beans, and lentils. They may be termed vegetable meat because of their large percentage of nitrogen, and are more valuable as foods because of the iron and sulphur entering into their composition. It is very difficult to secure all of the nutriment contained in them because of the intimate association of the proteid and starch with the cellulose and the dense capsule substance surrounding them. For those having feeble indigestion they should be thoroughly cooked and passed through a colander to get rid of a large proportion of the associated woody fibre.

Below-Ground Vegetables.—*Roots, tubers,* etc., depend upon the contained starch, sugar, salts, and acids for their nutritive worth. Here the food value is lower and less concentrated than in the case of cereals and legumes, and they are poorer in nitrogen. The digestibility will vary according to the age and to the proportion of water lost by evaporation. The starch derived from corn and potatoes, arrowroot and rice, will tax the digestion least. Starches having a cell wall are available as foods only after they have been cooked sufficiently to cause the rupture of the retaining membrane so as to liberate the starch.

Fruits.

Fruits are valued for their antiscorbutic properties, due to the salts, acids, alkalies, volatile oils, ethers, and the large percentage of water which they contain. They do not possess high nutritive worth.

Fungi.

Mushrooms are not now regarded as possessing the high food value which was formerly attributed to them. As a seasoning they, with truffles, serve a useful purpose.

Bread.

Bread for the sick should be thoroughly baked in loaves small enough to insure the destruction of the yeast plant at all parts of the sponge. Freshly baked bread is unsuitable to patients needing dietetic directions. Rasped rolls and thoroughly baked rolls are better than bread cut from the loaf.

Toasted Bread should be prepared from stale bread, slowly heated over the fire until it is cooked throughout its entire thickness, is crisp and has a golden color. The crust should be removed.

Pulled Bread is prepared by taking a loaf of Vienna bread, removing the crust, and separating the sponge of the bread with two forks, or the thumbs, in such a way that the bread is not crushed. Make into strips about four inches long and one inch thick. Place in a pan, the bottom and sides of which have been covered with paper, and bake in the oven until of a golden brown color and thoroughly crisp. It may be served with cream or whipped cream.

Dextrinized Bread is prepared by heating a slice of stale bread in the oven until it is of a dark brown color.

Torrefied Bread is prepared by subjecting bread to a greater heat for a longer period than is used in preparing dextrinized bread.

Brown Flour Soup.—Heat flour in a pan until it has a walnut color. Add a little butter. Form a smooth paste by the addition of hot water, and continue the addition of hot water until sufficient has been added to make the consistence that of a cream soup. Cook for five minutes. Season to taste.

Drinks and Jellies.

There is a class of preparations possessing refrigerant, demulcent, diuretic, diaphoretic, and astringent properties. They have a wide range of usefulness, and the variety of them at our disposal enables us to cater to the taste of the patient.

Flaxseed Tea.—Flaxseed, one tablespoonful, to be washed with cold water; water, one pint. Boil thirty minutes; sweeten; flavor with lemon peel or juice; cool; strain.

Gum-Arabic Water.—Gum arabic, one tablespoonful; sugar, one heaping tablespoonful; water, one pint. Dissolve by means of a water bath. Add lemon juice, one tablespoonful. Strain.

Irish-Moss Tea.—Irish moss, one ounce, to be washed with cold water; water, two pints. Mix and allow to stand for fifteen minutes; heat to boiling point; add lemon juice, two ounces; sugar, two tablespoonfuls. Strain.

Irish-Moss Jelly.—Irish moss, three ounces, to be washed with cold water; water, one pint. Allow to stand fifteen minutes; heat to boiling point and continue at that temperature for five minutes. Strain. Add sherry wine, two ounces: sugar, two tablespoonfuls. Put in moulds to solidify.

Imperial Drink.—Cream of tartar, one teaspoonful; boiling water, one pint; lemon peel and sugar, of each a sufficient quantity. Mix, cool, and strain.

Wine Whey.—Milk heated to boiling point, one-half pint; sherry wine, two ounces. Mix and strain.

Alum Whey.—Milk heated to the boiling point, one-half pint; powdered alum, one teaspoonful, dissolved in water. Mix and strain.

Lemon Whey.—Milk heated to the boiling point, one-half pint; lemon juice, two teaspoonfuls. Mix and strain.

Rice Water.—Rice, one tablespoonful, to be washed. Then add boiling water, one pint, and boil for half an hour. Add lemon peel sufficient; cool. Strain.

Toast Water.—Toast thoroughly a slice of bread. Pour over it six ounces of boiling water. Cover. Allow to stand in a warm place for fifteen minutes. Administer by the teaspoonful.

Corn Water.—Brown a tablespoonful of corn meal in a pan; add six ounces of hot water; boil for five minutes. Strain.

Barley Water.—Pearl barley, two ounces, to be washed; water, four pints. Mix and boil to two pints. Flavor, sweeten, and strain.

