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**DIET FOR SPECIAL AGE GROUPS  
AND SPECIAL CASES**



### DIET IN ARTERIOSCLEROSIS.

Some years ago, an Italian physician announced that he had discovered the germ of old age. It is more than probable that that germ to which he attributed premature senility was the organism commonly known as the bacillus coli communis, or colon bacillus, which is the cause of the putrefactive processes which take place in nitrogenous substances introduced into the alimentary canal when the stomach does its work in peptonizing the albuminoid food stuffs taken as food, intestinal digestion is normal, and so rapid that there is not an opportunity for putrefaction to occur; but when flesh foods are used to any appreciable extent, masses of imperfectly digested flesh find their way into the intestines, and are there attacked by the colon bacillus which converts them into toxins and ptomaines of the most highly poisonous character. These substances are absorbed into the blood, and to this fact is justly attributable the changes of the coats of the arteries to which the term arteriosclerosis has been applied to this arterial shrinkage has been traced the origin of apoplexy, chronic Bright's disease, and numerous affections of the brain and spinal cord, resulting in disability and death; the origin of which was formerly wrapped in mystery.

Judging from the mortuary tables published by leading life insurance companies, arteriosclerosis is responsible for more deaths than any other disease. The New York Mutual Life Insurance Company has published an analysis of the 46,525 deaths occurring among its policy holders within fifty-five years. The largest number of deaths from any one disease, 5,589 (12%) were due to tuberculosis. Of the remainder, 13,870 deaths (30%) occurred from apoplexy, Bright's disease, heart disease, and diseases of the blood vessels. A large share of these deaths must have been primarily due to arteriosclerosis. It is, without doubt, safe to say that twice as many deaths occur from arteriosclerosis



(Mod. Med.2)

as from any other human malady, although this disease cuts a very small figure in the mortuary tables.

In view of this fact, it is of the highest importance to understand the causes and the means of preventing the occurrence of this terrible malady. An excellent article published in the Canadian Practitioner for December, 1900, recommends the following prophylactic measures:--

"In the whole range of medical practice, there are probably few conditions that are of more importance than the recognition and proper treatment of arteriosclerosis. As is well known, it comes on at varying ages, and is much influenced by habits and occupations.

"In the first place, all persons with a tendency to rigid arteries should be prohibited alcoholic drinks. It is no longer necessary to argue this question. The patient must be cautioned against forms of violent exercise or overwork; and further, he should be advised to arrange his affairs so as to have as little worry as possible. Butcher meats should be reduced; better still, cut off altogether. There is no fear of the patient starving. Enough animal and nitrogenous products can be obtained from milk and a little egg. In bread and many vegetables there nitrogen-bearing compounds. The elimination from the dietary of alcoholics, meats, salmon, lobster, game, turkey, goose, duck, cheese, beans, and the more highly nitrogenous foods, will, in time, relieve the system of those waste products that are instrumental in causing rigidity and contraction of the arterial system.

"The emunctories should be kept active. The skin and the kidneys should be made to do active duty. This can always be brought about by inducing the patient to drink plenty of water. Water <sup>once</sup> must be introduced into the system must come out somewhere, and its main channels of exit are the skin and the kidneys. There is no better solvent than water. It dilutes the bile and the urine, lessening the tendency in these



(4)

(mod.Med. 3)

cases to gall-stones and renal calculi. It dilutes and washes out of the system the compounds of uric acid that act so injuriously on the liver, kidneys, and smaller arteries.

"With regard to drugs, there need not be much said. If the hygienic and dietetic treatment be carefully observed, there will not be much need for drugs."



(Mod. Med.4)

An important word must be added to the above reported paragraphs: If cutting off butcher's meat altogether, and abstaining from the use of game, shell-fish, and other ptomaine-forming foods will check the development of arteriosclerosis after it has begun, and will prevent it in persons who have a tendency to this condition, would it not be better for everybody, old and young alike, to adopt a non-flesh regimen and the simple mode of life recommended for sufferers from this disease? Is not arteriosclerosis the real cause of senility or old age? If the arteries could be kept perpetually young, why might not a human being live indefinitely? Is it not true then that in every human being there is a tendency to the development of arteriosclerosis, and hence a clear indication for discarding meats of all sorts, cheese, and other unwholesome foods which promote tissue degeneration and encourage the development of old age?



## MEDICAL DIETETICS IN A NUTSHELL.

A little manual designed especially for the use of physicians and nurses in prescribing Battle Creek Sanitarium and Sanitas Health Foods.

### INTRODUCTORY:--

Every physician will admit that medical dietetics is, of all subjects with which the physician has to deal, the most mixed-up, contradictory, individual and unsatisfactory. This is due to the fact that, for the most part, medical dietetics is generally understood as wholly empirical and is for the most part based upon imperfect and inaccurate observation. It is only within very recent times that problems relating to diet have been made the subject of thorough-going, laboratory research and the scientific facts thus obtained are, for the most part, as yet unknown to the general public and are quite too little appreciated by the profession at large.

During nearly a third of a century, elaborate series of research and investigation have been carried on at the Battle Creek Sanitarium under circumstances especially favorable for securing definite and reliable information. The results of these experiments have been utilized in the treatment of multitudes of sick people who have flocked to this institution and the success obtained has given to this institution world-wide prestige and has led to the development of branch establishments in nearly all civilized countries of the globe.

The two great obstacles which have stood in the way



of progress in medical dietetics have been, first a lack of exact conditions to be met by regulation of the dietary, and second a lack of food preparations of exact and known composition exactly adapted to the conditions to be met. Not a small proportion of food stuffs in common use as served and eaten are not only quite incapable of being utilized in any rational system of medical dietetics, but on the other hand are highly active in producing disorders which render medical dietetics necessary. The marvellous advances which have been made in the diagnosis of gastric disorders and in the knowledge of the physiology of digestion within the last twenty-five years have put up-to-date physicians in possession of all the data necessary for a full knowledge of the requirements of individual cases. But when a physician undertakes to arrange a bill of fare for his patient, he is thwarted in his efforts to aid his patient by the impossibility of obtaining the means of meeting his patient's needs.

The managers of the Battle Creek Sanitarium have, in the last twenty-five years, been actively engaged in efforts to overcome obstacles of this sort with which they have been constantly confronted and that they have, to a considerable measure, succeeded is clearly evidenced by the marvellous notoriety that Battle Creek Sanitarium foods have, within a short space of time, acquired. Various morbid conditions require special regulation of the dietary and one by one dietetic preparations have been developed especially adapted to these conditions. By means of laboratory experimentation and clinical observation, these foods have been perfected until gradually suited to the purpose required.



It is the purpose of this little manual to present a sort of summary of the results enormous experience which has been gained during this third of a century of observation of cases under conditions most favorable for studying their dietetic needs. The recommendations made in the following pages are based upon actual, practical experience and the various preparations may be relied upon as efficient means of accomplishing exactly what is claimed for them.

It should of course, be stated that in most cases requiring a careful regulation of the dietary, other curative measures are usually essential to the most rapid progress.

Out of door life, comprising exercise and free exposure to the sun and air, hydrotherapy, abundance of sleep, simplicity and temperance in all habits of life are necessary, in addition to careful regulation of the dietary, if the best results would be obtained.

#### EMACIATION:--

Thin people are chiefly lacking in fat. There is generally a sufficient supply of blood and muscle, bone, brain and nerves are normally developed, but there is either a deficient assimilation of fat making elements or an excessive burning up or consumption of these elements in the system.

The elements of food which go to the formation of fat are starch, sugar and fats. The majority of thin people are unable to digest and assimilate these fat-making elements, at least in the ordinary form. Starch in the raw state and in the imperfectly cooked state in which it is found in ordinary



foods such as bakers' bread, white crackers, pastry, and especially in mushes and so-called breakfast cereals, is very difficult of digestion and productive of various digestive disorders, especially flatulence of the stomach and bowels, constipation and certain forms of acidity.

By the action of heat and vegetable ferments, starch may be converted into dextrin and sugar, in which form it is readily digested and absorbed. Granola, Breakfast Toast, Zwieback, Granose, Granose Biscuit, Toasted Wheat Flakes, Toasted Corn Flakes, Granuto and Malt Honey are foods of this sort, admirably adapted to fat making. In the two last named, the starch is largely converted into sugar, which greatly facilitates absorption and assimilation.

Cane-sugar is not easily digested by human beings. It is obtained from grasses and roots, the natural food of herbivorous animals which readily digest it. Malt sugar and fruit sugar are the proper sweets for human beings. These are found in sweet fruits, in honey and in Malt Honey, Malted Nuts, malted milk and in Malt Honey Confections.

Fats are easily assimilated when taken in their natural state which is a condition of emulsion as found in milk, cream, and in the creamy juice of the cocconut and other nuts. Clear fats such as olive oil, butter, lard, suet, etc., are not easily assimilated, requiring first to be emulsified by the digestive juices before they can be absorbed. Free fats also interfere with the digestion. It is the inability to digest fats, to which there is often a very great dislike, that many thin persons owe their lack of flesh. Nuts are, of all natural foods, the most rich in fats, and hence the most fatten-



ing. Those who cannot readily obtain nuts may enjoy the advantages of this admirable food by the use of some of the nut products prepared by the Sanitas Nut Food Co., Ltd., of which the best for fattening purposes are Nuttolene, Cocoanut Cream, Maltol, Malt Honey Confections, Health Chocolates, Health Cocoa and Bromose.

#### OBESITY:--

The obese patient must, of course, restrict his dietary as much as possible without loss of strength. In general, fats and sugars must be wholly discarded and starchy or farinaceous foods used very sparingly. A meat diet, however, is not to be recommended, neither should Protose be taken too freely. Potatoes are objectionable on account of their free and complete digestibility. Soft bread and mushes should be avoided as likely to be taken in too large quantities. Bread stuffs should be taken only in the form of Zwieback or toast, it should be eaten dry and thoroughly chewed. Of the foods especially to be recommended are Gluten Biscuit, Gluten Flour, Gluten Meal and Protose. If possible, the patient should walk from five to ten miles daily and should bathe or swim in water at 75 degrees for thirty to forty minutes once or twice daily. Sweat baths for ten or fifteen minutes daily may be taken before the cold bath. Every fat person who is still able to walk may by this plan steadily and safely reduce his flesh to any extent which may be necessary or desirable.

#### DIABETES:--

A person suffering from Diabetes is unable to burn



u p his sugar, and sugar and cereal starch should be omitted from his dietary. The patient may eat potatoes, ( a statement made by the ablest physicians of France, confirmed by experiments in this country), Gluten Biscuit, Gluten Wafers, Gluten Meal, Gluten Flour, Protose, Nuttolene, Coconut Cream, e ggs in moderation, buttermilk, acid fruits, spinach and other green vegetables. An out-of-door life, sunbaths, cold baths and massage are also helpful.

#### RHEUMATISM:--

In this disease, as shown by Haig and others, there is an accumulation of uric acid in the system; hence all foods which contain urice acid should be discarded. This comprises all flesh foods of every description. Hall has shown that beefsteak contains fourteen grains of uric acid to the pound, liven nineteen grains, sweetbread seventy grains. Nuts and other vegetable proteids may be substituted for flesh foods. All the health foods sold by the Sanitarium Company are wholesome for rheumatics. Protose and Nuttolene are excellent substitutes for meat. Roast Protose is especially to be comm ended as such a substitute. Gluten Biscuit, Gluten Wafers, Gluten Meal and Gluten Flour are also valuable sources of vegetable proteid.

#### OLD AGE:--

It is frequently troubling to know what to feed an aged person who has lost his teeth and who finds it difficult on this account to masticate ordinary foods. Toasted Wheat Flakes, Granuto, Granose Biscuit, Granose Flakes and Toasted



Corn Flakes are especially to be recommended for such persons. Malt Honey Candy, Health Cocoa are also suited to aged persons.

**INFANTS:--**

Many young infants are poisoned by cow's milk. Few infants can digest cow's milk well. Probably all persons, young or old, who make free use of cow's milk suffer more or less in consequence. The hard, tough curds of cow's milk are not adapted to the human digestive organs, though well adapted to the complicated stomach of the cow. Most patented or advertised infant foods are deficient in the <sup>elements</sup> ~~nourishment~~ necessary to complete nourishment. Sanitarium Infant Food is an excellent cereal preparation for infants in which vegetable proteids take the place of casein. The lives of hundreds of infants have been saved by this preparation. It may be used alone or in combination with cream or milk.

Malted Nuts is another good food for infants and young children and is especially good for infants suffering from constipation.

**HYPER-ACIDITY:--**

In this condition there is an excessive formation of acid, but pepsin is deficient. The indication is to diminish the formation of the acid and increase the formation of pepsin, under the influence of which the acid will be made to combine with the proteids in the food and thus become useful. Malt Honey taken in quantities of one or two ounces half an hour before meals is one of the best known remedies for this condition. Breakfast Toast and Zwieback are excellent foods



because they require prolonged and thorough mastication, thus securing a free flow of saliva. Granose Flakes, Toasted Wheat Flakes and Toasted Corn Flakes are also to be commended for this reason. Protose and Nuttolene are capital foods for hyper-acidity as they neutralize the acid of the gastric juice and do not unduly tax the digestive organs by long retention in the stomach as do flesh foods of all sorts.

#### HYPOPEPSIA:--

In this condition there is a deficiency of acid, also often a deficiency of pepsin. All the foods manufactured by the Sanitas Company are to be recommended in this condition, especially those which encourage thorough mastication. Malt Honey taken at the close of each meal stimulates the development of acid and pepsin and encourages the formation of active gastric juice.

#### TUBERCULOSIS:--

In this condition there is a constant tendency to emaciation and anemia. The patient requires especially fat and building and blood making nutriment of such character as may be absorbed in the greatest quantities with the least digestive effort. Hypopepsia is present in the majority of cases of tuberculosis, hence gastric digestion is feeble. The salivary secretion is also greatly diminished in many cases, especially those in which there is an elevation of temperature. The special indications are for the abundant use of



emulsified fats, cereals the starch of which has been dextrinized and vegetable proteids. Nuts would be an ideal food for consumptives if they were not, in their ordinary state, so difficult of digestion. Prepared in the form of cream, Nut Butters and emulsions they are extremely wholesome, easily digested, readily assimilable and highly conducive to fat and blood formation. Among prepared foods we may especially mention as having stood the test of experience with these patients the following:--

Nut preparations:-- Malted Nuts, Bromose, Filbert Butter, Almond Butter, Coconut Cream, Nut meals, Nuttolene.

Predigested cereals:-- Malt Honey, Malt Honey Candy, Health Chocolates, Health Cocoa, Granuto.

Vegetable Proteids:-- Gluten Biscuit, Gluten Meal, Gluten Flour, Protose.

Dextrinized Cereals:-- Granose Flakes, Granose Biscuit, Toasted Wheat Flakes, Toasted Corn Flakes, Granola, Sanitarium Breakfast Toast.

#### CONSTIPATION:--

Constipation not due to surgical causes may generally be remedied by regulation of the diet. In the great clinics on gastric disorders presided over by Ewald, Boas and other specialists in Berlin, regulation of the diet is altogether relied upon in the treatment of this disorder for patients not requiring surgical treatment. Nearly all cases may be placed under one of four classes: dilatation of the colon, spasmodic stricture, deficient secretion, deficient peristaltic activity. These various classes of cases, of course, require different therapeutic management, but there are certain



laxative foods which are equally adaptable to these several classes.

Laxative foods:-- Malt Honey, Malted Nuts, Malt Honey Candy, Health Chocolates, Bromose and granuto are highly laxative foods because of the large amount of malt sugar which they contain. All the vegetable acids are also laxative. Mushes and gruels and similar foods have an opposite effect. This is also true of rice. Cow's milk is uncertain but is generally constipating. Buttermilk and Kymuss are laxative. Tea and coffee are very constipating because of the tannic acid which they contain. Mustard, pepper, pepper sauce and all hot and irritating condiments are highly constipating in character. Fruit and other bulky foods have a laxative effect. Prunes and figs have a desirable laxative effect. Malt may be taken regularly. It is well to take the juice of a couple of oranges at night and the same quantity in the morning before breakfast. Apple juice made from sound, sour apples may be used instead.

#### SLOW DIGESTION:--

In cases of slow digestion the motility of the stomach is diminished so that the organ is unable readily to pass its contents on into the intestines after the work of gastric digestion is completed. The stomach walls are weak, flabby and are easily stretched if overweighted by large quantities of food in the stomach. In these cases it is better to give these patients four or even five small meals daily instead of two or three large meals. It is a well-known physiological fact that liquid food <sup>usually</sup> ~~easily~~ passes out of



the stomach an hour after it is eaten. The practical application of this fact requires liquid nourishment in this condition.

