suppositories are necessary in any case where diet, exercise, and other relieving factors are properly used. But these may be employed in the case of impatient individuals who are inclined to resort to even more undesirable means of relief if results are not fairly prompt. Small glycerine or gluten suppositories may be inserted into the rectum, where they exert a lubricating or mildly stimulating effect. However, they are not curative and should not be relied upon to the exclusion of corrective means.

Medication. This form of treatment will not be mentioned save to condemn it. Enough has been previously said about this artificial, unnatural, provocative treatment that any reader who has read this far and still believes in their efficiency and resorts to it is beyond conviction of the harm of drugs and of the efficacy of natural means. Such an one should consult one who will willingly prescribe the desired drug-laxatives, cathartics, and purgatives.

Surgery. As previously stated, surgery should never be employed for the relief of constipation alone. Occasionally there may be some organic or structural defect or malformity that may call for surgical relief, but only in these should surgery be employed. In my opinion the removal of a part of the colon for the relief of constipation is one of the most pronounced expressions of rankest ignorance that has ever been manifested by the medical profession. While I most heartily condemn drug treatment I consider it mild in its direct and potential injurious effects as compared to the removal of a most vital part of the anatomy.

Even conditions producing constipation which are considered incurable by the internist or the surgeon may be fairly easily correctible by rational treatment if it be given a conscientious trial.

Constipation can be cured only through means which usually must be fairly slow in securing results. I have already emphasized the importance of materially toning up muscles, mucous membrane and nerves of the intestines themselves, of improving the quality and local as well as general circulation of the blood, and strengthening the external muscles, especially those of the abdomen. Any method of treatment which does not have these effects as its aim and result is temporary in relief given, and by no means curative.

A large variety of treatment has been given in this book, since what will correct constipation in many cases may not in all others. The general procedure or plan of treatment must be the same in the majority of cases, but in minor points there may be required considerable variation. Exercise of the abdominal muscles may be sufficient in a few cases; gen-

eral exercise in others; a slight correction of diet alone in still other cases, and so on. But even in the cases relieved by diet alone, the articles of food and their combinations must differ in individual instances. Therefore the several natural methods of correction enumerated have been given so that victims of constipation, of whatever nature and degree, except the strictly surgical cases (which are extremely rare), may choose that which will secure results in their individual cases. No one can select in detail, with absolute certainty of results, a complete regimen that will serve for every individual. A detailed regimen may be effective in ninety-five cases out of one hundred, but the other five will require modification; it is for the few as well as for the majority that all methods have been given. When we learn how to feed, water and exercise the body we shall have no more constipation; but until that time we must resort to "cures." Choose that "cure" which is least harmful, and adhere to it until desired results are secured.

SUMMARY

It will be of convenience to the reader and it will obviate any possibility of confusion as to what course to pursue in remedying constipation to summarize briefly the instructions presented in this volume.

There are certain things which must or should be done in all cases; these are:

1. Obey the call to relieve the bowels whenever this occurs, regardless of how slight the call may be.
2. Empty the lower bowel at regular intervals when eating regularly.
3. Solicit the bowels regularly, at least once a day.
4. Drink sufficient water, preferably naturally cold, daily.
5. Avoid unwholesome and constipating foods, and those having an excessive laxative effect.
6. Use more or less foods known to be laxative and the remainder those known to be neutral in their action.
7. Masticate all foods thoroughly.

8. Exercise for general body development, tone and invigoration.
9. Exercise particularly the abdominal region and in the manner illustrated in numerous special exercises.
10. Special emergency measures should be used when needed, but *only* when needed. When employed, discontinue the most pronouncedly effective as soon as possible without relapse.
11. In general, a hygienic mode of living must be adopted to improve constitutional health and vigor.

In addition to these, the adoption of a *special diet* may be a most important factor. Whatever the diet selected, except the exclusive milk diet, the regimen just enumerated must be adopted. There are at least three systems of diet that may be employed.

1. One will consist of the exclusive milk diet following a short fast. When following this diet the amount of exercise will necessarily be reduced in a few cases of extreme lowered vitality, with weakness and functional disorders of the digestive system; it might be well for such cases to avoid all exercise until

improvement has been made. But in almost all cases more or less exercise can be taken, in bed if necessary. As to the nature of exercise, each case is a law unto itself, regardless of what diet is employed; but walking should be one exercise used by everyone able to stand on his feet. The milk diet is described on pages 153 to 156.