Barley Water with Patent Barley.—Patent barley, two tablespoonfuls; cold water, two tablespoonfuls; salt, sufficient; sugar, one tablespoonful; boiling water, one pint. Mix and boil for five minutes.

Dietetics for Particular Diseases.

Stomatitis.—Hot water taken freely an hour before meals is of great service. If bicarbonate of soda is added to the water the effect will be better. A milk diet with pulled bread or dextrinized bread is best. White meat may be allowed in small amounts. Acids and fats are to be avoided, as are foods likely to undergo fermentation.

Tonsilitis and Pharyngitis.—There is usually associated with these diseases a mild febrile process, and the same diet is suitable to both conditions.

Diluent and demulcent drinks, such as rice water, barley water, or oatmeal water, are nutritive and serviceable. Irish-moss tea or jelly, flaxseed tea, gum-arabic water are soothing, and imperial drink is refrigerant.

The proper diet should be one containing a large quantity of water. Whole or skimmed milk, or milk with barley or rice water, is to form the chief article of diet. Alum whey is of great service because of its nutritive worth, and because it enables us to vary the diet. Junket, milk-jelly, water ice, and ice cream are allowable. Gruels and creams of various vegetables may be given. Animal broths should be omitted, except those prepared from oysters and clams. The subject will be fully considered in the section devoted to the Dietetics of Diphtheria.

Stenosis of the Œsophagus or of the Cardiac End of the Stomach.—The character of the cause of the stenosis will influence the selection of the diet, as will likewise the degree of obstruction. Milk, plain and modified, is to be considered the standard diet. A complete food is to be constructed from milk, eggs, and cereal. We have an example of such in "Bartholow's food." Scraped beef

and finely minced chicken can be combined with milk and, in case of deficient digestive power, these combinations may be peptonized. The semi-solid foods, such as wine jelly, calf's-foot jelly, gelatin preparations, Bromangelon, junket, and ice cream are easily swallowed.

Acute Gastritis.—The temporary avoidance of food administered by the mouth is frequently the prime indication. If the strength of the patient is exhausted, it may be necessary to resort to rectal alimentation. Cracked ice may exert a quieting influence upon the gastric irritability. Hot water is of the greatest service even when it is not retained. More acceptable and likely not only to be retained but also to allay vomiting, is clam juice. For the earlier stages there is nothing better than this preparation. The method of administering it and all nourishment in this condition is quite as important as the selection of the particular kind of food. A teaspoonful of liquid food given every five or ten minutes, or every minute, until four or eight have been given, is much more likely to be retained than are larger quantities. After the irritability of the stomach has once been allayed and digestion begins to be performed, the interval between feedings and the quantity and variety of food may be increased. Milk with carbonated water, whey, junket that has been passed through a colander or sieve, albumin water, koumys, or zoolak may be given. Toast water or corn water and dry toast will often allay vomiting. Oyster juice fed very slowly is serviceable in these cases; later, scraped beef and chicken panada, or the white of a poached egg with pulled bread, will be acceptable.

Chronic Gastritis.—The condition with which the gastritis is associated will influence the choice of diet. The liberal use of hot water, or hot water with bicarbonate of soda and essence of peppermint, will facilitate the removal of the tenacious mucus so constantly present in these cases, and give a better opportunity for the gastric secretion to act.

The condition is so constantly associated with obstruction of the portal circulation that no food must be given that would tax the hepatic function. For this reason buttermilk, which represents sweet milk with a large part of the fat removed, is regarded by many as the ideal diet for these cases. Skimmed milk is serviceable for the same reason. Milk, diluted with hot water, with carbonated water, or with a water prepared from one of the cereals, to render the curd smaller, is to be regarded as especially indicated.

It is a safe general rule in dietetics to give that food which will tax the affected organ least—in other words, to rest the disabled viscus. This rule would indicate the use of fats and starches in gastritis. Fats are contraindicated, however, for the reason given. Starches are of service in many of these cases, but their use must be watched because of the liability to occasion the development of water brash, or heartburn, due to lactic or butyric acid fermentation. Corn starch, arrowroot, and white potatoes should furnish a starch most easily digested. It need hardly be added that care and skill in the cooking of these cereals will greatly influence their digestibility.

The stimulating beef-tea in the earlier stage, and the nutritive beef-tea when the condition improves, will be found serviceable. Scraped beef, or beef reduced to a pulp by means of a mortar, and the fibres drained from it, will be easily digested. The judicious use of condiments in these cases will be of service in stimulating the gastric secretions.

One thought is to be kept constantly in mind in the treatment of these cases—that is, that no food shall be given that is liable speedily to undergo fermentative changes, or to remain long in the stomach. For this reason, spare, cold boiled ham, and other smoked meats are often more acceptable than other forms of nourishment.

In those cases in which the disease is associated with deficient motor power, the interval between feedings should be lengthened, and an effort made to cleanse the stomach of the remnant of the previous meal before more food is introduced.