The following health foods are especially adapted to these cases and have been thoroughly tested: Malt Honey, Malt Honey Candy, Granola, Granose, Health Chocolates. If the food is very thoroughly chewed, every particle will be reduced to a liquid state before swallowing.

#### ULCER OF THE STOMACH:--

Frozen Malted Nuts is an ideal food for this condition and has been the means of restoring a number of very obstinate cases. The patient rests in bed and eats nothing except the frozen Malted Nuts which is taken in moderate quantities at intervals of three or four hours. Malted Nuts is a preparation which imposes upon the stomach little or no work.

The dietetic treatment of cancer of the stomach is essentially usually the same as that of ulcer of the stomach.

#### GOUT:--

Gout is recognized as a uric acid disorder, the result of sedentary habits of life. An active, out-of-door life is essential as a foundation for permanent recovery. The diet must be regulated with great care to avoid all substances containing uric acid in appreciable amount. This rules out flesh foods in all forms, also fish and shell fish. Vegetable proteids should be substituted for animal proteids. Gluten Biscuit, Protose, Nuttolene, Nuts and nut preparations in general are to be recommended.



NEURASTHENIA, OR NERVOUS PROSTRATION:--

This is a condition usually connected with dilated or prolapsed stomach. All our health food preparations are to be commended as promoting good digestion and proper nourishment of brain and nerves, especially Malted Nuts, Gluten Biscuit, Granuto, Protose and other nut products. All of our predigested and cereal preparations are especially to be commended.

NERVOUS HEADACHE:--

Haig has shown that meat must be discarded. The experience of thousands has shown that milk is objectionable in most cases of this sort. Nervous headache is, without doubt, a uric acid disorder in a large proportion of cases and dilatation or prolapse of the stomach is often also present. Dextrinized cereals, Malted Nuts, Malt Honey, the various nut preparations, Malt Honey Candy, Health Chocolate s and Coconut Cream are excellent dietetic remedies in cases of this sort, especially if combined with out -of-door life and hygienic treatment.

BILIOUSNESS:--

This condition, which is closely allied with the preceding, requires that animal proteids should be discarded, especially meats and milk. Eggs may sometimes be used, though not always. Gluten Biscuit and other vegetable proteids should be substituted as not being readily subject to the bacterial action which in many cases gives rise to the condition commonly known as biliousness. Fruit and fruit acids



should be freely used, also Malt Honey and Malt Honey preparations. Great care must be taken to thoroughly masticate the food.

#### CATARRH OF THE BOWELS:--

If several fluid movements occur daily, laxative foods must be avoided. Rice, broths, Cocoanut Cream, Potato Meal, Almond Butter, Almond Meal, Granola, Sanitarium Breakfast Toast and raw beaten eggs are typically wholesome foods in gastric and intestinal catarrh.

#### RICKETS:--

Malted Nuts, Bromose, Malt Honey Candy, Granuto, Almond Butter and Almond Meal, when employed in connection with fruit pulp and fruit juice, are invaluable in the various forms of rickets.

#### CHOLERA INFANTUM:--

Cholera Infantum requires that the patient should fast for a period to give the alimentary canal an opportunity to rid itself of its germ-infected contents. Milk should be entirely withheld. protose broth and Gluten Meal ~~should be~~ served in liquid form are suitable and have saved numerous lives.



612.2  
(Good Health.

### INFLUENCE OF DIET UPON BILE MAKING.

Barbera, of Bologna, has recorded in the British Medical Journal a recently completed series of experiments upon dogs in which he has confirmed the experiments recently made by Rutherford, of England, respecting the influence of flesh-food in increasing the production of bile, which has a similar effect with the use of fats of various sorts. Sugars and starches however, produce only a slight increase in the flow of bile. The increase of flow of bile continues for five to seven hours after the use of fatty food. Barbera showed that the increased flow of bile after flesh-foods is due to the extractives or waste matters contained in the flesh. These, he demonstrated, are converted into urea while passing through the liver. Uric acid when taken in with food is converted into urates in the stomach. These ~~fact~~ facts furnish a sufficient reason for the disuse of flesh food by persons suffering from inactivity of the liver, or who are suffering from jaundice from any cause, a condition which requires restriction of the secretion of bile.



that is valuable while it itself is unsuitable for food. <sup>Even</sup> When <sup>n</sup> the ~~used with the skins~~ <sup>are broken</sup> a large percentage of the nutritive material is wasted since it is impossible for the digestive processes to free it from the cellulose material of which the skins are composed. Prof Strümpell, a German scientist who records the results of personal experiments on the extent of the digestibility of nitrogenous material contained in beans cooked whole found that only 60 % of the nitrogenous substances contained in the beans was utilized by the system when however he used the same quantity of beans from which the skins has been removed and the material made fine by grinding and then cooked he digested 91.8% of it.

*For these reasons it is preferable to make up of the legumes in such a way as will reject the skin which like the shell of the nut*  
Some countries prepared as flour and used in bread

These foods are generally better if soaked over night . It takes away the strong flavor which is disagreeable to many people, and also facilitates the cooking. All legumes require a prolonged process of cooking. It is better to put them into cold water , and allow them to come to the boiling point, and then simmer until done. If dry peas are put into boiling hard water without soaking, they will probably become harder than before. The amount of water which will be required depends of course upon the heat that is employed in cooking, but generally, two quarts of water, cold, if soft, will be sufficient to cook one pint of seeds.



contain a vegetable caseine, similar in some respects to the caseine of milk. The bean is soaked for 24 hours. Then ground in a mill, more water being added during the grinding until the whole is a pulp. It is then heated to boiling point - afterward more water is added and it is boiled again, cold water is added. It is then strained and a proportion of salt is added which coagulates the casein thus forming a curd which is then pressed into any desired shape.

In England peas are largely used by persons, who are under training for athletes. They are considered to be especially adapted as a strength producer.

*White*  
Although these seeds are among the foods possessing the highest of nutritive values *with the exception of beans they are not largely used in* they are more generally served in ~~other this country~~ in a form quite difficult of digestion being usually combined with large quantities of fat which serves to make them especially ~~unwholesome~~ *hard to digest*, or ~~else they are not~~ otherwise ~~improperly~~ *Peas and lentils are for many persons* *preferable to beans being less liable to disagree with weak digestion* *there are few who cannot digest peas when properly cooked* cooked. All the leguminous seeds are covered with a tough skin which is in itself indigestible and which if not broken either by the cooking process or by thorough mastication afterward renders the entire seed liable to pass through the digestive tract without being digested at all since the digestive fluids can not act upon the hard skin. ~~The toughness of this skin necessitates a long continued cooking process. The skins are not even then rendered digestible as they are cellulose. But under most circumstances it is preferable to prepare the legumes in some manner which will reject the skins which like the shell of a nut contain much~~



It would be impossible in the time allotted to this class to go over the entire list of vegetables and speak particularly of each one, By consulting the chart you can see the nutritive value of ~~very~~ many of them and it is safe to say that those not analyzed are even less nutritious. We have here some sample dish and recipes for the preparation of the same and while you test them we shall be glad to answer any questions you desire to ask about the preparation of other veg w



potato becomes a loose farinaceous mass designated as mealy.

In a mealy state the potato is easily digested but when waxy and water soaked it is trying to the digestive powers. It will be obvious then, that the result to be obtained in the cooking of the potato is to have it mealy. New potatoes because they are always waxy are less digestible than mature ones. Potatoes cooked by boiling should be drained as soon as the heat has burst all the starch granules, which may easily be determined by their soft texture when pierced with a fork, else the starch will absorb water and become pasty and water soaked. Baked potatoes should be served at once as soon as soft, and the skins at once slightly ruptured by squeezing to let the steam within escape else it will condense and make the potato watery.

Cooks vary in their opinion as to the advisability of cooking potatoes with or without the skins but science makes it plain that if we desire to retain the most nutriment within the potato we must cook them with the skins on. Potash constitutes the larger share of the mineral elements to be found in the potato. Potash is an important constituent of the blood. Potash salts are freely soluble in water and when the skins are removed nothing prevents these salts from escaping into the water. If the potato is cooked with the skin on this difficulty is largely obviated for the skins do not burst until the cooking process is nearly complete if at all. It is for this reason, and also for the reason that cold water dissolves ~~out~~ the little albuminous <sup>element</sup> ~~material~~ the potato ~~contains that~~ it is not a good plan to soak potatoes



~~as many more~~ vegetables are more or less indigestible.

Green vegetables keep their color best if boiled rapidly-

<sup>to be</sup> If boiled ~~all~~ vegetables should be put to cook in boiling water.

*If it is also well to remember the old problem of physics about latent heat.*

The length of time required will vary with the age and freshness

of the vegetable. Wilted vegetables require longer time than

fresh. If necessary to keep a boiled or steamed vegetable hot

for any length of time after cooking the better way is to dish

it at once in a hot dish and set the dish in a pan containing hot

water or some part of the range where it will keep hot but not

boil. In this way the food may be kept hot but will not be materi-

ally changed as it would be by continuing to cook in the kettle.

This plan is also an excellent one for rewarming vegetables, many

*meats*

of which warmed over in this way seem quite as fresh as when

first prepared and need the addition of no fluid or grease. A

pan for this purpose large enough to take in several cooking

utensils is a very great convenience in a household.

The potato is probably the most frequently used <sup>of all</sup> vegetable and

indeed it should be no other ~~vegetable~~ possess so high a nutri-

tive value or so large an amount of nitrogenous material but even

the potato may occasionally give place on our bills of fare to the

legumes with advantage. The substance of the potato is made up of

little cells filled with starch granules these cells are surrounded

and permeated with a watery fluid containing a small percentage

of albuminous and mineral material. In the process of cooking the

starch granules absorb the watery portion, swell up and distend

the cohesion between the cells become destroyed and they easily

separate from each other. When this separation is complete the



Vegetable foods are more generally cooked by boiling than by any other method and are usually considered something that the least experienced person can easily cook. But while it is possible that almost any one can cook a vegetable in boiling water until it has softened it never the less requires a good degree of skill to so prepare it and cook it so that it shall be neither over nor under done and shall have retained its nutriment and natural flavors. It is important that we cook vegetables in as small an amount of water as possible without burning if we would retain their nutritive value. If we cook in too large an amount of water much of the nutriment is lost in the water which must be drained from the vegetable when the cooking process is complete. As vegetables in their composition contain a large percentage of water it is not necessary that such large quantities be added for cooking as it is with the grains <sup>and legumes</sup> which have lost their moisture in the ripening process. Indeed some vegetables <sup>as spinach</sup> require no water at all to cook them and many are much better to have a portion of the water they contain is evaporated during the cooking process. For this reason baking is a method better adapted for many vegetables than boiling, steaming is also preferable to boiling for most vegetables. Vegetables suffer less diminution of their food value when cooked by baking or steaming. All vegetables should be cooked until done, but no longer. Many cooks make their vegetable foods quite tasteless by too long cooking and quite as many more serve them in an underdone state. Under done

*made when in flower when cooked by baking.*



The Japanese ~~have~~<sup>raise</sup> a peculiar kind of  
bean almost devoid of starch. The  
Chinese who make large use of beans  
and peas <sup>sometimes</sup> prepare them in the form of chow  
The legumes

By virtue of their composition the legumes possess  
a high nutritive value



of the legumes have long been known and used  
They are, the pulses upon which the Hebrew children became so fastidious  
The bean is frequently mentioned in Scripture  
King David considered it worthy a place on his  
bill of fare and the prophet Ezekiel was in-  
structed to make use of it in the preparation of  
his bread. Among some ancient nations the  
bean was regarded as a type of death and  
the believer in the transmigration of souls  
carefully avoided its use in the fear of  
submitting some beloved friend to the dan-  
ger of mastication.

At the present time there is scarce a  
country where these <sup>legumes</sup> seeds are not used  
to a greater or less extent. In south east Scotland  
a <sup>barley</sup> food is made of ground peas prepared in thick cakes called <sup>peas bannocks</sup>  
In India and Southern Europe a variety  
of the pea is rather parched or lightly roasted  
or made into cakes. In Germany it com-  
bination with other ingredients peas are  
compounded into sawages which during the  
war with France served as rations for the soldier.

A lady recently told me that peas are largely  
used in England <sup>as they do it</sup> by persons in training as  
athletes, being considered especially excellent strength producers.

Lentils are largely used in India as  
~~a supplement~~ <sup>in combination with</sup> rice. The rice possesses  
a very small percent of the nitrogenous elements  
while the lentils are rich in that constituent so  
that the two make a very excellent combination  
It is customary to serve them by piling the rice high  
on a plate making a cavity in the center and filling  
this with a gravy of lentils termed dahl. It is asserted  
that lentils was the chief diet of the pyramids.



## Legumes

We have for our subject today two food  
which although usually taking the same  
place upon our bills of fare are in  
composition very dissimilar as you will  
observe by examining the chart. The legumes  
which include peas, beans and lentils  
are ~~all~~ <sup>each</sup> characterized <sup>in their mature state</sup> by a large per-  
centage of the nitrogenous elements while  
potatoes, cabbage, beets and such roots  
are very low in nutritive value and  
contain but a very small amount of  
nitrogenous ~~material~~ <sup>elements</sup>. In their imma-  
ture state the legumes <sup>more nearly</sup> resemble the vege-  
tables. In their mature state the legumes  
are found in market in considerable variety.  
The Lima, french and white beans are familiar  
to all. Peas are obtainable in two forms the  
split peas from which the skins have been re-  
moved and the seed divided and the green or  
Scotch pea. Of lentils also there are two  
varieties obtainable, the red or Egyptian lentils  
and which is doubtless similar to that from  
which Esau prepared his famous pottage and  
the brown lentils, sometimes termed the Linnan lentil.



process but may be carefully mashed  
with a potato masher and then treated  
as the Scotch peas.

The legumes are an especially cheap and economical  
food and the peas especially

potatoes cabbage and other ~~ordinary~~ <sup>valuable</sup> vegetables  
~~the articles ordinarily used as~~ although by no means possessing so high a  
nutritive value as the legumes ~~are~~ yet

<sup>serve</sup> a valuable purpose in the vital economy  
~~water enters largely into~~ ~~their composition~~ ~~by~~ ~~furnishing~~ a large  
~~amount~~ of organic fluid, as water

enters largely into their composition. They  
are also valuable for their mineral con-  
stituents, and in supplying bulk to our food.

It would not be well however to attempt  
to live upon vegetables alone since <sup>they are so</sup> ~~to~~

<sup>lacking in nitrogenous elements that to</sup> supply the requisite amount for one day

a person would need to consume of potatoes 8 <sup>lb</sup>  
of cabbage 22 <sup>lb</sup> of parsnips 18 <sup>lb</sup>.

The general term vegetables comprises  
tubers, roots, seeds, stems, <sup>and</sup> leaves of plants together  
with some fruity products. Of all these the  
tubers, are the most nutritious and of the  
tubers the potato hold the first rank, in food value.



All vegetables to be used as food should  
be fresh, <sup>and free from disease</sup> ~~stale~~ and wilted vegetables which  
are <sup>often</sup> found in market at this season are  
very questionable food. The process of decay in green  
vegetables begins <sup>in</sup> a very short time after being gathered  
unless the <sup>most careful</sup> ~~utmost~~ care is taken. <sup>the use of</sup> preservative  
measures are taken. Stale vegetables <sup>are</sup>  
often the cause of serious illness. In Paris  
there is a law that no green vegetable shall  
be ~~allowed~~ <sup>sold</sup> in market <sup>after having lain</sup> ~~after staying~~ one day.

Roots and tubers are less perishable but  
they <sup>should</sup> be used <sup>in their selection to see that they are</sup> ~~fresh~~  
and <sup>wholly</sup> free from decay. A potato which has begun  
to decay is likely to be permeated <sup>throughout</sup> with the  
germs of decomposition although there may  
yet remain some portions seemingly intact.  
Sproouted vegetables are also questionable  
food. Potato sprouts contain a poison allied  
in principle to belladonna.