2. A correction of the diet in the second regimen must be made to include natural foods, though prepared in the conventional manner; that is, two or three meals a day may be taken of the usual foods, with special emphasis upon those that give greater vitality and that are non-constipating—with some of the recognized laxative foods. These foods are enumerated on pages 157 to 159.

3. The diet to be followed here is the uncooked diet. This regimen may be adopted in stubborn cases where ordinary dietetic regulations as required by regimen Number 2 fail to secure results or where regimen Number 1 is for any reason impossible to follow. For instructions in regard to the uncooked diet see pages 161 to 164.

CONSTIPATION IN CHILDREN

A word in regard to constipation in children should be of value. Children are usually so active that they keep their muscular system in fairly good tone and their various functions fairly normal. It is this activity which prevents them from having more serious troubles than they do, as their diet is usually radically wrong, because parents do not give this subject the consideration it requires. Too much candy, jams and jellies and other sweets; too much potatoes and gravy, pastries and white flour products, and other clogging, unwholesome foods, and the universal piece-mealing are all responsible for constipation in a large number of children. Another frequent cause is lack of training and insistence upon regular habits. From their earliest years children should be trained in regular habits; this, together with the proper diet, will usually save them from constipation.

When they desire and require anything between meals children should be given fruit. This will not only not interfere with appetite and the digestion of meals but it will in itself

be preventive or corrective of constipation. Children's desire for sweets should be satisfied, but not by candy, sugar, and sugar products; sweet fruits and a small amount of honey will fully satisfy their "sweet tooth" and their system's demand for this element, at the same time supplying genuine nourishment.

Care should be taken that the food is not bolted, that it is not washed down, and that it is not taken in excessive amounts. The natural foods mentioned on page 162 will usually be more thoroughly enjoyed by the children than the usual unnatural foods they receive, if they are trained early to use them; and these foods will be naturally laxative, as well.

The constipation of nursing children may require the direct personal care of some physician, but the ordinary case will respond without any personal attention except intestinal cleanliness and temporary rest. If the health of the mother is looked after, if she is careful to use the most strictly wholesome diet possible and to follow the rules of hygiene, the milk she provides for the baby will probably be sufficiently laxative. The average nursing

mother avoids most fruits, fearing they will cause colic or other troubles in the baby fed from the breast. This idea should be discarded for such foods may prevent or cure constipation or other troubles in the child. Too early inclusion of starch in the diet is the most frequent cause of constipation in babies of five to seven months.

Many babies do not secure enough drinking water. This in itself is all that some of them require to keep the bowels normal. In some cases it may be necessary to give a small amount of strained orange juice in the drinking water of the infant, or from teaspoonful to tablespoonful doses may be given plain and undiluted. From one to two tablespoonfuls of the strained juice may be added to six ounces of water and as much of this as the child will take may be allowed two or three times a day. Unaltered water may be allowed as often as the child will take it; if this water is naturally hard it should be boiled or distilled, then aerated. Some of the slighter cases of constipation can be corrected and in some instances constipation may be prevented entirely by small amounts of thin strained barley

water or oatmeal gruel once or twice a day. There should be none of the solid substance of the cereal in these thin drinks.

A small conical piece of pure castile soap, immersed in oil and inserted into the rectum, will take care of practically all other cases of constipation in infants, and sometimes in older children. Slight, gentle massage in the reverse direction of the colon or a small injection of cool or tepid water will prove very effective as emergency or quick relief. Whatever method is employed for children it will be necessary to avoid anything that will injure the more delicate organs in their immature state. All agents must be used in greater moderation for them than for adults. It is surprising how quickly children respond to rational treatment for constipation, or for any other abnormal condition, and they require less effort to keep them in health—if a natural, strictly hygienic regimen is adopted for them. But because their systems are more responsive to either health- or disease-producing influences, a condition that would be productive of no great harm in an adult may produce sudden and serious or even fatal effects upon a

child. Therefore, as constipation is so harmful in the adult, it may be a serious thing for an infant or for a child of any age. The same thing holds for them as for an adult, only a great deal more so—an ounce of prevention is worth a pound of cure.

[THE END]