Eggs are more available if the whites only are used. They should be poached at a low temperature, or well beaten, and should be combined with other forms of nourishment. Oven-baked toast, or pulled bread, will be the form of bread least likely to induce flatulency.

Dyspepsia.—The term is applied to a group of symptoms including those previously considered under acute and chronic gastritis. In addition to these two classes of gastric diseases there are cases with symptoms so pronounced as to enable them to be considered under the following heads: Atonic dyspepsia; nervous dyspepsia, including gastralgia; intestinal dyspepsia.

Atonic Dyspepsia.—Hot water should be given immediately upon rising to cleanse the stomach of accumulated mucus, and a glassful of cold water before meals for its tonic effect. See to it that there are teeth to perform the work of preparing the food for digestion. It is more promising to treat certain dyspeptics by ordering teeth than by the employment of countless drugs and diets. When the teeth are unsuited to grind and cut the food, it must be artificially done or the diet will have to be confined to the foods requiring no mastication. Each meal should consist of one or two articles of diet. Beef combined with rice will give a complete food because there is sufficient fat inseparably associated with the beef to yield as much of this food element as is likely to be digested with facility.

Fruits are of service in this case, especially if taken before the meal. Those containing a minimum of acid, such as oranges, bananas, and grapes, if taken before breakfast will frequently stimulate digestion. Certain cases will be met with in which the fruits are better borne if taken at the close of the meal. This is particularly true of the more acid fruits, such as strawberries.

For breakfast a broiled chop, the white of a poached egg, a cereal, if thoroughly insalivated and if not too much sugar is used, combined with toasted or whole-wheat bread, or shredded wheat, would make a suitable meal. Cambric tea is to be preferred to tea or coffee. For dinner, a cup of hot stimulating beef-tea, consommé, or bouillon will stimulate digestion. This may be followed by a meat cake, prepared by passing beef twice through the chopper or by scraping it. A mealy baked potato is allowable, and this may be made more digestible by having the potato removed from the skin after baking, incorporating with it butter and seasoning and, in certain instances, the white of an egg, replacing the mass in the potato case and heating so that the seasoning may be thoroughly blended and the starch granules separated. Steamed rice, macaroni, vermicelli, or any of the Italian pastes may be given, and when combined with grated Parmesan or American cheese will constitute a complete food. If the diet is confined to one or two articles of food we are able readily to determine the influence of the food elements administered upon the course of the disease. This point is not sufficiently appreciated, and its neglect often results in failure in the dietetic treatment of disease. When there is hyperacidity, scraped beef as an exclusive diet will often give the best results. In those cases in which there is hyperacidity the starches, if thoroughly insalivated, are apt to be more easily digested.

Water with the meals is of advantage because of its solvent effect and its mechanical aid in separating the particles of food and thus facilitating the action of the gastric juice upon the aliment. Constipation is a less prominent symptom when sufficient water is taken. Too much water, on the other hand, may retard digestion by excessively diluting the digestive ferments.

Nervous Dyspepsia.—In these cases the disease manifests itself by symptoms referable to the nervous system and associated with these there are variable appetite, clean tongue, and a pain in the region of the stomach, which latter is often relieved by taking food. The element of pain may be so pronounced as to justify considering the case one of gastralgia. According to the degree of severity of the symptoms will be the necessity for a rigid dietetic regimen. Rest before and after food is most helpful. The meals should be taken under a cheer-

ful environment. Anything tending to depress, irritate, or call attention to the patient's invalidism is to be avoided. An exclusive milk diet may be necessary. Later, fruits, eggs slightly cooked, bacon crisp and dry, with dextrinized bread, should compose the breakfast. Coffee is to be avoided, and tea also, unless it be weak and freshly brewed, and taken several hours after the meal.

Intestinal Dyspepsia.—It is not difficult to appreciate that the most probable exciting cause of this condition is to be found in the excessive use of improperly cooked starches. Potatoes yielding themselves to many improper methods of cooking are doubtless potent factors in the production of intestinal dyspepsia. Here the starch is made difficult of digestion by reason of the frying to which they are often subjected, and the fat used in the process has been heated to a point where its chemical composition is changed, when it becomes unsuited for food purposes as is starch which has been cooked in it.

The breads usually found on the table are frequently of such composition or in such a condition as to make them a tax upon digestion. Among the poorer classes the meal is often largely made up of bread and a liberal allowance of tea and sugar. There is another class of foodstuffs that have contributed largely to the causation of this disease, the cereals; the coarse oat-meals that have been cooked for as brief a period as a half-hour are better adapted for bill-posters' buckets than for human stomachs. The treatment of the condition after the elimination of the exciting cause resolves itself into the administration of the foods that are digested chiefly in the stomach. Hot water, skimmed milk, milk in all possible combinations, and milk with the curd made small, will be found serviceable in all of these cases.