~~All vegetable foods should be most carefully  
cleansed before using but particularly the roots  
and tubers which~~ For cleaning vegetables which  
is one of the most important points in their prepara-  
tion a brush or whisk broom is essential.  
By the use of the brush which is obtainable at any  
hardware store for five or ten cent the cleansing process  
~~is made much more~~ may be done much more efficiently than  
by any other method and <sup>with</sup> much less disagreeable



## THE LEGUMES.

To this class of foods belong peas, beans and lentiles when in their mature state although these foods are usually served as vegetables upon our bills of fare they are very dissimilar indeed to the ordinary vegetable as will be apparent upon an examination of the chart for the analysis of these articles. Peas, beans and lentiles in their mature state contain an excess of the nitrogenous elements whereas ordinary vegetables are all lacking in this important element. I say in their mature state because in their immature condition they much resemble the ordinary vegetable so that what we call green peas and string beans by no means contain the same proportion of food elements that the ripened seeds do. I suppose all are familiar with these articles, peas are found in market in two forms, the split pea from which the skin is removed and the seed divided and the <sup>Scotch</sup> ~~dried~~ pea which was picked and cured while yet in its green state. Lentiles are found in two or three different varieties, the red and brown. The red are Egyptian lentiles, and are doubtless similar to those mentioned in the Bible. The brown lentiles are grown quite extensively in Europe. A few years ago it was impossible to find the lentil except in large cities but at the present time they are more easily obtainable. Their food value is even greater than that of peas and beans but the taste is not usually considered as agreeable until one becomes accustomed to it.

Beans are to be obtained in numerous varieties, the haricot



white bean, black bean, lima bean and others all of which are about equally valuable as a food article. The Lima bean is perhaps the most delicate in flavor and for that reason considered preferable by many. These seeds have been long known and made use of by civilized people. The Soja or Japanese bean contains but little starch and by some physicians is employed in the treatment of diseases requiring abstinence from starchy foods.

Comparison.	Water	Beef	Soja.
		74.00	9.37
	Nitrog-	.22.74	36.07
	Carb-	9.30	17.60
	Salts	.54	3.10

Decided advantage over beef.

They are an excellent substitute for animal food in point of nutritive value. There are few other foods that contain so nearly the same proportion of nitrogenous material. The legumes are extensively used in India, China and other European countries. In connection with rice they form the staple article of diet of a great majority of the people of these vast countries. The rice which contains an excess of the carbonaceous element, forms with the legumes which contain a small excess of the nitrogenous elements form an excellent diet. In India it is the common custom to serve rice with a gravy of lentiles or to pile the rice high on the plate, form a hollow in the center and fill this with a preparation of stewed lentils called dal. In China and Japan the Soja bean is made into a kind of cheese. Peas and beans



## Lecture No. 13.

Deserts.

The simplest of <sup>S</sup>deserts are the fruits, and they have been used for this purpose for a long period of time. Fruits when used as deserts should be used in connection with some other foods, as breads. Fat meat and fruits, particularly free fats, are born enemies. They strive to create disturbances whenever they get together. A fruit to be served as a desert should be perfectly ripe. It should be perfectly fresh and sound. Prof. Pasteur, of Paris, who has experimented extensively with germs, has found that fruit which has begun to decay contains various micro-organisms, which, when taken into the stomach are quite liable to produce disease.

It is also very necessary that fruit should be clean. It is not enough to suppose that if it is fresh that it is safe. Fruit that grows on low branches is very liable to have germs on its surface, in fact it has been known to contain the germs of diphtheria, typhoid fever and other diseases. All fruit should be thoroughly washed before using.

Fruit for desert should be arranged as daintily as possible. The more daintily we can arrange it, the more pleasant it will be to our eyes, and the more pleasant to the taste. Apples or oranges served prettily on nice dishes suit the purpose of a desert just as well as something that requires a long time to prepare. Cooked fruits also make deserts. Fruits used in connection with grains are made into an innumerable number of excellent deserts. Nuts are also suitable for deserts, but should be eaten with some hard food, because they are difficult of digestion unless minutely divided. There is such a great variety of deserts that might be prepared that it would be impossible



to give recipes for them, but I will give you a few suggestions. In the first place all material should be fresh and good. If eggs are to be used, everything that is made with them will be found to be nicer if the whites and the yolks are beaten separately. Two tablespoonfuls of dry snow may be used in the place of one egg if eggs are not to be had. Milk, if necessary to be heated in the preparation of desert, should be heated in a double boiler. If necessary to add hot milk to the eggs, it is best to add a small quantity of cold milk first to the eggs, and then stir this into the hot milk. Grains to be used in preparing deserts should be previously cooked, that is when used with any other ingredient that requires slow and short cooking. If fruits like raisins or currants are to be used, they should first be carefully washed in several waters. They can be best cleansed by being put into a colander and stirred around as the water is pored over them. Then they may be taken out and put upon towels to dry.

We find it desirable to give special flavors to our deserts, but I cannot very well recommend anything that contains alcohol. For a lemon flavor, grate a little lemon rind, just the yellow part and not the white part. Orange may be used in the same way. To flavor an article with cocoanut, take a few tablespoonfuls of cocoanut and steep it in the milk. It should not reach the boiling point. The cocoanut should then be strained out, as it is exceedingly indigestible, and what we want is the flavor without the cocoanut. It is sometimes desirable to color sugar for ornamenting. I have found this a very good plan: Take some cranberry or currant juice for red, and thicken it with a little sugar. Grape may be used to color purple, and the juice of spinach to color green. Bread is one of the most universally used articles in the preparation of deserts.

#### Recipes.

Take ten good sized apples and stew them until thoroughly done,



then rub the whole through a colander, sweeten, and if the pulp is not dry, put it back on the stove until it has become so. It should be quite ~~dry~~ dry. Then fill a pudding dish with crumbs of bread about an inch deep all around the outside, leaving a depression in the centre, and into this put the apple and cover over with crumbs about the same thickness. Then put into the oven and bake until brown. You may add to the apple one well beaten egg and one tablespoonful of thick cream.

Farina is also an article suitable for making into deserts of various kinds. Tapioca is also suitable and can be made into an almost innumerable number of different kinds of deserts. The pearl tapioca is the best. It is best to soak it over night, and should be cooked in a double boiler until transparent. If soaked over night it requires three parts water, if not, four parts water. Cook ~~one~~ cup of tapioca according to directions just given; then add ~~one~~ cup of sugar, and just as it has begun to cool add one pineapple minced fine. It is good without any dressing, but may be served with a variety of dressings.

Moulded tapioca.--Flavor a pint of milk with cocoanut as directed, and if a portion of the milk should be evaporated during the flavoring process, add enough more to make an even pint. Put into this ~~a~~ one-half cup of soaked tapioca and cook until transparent. Then add one-half cup of sugar and one or two bonanas, sliced. If you have not the bonanas, you may put a few raisins in the form of a star in the bottom of the cup in which the desert is to be moulded, then when moulded you will have the star on ~~the~~ the top. All tapioca deserts when moulded should be put on ice. The dish in which they are moulded should be wet with cold water before putting the desert into it.

All deserts made with milk in the form of custard should be baked slowly. You can make a richer custard with ~~one~~ egg if cooked slowly, than with several when cooked rapidly. Custard should be cooked in a



dish that is placed in another dish filled with water so that it will be kept below the boiling point.

**Farina custard.**--Take one quart of milk and season with cocoanut. Into this stir two tablespoonfuls of farina and cook twenty minutes. Then allow it to cool, and when cold add the well beaten yolks of two eggs and two tablespoonfuls of sugar and beat ~~it~~ all well together. Lastly add the beaten whites and bake as other custard puddings. No custard pudding should be baked until solid.

I think it is possible to make a pie in a way that it will be consistent with health for people who have good digestion, but I cannot recommend the use of butter, lard, or free fats of any description for shortening. Cream is the only thing that should be used for shortening. In making a crust for pies it is important that the material be just as cold as possible, in fact, if after it is stirred together it is set on ice for awhile before being formed it will be much lighter and nicer. As ingredients for pie crust I have found that graham flour and grits, equal parts, make the best. It should be wet up with very cold and ~~thin~~ thin cream. Prepare in a cold room on a cold table if you can. The colder the material is the lighter the crust will be. The crust material should be gathered lightly together and kneaded only enough to permit of its being rolled out, and should be baked as quickly as possible after being shaped to the tins.

A good way to bake a pie with two crusts is to fill it after it is baked. Place clean linen napkins lightly between the crust while baking. Canned peaches put into such a crust make a most delicious pie.

A granola crust is very nice. It cannot be used, however, with pumpkin or custard pies. Take one-half cup of cream for every two-thirds cup of granola. This will make crust enough for one pie. Flour the board quite thickly and roll the granola out as thin as possible. It breaks very easily but can be lifted on to the tin by putting a sheet of paper under it. I think the granola crust is even more wholesome than any other.



SOME PEOPLE WHO HAVE GAINED HEALTH, STRENGTH, AND VIGOR  
BY THE USE OF SANITARIUM AND SANITAS HEALTH FOODS

I. Mrs. B. F. J. had been in poor health for a number of years. She had a very bad case of indigestion with fermentation, and with beginning of tuberculosis of the lungs, undoubtedly the result of poor nutrition and indigestion. She had sought help in nearly every part of the United States; had tried all sorts of cures, but in vain. She was very thin in flesh, <sup>pale,</sup> anemic, and weak. She was exceedingly nervous and despondent, and worried a great deal about her condition. She had been trying a variety of diets before coming, principal among which was the use of flesh foods. A diet list was made out for her selected largely from the sanitarium health foods, and the Sanitas Nut Foods. In a few weeks she began to gain in flesh and strength, and the mental despondency soon gave place to cheerfulness. The gain in flesh was gradual and quite constant. In three months' time she had gained thirty-three pounds in flesh, and two months later she had gained fifty pounds. She was a picture of health, had a rosy complexion, hard muscles, and was able to walk five or six miles without fatigue.

II. Mr. J. E. T. had been suffering for a number of years with indigestion and general mental depression. He was pale, weak, and anemic. He had given several different diets and treatments trial without any benefit. In three months he had gained forty-one pounds in flesh and very much in strength. He is able to do a full day's work as a laboring man, and enjoys better health than he has for years. This remarkable cure was accomplished by the use of sanitarium health foods, and Sanitas nut foods.

III. Mr. J. M. K. had suffered more or less for fifteen year with indigestion, stomach and bowel trouble. During the last year he was confined to his bed. He was very weak, thin, and anemic.



his weight being reduced from one hundred and sixty pounds to ninety-one pounds. He had been in this weak, emaciated condition for several years; had been making use of flesh foods as a part of his diet. The diet list which he followed here was made up of different articles selected from the list of Sanitarium health foods and sanitas nut foods. The first four weeks the patient had gained twenty pounds, and three or four weeks later he had gained fifteen pounds more, making in all a gain of thirty-five pounds in six or seven weeks. His strength increased with weight and he was able to do manual labor and to take vigorous exercise.

IV. Mr. R. F. L. was very ill, so sick, indeed, that his physician thought that he could live but a few days. For two or three years he had been suffering from profound anemia, enlarged liver and spleen, and with dropsy in the abdomen and legs. He was unable to walk. His general appearance indicated a very serious disease. There was no color, whatever, in his face, and he looked more like one dead than alive. Previous to his arrival here he had been using flesh foods freely. In addition to other remedial agents, his diet was carefully regulated and flesh foods excluded. His diet here was composed largely of Sanitarium <sup>health</sup> foods, and sanitas nut foods. It was not long before he commenced to improve, and in two months he had gained twenty pounds.

V. Miss S. B. had been a sufferer from indigestion and other diseases for a number of years. She had various unpleasant symptoms of stomach and bowel disorder. In five weeks she had gained twenty-five pounds on a diet composed principally of health foods.

Rev. J. P. L. had been in poor health for a number of years from indigestion and stomach trouble with nervous weakness. He had traveled extensively, taken ocean voyages, and visited different countries, in search of health. Following the same diet as



3.

did the foregoing cases, he gained twenty pounds in three months.

VII. Mr. W. H. N. who had been out of health for some time with chronic trouble, made a gain of twenty-five pounds in flesh, and gained in strength also in a few weeks, on a diet composed of Sanitarium and Sanitas health foods.

VIII. Mr. I. G. R. had had stomach trouble for several years. During the last few months it had caused him a great deal of distress, and in six months time had lost fifty pounds. Observing a carefully regulated diet, he increased thirty pounds in weight in about five weeks. His diet was composed of Sanitarium health foods with Sanitas nut foods principally.

IX. Mr. H. W. M. in poor health for a number of years, under a properly regulated diet, made up mostly of Sanitarium health foods, and Sanitas nut foods, and employing other proper remedial agents, gained twenty-five pounds in three months.

X. Mr. E. G. C. for some months in very poor health from lung trouble and indigestion, made a gain of twenty-five pounds in three months' time, living on a diet composed of Sanitarium and Sanitas health foods, in the main.

XI. Mr. A. H. H. suffering from indigestion and lung trouble for two or three years, gained twenty pounds in two months on a Sanitarium health food diet.

XII. Mr. B. J. T. increased twenty-five pounds in weight in three months' time on a ~~diet~~ of Sanitarium health foods, and Sanitas nut foods, as a principal diet.

XIII. Mr. B., a laboring man had suffered for a number of years with indigestion. In two months, on a fist composed principally of Sanitarium and Sanitas health foods, gained thirty pounds.



4.

and during this time was engaged in hard physical labor, working a large part of the time out of doors. A test of his strength while he was on this diet showed that his total strength was one-half times that of the average man.

XIV. Miss H., after a severe illness from a chronic disorder, gained thirty pounds in flesh on a diet similar to that of those reported above. She was strong and able to do hard, physical labor every day, and maintained a weight of one hundred and fifty pounds.



Oct. 22, 1901.

J. H. K.:--

I am sending you with this a copy of some testimonials from persons who have been benefited by health foods, which has just been received from Dr. Riley. Would like to have suggestions from you as to how this material can best be used. I am not sure but what the Doctor expected it would be made use of in the special edition of the Battle Creek Idea which you are getting out for use in Colorado.

W. K. K.

CL. 1 e.



Custom has so long established the usage of finishing a dinner with a dessert of some kind that a menu is considered quite incomplete without it and although I do not consider the dessert an article in itself <sup>such paramount importance as to be good</sup> essential to life or even <sup>kind</sup> I do consider the kind and quality of the dessert if one is to be served a matter of <sup>sufficient</sup> importance from a health standpoint <sup>to be</sup> worthy of our consideration for this lesson. While there <sup>may be</sup> no

objection to the use of a dessert if the articles offered as such are wholesome in character and presented before enough has already been eaten it must be stated that as usually served the dessert is by no means always a harmless article. <sup>largely</sup> Composed of sweets, fats and spices prepared for the express purpose catering to the taste it does not ~~often~~ <sup>usually</sup> lay ~~claim~~ claim to wholesomeness and at the same time it is an especial temptation to overeat. It may also be remarked that the preparation of desserts in many families requires an



2  
outlay of time and strength which might  
better be expended in some other manner.  
Many a woman might learn a new language,  
or a science every year in the time she spends  
in making pies and cake. Many a woman  
longs for time for reading and recreation  
which she might have at her command  
were less time spent in the preparation of  
unnecessary dainties. There is an

old saying about plain living and high  
thinking and the <sup>con</sup>verse is like wise true  
with high living you will get exceedingly  
plain thinking not only because high living  
is not conducive <sup>in</sup> of itself to high thoughts but  
also because the time will be too much engaged  
to cultivate lofty ideas and noble aspirations.

But <sup>perhaps</sup> you say the masculine stomachs of the  
household think they must have ~~the pie~~ <sup>very expensive</sup>  
~~at every meal~~ <sup>By the way</sup> ~~topping off~~ <sup>to top of with</sup> what then? Then reason  
tact and plenty of other food of the best  
possible quality may sometimes work a  
change. For I believe were there always the  
best of bread, and plenty of good fruit ~~always~~  
to be found upon our daily bill of fare there  
would be far less demand for pies and cakes.  
And if any of you have felt the thall done of the  
slavery of the rolling pin do not bring up <sup>the</sup>  
<sup>to demand a like service of their wives</sup>



3 The simplest of all desserts are the fruit  
and nuts which nature has herself  
provided for us all ready for use, with  
no expenditure of time and strength <sup>in part</sup> and  
at no greater cost than many articles  
far less wholesome.

There seems to  
be a prevalent notion that fruits are  
to expensive <sup>for general</sup> use but I believe there is  
no foundation for such an idea. Fruits  
are only expensive when out of season and  
if care be taken to confine <sup>the</sup> use of them to such  
as are seasonable and to provide a supply  
by canning and other measures of preservation  
for future use, they need never be found  
expensive. They may be liberally used.

We must provide a fruit  
supply the same as we do of other foods.  
In older times fruit was largely employed  
as a dessert although in quantities that  
would be considered quite in appropriate  
being piled upon the table in pyramids  
of immense size.

While I enter a plea for the more extended use  
of fruits in place of articles requiring more  
labor both for hands and stomachs believing  
that people will be better for it I want to







only good bread must be used -  
Puddings made from mouldy bread has  
frequently been the cause of serious illness.



