

monotonous, baking powder muffins or rolls made very light and thoroughly baked may be substituted. Potatoes, both white and sweet, rice, cereals, and the multifarious combinations of flour, butter and sugar whether with or without eggs and milk, known as cake, griddlecakes, etc., are inadmissible. Sweetmeats, including candy and preserved and canned fruits, are likewise to be put under the ban. When fruits are desired or indicated, they are best in their natural state, but even then, must be fully ripe and fresh. Apples are particularly good, because of their relatively large percentage of nucleo-albumin; baked they are often better tolerated than uncooked.

Most of the green vegetables are valuable additions to the dietary, either because rich in proteids and other nutritive principles or on account of their serving as relishes and containing various salts essential to the organism. Peas, lentils, string beans and spinach are said to be relatively rich in iron-forming principles. Tomatoes, cabbage, cauliflower, turnips and kindred varieties are apt to disagree, but if well borne may be permitted. Asparagus, when not contraindicated by renal disease; celery, mushrooms, lettuce, greens of various kinds and young carrots are allowable, while onions, cucumbers, tender radishes and olives may be left to individual desire or idiosyncrasy. Beets are rich in sugar, but otherwise are not generally objectionable. The chief desideratum as regards all such vegetables is their freedom from liability to occasion flatulent distention, as do articles rich in starch and sugar.

Of foods rich in nitrogen, beef and pork head the list, but perhaps are not so easily digested as veal, lamb and mutton, which are excellent when not too fat. All meats should be roasted, broiled or stewed, not fried; but however prepared, they should be as free from gravy as possible and ought to be sufficiently well done to have destroyed the germs of decomposition, through whose action during the time of hanging the meat becomes tender. Fowl and game birds form a capital adjunct to the heavier meats, as also do fish and most kinds of shellfish, particularly oysters, properly cooked. Some of the salted meats and fish, when not too rich, provide appetizing and nutritious dishes. Canned salmon, sausages and the like are too rich in fat, and are apt to cause eructations, whereas fresh tripe is said to be easy of digestion. Cheese is to be forbidden excepting cottage cheese and some light cream cheese, as neuchatel. Eggs are admissible, and when properly cooked are very digestible.

In conclusion, a few words should be said concerning the dietary of two classes of cases: one, in which the cardiac affection is complicated with nephritis; the other, in which it is secondary to arteriosclerosis, with or without angina pectoris. In the former, highly nitrogenous articles are clearly inadmissible; yet carbohydrates promote digestive disturbances. Therefore, a compromise must be made, or milk must constitute the major part of the dietary. When arteriosclerosis is the main difficulty, we are confronted by another problem. We must nourish the overburdened heart, yet must avoid administering foods rich in lime salts, otherwise the sclerosis will be increased. Eggs, cereals and articles rich in phosphates are to be denied, or only permitted sparingly. Moreover, greater than ordinary care to avoid indigestion is imperative, since the products of defective digestion and faulty metabolism will set up vasomotor spasm. The successful management of cardiac disease often

consists in the removal of whatever may serve as a hindrance to the performance of the organ. So simple a matter, therefore, as heightened blood-pressure may make powerfully against the restoration of an unsound heart.

Finally, it may be one thing to lay down a theoretic dietary for patients with heart disease, but it is quite another thing to carry it out in practice. Not only is our knowledge deficient of the physiologic chemistry of pathologic conditions; but we are hampered, even checkmated, by the notions, whims and prejudices of both patients and their friends.

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#### DISCUSSION.

Dr. BABCOCK—For the purpose of calling forth discussion I should like to direct attention to one or two points. The first is, What would be the value and desirability of nuts in the dietary of heart patients? Through an oversight, not discovered until after the completion of my paper, I omitted to include nuts. These are generally considered difficult of digestion; but I am convinced that this depends much upon individual idiosyncrasy. Nuts are rich in proteids that might well replace animal foods when these latter disagree, and are poor in carbohydrates except fats. Consequently, those kinds that contain the smallest percentage of fat ought to prove suitable for persons with heart disease, if not eaten in excess. The second point is the cause and treatment of the anemia so common in this class of patients. Is the hypothesis tenable that the liver is unable to utilize the nucleo-albumin of the food? Are the usual therapeutic preparations of iron, whether organic or inorganic, likely to prove of benefit? I am free to confess that I have become very skeptical as to the ability of the organism to assimilate iron except as obtained through the food; indeed, I rarely, if ever, prescribe it to my heart patients on this account.

Although as stated I do not administer iron to my cardiac patients with any expectation of its being assimilated as such, yet I feel bound to admit this contradiction, that I sometimes order it for its effect upon the gastro-intestinal tract in the way of stimulating appetite and digestion and thereby improving nutrition and indirectly overcoming the anemia.

As regards Dr. Whittiker's cases treated with iron, it might well be urged that the improvement was due to the rest and improved nutrition. It is conceivable that under such circumstances the heart-muscle might regain sufficient force to carry on the circulation in a more satisfactory manner; when the dropsy might at length disappear and the patient even lose all appearance of anemia, so that to my mind it does not furnish conclusive evidence of the improvement in these cases having been wholly due to the iron. The point advanced by the chairman, of the anemia being due largely to defective oxygenation of the blood is a good one, is worthy of careful consideration, and may furnish a valuable hint in the treatment of the anemia.