Clear soup made from meat, and scraped or chopped meat cakes with dextrinized bread, will stand for the diet best adapted to these cases. These articles of diet are quite sufficient for a considerable period of time if prepared in the various combinations to which they lend themselves. Later, slightly cooked egg albumen may be added to the diet, and as the condition improves, sweetbreads, calves' brains, squabs, white meat of chicken, bacon, and game. The starchy foods are to be added gradually and the effect watched. Macaroni, vermicelli and noodles, steamed rice and corn starch, and later a baked potato may be added to the diet.

Tea and coffee, as they are usually prepared and used, are objectionable in all forms of dyspepsia. Coffee if diluted with hot milk is less likely to tax the digestion than is tea. The question of stimulants and wine is a less pressing one here than abroad. For the debilitated or aged, champagne, or brandy diluted with carbonated water, when taken during the meal, will frequently prove of the greatest service.

Ulcer of the Stomach.—The rule to spare the affected part applies with special force to this condition. The ulcerated gastric mucous membrane must not be irritated by coarse food, excessive food, or a free flow of gastric juice, because the likelihood of hemorrhage is increased by coarse particles of food, and by distention of the stomach by food or gas. Carbonated water is not to be used in diluting the milk that is so large a part of the diet, unless the mixture is allowed to stand until effervescence has entirely ceased. Milk, prepared in this way, will form a flocculent curd. When hemorrhage has occurred, it is advisable to give little or no nourishment by the mouth, and to use instead nutrient enemata.

From observations that milk is capable of absorption directly without undergoing coagulation and digestion, provided it is given when there is no other food in the stomach, it would seem that we should in a great measure limit the dietary of these cases to the administration of milk.

Since the administration of an alkali stimulates the flow of the acid gastric juice, it would manifestly be wise to use the alkali with caution, and in such quantities and at such times that the acidity of the gastric juice may be neutralized. For these reasons partly, rice, or albumin water, will be more serviceable as an addition to the milk. Curds and whey, if passed through a sieve, may be used.

As convalescence becomes established, the patient may have cream soups of the various vegetables, always observing the precaution that they be strained through the colander or sieve. Meat soup, free from fat, scraped meat cakes, or minced white meat of chicken, cream sweetbreads, and strained gruels, or combinations of these food elements, may be employed in these cases.

The dietetic treatment of a case of gastric ulcer should extend over a period of from four to six months.

Cancer of the Stomach.—If the lesion is situated at the cardiac orifice and is sufficient to prevent the ready entrance of food into the stomach, it will become necessary to use the stomach tube in feeding the patient. If the pyloric orifice is the seat of disease, the likelihood of gastric dilatation and its attendant catarrh is proportionate to the degree of stenosis. The food in either instance should be either liquid or semi-solid. Milk combined with eggs, beef, or one of the starchy vegetables will offer a sufficient range of nourishment. The white of egg may be given with milk or broth. The yolk can be administered with less objection in these cases, especially if it is associated with pancreatin and soda.

Scraped beef, beef peptonoids, and strained gruels are to be given.

An early, careful employment of rectal feeding will prove a valuable supplemental source of nourishment. Later, it will likely be the only means of sustaining the patient.

Pyloric Obstruction and Dilatation of the Stomach.—The diet suitable for chronic gastric catarrh and cancer of the stomach, with certain slight modifications, will be found adapted to these conditions.

Constipation.—One of the most important directions that can be given a patient with this troublesome complaint is that a hard-and-fast rule be observed in the matter of having a fixed hour each day, at which an effort to have a bowel movement will be made. A glass or two of hot water, sipped at intervals during the progress of the toilet, and if necessary, the same quantity of water taken before retiring, will greatly favor a daily evacuation of the bowels.

The condition is constantly associated with a deficiency of the liquid element in the intestinal contents. Either there is a deficiency of water ingested, or that taken is lost by excessive perspiration, and the fecal matter in this way becomes inspissated, and constipation results.

Fruits, either raw or cooked, and dried fruits according to the digestive power of the individual, are of the greatest service in overcoming constipation. They act more by virtue of the acids and the water contained in them than by their bulk and mechanical irritation of the intestinal tract.

Most of the dried fruits are more easily digested if cooked. *Prunes* should be deprived of the skin, and thorough mastication of the fruits having much woody fibre should be insisted upon.

Vegetables, especially the green vegetables, *e.g.*, spinach, lettuce, peas, beans, celery, and others, by reason of the water and acids they contain and the residue they leave, contribute to overcome constipation.

When it is remembered that approximately more than three-fourths of most vegetables are composed of water, it will be more readily appreciated how these foods exert an apparent effect by liquefying the intestinal contents.

When the constipated habit of the meat-fed dog is contrasted with the semi-solid character of the evacuation of the herbivorous animals we have an important dietetic suggestion.

Cereals are helpful in the treatment of these cases, if they are prepared in such a way as to leave the bran layer of the grain in the meal.

In this way we secure, by bulk and mechanical irritation, a stimulus to peristalsis. Bran bread, ginger bread, graham bread, brown bread, the various cereals comprising the breakfast foods on the market, and the

gluten, ginger, and smaller biscuits of the shops may be used in this condition.