Cakes I have already shown you samples  
of like wise short cakes and tarts which  
the English use as we do pie, pie  
being an article of food never seen  
in genuine old english house keeping  
If pies must be a simple cream  
paste made with ~~all~~ the materials  
flour and all as cold as sitting  
on ice can make it simple gathered  
together, not much kneaded rolled  
in shape and baked two crusts  
with the cleanest <sup>and softest</sup> of old linen napkins  
between to hold them in place during  
the baking, then opened the linen  
taken out, and just before needed a  
filling of fresh, canned or stewed fruits  
put in.



GETTING SCARED.

Evidently the Oatmeal Trust feels a trifle shaky in its knees. Just when the Trust imagined it had gotten the American stomach by the throat, or perhaps we ought to say by the esophagus, a little cloud appears in the sky, at first so small that it attracted little attention but latterly it has been developing rapidly to such tremendous proportions that it has become evident that there is a lively storm inside of it. The Oatmeal Trust has heard the muttering of the thunder and is beginning to see visions of dwindling dividends. There is a hand writing on the wall, "MUSH MUST GO" is what we read.

The oatmeal paste with which these great cereal companies have been plastering the inside of the American stomach for a score or more of years has created a generation of dyspeptics who, having spoiled their stomachs in the attempt to live upon horse feed (raw cereals are fit food only for grain-eating animals), have fled for relief to a meat diet and so have fallen into the hands of the Beef Trust only to find their miseries, at first temporarily relieved, made worse by a diet of uric acid in the shape of roasts brimful of rheumatism, steaks, pâté de foies gras, and sweetbreads loaded with gout.

For nearly a generation the Battle Creek Sanitarium Health Food Company, and more recently the Sanitas Nut Food Company, Ltd., have been raising a warning voice in Battle Creek against the use of these sloppy, half-cooked cereals as



well as against the use of flesh foods, urging instead the use of thoroughly cooked, dextrinized, or predigested farinaceous substances such as zwieback, granola, granose, toasted wheat flakes, roasted rice, and similar foods.

Gradually the public have come to recognize the force and the importance of this teaching, and the public palate has for once accommodated itself to the best interests of the stomach, and the results have been a tremendous falling off in the use and consequently the sale of oatmeal and similar cereal products.

Thoroughly cooked cereals, which the Battle Creek Sanitarium Food Company was the first to manufacture and put upon market, commend themselves to the common sense of intelligent men and women who have discovered the important relation of diet to health, happiness, and usefulness.

The Oatmeal Trust have sought to check the progress of this important food reform movement by warning the public against the use of predigested foods on the ground that the digestive organs will thereby be weakened. Plausible as this objection may seem, it is absolutely groundless. Thorough cooking is not required for either fruits or nuts. These are natural foods which are adapted to the stomach of man in the state supplied by nature, but ripe cereals are not naturally adapted to man's sustenance. They are natural foods for the horse, the sheep, the goat, and other granivorous animals.



It will be generally admitted that cooking is necessary to prepare cereals for consumption by human beings. Certainly man cannot well subsist upon raw wheat and other raw cereals, but ordinary cooking such as that to which oatmeal is usually subjected does not transform the starch as does the sunshine which converts the starch of green apples into sugar, dextrin, acids, and other substances capable of immediate assimilation.

Modern research, however, has developed methods by which the action of the sun in the ripening of fruits and nuts may be imitated to such an extent as to render the predigested cereal as easily digestible and as quickly assimilable as well ripened fruit which is recognized as one of the most digestible of all food substances.

The Oatmeal Trust will be wise if it immediately begins to retrench its business and devote its mills to the manufacture of cotton or woolen goods or some other useful industry. The oatmeal business is doomed. The mush era is drawing to a close. Modern science has gotten into the kitchen at last and a revolution in diet has begun.



**BATTLE CREEK DIET SYSTEM FOODS ARE ANTITOXIC**

A toxic food is one which contains toxins or poisons when eaten, or which is converted into poisons after being eaten by putrefaction in the stomach or bowels or by changes in the tissues.

An antitoxic food is one which contains no toxins or poisons, and which can not be converted into poisons by putrefaction or other processes in the body.

Antitoxic foods possess still another virtue which is of most precious value, viz., the ability to prevent the formation of poisons from toxic foods.

Foods of the toxic class include flesh meats of all sorts, beef, mutton, pork, veal, chicken, fish, oysters, and other shell fish, and all preparations of these foodstuffs.

Fish and shell fish, oysters, clams, etc., crabs, lobsters, and other "sea food" are the most toxic of all foods, for the reason that they readily undergo putrefaction in the intestines. The loathsome stools of carnivorous animals is clear evidence of the toxic character of their diet, as is also the strong odor of the urine of these animals, and the characteristic odor of an old dog or other flesh-eating animal.

Even eggs are to some extent toxic, especially to certain persons who are particularly susceptible. Animal fats are also highly toxic. This is the reason why they produce "biliousness," which is one form of autointoxication.

Antitoxic foods include all the cereals, the fruits, nuts, fresh and farinaceous vegetables, honey, buttermilk, and sour milk.

According to Combe, malted and dextrinized cereals are the most high<sup>ly</sup> antitoxic of all cereals. The best examples are our original



preparations, Granuto, Meltose or Malt Honey, Toasted Wheat Flakes, Toasted Rice Flakes, Breakfast Toast, Crystal Wheat, Crystal Rice, Granola, Sanitarium Infant Food, Malted Nuts, Lactnut, and in various biscuit, wafers, and marmalades, bromoses and confections. The latter are especially valuable as antitoxic food remedies.

With the exception of Protose and Nuttelene, all our Diet System foods are antitoxic,--the most antitoxic of all known classes of foods. In addition attention should be especially called to these valuable adjuvant remedies, Maya, the Bulgarian ferment, Yogurt Cheese, Colax, Colaxin, Laxa, and other specialities which render invaluable ~~maxi~~ service in connection with antitoxic foods in battling against intestinal autointoxication.

All persons who are suffering from intestinal autointoxication may be benefited by the adoption of the Battle Creek Diet System. The use of this system at the Battle Creek Sanitarium is doubtless the chief factor in the accomplishment of the thousands of cures annually effected in cases of this sort.

The eminent Dr. Combe, of Lausanne, enumerates in his valuable work "Des Autointoxication Intestinales," the following among the symptoms and maladies arising from intestinal autointoxication, or poisoning through the absorption of poisons produced in the intestines.

(Symptoms)



For the relief of the above symptoms and conditions there is no known means so effective of permanent results as the Battle Creek Diet System thoroughly and systematically carried out.

JHK m (copied 4-22'08)



## PEPTOGENIC EMULSION

The civilized stomach is losing its ability to deal with fats. The excessive use of sweets in the form of candies and pastries, as well as ordinary cane sugar, hasty eating, and the use of tea, coffee, and iced drinks and other liquids at meals have exhausted the starch-digesting faculty of the human digestive apparatus, while overeating, the use of condiments, and stimulants of various sorts, the use of vinegar and pickles, and especially the use of alcohol and tobacco in various forms, have so weakened the average stomach that it is no longer able to produce the necessary amount of gastric acid and pepsin. Fats, when taken into such a stomach still further reduces its power to make pepsin and gastric acid.

The consequence is "biliousness", a condition in which germs become active in the stomach, converting the food into a putrescent mass, from which poisons are absorbed into the blood and the damage is thus communicated to the whole body. Acute or chronic auto-intoxication results. Frequent or constant headaches, constipation, brain fag, neurasthenia, anemia, loss of flesh, mental and physical depression, are the natural consequences.

There are thousands of lean, cadaverous folks who are longing to get fat but cannot, because the smallest indulgence in fat foods, especially animal fat, produces a veritable poisoning, manifested by biliousness, a bad taste in the mouth,

I have a fat which you can eat. It is Peptogenic Emulsion. It is made of our Evaporated Cream and Panpeptogen. I am sure you can eat it and it will agree with you and help you to gain fat. Eat half a glassful each meal. Its good.



(Circular)

1.

Every Doctor Wants

2.

Something to Feed His Patients Who Cannot Eat Ordinary Foods.

3.

Here it is.

The very thing you are looking for.

We know we have the thing you want because for twenty-five years we have been supplying physicians and patients and have hundreds of appreciative testimonials. We began with supplying the Battle Creek Sanitarium, an institution which makes a specialty of the treatment of disease by diet. Other and eminent physicians learned of our valuable products and recommended them in medical papers and text books. (See Osler, Tyson and ). The demand grew and grew requiring repeated removals to larger quarters, and the establishment of depots in the larger centers.

Here are a few of our special preparations in which we feel sure you will be interested.

*Derive from  
Circular Letter*



Dear Doctor:--

You need dietetic specialties. Every doctor has patients whose dietetic needs cannot be met by the ordinary home, hotel or restaurant menu.

We have just what you are looking for, thoroughly reliable, scientifically tested, standardized foods adapted to the needs of special classes of invalids.

Here are a few of our staples,

Battle Creek Sanitarium Glutens

Gluten Biscuit, 40% and 90%

Gluten Meals, 40% and 90%

Meltose, the New Sugar, Maltose, a syrupy malt preparation with the malt

flavor left out. Taste resembles honey and Maple sugar.

For cases in which cane sugar is contraindicated. (Hyperhydrochloria, gout, arterio-sclerosis, gastralgia, gastritis.)

Malted Nuts

The cream of nuts sweetened with Meltose. More palatable than malted milk and more digestible. A complete substitute for dairy milk for those who cannot digest cows' milk or cream. (Gastric dilatation, constipation, colitis, sick headache.)

Laxative Foods.

A dozen or more Fig and Prune Marmalades prepared with Meltose. Granose Biscuit (the whole wheat toasted), Toasted Rye Flakes, Sterilized Wheat Bran, etc.

Fattening Food.

Meltose, a digested carbohydrate which can be eaten freely, as bread, completely absorbed and assimilated, a capital vehicle for cream and butter. Also offered in form of most delicious confections, which may be eaten ad libitum. Chocolates, Chocolate Crisps, Health Candy, Bromose, etc.



Reducing Diet for Obese Patients.

Gluten Biscuit  
 Gluten Meal  
 Vejelly  
 Toasted Rye Flakes and Biscuit  
 Sterilized Bran

Diabetic Foods

Gluten Biscuit, 40% and 90%  
 Gluten Meals  
 Potato Gluten Biscuit  
 Vejelly  
 Protose (vegetable meat)  
 Nut Meal  
 Almond Butter and other Nut preparations.  
 Colax

Colax

The new laxative, prepared from Japanese Seaweed, discovered simultaneously in the Yale scientific laboratory and by Prof. Dr. Schmidt of Dresden. Acts by securing bulk and moisture. Efficient and absolutely harmless.

Yogurt

The famous Oriental ferment obtained by Metchnikoff from Bulgarian Yabourth. Its use at the Battle Creek Sanitarium as well as elsewhere has been attended by most remarkable results in all cases in which it is especially desirable to suppress intestinal putrefactions. Prepared from pure and highly active cultures.

In tablets, 10,000,000 to 50,000,000 units each.



Yogurt Cheese

Something new, really a therapeutic delicatessen. A rich culture of the Bulgarian Bacillus of Metchnikoff, and at the same time the richest, daintiest cheese you ever ate. We were the first to surmise that the Bulgarian ferment might be a good cheese maker, and the result of our experiments more than met our expectations. Cheese connoisseurs are delighted with it. The most delicate invalid can eat it. You'll like it yourself. Packed in jars.

All these above mentioned invalid food specialties and some dozens more are all on sale in your city. You will find fresh stock always on hand at Siegel & Cooper's great store, at Wanamaker's and also Park & Tilton's. Our representative at

Siegel & Cooper's (Grocery Department)

will be pleased to hand you samples or to serve any of your patients.

If you desire us to do so, we shall be pleased to send you samples of any of our products which may interest you, to send samples to your patients if you wish us to do so, and will write the proper addresses on the enclosed blank and mail to our representative with the Siegel & Cooper's Co., to whom the enclosed envelope is addressed.

Hoping we may have the pleasure of making you acquainted with our products, and of serving you and your patients with them, we remain,  
Doctor,

Very sincerely and respectfully yours,

THE KELLOGG FOOD CO.

Battle Creek,

Mich.



Fresh supplies of the above choice products and dozens of others are always to be found at the following leading stores in the cities named.--

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Samples of any of our products which may interest you may be obtained at the above addresses, or if you prefer, we will send you or any of your patients samples by mail as you may indicate. We inclose a return envelope and a few blank orders for samples. In filling out the order, be sure to indicate just the sample you wish sent.

THE KELLOGG FOOD CO.,

Battle Creek,

Mich.



## THE SOURCE OF MUSCULAR POWER.

In a recent lecture delivered in Boston, Mass., Dr. J. H. Kellogg of the Battle Creek Sanitarium, who has given considerable study for many years to the matter of physical development, and is recognized as an authority on this subject, explained the source of muscular power as follows: "The muscles are machines. Every muscle is a live engine, which, using the bone as a lever, does work. The popular idea that beefsteak is the best muscle food is a great error. The muscles, like other engines, are fed by carbon, the burning and oxidation of which is the source of muscular power. Starch and fat are to the muscles what wood, coal or coal oil is to the locomotive. In the body starch and fat are converted into glycogen, or animal starch, which is stored in the muscles, ready for use when needed. Every muscular movement is accompanied by what might be termed an explosion of glycogen, analagous to the explosion of a gun or cannon from sudden combustion of gun powder. Starch is the great muscle food, because the most easily converted into animal starch or glycogen. This explains the fact that "bread is the staff of life". Cereals are the chief reliance for the subsistence of laboring men, as well as laboring animals, but the starch must be cooked by being thoroughly brown. Mushes produce dispepsia and weak muscles, in either man or horse, and should be scratched off the bill of fare. They are wholly discarded by the new cookery, and replaced by zwieback, granola, granose, granut, roasted rice and other dextrinized cereals."

The latest and best dextrinized cereals is **TOASTED WHEAT FLAKES** - sweet, toothsome. Feeds muscles, brains and nerves. Its daily use cures constipation.



## A MAN WHO LIFTED FIVE TONS.

He was a big man, but not overgrown; neither was he a <sup>and</sup> dimuseum freak nor a trained athlete. He was simply a good, hearty stout fellow who found out how to eat for strength. Of course, he didn't lift five tons with his arms, nor with his back, but he made his big lift with each one of the thirty principal groups of muscles, and the sum of all his lifts equaled a little more than the sum of 10000pounds. When questioned about his diet and habits of life, he declared he found no food equal in strength-giving properties to dextrinized cereals, manufactured by the Battle Creek Sanitarium Food Co.; granola, granose, granut, and especially their latest and best product, known as TOASTED WHEAT FLAKES. Oatmeal mush and other soft, half-cooked cereals make sour stomachs, weak nerves and muscles. TOASTED WHEAT FLAKES, used either moist or dry, build brains, bones and muscles faster than any other food, while keeping the stomach and bowels in an active condition. Ready to serve at once fr m the package



### A NOVEL CEREAL FOOD.

A cook who can prepare rice Chinese fashion feels that she has reached the very top of perfection in the culinary art as applied to cereals. Nothing is more tempting to the palate than the steaming mound of snow-white rice; grains thoroughly cooked, each one distinct and separate, instead of a heavy pasty mass, sure to promote indigestion and gastric discomfort. Mushes and all pasty preparations are exceedingly productive of dyspepsia, weak, nervous, thin blood and weak muscles. As the result of a discovery made comparatively recently in the experimental food laboratories of the Battle Creek Sanitarium, wheat may now be prepared and served in a light flaky mass, each kernel thoroughly cooked and toasted; sweet, toothsome, palatable, easily digestible; an almost certain cure for constipation. The new food is named TOASTED WHEAT FLAKES. Each package bears a picture of the Battle Creek Sanitarium. TOASTED WHEAT FLAKES is found on the bill of fare of all the leading sanitariums, and its popularity is rapidly driving old mushy cereal preparations out of the market.



### THE MISERIES OF MUSH.

Thousands of people imagine that by eating a dish of oatmeal mush, cracked wheat, or some other breakfast cereal, they are doing something so superlatively good in a dietetic way that a considerable amount of credit is applied to balance up the sins committed in bolting abominable mixtures of fried ham, griddle cakes, black coffee, cheese, sausage, chicken pie and pickles, which constitute the daily bill of fare for thousands. The fact is, mashes, while perhaps a more decent food, are scarcely less indigestible than the rest. Pasty masses lie in the stomach and do not digest, but easily ferment and form gases; produce a sense of heaviness, acidity, irritation, waterbrash, colic, and finally gastritis, intestinal catarrh, impoverished blood, weakness of muscles and nerves, failure of memory and brain power and a lowered bodily resistance which leads to consumption and other chronic maladies. All mashes should be discarded from the bill of fare, and instead well dextrinized cereals, such as quickeback or twice baked bread, toasted or browned rice, granose, granola, granut, and especially to be commended is a new and exceedingly popular food, **TOASTED WHEAT FLAKES**. This new food originated at the Battle Creek Sanitarium, where, as well as at the sixty branches of this world famous institution, it is in great demand as a remedy for indigestion and constipation. Every package bears the picture of the Battle Creek Sanitarium.