#### SUGGESTIONS ON THE DIETETIC TREATMENT OF GOUT.

Presented to the Section on Physiology and Dietetics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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The great Fothergill and Garrod taught us that uric acid was the causative factor in gout; that it was formed by the metabolism of nitrogenous waste; that it represents a lower degree of oxidation than urea; that uric acid and its salts, being insoluble, are much less easily eliminated, and hence they accumulate in the system; that it is in the liver the splitting up of peptones into glycogen and waste, azotized substance takes place, and its insufficiency causes the diminished oxidation that produces uric acid instead of urea. Haig, in his masterly treatise on uric acid, accepts this theory. This tracing of gout to an excess

of nitrogenous ingesta results in the exclusion of this important group of alimentary principles from this class of patients.

This origin of uric acid, as the exclusive one, can not be maintained today, for we know that much, if not all, of this product comes from the oxidation of the nuclein of the blood corpuscles, and that uric acid is not the sole etiologic factor, but that the uric acid group of leukomains is of great importance. The defects of metabolism which produce the phenomena of gout are neurotic in origin and gout is a neurosis. Not only do we find excessive formation of the uric acid group, but a deficient alkalinity of the blood, and this means diminished solvent power and the precipitation of the compounds in the tissues. With the annihilation of the old theory of the origin of uric acid and the etiology of gout, a review of the principles of diet in the disease has become necessary.

It is true of gout, as of every other disease, that the diet must be made to suit the patient. The old adage, "one man's meat is another's poison," is emphatically true here, so that while the diet of Haig may suit some cases, yet the very opposite, or a diet exclusively of animal food, after the "Salisbury" method, for example, is the best for other cases.

The object of this paper is to insist upon a much more liberal allowance of the albuminoids than the dietaries of Haig, Garrod or Fothergill and their followers permit. The functional activity of the body is largely dependent upon the albuminates, which are necessary to the formation and repair of the tissues and fluids of the body; they regulate the absorption and utilization of oxygen, and contribute to the production of muscular and nervous force and heat, and hence must be of great importance to these patients. Lower the nervous tone and you but add to the danger. The source from which the body can most easily obtain the albuminoid matter is animal food. The amount of this food that should be permitted will usually be less than that used by the normal individual, and yet the extent to which such a reduction can be carried with impunity will depend upon the digestive peculiarities of the individual. The man of sedentary habits requires less than the man leading an active life. An exclusively vegetable diet should be advised only in the exceptional cases.

The consumption of food of all kinds should be minimized. Ben. Franklin's rule of always rising from the table with an appetite is the rule for the gouty. They should consume only enough to nourish the body and maintain its functional activity. Unfortunately for many of them, they pass into middle life with the vigorous appetite of early life and, unrestrained, lay the foundation for obesity, always a calamity for these unfortunates. Sugar, starchy and fatty foods, should be taken in moderation, because they interfere with complete metabolism of the albuminates. This is especially true of sugar; it is as detrimental to the gouty as it is to the diabetic, and for it saccharin can well be substituted, because it not only satisfies the craving for sweets, but also acts as an antiseptic and diuretic, thereby diminishing the danger of auto-intoxication and promoting elimination. The starchy foods, readily converted in the body into sugar, are as objectionable as sugar, and giving rise, as they so frequently do, to defective intestinal indigestion and resulting auto-intoxication, will lay the foundation for acute seizures. Fatty foods are of benefit to some because they satisfy the appe-

tite, and thereby diminish the total quantity of food eaten, but, as is well known, we must remember that under the influence of fat, tissue waste is diminished and less oxygen is taken into the system. This capacity to diminish albuminous metabolism may be very well for the lean, who can digest them, but bad for those who are inclined to corpulency. Eggs should be taken in moderation; there are some in whom they will produce, in small quantities, toxic symptoms. The large amount of fat they contain places them in the above category. Cheese is to be avoided, as the most concentrated of the albuminates, and because of the lactic and fatty acids it contains. Tomatoes, asparagus, rhubarb and strawberries, tending to produce an excess of oxalates, are to be avoided. In short, the great principles to be considered are: 1, abstemiousness in all things; 2, non-restriction of the animal albuminates which are so essential to the nutrition of the body and so comparatively easy of digestion; 3, withdrawing from the dietary the saccharine, starchy and fatty foods that check metabolism and diminish oxidation.

Among beverages we must always remember milk first; it is a very desirable food. The water used should be as free as possible from mineral matter; distilled water being the ideal. There is advantage in taking it hot a half-hour before meals and at bedtime.

The question of the use of alcoholic beverages is important and often difficult to decide. There are many gouty persons who should become total abstainers, and there are others who will be greatly benefited by the moderate use of alcohols. Beer, porter, stout, the sweet and sherry wines, such as champagnes, ports, sherries, Madeira and Burgundy, should be avoided. Moselle, light hock, the light Hungarian wines and claret, especially diluted with an alkaline table water, are permissible. For many whisky, brandy, Scotch whisky, or a gin, well diluted with an alkaline water, is the best form of alcohol.

## PHYSIOLOGIC PRINCIPLES UNDERLYING INFANT DIETARY.

Presented to the Section on Physiology and Dietetics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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No subject in general medicine has been more prolific of literature in the past and less fruitful of practical results in the present than the question of infant food and infant-feeding. Infancy is still a prey to gastro-intestinal disease. Thirty-five per cent. of the children born, die within the first three years of life of disorders of the alimentary tract or their sequelæ. No satisfactory explanation of this mortality has ever been given, saving that of prevalent dietetic error. No theory accounts for this condition other than this: that out of the great mass of varied experience, the medical profession has evolved no scientific system of infant dietary, has been guided by no sound physiologic principles in the selection, preparation and feeding of infant food.

After an endeavor, maintained for fifteen years, to meet this default and to remove this reproach from the practice of medicine, the writer ventures to present to this body certain foundational facts to which his daily practice has been adjusted and which an