Milk is less constipating if it has not been skimmed, the fat of the cream being laxative. One of the best aperients for babies is cream.

Bacon cooked until crisp and dry is serviceable, by reason of the fat of which it is composed.

Butter, in large quantities upon gluten, bran, or brown bread, will be of service. Oils, with green vegetables, may be used.

When the condition is the result of dyspepsia, it is important to avoid making any pronounced change in the diet without giving a due consideration to the digestibility of the food selected; as woody vegetables, so serviceable in constipation, are very difficult of digestion.

Acute Diarrhœa.—Acute diarrhœa is to be treated according to the cause which occasioned it. If an irritating substance has been ingested or developed, the withholding of all food for a time after the irritant has been expelled will prove the best initial treatment.

Albumin water is serviceable. Boiled milk, skimmed milk, or milk to which flour has been added and boiled (making the preparation known as "pap"), will prove acceptable. Brown-flour soup, "gebrannte Mehlsuppe" of the Germans, with or without ginger or other acceptable spice, is highly regarded, while beef scraped or the pulp prepared by pounding the beef in a mortar with water or milk and then strained, is to be given. The latter preparation may be peptonized.

Chronic Diarrhœa.—The condition with which the diarrhœa is associated will influence the dietetic treatment. The food should be administered in small quantities and at frequent intervals. Fermentable foods, and those likely to excite diarrhœa, are to be avoided. Chicken and game meats are to be considered in this class. It is important that the intestines shall be spared every effort, as far as possible, to digest and assimilate the food administered. This means that egg albumen, skimmed milk, buttermilk, sterile beef-tea, beef juice, and scraped meat should form the chief constituents of the diet. Koumys, zoolak, cottage cheese, and certain of the manufactured foods are also available. If judiciously administered, these articles will prove an acceptable diet for a protracted period.

When the digestive power increases dextrinized bread, or flour soup, cream of potatoes, corn starch, and "pap" may be given. Farina gruels combined with whites of eggs are suitable to these cases. Brandy and red astringent wines, such as Burgundy or claret, will be serviceable in certain cases.

Dysentery.—The acute and chronic forms require those foods which are digested and taken up by the stomach and leave a minimum residue.

Egg albumen, sterile beef-tea, beef juice, scraped beef, gelatin foods, skimmed milk, and milk fortified by the addition of albumen, curds and whey, grated cheese, koumys, and similar foods are to be considered the chief articles of diet. The return to a diet containing starch, sugar, and fats should be long deferred and cautious.

Intestinal Diseases of Childhood.—It is possible to consider a large group of separate conditions under this heading. In all of them the limit of bacterial invasion consistent with health has been passed. In the successful treatment of these cases the first requisite is to secure the closest possible approach to sterility of the gastro-intestinal tract and to introduce no food that will carry re-infection or yield a favorable medium for the development of pernicious forms of bacterial life. These diseases are usually associated with an inability to readily digest the casein constituent of milk, and this inability manifests itself by the occurrence of colic soon after taking food and by the presence of curds of varying sizes in the evacuation. The casein should be lessened by the dilution of the milk with water or other diluent. In those cases in which there is a total inability to digest casein, whey will be found acceptable. Albumin water is in favor in these conditions. Partial peptonizing may enable the patient to digest ordinary milk. The simple dilution of the milk lessens the proportion of sugar, and thus the likelihood of fermentative changes and acid stools is lessened.

The fat of the milk is likely to favor diarrhœa and vomiting. Skimmed or boiled milk will be indicated in those cases in which there is reason to believe that the patient is unable to digest the fat. The advantage of a temporary withholding of food is not to be forgotten. Beef juice diluted with warm water, mutton broth, veal broth, or barley and egg water, will each be found serviceable. There is no dietetic regimen, just as there is no particular food that is adapted to every one of these cases. The food must be modified to meet what we conceive to be the existing condition and the digestive power of the parts involved.

Acute Appendicitis.—An acute attack of appendicitis demands a liquid diet. There should be no excessive residue; neither should there be so little residue as to favor the occurrence of constipation with the attendant likelihood of extension of the inflammatory process. Thus milk, toasted bread, freshly prepared broths, egg albumen, and gelatin preparations would yield a suitable dietary.

Chronic Appendicitis.—Foods which would yield a coarse bulky residue, and improperly cooked meats are to be avoided. Oatmeal as ordinarily prepared by being boiled for as short a time as half an hour is not suitable for food purposes. Cabbage, corn, and fruits containing seeds or having dense skins are to be omitted because of the tendency to induce intestinal indigestion and flatulency, and not because of the danger of their entering the appendix. Thus the class of articles to be avoided constitutes the chief dietetic direction to be given to these patients. Over-eating, gamey food, the ingestion of a large quantity of very cold food, ice cream, or beer, may aggravate the disease. The diet should be a simple mixed one, containing no elements likely to tax digestion or to favor the development of intestinal catarrh. Thus, the legumes represented by peas, beans, and lentils with dense skins, and sulphur as a constituent, are objectionable. Corn is more likely to do harm in these cases than is cornlet or the cornmeal. Pickles, onions, and highly seasoned condiments are of questionable utility.