## A EMINENT PHYSICIAN CONDEMNNS MUSHES.

In a lecture delivered some months since before the students of the Leland Stanford University, at the invitation of President Jordan, Dr. Kellogg, of Battle Creek, who has a world-wide reputation as an expert in dietetics, condemned in most decided terms, that universal boarding-house dish, oatmeal mush, and similar preparations of wheat and corn, as being productive of weak stomachs, impoverished blood, weak nerves and muscles, and incapable of sustaining vigorous mental activity. "Cereals are the best brain and nerve food" said the Doctor "when properly prepared, which includes thorough cooking or dextrinizing, or exposing at a temperature sufficient to brown the starch and destroy the disposition to form pasty lumps in the starch, which are most indigestible, and sure to ferment and give rise to various gastric disorders, and consequent reduction of bodily health and energy."

This fact, to which Dr. Kellogg was one of the first to call attention, is now being recognized by physicians in all parts of the world. Science is against the mushes and they must go. They will be replaced by a variety of thoroughly dextrinized cereals, one of the best and most popular of which is now on the market, known as TOASTED WHEAT FLAKES, which consists of wheat pressed into thin flakes, thoroughly cooked and toasted, ready to serve at once from the package. It is the most inviting dish to the eyes and palate. It has the advantage that it not only nourishes and sustains as no other food, but it is at the same time almost an unfailing remedy for indigestion, constipation and other gastric-intestinal disorders. Every package bears the picture of the Battle Creek Sanitarium



## THE DAILY RATION.

Scientists in all parts of the world have given a great amount of attention to the determination of the exact quantity of food required to sustain human beings while engaged in ordinary manual occupations. The average fixed amount is about 2-1/2 ounces of waterfree food substances, consisting of the following elements: 1-1/2 ounces of fat, 3 ounces of dry albumen, 16 ounces of dry starch. It is noticeable that the amount of starch required is almost four times that required of other elements. This is because starch is the chief food in the muscles, and also serves as the principal fuel for maintaining bodily heat. A diet of flesh food is incapable of sustaining health and strength for any considerable length of time, for the reason that it is lacking in fuel elements. Cereals, with the addition of milk, eggs, nuts and fruit constitute the staples of a scientific bill of fare. The cereal foods are less appreciated than they should be because of imperfecting cooking. In the form of mushes, grains are difficult of digestion - the starch is imperfectly cooked, and is very slowly acted upon by the saliva and other digestive fluids. When dextrinized or baked until slightly brown in color, as in zwieback, granola, granose, browned rice, and especially **TOASTED WHEAT FLAKES**, the starch is quickly converted into sugar, and thus prepared for absorption into the blood. **TOASTED WHEAT FLAKES** consists of thin, well cooked or toasted flakes, each representing a complete grain of wheat. It not only stands at the head of all cereal preparations as a food for bones, brains, nerves and muscles, but, when used regularly, cures nearly every form of indigestion, and properly regulates action of the stomach and bowels. Each package bears the picture of the Battle Creek Sanitarium.



To Mrs Farnsworth

DR. KELLOGG'S TALK TO THE CATERERS' ASSOCIATION.

Question: What would you do when a person says he cannot eat apples, even baked apples?

Answer: Persons with gastric catarrh or hyperacidity often say they cannot take acid foods. Gastric catarrh is a chronic inflammation of the lining of the stomach, but not hyper secretion or acidity. Hyperacidity is where there is too great a secretion of the acid, causing the stomach to be very acid, producing heartburn.

It is rare to find a sour stomach in hyperacidity. The sour stomach is due to fermentation when the hydrochloric acid is in excess. It may be three hours after eating, or it may be sour all the time, and is a hyper secretion. Sour stomach, except in dilatation or cancer cases, is rare.

A man can take fruit if he takes the right kind. Sweet fruits are usually more concentrated, such as figs, dates, raisins, and can be taken where acid fruits are to be avoided. The sugar causes more hydrochloric secretion. Fermentation may come from long retention in the stomach. Acid fruits increase the fermentation. Neutral fruits, as pears, ripe baked bananas, stewed raisins, fruits juices, as the blueberry, raspberry, prunes, if not excessively sweet, baked sweet apples, can be taken where there is fermentation.

Question: What would you do for a sour stomach?

Answer: Dry diet, plus fats, such as Breakfast Toast or dry crackers and fat. Coconut Cream supplies a valuable fat, because it is fat in the form of emulsion. The next best fat is good sterilized butter or Devonshire Cream. Devonshire Cream is prepared by placing the milk in a tall can, chilling it, then heating it sufficiently to scald, then skimming and serving. The soluble albumin coagulates quickly in this process. Coconut Cream is cheaper in many places, and can be prepared by passing the coconut through a vegetable cylinder, adding



water, straining, cooling, then skimming. It should be prepared fresh every day. Fats are valuable because they prevent the formation of hydrochloric acid.

Reference was made to the treatment in Europe called "The Food Cure." One specialist gave hydrochloric acid merely as the placebo, that it would be a diet after his positive results. The food in the stomach is a live acidity so that the acid in the stomach is not a chemical hydrochloric. Formerly hyper-acidity was treated with alkalis and beef-steak. The beef-steak acts as soda would by neutralizing the acid. It is not advisable to take meat because the substances in meat excite the flow of more acid, hence increase the tendency to disease. Gluten does not have the same effect because this effect in the meat is not due to the albumin but is due to the extractive.

Fresh olives are very good. Nice cow's butter and ripe olives are valuable also. People in Southern Italy and Palestine live on olives and bread. The Greek soldier takes for his lunch a handful of olives and <sup>black</sup> bread. A speciality of this kind, such as olives, is a good thing to have in a restaurant. They must be carefully inspected. Should be soaked 24 hours in running water. It is a good thing to use some such speciality.

Try to get your butter prepared by sterilizing milk before the butter is made. Germs rise in the cream.

The natural fats are emulsified. There is no oil in the olive. We get oil by the pressure. It is clear fat when it is expressed in the form of oil. An emulsion is an opaque fat.

Cocoanut Cream, Almond Cream and Nut Butter, used with baked potatoes, about 2 oz. each day, give another treatment in sour stomach.

Fat itself does not particular harm. A common perscription in Berlin is 1 to 1-1/2 oz. when taking more than three meals a day. Sanitas butter is prepared at a low temperature for the sugar and starch, so that the fat is not affected. For this reason fat can be taken on other articles of food than bread. A good plan is to prepare it in the form of a gravy. Starch helps to emulsify fat. Cocoanut Butter and olives can be used in place of dairy



butter. Butter is not used in Egypt, Southern Italy, or Palestine, except by the aristocrats. Twenty olives may be taken at one time.

It is very important in cases of hyperacidity to secure fat, and of equal importance is the manner of chewing the food. Mr. Fletcher has shown that by chewing the food, vigorous athletic work required but one-half the amount taken when the food is not thoroughly chewed. Food must be chewed until it is liquid food. The difficulty with taking liquid with meals is that it causes us to avoid chewing. Fluid increases the secretion in the stomach in hyperpepsia. If chewed as it should be, all food enters the stomach as liquid. The stomach does not absorb liquid, merely squeezes that out and passes it on, hence liquid passes quickly to the intestines where it is absorbed. Food taken in other than liquid form enters the stomach in large masses. Place "Chew" on your bills of fare. Chewing alone cures three-fourths of the causes of stomach trouble. You should chew five times as much as ordinary when solid food is taken. If you follow these suggestions you will find you never tasted food before and you will not eat so much. You will get more strength out of what you do take. There will be less waste and you need not worry about constipation. Offensiveness disappears after chewing the food. Fecal odors are due to putrefaction in the colon. Thus, the chewing act is as important as giving up the use of beef-steak. The results where this has been adopted are splendid.

It is quite as important to prepare food as to select food. Diet is as much ahead of what it was ten years ago as is hydrotherapy. In the use of liquids at meals there is no great danger if the liquid is taken between the acts of chewing. The temperature may ~~skip~~ chill and the quantity may fill the stomach and leave no room for nutriment. The injury is from the increase in bulk and lowering the temperature more than the dilution of the hydrochloric acid. If one should use a milk diet exclusively, four quarts of it would be required. You are not going to overeat on liquid foods. Drinking stops the action of the salivary glands. The fish has no salivary glands. A man feeding as the fish does, his salivary glands cease to act. Liquid with a flavor excites the flow



of the saliva. Chew the liquid when you take it into the mouth. The fact that the saliva is poured out upon the fluid is shown by the fact that it is flavored. The best time to take your liquid is at the close of the meal, because at that time the required amount of nutriment has been taken. It is better to take some liquid than not to do so because there seems to be a natural instinct.

A man should eat when he is hungry. There is no possible virtue in going about hungry or weak in the knees. We have too long been upon our platform of fanatical hyper-sensitiveness. The kind of food and the quantity determine the amount that should be taken. If food is chewed properly it is soon out of the stomach. Hunger is a divine voice saying to you: "Eat."

Doctor referred to a case where a patient drank only two or three times a week and when requested to take a drink would reply: "This is not my day to drink." It is about as absurd to refuse to eat as it is to refuse to drink.

A caution should be given here of confounding hunger with that queer feeling in the stomach, "Goneness," is not hunger. There is no good in eating late at night unless it should be fruit juice. Fruit is a predigested food. Figs, dates, bananas, contain albumin. A banana contains as much nutriment as a potato. A coated tongue is benefited by fruit at night because of a disinfectant power in the fruit juice. Constipation is relieved by the same food.

There is no danger of too great amount of fat being taken. Fat produces a feeling of satisfaction. Just why, we do not know. One ounce of fat is equivalent in nutrition to one or two ounces of starch.

In hyperacidity there is too much acid and too little pepsin. Animal extractives are not the most desirable stimulant for pepsin. By experiment, Pan-Peptogen stimulates the secretion four or five times as much as the animal extractive. Aromatic substances with Pan-Peptogen by experiment have increased the amount of secretion sixty times. For hypers, in order to increase pepsin, the Pan-Peptogen should be taken before the meals; the same with Malt Honey. In hypopepsia, where there is too little secretion of acid,



the tablets should be given after the meal.

In hyperpeptic conditions, dry food is valuable, not in itself, but because it secures more thorough chewing. Don't give dry foods unless you are sure food will be thoroughly chewed. It would be better to give liquid than to give the dry food and not have it thoroughly masticated.



( To be read at Lansing, Dec. 14, 1923, at the Third Annual Conference of Health Officers and Public Health Nurses, celebrating Semi-Centennial of Public Health Work in Michigan )

A little more than forty-five years ago, in the summer of 1878, when I was a boy of twenty-six, on an excursion with the American Association for the Advancement of Science, I received a telegram intimating to me that I had been summoned to appear before the Governor, at Lansing. I was considerably disturbed and wondered of what misdemeanor I was guilty that I should be sent for by the Chief Magistrate of the State. I hurried home, and when I reached home discovered, to my astonishment that I had been made a member of the State Board of Health. Just how and why the Governor, with whom I was quite unacquainted, had selected me to succeed the Reverend Doctor Brigham, of Ann Arbor, who had recently died, I never learned.

A new governor came into office a few months later and appointed me for a term of six years, at the end of which another new governor appointed me for another term of six years. And twenty years later, I served a third term. There have been great changes in the work of the Board in the meantime.

Forty-five years ago the work of the Board consisted chiefly of looking after quarantine against smallpox, measles, scarlet fever and educating the people with reference to dangers from contaminated water supplies and proper ventilation of buildings. At that time, the germ theory was just coming into recognition. There was very little known about it. It was believed that typhoid fever was due to contaminated water. It was not known that tuberculosis was infectious or that diphtheria was contagious. The malarial parasite had not been discovered. Both malaria and diphtheria were regarded as filth diseases.



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One of the first tasks assigned to me by the Board was to collect the opinions of authorities all over the world upon the question, "Does the eating of tomatoes cause cancer?" Being very fond of tomatoes, I was very glad to be able to report to the Board, after sending out several hundred copies of a questionnaire on the subject to prominent physicians of this country and Europe, that there were no signs or evidence of the eating of tomatoes causing cancer.

Another problem given me was respecting the cause of malarial fever. The information I collected showed that there was an association between ditches, drainage canals, newly cleared land, wooden sidewalks and pavements, with malaria. The supposition was that these various conditions favored certain sorts of organic decomposition, which polluted the air and thus produced malaria, although French and Italian observers produced such striking evidence respecting the presence of parasites in the blood that I, personally, became convinced that this was the cause of the disease, although most of the members of the Board were skeptical.

In 1882, Koch announced his discovery of the tubercle bacillus, which interested me so much that the next year I went to Vienna and studied the bacillus, under Kolisko. It was nearly twenty years before the views of Koch were fully accepted by the profession. It is only a little more than that since Doctor Gibbs, the professor of physiology at our State University, did not hesitate in his lectures to ridicule the views of Koch as absurd, claiming that the bacillus of Koch was a saprophytic organism and not a non-pathogenic.

( Stricker )



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Another research I was asked to undertake was with reference to the contagiousness of diphtheria. I sent out a questionnaire to more than a thousand physicians in this country and Europe, asking their views respecting the cause of diphtheria and whether or not it was communicable. A large majority regarded the disease as incurable. A very considerable number scouted the idea of communicability as being ridiculous.

One Michigan doctor who was most disgusted with the notion that diphtheria could be contagious, and to show his utter disbelief in such a theory, he said in his letter that the day before he had seen a very bad case of diphtheria and removed a large piece of membrane, had put it in a box along with his chewing tobacco. I was neither disappointed nor distressed when, a week or two later, word was received that this doctor had died of diphtheria.

I think one of the most important things done by the State Board of Health in those early days was the organization and holding of Sanitary Conventions in different parts of the State. This work was carried on several years and was a valuable means of educating the people of the State in matters pertaining to public health. These conventions were particularly useful in educating the people in relation to the dangers of polluted water supplies. In those days dug wells were the principal source of the water supply of the State. Very few States were supplied with sewers. Plumbing was a luxury which could be afforded only by the very rich, and behind nearly every house was to be found three holes in the ground, usually not far apart. Two of these holes were receptacles for filth. The other was



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the source of the family water supply. The filth which went into the cesspool and the vault filtered through the soil into the well. Typhoid fever was rife in every community. The mortality rate was . . . . .  
At present, the mortality rate is . . . . .

In the early days one of the important lines carried on by the State Board of Health was metrological observations, one of the special features of which was a test for the ozone of the atmosphere, a theory that was held by several authorities, that pneumonia was caused by ozone, as ozone is most abundant in the coldest months of the year, when the air contains the least moisture, and since the number of deaths from pneumonia is greatest during this season, the conclusion was drawn that ozone must be the cause of pneumonia. This theory received a great set-back through an experiment on monkeys undertaken by the Board.

By the request of the Board, I obtained four Rhesus monkeys and sent them down to Doctor Vaughan, who subjected them for twenty-four hours or more to a cold <sup>air,</sup> blast of . . . . . The poor monkeys shivered terribly, but although there was much ozone air at the time and the monkeys were severely chilled, not one of them contracted the disease.

( Possibly mention Dr. Vaughan's discovery of tyrotoxin.)

(Be sure to refer to Dr. Baker's self-sacrificing work for the Board).



the source of the family water supply. The filth which went into the cesspool and the vault filtered through the soil into the well. Typhoid fever was rife in every community. The mortality rate was . . . . .  
At present, the mortality rate is . . . . .

In the early days one of the important lines carried on by the State Board of Health was metrological observations, one of the special features of which was a test for the ozone of the atmosphere, a theory that was held by several authorities, that pneumonia was caused by ozone, as ozone is most abundant in the coldest months of the year, when the air contains the least moisture, and since the number of deaths from pneumonia is greatest during this season, the conclusion was drawn that ozone must be the cause of pneumonia. This theory received a great set-back through an experiment on monkeys undertaken by the Board.

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One matter that began to give me great concern after I became a member of the Board was the discovery of the fact that insanity and other degenerative disorders of all sorts were rapidly increasing. Statistics showed that insanity was increasing at such a rate which, if continued, would make the whole population insane in less than three hundred years. I reached the conclusion that public health measures were, on the whole, detrimental to the best interests of the race unless in some way supplemented, for the reason that they render the law of the survival of the fittest, which resulted in keeping alive a great number of unfit persons, to the detriment of the race.