Jaundice, Biliary Calculi, and Cirrhosis of the Liver.—In the dietetic treatment of these conditions sugar is to be eliminated as far as possible from the food. Starches are to be reduced to a minimum because of their change into sugar in the course of the process of digestion. So far as possible it is well to administer starches only in moderation and those combined with gluten, *e.g.*, macaroni, vermicelli, and rolled wheat. Rice, tapioca, sago, and arrowroot may be given. Potatoes are permissible if given in moderation, but the vegetables poor in starch are to be preferred. Cream soups, spinach, celery, lentils, peas, and beans are of value in these cases. Fruits of the subacid variety are permissible, as apples and oranges.

Milk is allowable, but should be thoroughly skimmed to exclude the fat, and diluted to reduce the curd. Some objection has been made to the use of milk because of its sugar. The sugar of milk is less objectionable, however, than the cane sugar and need not to be so rigidly excluded from the diet. The use of butter is to be curtailed or entirely omitted. The white of egg prepared in various ways will furnish the albuminoids required for food purposes; but the yolk is objectionable.

Fish, particularly the white fish, may be given; the oily varieties represented by mackerel, eels, and herring are to be avoided. Meat in the morning is permissible, it always being remembered that red meat is to be sparingly used unless the patient is expending energy.

If wines are demanded the sweet ones should be avoided, and extra dry champagne or Moselle wine should be selected.

Acute Nephritis.—The ideal food is milk. In truth it seems to be the only food suitable to the condition, and it becomes a question of the method of administration of

milk rather than of the selection of a dietary (see section on Milk).

For the sake of variety, when the patient rebels against a milk diet, some one of the waters prepared from the cereals may be given. The carbonated waters are serviceable in these cases. A departure from the exclusive milk diet should be regulated by the condition of the urine. The starchy foods are to be added to the diet gradually, and if no untoward effect is produced, the lighter meats may be cautiously added.

Chronic Parenchymatous Nephritis.—One of the greatest dangers for these patients is the appetite. The protracted privation of ordinary foods seems to make the appetite more voracious. The close causal relationship between the ingestion of meat and the development of uræmic convulsions is fully established. "The good results of the milk treatment in cases of chronic nephritis is now among the best acknowledged in the treatment of the malady, as evidenced in the diminution of albumen, decline in dropsy, increase in the quantity of urine passed, and general amelioration of symptoms." (Tyson's "Practice of Medicine," p. 699.) These patients should take from five to nine pints of milk in the twenty-four hours, according to the amount of energy expended. When the fullest measure of benefit obtainable from an exclusive milk diet has been attained the quantity administered may be lessened and starches cautiously introduced to compensate for the deficiency of this constituent absent from the milk diet.

Chronic Interstitial Nephritis.—Here, as in other forms of nephritis, a milk diet is the one that yields the most satisfactory results. Fortunately, the range of combinations with other foods is not so limited as in the cases previously considered. To maintain a condition of metabolic equilibrium is of prime importance, even if there should result a moderate increase in the percentage of albumin in the urine. Since meats are so closely associated with the development of complications in these cases, it is to be remembered that a uric-acid-free diet can be obtained by securing the nitrogenous constituent necessary for a complete food from milk and cheese. Haig* points out that a man weighing one hundred and forty pounds will require 1,470 gm. of albumin a day, and this may be obtained from any one of the tables herewith submitted:

TABLE I.

			Grains.
Ten ounces of bread.....	8	per cent. of albumins =	340
Two ounces of oatmeal...	12	" " =	104
Two pints of milk.....	3	" " =	535
Two ounces of cheese....	33	" " =	281
One ounce of nuts.....	16	" " =	68
Eighteen ounces of fruit and vegetables, say.....	0.5–2	" " =	152
			1,470

TABLE II.†

			Grains.
Five ounces of bread.....	16	per cent. of albumins =	340
Two ounces of oatmeal.....	12	" " =	104
One ounce of gluten.....	80	" " =	344
One pint of milk	3	" " =	282
Three ounces of cheese.....	33	" " =	421
			1,471

TABLE III.

			Grains.
Three ounces of cheese	33	per cent. of albumins =	421
Three pints of milk	3	" " =	787
Fourteen ounces of potatoes.	2	" " =	120
Sixteen ounces of fruit.....	2	" " =	137
			1,465

The possibilities of a meat-free diet are great and promise most in these cases. The advantage of having the diet composed of few articles in the proper proportion is well illustrated in these cases, in which it is necessary to note the effect produced by various food combinations.

Uræmia.—The diet suitable to a case of acute nephritis, as indicated above, will be found to be best adapted to cases of uræmia. Skimmed milk is the form best adapted to these cases.

Circulatory Diseases.—The success of all dietetic measures is dependent upon the integrity of the circulatory mechanism. The activity of the digestive juices is determined by the character of the circulatory fluids of the body; the functions of all of the organs of the body are influenced by the character and the quantity of the blood they receive; the metabolism, absorption, and nutrition of all of the tissues are proportionate to the completeness with which the heart, the vessels, and the blood perform their physiological functions. It is the intimate interdependence of the various functions that explains the constant association of certain symptoms, *e.g.*, the dyspepsia, indigestion, palpitation, and constipation, which are associated with anæmia. It is in this manner that morbid states are perpetuated. Dropsy results from watery blood, transudation of the liquid element of the blood being favored by a condition of hydræmia; and this condition is the result of deficient nutritive elements. It is not possible to continue for a protracted period a dietary unsuited to the kind of work being performed.

Anæmia.—The form of this disease most frequently met is that associated with the period of puberty in girls. At this time growth and development are more active than previously. The nervous system is actively concerned in this transitional state and doubtless exercises a determining influence in the early manifestation of digestive involvement. The intake of food after the condition is established is unsuited in character and quantity for the constructive needs of the system at this time. The excessive consumption of the nitrogenous elements is evidenced in the increased quantity of urea eliminated. The inclination of the patient is to sweets and starches, if an actual perversion of taste does not exist. In all cases in which there is a departure from the normal composition of the blood the same dietetic rules will be found serviceable. The condition essential to a normal blood supply is that sufficient food be taken, digested, and assimilated. With food as with the administration of iron in this condition, the question is not so much how great an amount may be taken as how best to secure the assimilation of the largest possible quantities. A diet deficient in albuminoids has been found constantly associated with a hydræmic condition of the blood. It would therefore seem to be of prime importance to prescribe in these cases a diet containing the largest possible quantity of albuminoid food. In the severer forms it will be necessary to peptonize the food and to give small quantities at frequent intervals. Milk and meat are the foods most suited to meet the requirements, and they are the forms of nourishment likely to be most distasteful to the patient. It therefore becomes a question of presenting them in the forms least objectionable. Scraped meat cakes, meat powder and broths, pounded meat, bone-marrow soup or sandwiches, or sandwiches of gluten or whole-wheat bread with dry crisp bacon, lettuce and mayonnaise dressing, chopped meat with celery, or pine nuts or almonds, offer attractive combinations for the administration of meat. Cheese combined with Italian pastes, macaroni, vermicelli, or noodles, or with potatoes, yield the desired nitrogenous element. Fats seem to be especially helpful in curing this condition, and by the liberal use of cream prepared in an acceptable way, or of butter and whole-wheat bread, or by the administration of small doses of cod-liver oil, we are able to secure fats in an assimilable form. Creams of the nitrogen and iron containing vegetables are not to be neglected. It is held by some that the iron in combination with vegetables is the most assimilable form. Thus we should use carrots, beets, spinach, peas, beans, lentils, and gluten meals.

Laryngitis, Tracheitis, and Bronchitis. — The diet adapted to any acute febrile process will be suitable to

* Haig: "Diet and Food in Relation to Strength and Power of Endurance," 2d edition.

† While most of the percentages of albumins in these two tables are from Parkes' "Practical Hygiene," 5th edition, with which my researches agree, the value of "Hovis" and of nuts is that calculated from my researches alone.

these conditions, and will be discussed under that heading.

Asthma.—The importance of dietetic measures cannot be overestimated in the treatment of this condition. The proper preparation of the food and of the stomach for its reception, combined with the adjustment of the food to the work being performed, will give results justifying the care exercised.

Hot water should be given an hour before meals, and at bedtime. In certain instances the addition of bicarbonate of soda and essence of peppermint will give good results.

Breakfast should be composed of eggs with dextrinized bread, creamed chipped beef, fresh or smoked fish; a cereal with a liberal supply of milk, *e.g.*, a pint, and little or no sugar, may prove an acceptable meal.

Dinner, which should be taken at noon, may consist of a clear soup, or cream of potatoes or similar nutritious vegetable; macaroni and cheese, or some form of meat, furnishing the nitrogenous element. The starchy food should be confined to one vegetable, and it may be steamed rice, a small potato, or spinach after it has been passed through the colander. Junket, corn starch, or apple tapioca may be eaten as dessert.

For supper milk, milk jelly, Bartholow's food, or a cereal will be suitable. If the patient is expending considerable energy, some cold boiled ham, tongue, or sardines may be allowed.

Beverages.—It is best to withhold the use of tea and coffee and reserve the therapeutic effect of these beverages for the favorable influence they exercise on the paroxysm. Water is not to be taken with meals except in the smallest quantities.