I am glad to know that in recent years the work of the Board has been broadened and extended in various directions and in lines calculated to result in race improvement through personal hygiene and in the education of the people in better habits of living.

Many eminent economists recognize that the human race is in a state of decadence and hastening toward race degeneracy and final extinction, a result which can only be prevented by education by health campaigns, such as the Michigan State Board of Health is carrying forward through its child welfare work, social hygiene work, and its various lines of practical, prophylactic activities.



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*Swif correct*

Typhoid fever in 1901 -	35 -	100,000 cases
" " " " 1923 -	5.6 in "	" "



DIET FOR THE YOUNG.

A very large proportion of the mortality among young children results from dietetic errors which proper knowledge and care on the part of those having them in charge might commonly avoid. From infancy to the age of twelve or eighteen months milk is the natural and proper food. Milk contains all of the different food elements with the exception of starch, which can not be digested by very young children owing to the insufficient formation of the digestive elements of the salivary secretion during the first few months of life. If the child is deprived of the milk provided by nature the best artificial food is cows milk, it, however, requires very careful selection and intelligent preparation. The animal from which the milk is obtained should be one perfectly healthy and well cared for. The character of her food should also receive careful attention as there can be little doubt that disease is often communicated to infants by the use of milk from cows that have been improperly fed and cared for. An eminent medical authority offers the following important points on this subject:- " The cow selected for providing the food for an infant should be between the ages of four and ten years, of mild disposition and which has been giving milk from four to eight weeks. She should be fed on good clean grain and hay free from must. Roots, if any are fed should be of good quality and she should have plenty of good clean water from a living spring or well. Her pasture should be Timothy grass or native grass free from weeds; clover alone is bad. She should be cleaned and cared for like a carriage



horse, and milked twice a day by the same person and at the same time. Some cows are unfit by nature for feeding infants."

Milk from the same animal should be used if possible.

Changing from one cow's milk to another or the use of mixed milk ~~to another~~ <sup>from different</sup> cows such as is usually supplied by city milkmen often occasion serious results. The extraction of the animal heat from the milk immediately after milking and before it is used or carried far, especially in hot weather is an essential point to be considered by those who purchase milk from dealers, while the milk itself should be clean and pure, it should also be perfectly fresh and without the slightest trace of decomposition. To insure all these requisites beside great care in the selection of the article it should be sterilized and if not intended for immediate use bottled and kept in a cool place until needed. It is not safe to feed young children upon unsterilized milk that has stood a few hours. Even fresh milk from the cleanest cows unless drawn in to bottles and at once closely sealed will be found to contain more or less bacteria. These little organisms, which are the cause of fermentation and decomposition multiply very rapidly in milk and as they increase the danger from the use of the milk increases.

There can be no doubt that cholera infantum and other digestive disturbances so common among young children would be greatly lessened by the use of properly sterilized milk (Directions for sterilizing milk and additional suggestions respecting points to be considered in its selection are to be found in the chapter



on Milk etc.)

Cow milk differs from human milk in that it contains

nearly three times as much caseine but only two thirds as much

fat and three fourths as much sugar. Cows milk is usually slightly

acid while human milk is alkaline. The caseine of cows milk forms

*hard curds while that of human milk forms* *large*

*A* fine soft curd. These facts make it important that some modifi-

cation be made in cows milk to render it acceptable to the feeble

stomach of an infant. The cases are rare where it is safe to feed

a child under nine months of age on pure, undiluted cows milk. A

common method of preparing cows milk so as to make it suitable

for infant feeding is to dilute it with pure water using at first

only one third or one fourth milk the proportion of milk being

gradually increased as the child's stomach becomes accustomed to

the food and able to bear it until at the age of four months the

child should be taking equal parts milk. When sterilized milk is

to be thus diluted the water should be first boiled or added before

sterilizing. A small amount of fine white sugar or what is better

milk sugar should be added to the diluted milk. Barley water and

thin well boiled and carefully strained oatmeal gruel thoroughly

blended with the milk are also used for this purpose. A food which

approximates more nearly the constituents of mothers milk may be

prepared as follows:-

ARTIFICIAL HUMAN MILK. No. 1. Blend together one fourth of a

pint of fresh, sweet cream and three fourths of a pint of warm

water. Add one half ounce of milk sugar and from two to ten ounces

of milk, according to the age of the infant <sup>and</sup> its digestive capacity.

ARTIFICIAL HUMAN MILK. No. 2. (Meigs's formula)



Take of cream of medium quality two tablespoonfuls, one table spoonful of milk, two of lime water and three of water to which sugar of milk has been added in the proportion of seventeen and three fourths drachms to the pint. (This saccharine solution must be prepared fresh every day or two and kept in a cool place). A child may be allowed from half a pint to three pints of this mixture according to age.

ARTIFICIAL HUMAN MILK. No. 3. Prepare a barley water by adding one pint boiling water to a pint of best pearl barley. Allow it to cool and strain. Mix together one third of a pint of this barley water, two thirds of a pint of fresh, pure <sup>milk</sup> and a teaspoonful of milk sugar. (Med News).

Peptonized milk, a formula for ~~which~~ the preparation of which may be found on p. is also valuable as food for infants. *especially*

*for those of weak digestion,*  
Mucilaginous food excellent in gatro enteritis.

Wheat I table spoonful.

Oatmeal I-2 tablespoonful

Barley I-2 tablespoonful.

Water I quart.

Boil to one pint, strain and sweeten.

Of prepared infant foods we can recommend that manufactured by the Sanitarium Food Co., Battle Creek, Mich., as a thoroughly reliable article. There are hundreds of prepared infant foods in the market but the most of them are practically worthless in point of food value being often largely composed of starch a substance



prepared in a variety of palatable ways. Milk toasts and fruit toasts and the easily digested fruits both raw and cooked <sup>from</sup> ~~from~~ the most excellent dietary. Strained Vegetable soups may be added occasionally for variety. From three to six years the same simple regimen with the addition of easily digested and simply prepared vegetables, macaroni and the legumes prepared without the skins will be all sufficient. If desserts are desirable let them be simple in character and easily digested. Tea, coffee, hot bread and biscuits, fried foods of every description, salted meats, preserves, rich puddings, cake and pastries should be wholly discarded from the childrens bill of fare.

It is especially important that a dietary for children should contain an abundance of nitrogenous material. It is needed not only for repairs but must be on deposit for the purpose of growth since it is the bone and muscle forming element of food. Milk, whole wheat bread, oatmeal, barley and the various preparations of wheat, contain this element in abundance and should for this reason be given great prominence in the childrens dietary.

Flesh foods are in no way necessary for children, since the food elements of which they are composed can be supplied from other and better sources, and many prominent medical authorities of the present day unite in the opinion that they are decidedly deleterious, and should not be used at all by children under eight or ten years of age. Experiments made by Dr ~~Camm~~ <sup>Camm</sup>man of N. Y. in the dietary of nearly two hundred young children in an



which the immature digestive organs of a young child are incapable of digesting. Hundreds of infants are yearly starved to death upon such foods.

All artificial foods require a longer time for digestion than does the food supplied by nature and when making use of such, great care should be taken to avoid too frequent feeding. It is absolutely essential for the perfect health of an infant as well as of grown people that the digestive organs shall enjoy a due interval of rest between the digestion of one meal and the taking of another. As a rule a new born infant may be safely fed when using human milk not oftener than once in every three or four hours. When fed upon artificial food once in five or six hours is sufficiently frequent for feeding. The intervals between meals in either case should be gradually prolonged as the child increases in age so that at twelve months it will take food but three times a day.

All artificial foods are best fed with a teaspoon as by this method much liability to over feeding and danger from uncleanliness of utensils is apt to be avoided. If a nursing bottle is used it should be one simple in construction which can be completely taken apart for cleaning. Those furnished with rubber caps are the best. Such a bottle should have the cap removed and both bottle and cap thoroughly cleansed with warm water in which soda has been dissolved in the proportion of a teaspoonful to a pint of water each time after using and should then be kept immersed in a weak soda solution until again needed when both bottle and cap



should be thoroughly rinsed in clean water before they are used. Neglect to observe these precautions is one of the most frequent causes of stomach disturbances in young children.

No solid food or table feeding of any kind should be given to a child until it has the larger share of its first or milk teeth. But even then it must not be supposed that because a child has acquired its teeth it may partake of all kinds of food with impunity. It is quite customary for mothers to permit their little ones to sit at the family table and be treated to bits of every thing upon the bill of fare apparently looking upon them as miniature grown people with digestive ability equal to persons of mature growth but simply lacking in stomach capacity to make use of as large a quantity as the older members of the family. The digestive apparatus of a child differs from that of an adult in its anatomical structure and in the character and amount of the digestive fluids so greatly that it is by no means proper to allow a child to eat of all the various kinds of wholesome foods which a healthy adult stomach can consume with impunity, to say nothing of the rich highly seasoned viands, sweetmeats and epicurian dishes which seldom fails to form some proportion of the bill of fare. It is true that many children are endowed with so much constitutional vigor that they do live and seemingly thrive notwithstanding dietetic errors, <sup>but</sup> the integrity of the digestive organs is apt to come so greatly impaired by continued ill treatment that sooner or later in life disease results. Up to the age of three years sterilized milk, whole wheat bread in its various forms, such of the grains as contain a large proportion of gluten,



Orphans Home offer most conclusive evidence that the death rate among children from gastro-intestinal troubles is greatly lessened by the abandonment of meat from their dietary. Dr. Clouston of Edinburgh, ~~an~~ eminent medical authority states that in his experience those children who show the greatest tendencies to instability of the brain, insanity and immoral habits are as a rule those who ~~are~~ use animal food in excess and that he has seen a change of diet to milk and farinaceous food produce a marked change in regard to the nervous irritability of such children.

Scores of other authorities corroborate Dr Clouston's observations and assert that children fed largely on flesh foods have capricious appetites, suffer more commonly from indigestion in its various forms possess an unstable nervous system and less resistive power in general.

Candy and similar sweets so generally given to children ~~from their~~ <sup>as a</sup> matter of course may be excluded from their dietary with positive benefit in every way. It is true, as is often stated in favor of the use of these articles, that sugar is a food element needed by children, but the amount required for the purpose of growth and repair is comparatively small and is supplied in great abundance in bread, grains fruits and other common articles of food. If an additional quantity is taken it is not utilized by the system and serves only to derange digestion, impair appetite and indirectly to undermine the health.



Children are not apt to crave candy and other sweets unless a taste for such articles has been developed by indulgence in them and their use, since they are seldom partaken of at meal time helps greatly to foster that most pernicious habit of childhood, eating between meals. No food, except at their regular meal time should be the universal rule for children from baby hood up, and although during their earliest years they require food at some what shorter intervals than adults , their meal hours should be arranged for the same time each day and no piecing permitted. Those parents who follow the too common practice of giving their little ones a cracker, or fruit between meals are simply placing them under training for dyspepsia sooner or later in life. The uninterrupted work of digestion proceeds smoothly and harmoniously in a healthy stomach but interruptions in the shape of food sent down at all times and seasons, when the stomach is already hard at work, are justly resented and such disturbances if long continued punished by suffering.

The appetite of a child is quite as susceptible of education as both in a right and wrong direction as are its mental or moral faculties, and parents in whose hands this education mainly lies should give the subject careful consideration since upon it the future health and usefulness of their children devolves in no small degree . We should all be rulers of our appetites instead of subjects to them, but whether this be or not depends greatly upon early dietetic training. Many a living mother by thoughtless indulgence of her child in season and out of season to dainties



and tidbits that simply serve to gratify the palate is fostering a "love of appetite" which may ruin her child in years to come. There are inherited appetites and tendencies, it is true but even these may be largely overcome by careful early training in right ways of eating and drinking. It is possible to teach children very early in life to use such food as is best for them and to refrain from the eating of things harmful and it should be one of the first concerns of every mother to start her children on the road to manhood and womanhood well trained in correct dietetic habits.



## A SCHEDULE OF INFANT'S DIET.

For successfully preparing the food of an infant from birth upward, the following schedule - which, by the way, must only be taken as an average- may serve a useful purpose:-

Diet during the first week:- Cream, two teaspoonfuls; whey, three teaspoonfuls; milk-sugar, one-quarter of a teaspoonful; water (hot), three teaspoonfuls; For each portion; to be given every two hours, from 5 A. M. to 11 P. M.; and in some cases, once or twice at night amounting to twelve fluid-ounces of food per diem.

Diet from the second to the sixth week:- Cream, two teaspoonfuls; milk, one tablespoonful; milk-sugar, one-quarter teaspoonful; water, two tablespoonfuls. For one portion; to be given every two hours from 5 A. M. to 11 P. M. ; amounting to seventeen fluid ounces of food per diem.

Diet from the sixth week to the end of the second month :-  
Cream, one tablespoonful, milk, two-and-a-half tablespoonfuls; milk-sugar, half a teaspoonful; For each portion; to be given every two hours; amounting to thirty fluid-ounces per diem.

Diet from the beginning of the third month to the sixth month:-  
Cream, one tablespoonful; milk, five tablespoonfuls; milk-sugar, one teaspoonful; water, two tablespoonfuls, For each portion; to be given every two-and-a-half hours; amounting to thirty-two fluid-ounces per diem.

Diet during the sixth month; six meals daily from 6 or 7 A. M. to 9 or 10 P. M. Morning and midday bottles, each:- Cream, one tablespoonful; milk, nine tablespoonfuls; Mellin's Food, one teaspoonful; hot water, two tablespoonfuls. Dissolve the Mellin's



Food in the hot water and add, while stirring, to the previously mixed milk and cream.

Other bottles, each:- Cream, one tablespoonful; milk, nine tablespoonfuls; milk-sugar, one teaspoonful; water, two table-spoonfuls. This gives an equivalent of thirty-six fluid ounces of food in a day.

In the seventh month the Mellin's Food may be increased to two teaspoonfuls, and given three times daily.

Diet for the tenth and eleventh months:- First meal, 7 A. M. Cream, one tablespoonful; milk, seventeen tablespoonfuls; Mellin's Food one tablespoonful; (or flour-ball or barley jelly) two teaspoonfuls; water (used only with Mellin's Food), two tablespoonfuls. Second meal, 10.30 A. M.: A breakfast-cupful of warm milk (eight fluid-ounces). Third meal, 2 P. M.: the yelk of an egg lightly boiled, with stale bread crumbs. Fourth meal, 6 P. M. : same as first. Fifth meal, 10 P. M.: same as second.

On alternate days, the third meal may consist of a teacupful (six fluid-ounces) of beef tea, containing a few stale bread-crumbs.

#### VARIATIONS AND SUBSTITUTIONS IN FOOD.

If, after feeding, vomiting occurs, with the expulsion of large, firm clots of caseine, the effect of adding lime-water or barley-water must be tried.

For instance at the age of six weeks make each bottle of:- Cream, one ~~table~~tablespoonful; milk, two-and-a-half tablespoonfuls; milk-sugar, half a teaspoonful; lime-water, two-and-a-half table-spoonfuls. Or, Cream, one tablespoonful; milk, two-and-a-half table-spoonfuls; milk-sugar, half a teaspoonful; barley-water two and-a-



half tablespoonfuls.

Sometimes, particularly if there be diarrhoea, boiling makes the milk more tolerable, and in this condition it may be used instead of fresh milk in either of the above mixtures. Condensed milk, too, can be employed temporarily, making each portion of: Cream, one tablespoonful; condensed milk, one teaspoonful; hot water, five tablespoonfuls.

Should further alteration be necessary, goat's or ass' milk may be substituted for cow's milk, the strong odor of the former and the laxative properties of the latter being removed by boiling. One ass is capable of nursing three children for the first three months of life, two children for the fourth and fifth months, and one child after this period to the ninth month. The milk should be used warm from the udder.

Strippings is another good substitute for cow's milk. It is obtained by re-milking the cow after the ordinary daily supply has been drawn, and contains much cream and but little curd. Assimilable proportions of this are:- Strippings, two tablespoonfuls; water, four tablespoonfuls. If the small amount of caseine in such a mixture, be still undigested: Strippings, three tablespoonfuls; barley-water, three tablespoonfuls.

#### WHEN FOOD IS NOT DIGESTED.

When, in spite of careful preparation, all of these foods give rise to indigestion with fever and the expulsion, by vomiting and diarrhoea, of hard curds from the stomach and intestines, the expedient of predigesting the milk must be resorted to. For this purpose I prefer the "Peptogenic Milk Powder." This powder contains



a digestive ferment, pancreatin , an alkali, bicarbonate of sodium and a due proportion of milk-sugar.