Fatty, fermentable, bulky foods are to be avoided. Should the case present an excess of uric acid in the urine, the diet should be confined to "uric-acid-free" substances. The diet composed of "uric-acid-free" substances is worth an extended trial. In so many instances the paroxysms occur on Sunday night, that one is forced to recognize the probability of the increased intake of food and the diminished expenditure of force on that day as bearing a causal relationship to the development of these attacks. These patients may take the following foods: White meat of fish and chicken, beef soup, scraped, pounded, or chopped beef, eggs slightly cooked, green vegetables free from oxalates, coffee, and water in moderation. The carbohydrates should be confined to one variety with any one meal, and this one should be a form of easily digested starch.

Asthmatic patients should avoid coarse fermentable foods—indeed, an excess of any kind of food; fats should be avoided, or taken in the form of butter. Malt liquors should not be taken.

Pneumonia.—In this disease the only necessary modification of the diet suited to an acute fever is the curtailing of the considerable quantity of fat likely to be present in the cream associated with the milk which constitutes such a diet. When it is remembered that fats are carried directly to the lungs, where their oxidation occurs, it will be appreciated that they should be withheld, and the acutely inflamed lungs spared the effort incident to the combustion of fat.

In the puny youth, or decrepit old patient, the nutritive worth of the milk may have to be increased by combining with it strained gruels of arrowroot, barley, oatmeal, or corn starch.

Pleurisy with Effusion.—"A dry diet" suggests the object sought in the effort to influence this condition by means of food. The amount of fever present will determine the extent to which the exclusion of liquids may be pushed. A diet made up largely of scraped beef, minced chicken, cereal foods, cheese, macaroni, vermicelli, curds and toasted bread, will most favor the absorption of the exudate, and should be employed if not contraindicated by other conditions present. Vegetables containing a large percentage of water, such as potatoes, beets, tomatoes, etc., are objectionable.

Pulmonary Tuberculosis.—The diet should be adapted respectively to each one of the three periods of the disease.

In the first stage any combination of foods that will bring the patient to a higher nutritive level, giving most fat and a corresponding improvement in the blood with a minimum expenditure of energy in digesting the food, is best suited to the condition.

Forced feeding—made possible by the use of bitter tonics or the employment of a stomach tube—is to be employed so long as it does not excite gastric catarrh. Fats are of prime importance, and may be given in various forms: for example, butter, thickly spread upon gluten or whole-wheat bread or biscuit, or upon meats and in every possible form; cream in as large quantities as can be digested; fat of roasted or of broiled meats; and meats containing large quantities of fat, *e.g.*, game and squabs. It is reasonable to attribute a part of the value of fats in these cases to the exercise given the lungs, although their primary function as nutriment should not be lost sight of.

Milk, if sound, is second to no other food in these cases. It should be given in every possible form—whole, skimmed, buttermilk, koumys, matzoon, zoolak, cottage cheese, cream cheese, junket, bonny clabber, puddings, and in every possible combination that may prove palatable.

Red and dark meats are preferred because the fat is contained between the fibres, and is more accessible than when it forms a separate layer, as in the case of white meats. Roasts, steaks, chops, beef chopped, scraped, or pounded, beef juice or nutritive beef-tea, beef with minced celery, or with pine nuts, onions or other seasoning to stimulate digestion and aid nutrition, are of the utmost value.

Eggs in any one of the five hundred ways in which they may be prepared are of especial value. The large percentage of oil contained in the yolk, and the easy digestibility of the albumen, make them an important food. The dried white of egg may be added to broths and soups, and in this way a large number of eggs may be consumed in a day.

The cereals and more easily digested forms of starch are best suited to furnish the carbohydrate element of the food. Fermentable foods, as hot bread, starches, and pastry are to be avoided. Malt extracts are serviceable as aids to digestion. There are numerous "diet cures" for tuberculosis and, as in most instances, the multiplicity proves the inefficiency of any one system.

In the second stage of the disease the same dietary will be suitable, if care is taken to restrict the food requiring the most active digestive processes to the periods when the patient has the least fever. Regard must also be paid to the catarrhal condition of the digestive tract so often present in these cases.

In the third stage of tuberculosis the food must be confined to the articles that yield most nutrition and tax the digestion least. There are numerous instances in which patients with advanced tuberculosis eat excessive quantities of the foods least adapted to their condition with apparent impunity. There is no food that will do more to prolong the life of these cases than egg albumen in large quantities. It seems to act as pine shavings to a nearly extinct fire. The objection that holds against the administration of alcoholic beverages in the earlier stages of the disease does not apply to patients at this period. Whiskey and brandy, judiciously administered, are of positive value.

Acute Infectious Diseases.—Groves secured immortality by the request that "I fed fevers" should be his epitaph. The careful adjustment of food to the febrile condition would be a better reason for grateful remembrance. There can be no doubt but that much harm may be done by allowing a too extensive dietary to fever patients. It is only by keeping in mind certain well-established conditions that we are enabled properly to appreciate the dietetic indications.

1. *In fever there is excessive destruction of the fluids and tissues of the body.*