The mode of employment is as follows:- Take of- Milk, four table- spoonfuls; water, four tablespoonfuls; cream, one tablespoonful Peptogenic Milk Powder, one measure- (Measure provided with each one of powders). This mixture is to be heated over a brisk flame to a point that can be comfortably sipped by the preparer (about 115° F.), and kept at this heat for six minutes. When properly prepared, the resultant - so-called "humanized milk"- presents the albuminoids in a minutely coagulable and digestible form; has an alkaline reaction; contains the proper proportions of salts, milk-sugar and fat, and has the appearance of human milk.

#### STERILIZING COW'S MILK.

Much stress has been placed upon a method of preparing or rather preserving, cow's milk, known as "Sterilization."

As the milk exists in the healthy cow 's udder it is aseptic, i.e. free from any poisonous or dangerous ingredient; but during milking, and subsequent handling and transportation, particles of manure or various forms of dirt get into it, and are apt to set up fermentation or other injurious changes. To deprive these accidentally introduced organic impurities of their activity, or, in other words, to sterilize, it is necessary to subject the fluid to high heat under pressure.

Several admirable implements have been devised for conducting the process; one made after a design of my own is of tin, and consists of an oblong case provided with a well-fitting cover, and having a movable, perforated false bottom, which stands a short



distance above the true one and has attached a frame work capable of holding ten, six-ounce, nursing-bottles. On the outside of the case is a row of supporters for holding inverted bottles while drying, and at the proper distance below these is a gutter for carrying off the drip. A movable water-bath hung to the side; in this each bottle of food may be heated at the time of administration .

The bottles are made of flint glass, and graduated, the markings being specially convenient for measurement and rendering the use of a separate measuring glass unnecessary, a matter of no little moment, as every implement that comes in contact with the milk in sterilization must be kept chemically clean. Ten bottles are used, so that the whole supply of milk intended for a day's consumption can be prepared at once. Each bottle is provided with a perforated rubber cork, which in turn is closed by a well-fitting glass stopper.

#### THE BEST PROCESS OF STERILIZATION.

Sterilization should be performed in the morning as soon as possible after the milk has been served. The process is as follows:-

First see that the ten bottles are perfectly clean and dry; pour into each six fluid-ounces (twelve tablespoonfuls) of milk; insert the perforated rubber corks, without the glass stoppers, however; remove the false bottom and place the bottles in the frame; pour into the case enough water to fill it to the height of about two inches; replace the false bottom carrying the bottles; adjust lid, and put the whole on the kitchen range. Allow the water to boil, and, by occasionally removing the lid, ascertain that



the expansion that immediately precedes boiling has taken place in the milk, then press the glass stoppers into the perforated corks, and thus hermetically close each bottle. After this keep the apparatus on the fire, and the water boiling for twenty minutes. Finally, remove the flask bottom with the bottles, pour out the water, replace and carry the whole, covered with the lid, to the nursery.

When the hour of feeding arrives, put one of the bottles into the attached water-bath and heat it to the proper point for administration. The milk may, of course, be diluted with filtered water, or receive the additions ordinarily made to adapt it to children of different ages. The tip used should be thoroughly cleaned and immersed for a few moments in boiling water before it is attached.

As soon as a bottle is emptied - and if the whole of its contents be not taken the remainder must be thrown away - it is washed and placed in the rack to drain and dry.

Milk sterilized by the above process will, I have found by experiment, keep perfectly sweet from fourteen to twenty-one days, though it is best to sterilize daily:

Sterilized milk is especially useful in traveling, when fresh milk cannot be obtained; for use in cities during the heat of summer, when milk is most apt to undergo injurious changes; for the feeding of delicate children, or for those suffering from disease of the stomach or intestinal canal.



FOOD FOR THE AGED AND THE VERY YOUNG.

Food for the Aged:- One of the first requisites of food for the aged is that it shall be somewhat ~~easy~~ <sup>easy</sup> of digestion since with advancing age and decreasing physical force and energy the powers of digestion and assimilation becomes correspondingly <sup>less</sup> vigorous, and articles of food that may be partaken with impunity at an earlier period of life overtax the enfeebled organs and prove a source of much injury. The fact that the vital machinery is worn and weakened with age has led to the popular supposition that old people requires a stimulating diet as a "support" for their declining forces. That this is an error is apparent from the fact that stimulation either by food or drink lessens instead of reinforcing vital strength thus defeating the very purpose which it is desired to attain. The use of large quantities of flesh foods is particularly unsuited as a diet for elderly people, not alone because of its stimulating character but because it produces a tendency to plethora a condition which is especially inimical to the health of old people. Some eminent authorities on diet also reason that the loss of the teeth at this period of life whereby the thorough mastication of flesh foods is with difficulty accomplished even with the best artificial aids should be considered a significant indication that Nature intended the use of such foods to be discarded by old people.

A milk, grain and fruit diet is undoubtedly the one best suited to the ordinary aged individual. Vegetables and legumes



in well prepared soups may also be used advantageously. Directions for the preparation of such soups as also for the cooking of grains and grain products will be found in the previous pages. The quantity as well as the quality of food for the aged should receive consideration. The diminished bodily activity and the fact that all growth has ceased render a smaller amount of food necessary to supply the needs of the system and a decrease in the amount taken in proportionate or to the age and the activity of the individual must be made or health will suffer; the system will become clogged, the blood filled with imperfectly elaborated material and gout, rheumatism, apoplexy or some other diseased condition will be the inevitable result. The digestion of heavy meals is a tax upon vital powers at any time of life but particularly so as age advances, and for the individual who has past the first <sup>half</sup> century of life over feeding is fraught with much danger. Cornaro an Italian of noble family contemporary with Titian in the sixteenth century after reaching his eighty third year wrote *Several* essays upon diet and regimen for the aged in one of which he says :- upon this point "There are old lovers of feeding who say that it is necessary that they should eat and drink a great deal to keep up their natural heat, which is constantly diminishing as they advance in years; and that it is therefore their duty to eat heartily and of such things as please their palate, be they hot, cold or temperate and that if they were to lead a sober life it would be a short one. To this I answer, our kind



Mother Nature, in order that old men may live to still greater age has contrived matters so that they may be able to subsist on little as I do for large quantities of food can not be digested by old and feeble stomachs."

Conaro lived to be one hundred years old owing largely no doubt to his simple frugal habits.



(Mod. Med.  
UT. 1)

### THE URINARY TEST-MEAL.

The gastric test-meal has placed the study of chemistry of digestion upon a thoroughly accurate and scientific basis. It is now possible to know exactly the amount and kind of work which the stomach does under any given conditions. By a combination of the Hayem and Winter method with the Toepfer method of gastric analysis, and adding quantitative estimation of the products of salivary digestion absolutely exact data can be obtained, by a comparison of which, with the normal standard every deviation of the gastric chemism from the natural condition may be readily detected.

The marvelous advances made in physiological chemistry have given to us almost equally accurate methods for determining the character and quality of the constituents of the urine, but these invaluable means of diagnosis have been, up to the present time, of comparatively little value because of the neglect to establish the conditions necessary for accuracy. The gastric fluid obtained after a miscellaneous meal is of little or no value in determining the conditions of the gastric chemism. To be of value, the gastric fluid must be obtained after a test-meal of known quantity and constituents, so that the results of the analysis can be compared with the results of analysis obtained under like conditions.

In urinary examinations, the fact that the constituents of urine vary to a very great extent in relation to the variation in diet has been practically ignored, except in special laboratory researches. The time has certainly arrived when the necessity for greater precision in urinary analysis must be recognized. Variations in diet give rise to a very great variation in the urinary constituents. This is especially true respecting the nitrogenous constituents. Not only the amount of the



(Mod. Med.  
U.T. 2)

urea, but especially the amount of the uric acid vary to a marked extent with the amount and the character of the albuminous elements contained in the food,-- for example, the body normally requires about the equivalent of three ounces of dry albumen daily to repair the wear and tear from the wastes resulting from tissue work. Any excess of this amount must result in a considerable increase in the amount of urea, while a deficiency will lessen the amount of urea normally eliminated, hence there it is a matter of considerable consequence whether the individual whose urine is subject to examination, has, within the twenty-four hours during which the urine has been accumulating, eaten freely of meats, eggs, or other nitrogenous food-stuffs.

In order that the results of urinary examination should be to any considerable accurate, the patient must insist on a carefully determined and specified dietary. For convenience it is best that the diet should consist of the normal ration, which practically consists of 16 ounces of starch, 3 ounces of albumen, and 1 1/2 ounces of fat, it being understood that the weight of the elements named is estimated "water-free". The normal ration should be administered for twenty-four hours before beginning to save a twenty-four hours' specimen for examination and also while for a second twenty-four hours specimen is being saved. It is often useful also to obtain a specimen for comparison while the patient is subsisting upon his ordinary fare. The writer has prepared a number of balance normal rations of which the patient is allowed to take his choice. The following are a few specimens of rations which have been tested for practical use for some months: The ration is divided into four parts, so if the patient is not able to take the entire amount he reports the quantity that he does use,-- one-half or three-fourths, or whatever the amount may be. The patient is also instructed to take the total amount



(Mod. Med.  
and U. T. 3)

of nitrogenous food, cutting short the amount of carbohydrates in case the bulk is too great.

In examining the urine for uric acid, it is especially important that the patient should avoid the use of beef-tea, animal broths, or soups, beefsteak, mutton chops, or any other flesh foods, and that especially that he should avoid the use of such foods as sweet-breads, liver, kidneys, etc., since all these foods contain a large amount of uric acid as shown by Crittenden and others, a double or even a triple amount of uric acid contained in the twenty-four hours' specimen of urine. The amount of uric acid, according to Crittenden's investigations, contained in the urine of a person subsisting upon a uric acid-free diet, is about .4 grams per diem.

The averages obtained by the examination of the urine of several hundred persons subsisting upon a uric acid-free diet, made in the physiological laboratory of the Battle Creek Sanitarium gives practically the same average. On a mixed diet the amount of uric acid is found to be double, and when the pancreas, liver, or kidneys are eaten, the quantity of uric acid rises to three times the normal.



6/3.26  
(Mod. Med.)

### DIET IN GASTRIC DILATATION.

Albu has recently brought forward facts which are of immense practical value in dealing with cases of gastric dilatation, the extreme frequency of which is recently coming to be recognized in this country as well as in France, where through the labors of Glenard, Trasteur, Dujardin-Beaumont, and others, the grave significance and frequent occurrence of this condition have long been understood. Albu recommends a fluid or softened diet instead of the dry diet which has been recommended by some observers insisting that the disturbance of the physiological functions of the stomach is a matter of much more importance than the mere anatomical condition. He prohibits the use of beef, pork, and all fats with the possible exception of a small quantity of butter. The reason for the prohibition of beef, pork and fats is evident. The weakened stomach is slow, the digestive ferments are present in deficient quantity, and the amount of hydrochloric acid produced is usually very greatly diminished, extreme hypopepsia or apepsia being the prevalent condition accompanying dilatation. This the writer has abundantly shown in a careful study of over ten thousand cases of gastric disorder, in which there has been careful examination of the gastric fluid in connection with a careful physical examination of the stomach.

He afterwards the following diet:

- 8 A.M. A cup of milk and 2 rolls.
- 9 A.M. A cup of cream.
- 10 A.M. 2 soft eggs.
- 11 A.M. A cup of cocoa with milk.
- 12 M. Saucer of cereal food (oatmeal or cracked wheat.)



- 1 P.M. A quarter of a pound of sweet breads, 3 tablespoonfuls of spinnach.
- 3 P.M. A cup of milk.
- 4 P.M. A cup of chocolate and zwieback.
- 5 P.M. A cup of cream.
- 6 P.M. A saucer of oatmeal soup with egg, "plasmon" or 4 tablespoonfuls of minced meat.
- 7 P.M. Soup with egg and a roll.
- 8 P.M. A cup of milk.
- 9 P.M. A cup of milk.

The writer remarks before presenting this bill of fare that "The meals should follow one another closely, just sufficient time being allowed to prevent interference of the meal with the preceding."

How this is done, however, when the patient is fed thirteen times in thirteen hours, is not clearly explained. The learned Doctor very wisely follows his diet prescription with the direction that lavage of the stomach should be practiced night and morning. After each of these washings a fluid meal is administered through the stomach tube, consisting of condensed milk with "plasmon" and various other things. So really the patient receives fifteen meals per diem, and yet no meal must be allowed to interfere with the preceding. It is evident that the stomach must be kept active and not once allowed to become empty of its contents during the entire period between morning and night. A stomach treated in such an extraordinary manner ought to be washed at least twice a day.

The dietetic method suggested by Dujardin-Beaumez, Bouchard and other French authorities seems to the writer to be very much more sensible than that of the German authority above referred to. Only two meals a day are allowed to patients with dilated stomachs, and these are placed seven to nine hours apart. In some instances an intermediate light lunch of some easily digestible food is allowed. The writer has pursued this method for many years with excellent success, and believes it to be in every



way preferable to the German method of feeding every hour. There are few stomachs which will not rebel at such treatment. The majority of patients find themselves quite unable to take food at such frequent intervals. Milk as Glenard has shown, is an exceedingly questionable article for use in cases of gastric dilatation. If taken at all it must be in the form of kum-yss or buttermilk, as raw milk forms hard curds in the stomach which are very slowly dissolves, and often undergo putrefactive changes, and when they fail to digest cannot be easily washed out through the tube, a matter of much importance in cases of dilatation resulting from pyloric stenosis.

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### URINARY TEST MEAL.

The patient should take the special ration for two days. The first day the ration should exclude peas, beans asparagus and onions, as these foods contain purin bases. The second day the patient should take three ounces of beans as a part of the ration.

The analysis of the urine for the first day will show the amount of uric acid and xanthins actually formed within the body and not destroyed, the so-called endogenous purins. The amount of uric acid and xanthin bodies found the second day will indicate the amount of endogenous purins plus those derived from the food, or rather one-half that contained in the food, since Hall has shown that half the exogenous purins are oxidized in the body. The difference between the first and the second day should be about 0.0253 grams of purin bodies, uric acid and xanthins, as a pound of beans contains 4.1661 grains of purin bodies. The increase of nitrogen due to purin bodies, uric acid and xanthins, should be 0.1650, since beans contain 0.025 % of purin nitrogen, one-half of which will appear in the urine.

There is a work by Hall on the purin bodies in food stuffs which gives a great number of valuable facts and some exceedingly interesting tables.



# Dietetics of a Torpid Liver.

*Dietetics of a torpid liver.*

## ~~INTESTINAL DYSPEPSIA.~~

It is very evident that there is some influence at work among civilized people which is producing a marked degeneration of the digestive organs. This is indicated in a way ~~persons~~ appreciate by the decay of the teeth, <sup>which means</sup> ~~this indicates~~ more than simple decay of the teeth, rather a decline of the whole digestive system. A person with decayed teeth is suffering from decayed digestive organs in some other respect as to the nutritive functions. Biliousness is simply one of the incidents of a prolonged state of general decline, and is common among civilized people, particularly English and Americans. There are several conditions which may be due to a torpid liver. The liver makes bile, it digests food, it converts the waste matter of the body into innocuous substances; it retains certain poisons within itself to prevent their circulation through the system and it destroys organic poisons. It redigests some portions of the food, and ~~converts~~ changes waste matters so as to facilitate their removal.

First, we will consider its relation to the bile making function. The bile is composed of the alkali <sup>ne</sup> wastes of the body. Residual matters which are very poisonous substances developed within the body. The bile is useful as an excretory fluid. ~~This is essential to health.~~ It clears the body from waste substances. Now, what is the relation of the bile to diet? Suppose a person takes an excess of food, what is the con-



sequence? Examine the liver after a person has taken a meal, and it will be found about half an inch greater in diameter, coming down even  $\frac{1}{2}$  with the lower border of the ribs. The liver is filled up with the products of digestion which it is redigesting. If a person takes an excess of food he will over distend his liver, *and* over work it in digestion. A great many complain of sluggish livers, and take medicine as they call it to "unload the portal circulation," when really these persons are over-working their livers with excess of food. Such ~~a~~ person<sup>s</sup> do ~~not~~ not make bile enough because <sup>the liver is</sup> overworked in other ways. ~~The liver~~ <sup>it</sup> is over distended and weakened, just as would be the case with an over worked muscle. Suppose a person takes more fat than <sup>he</sup> they ought. The liver does not have anything to do with the digestion of fat, but the bile does. However, the excess of fat is ~~a~~ seized upon by the liver, in order to prevent ~~damage~~ damage which would occur if it were allowed to pass into the circulation. Now what damage would occur if the fat were allowed to go into the blood? The tiny blood corpuscles are continually circulating through the small capillaries, many of which are barely large enough to let them slip through. Suppose the blood is laden with these small globules of fat which should have been destroyed. When they get into these smallest capillaries, they adhere, here and there, and block up and obstruct the passage. By and by that portion will become distended with stagnant blood, which will clot and cause the tissue to swell. The blood ceasing to circulate, affects quite an extensive region, ~~of tissue~~. As a result the tissue which



~~normally~~ should receive a blood supply, with its outlying nerves and muscles, die for want of nutriment, just as a city would famish for want of water if the water mains ~~were~~ <sup>were</sup> cut off, ~~so~~ <sup>By</sup> and by there ~~will be~~ <sup>is</sup> death within a certain area, and we have pimples and boils, and abscesses, which ~~arise from~~ <sup>are</sup> an impure state of ~~the blood from this excess of fatty matter.~~ This comes from a direct mechanical clogging of the liver. The liver is a great philanthropist; in order to protect the rest of the body, it captures these fatty globules and holds them within itself. In consequence the little liver cells become clogged up so they cannot do their work.

There is a very interesting arrangement in the liver, <sup>consisting of</sup> a double row of cells, <sup>one row for</sup> of blood on one side and <sup>another for</sup> bile on the other. The blood from the portal circulation comes in from one side, and the bile goes out from the other. As the blood goes through, the cells inspect it, so to speak, and seem to recognize intuitively that these fatty particles will do mischief, ~~so that they capture~~ them, ~~and bring them to themselves~~. After a person has eaten a meal containing much fatty material, the liver cells are loaded with fat, and thus necessarily hindered from doing any other work. Prof. Claude Bernard made an experiment in which he proved this to be true. He took two dogs, and fed one with bread and water, and gave the other a meal made up largely of fat. After the process of digestion was well under way, he killed ~~the two~~ <sup>both</sup> dogs, and found <sup>that</sup> the liver of the dog which had been fed on fat <sup>was</sup> actually clogged with fatty particles in all its cells, while the liver of the other dog was free from fat. <sup>Thus</sup> The excessive use of fat is one of the



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fatris one of the causes of a torpid liver.

What is the relation of diet to the digestive functions of the liver? The majority of people consider the stomach as the great digestive organ, and the reason why many dyspeptics are not cured is because the stomach is regarded as the head-quarters for digestion, whereas the stomach is really only the ante-room of the digestive process. The liver is one of the most important of the digestive organs. No matter how well the stomach and the small intestines do their work, this all counts for naught, unless the liver puts on the finishing touches. It completes the work of digestion on the albuminous substances, and it also changes the peptones. The albumens, so far as <sup>all the</sup> ~~the~~ stomach can do for them, would poison a person if injected directly into the blood. The stomach has to do something for ~~them~~ which renders them food. It is also the duty of the liver to destroy any excess of peptones. Normally they disappear in ~~passing through~~ in passing through the liver, but in case they do not, ~~disappear~~, it is the duty of the liver to ~~destroy~~ the overplus of ~~peptones~~. If a person takes an excess of albumen, the liver has too much of this kind of work to do, and must neglect other branches of its work. Suppose a man takes too much beefsteak, the liver cannot complete the digestion of the albumens because it is overworked, and finally neglects it altogether, ~~and~~ he says although he has a good appetite, his food doesn't do him any good. The doctor says to him, "you are weak, and you must take more beefsteak," when already his liver is unable to digest what is necessary to



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build up muscles and nerves. He has had too much of that class of food already. Many persons are suffering from debility of this kind, which nothing will relieve. Another thing <sup>a</sup> persons <sup>n</sup> taking too much albuminous food ~~more than the stomach and intestines are able to convert into peptones~~ so long as his stomach and intestines are able to convert ~~them~~ <sup>it</sup> into peptones, is making peptones in larger quantities than the liver can destroy. In consequence the liver becomes poisoned by an excess of peptones. It is difficult to understand how a person can be poisoned by what is natural food, but partially <sup>i</sup> digested food is a rank poison to the body, and <sup>even</sup> in small quantities <sup>A</sup> will produce very toxic symptoms. The person who makes more peptones than he can dispose of to advantage, will suffer from a constant headache. He has no energy nor vigor. He has lost his ability to think, his brain is clogged. I have seen many such persons cured by living upon a simple diet, fruits, grains and milk being the best.

The liver has a second function in <sup>the</sup> redigestion of starch, which it ~~changes into sugar~~. <sup>It comes</sup> Sugar <sup>in the form of sugar and</sup> coming into the liver is reconverted into starch, ~~again~~, <sup>That</sup> that is what makes the liver of an animal sweet to the taste. This work of the liver is most important. It stores up this liver starch and then doles it out in small quantities to meet the needs of the body. It is a sort of automatic stoking arrangement. Sugar is intended for fuel mostly, and that it shall be stored up, it is converted from ~~in-~~soluble sugar, into ~~insoluble~~ starch. Now suppose the liver has



too much sugar, more than it can store up. In consequence some of it will slip through into the blood. Most people are apt to take too much sugar, for there seems to be a dominant sugar tooth among all civilized races. The sugar lover is apt to make every thing too sweet. He adds sugar to fruits, and he adds it to grains which do not need it at all, and all this leads to overwork of the liver so that it becomes torpid.

The third function of the liver by which it converts the tissue waste into substances which can be readily eliminated. What is the relation of diet to this function? It is one of the most important of all with reference to the work of the liver. One of the offices of the liver is to convert tissue destruction into a form which can be eliminated. When the blood corpuscles are worn out or tissues from the brain or muscle are broken down, the liver takes these and converts them into a form in which they can be <sup>gotten rid of</sup> eliminated. The greater part of them is converted into urea. If the liver is overworked, these substances may be left in the body in the form of uric acid or oxalates of lime. Here is an important relation to diet, for if a person takes an excess of dead tissue as in the case of eating large quantities of meat, the liver is given too heavy a task of converting these albuminous substances which are in excess of the amount needed for repairs, into a form in which the waste can be thrown off. This excess must be treated as the same as broken down animal tissue within the body. It doesn't make any difference whether it is the dead muscle of the individual or the dead muscle of an animal. It is found by careful experiment that only three ounces of dried albumen



~~meat~~ which is equivalent to about eleven ounces of beefsteak, can be utilized in twenty four hours, since ~~it~~ it serves only to ~~take~~ take the place of the nitrogenous matter which has been used up in the body. Suppose a person takes in the course of a day the equivalent of four ounces of dried albumen, this extra ounce cannot be utilized, because there is nothing to give it place in making the necessary repairs, unless the body is growing. A person who is growing or taking a course of exercise with reference to development, can use a little more than the prescribed three ounces which are necessary in case one is simply maintaining his equilibrium. One cannot take any more than he naturally wears out without injury, for any excess, be it half an ounce or five ounces, must all be treated as dead tissue matter from brain or muscle, and ~~be~~ converted into substances which can be readily eliminated from the body. The person who takes too much albuminous matter is ~~is~~ overtaxing his liver. Another thing, when a person is taking flesh food, he is taking into his body, waste substances of the animal which he eats. That is ~~what~~ <sup>what</sup> gives to the meat its flavor. If you take meat and wash it, it becomes white and tasteless, <sup>p.c.</sup> These ~~soluble~~, inert, dead tissues, being soluble, while the living tissues of the body are insoluble. If it were not so, it would be dangerous for us to go out in the rain or fall in the river. The portions which are soluble are the result of disintegration, tissues which are on the way to be disposed of, but when the animal is killed, these substances remain, and we impose on our bodies the task of reconverting this



foreign, broken down tissue in addition to the normal, physical waste. Here is one of the greatest of all causes of biliousness. We do not find biliousness ~~frequent~~ among vegetarians. I do not remember meeting a single case of biliousness among ~~the~~ thorough-going vegetarians. Why? Because it is almost impossible to take an excess of albuminous matter in using vegetable food. Nature puts these food elements in just the right proportion in various vegetable foods, or else in a shape in which it is almost impossible to get an excess. For a food to be perfect, it must contain one part of the albuminous element to seven parts carbonaceous. Wheat represents this perfectly, and the other grains vary from one part in six to one part in eight. Now lean beef <sup>has</sup> five times as much of a nitrogenous matter as the carbonaceous, which gives an excess <sup>tr.</sup> thirty-five times too great on the albuminous side. The grains being so nearly perfect, is the reason why animals can subsist on such food as they do? The ox can live upon hay and Indian meal and do hard work. The Indian meal contains a little excess of the albuminous matter, enough to make up for its deficiency in the hay.

Further, a person can tolerate an excess of carbonaceous matter much better than an excess of albuminous matter. A little excess of carbonaceous material can be deposited as fat or used up in hard work. Nature has provided for storing up a little carbonaceous material in the liver, so a person who is compelled to fast can draw upon this store in his liver, but albuminous elements cannot be stored up, only just enough to meet present needs



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in replacing muscle fiber<sup>b</sup> and brain fiber which have been actually worn out. There is no room for any surplus, it must be eliminated immediately. ~~Any excess of nitrogenous matter is harmful, whereas some excess of a carbonaceous material is proved for.~~<sup>id</sup>

The person who eats lean beef is certain to take an excess of nitrogenous food. He does not make his meal of meat ~~altogether~~, ~~but~~<sup>perhaps he</sup> takes some oatmeal and graham bread with it. But these foods contain already just enough of the nitrogenous elements to balance the carbonaceous, so it is impossible to add cracked wheat or oatmeal to beef steak without getting an excess. It is possible to combine beefsteak with other things like potatoes or rice, which are deficient in the nitrogenous element, but still it is very difficult to eat flesh food, and not get a surplus of the nitrogenous material. When one makes beef tea, it is simply a solution of the excrementitious tissues of the animal. Thousands of people are poisoned to death and starved to death every year with beef tea.

What is the relation of diet to the poison-retaining office of the liver? If a person takes arsenic, lead or mercury, the liver withholds these substances so far as it can. For instance if a person takes lead from water pipes, it is apt to make him bilious, because the liver is overtaxed in this work of retaining poison. A person who takes food containing<sup>ing</sup> a too large<sup>a</sup> proportion of alkalis<sup>e</sup> overworks his liver; consequently people often suffer from using baking powders, because they impose a great burden upon the liver. Mineral waters are also bad for the same reason.



There are some who use mineral waters, such as the Carlsbad Salts every day. By neutralizing the acids, they stimulate the bowels, but they are all the time overworking the liver, which must dispose of the residual<sup>W</sup>.

What is the relation of diet to the poison destroying function of the liver? The liver is likely to have to deal with two kinds of poison, those taken in with the food, particularly organic poisons, ~~and flesh food~~, and poisons which are generated in the alimentary canal by the action of germs. In using flesh foods, we are constantly liable to take in ~~these~~ poisonous substances which generate ptomaines, and it devolves upon the liver to destroy these. Doctor Claude Bernard made the experiment of feeding one ~~dog~~<sup>dog</sup> upon beef tea, and another upon water, and the dog fed upon beef tea died first, because his liver was worn out in trying to destroy these poisons. Meat, in its best condition, contains some of these poisons. Here is an animal throwing off poison to the extent that if its breathing function is obstructed for five minutes the animal dies, or if its skin is varnished, it can only live three hours; <sup>or</sup> with the liver removed, it may live two and a half days. Now suppose animal life is destroyed ~~all at once~~, and the excretory organs cease their function suddenly. You can readily see that the accumulation of poison from the body will be very rapid. An animal with his throat cut is not dead; pinch a muscle and it will quiver and it will also twitch under the application of electricity. This is the result of the continued cell activity in the tissues. So when an animal is killed, it is not dead, paradoxical as it may seem. The tissues remain ~~alive~~



alive until rigor mortis occurs, and then decay sets in. Up to this time, the tissues have continued to act, and the waste material has accumulated, there being no elimination possible. This may be within half an hour or several hours. So the waste matter in flesh food is much greater than when the creature was alive -- perhaps six to ten times as great.

Instead of serving meat freshly killed, the butcher hangs it up to ripen so that it shall be real tender, and this ripening means a process of decay set up by germs. From the moment rigor mortis occurs, decay goes on, although if kept at a low temperature, it goes on slowly. Mr. <sup>u</sup>Armor is said to keep his Christmas beef three months. Think of eating an animal has been dead three months, the flesh of which must contain a large amount of these substances which <sup>must be</sup> are thrust upon the liver to destroy. Once in a while a person takes so many of them and of so dangerous a character that a violent fit of sickness occurs with a vomiting and purging which may be even fatal. Everybody who eats beef steak or mutton, is liable to be taking into his system more or less of these ptomaines. The eating of game is still worse, for that is always allowed to be half rotten before served. Partridges or pheasants are almost always blue or green about the abdomen, decay having so far advanced as to have produced coloring matter. Game and fowl are often shipped without being dressed, although there ought to be a law prohibiting the sale of meat of which is not dressed immediately.

There is still another source of these organic poisons, and



that is in the use of substances which contain them. Tea and coffee must go in the same category with alcoholic drinks, because theine and <sup>f</sup>cafein contain some of the same poisons that Prof. <sup>h</sup>~~leman~~, one of the greatest chemists that ever lived, says that in effects they are really identical, ~~and~~ <sup>and</sup> arguments against the use of alcoholic drinks must also be arguments against the use of tea and coffee, for they each have a very deleterious effect upon the liver. The liver <sup>f</sup>in trying to withhold the poisons which alcohol contains becomes distended ~~with it~~ and hinders its legitimate action. The body <sup>f</sup>tries in every way to get rid of alcohol. It sends some of it out through the lungs and some through other excretory organs, but the greater part of it disappears, so some physiologists have said that because alcohol thus disappears then it must be food. When one takes mineral poisons the liver stores them within itself, but the reason why it does not store the alcohol is that the liver transforms it into <sup>f</sup>another form; ~~and~~ in the same way theine and <sup>f</sup>cafeine come out in another form. If a person swallows carbolic acid it does not appear in the excretions as carbolic acid but is changed or transformed, so ~~with~~ nearly all organic substances, ~~they~~ are changed in going through the liver. In the digestion of food, particularly of <sup>and cheese</sup> flesh foods, poisonous ptomaines are formed, but ordinarily, one does not find these in great quantities, from the fact that the liver is, able to dispose of the most of them. The small quantity of cheese ordinarily taken at a meal, will not likely have any appreciable effect. But suppose a person takes a pound



of cheese, then he will get enough poison for toxic effects . Two of the worst cases <sup>of poisoning</sup> I ever knew were ~~cases of~~ <sup>from eating</sup> cheese poisoning. The lady died, but the gentleman recovered. Cheese always contains these ptomaines. The process of ~~pt~~ ripening is always a process of decay, and when taken k into the stomach the liver has extra work to do to dispose of these poisons. The old saying "Cheese, thou mightly elf, which digests all things but itself" is not true. Cheese does not help digest other foods. I met a doctor who explained why it was that cheese was useful as an article of diet by saying that cheese contains gastric juice from the calf's stomach used as rennet. I asked him to explain why it was that <sup>new</sup> ~~old~~ cheese doesn't have as much of this peculiar strong acid flavor as old cheese, and whether it had the capability within itself of multiplying. This burning bk fluid which comes up in the throat with its fiery taste which the old doctor thought was gastric juice, is really butyric acid which results from the decay of fats and oils and belongs to the category of ptomaines. Sometimes cheese contains ptomaines of a kind particularly deadly, and they are always present. Prof. Vaughn of the Michigan University discovered this poison in cheese and ~~he~~ named it tyrotoxican. He discovered also a very easy test by which its presence could be detected and thought in the interest of the State Board of Health that it would be a good plan to supply all groceries with it. ~~But~~ first in order to test ~~it~~ still further, he collected a hundred specimens of different cheeses and to his surprise , every single one showed the presence of tyrotoxican, so he did nothing more



about submitting his tests to the grocers, for if followed ~~it~~ out, it would destroy the whole cheese business. When Prof. Vaugh<sup>h</sup>n wants specimens of tyrotoxican, he gets a quantity of cheese, pours a little milk and water on it, and puts it in a bottle ~~on~~ a shelf, and in due time he has plenty of the poison.

In the stomach of a new born babe there are no germs, but they are soon introduced with food, and we are all the time taking them in, often by voluntary acts in using food like beef-steak and cheese which are sure to contain them. If we must eat cheese, i t can be rendered much less harmful by being cooked. The person who wants to keep his liver in good condition and have a good healthy circulation, should take food which in itself is free from germs.



D I E T E T C S .  
TREATMENT FOR HYPOPEPSIA.

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There are or may be three conditions present in hypopepsia:

- Diminished production of HCL.
- Diminished production of pepsin.
- Diminished motility.

The whole system suffers in hypopepsia, in marked cases, especially in a pepsia; there will be found decay of the teeth, weak abdominal muscles, general lowered vital resistance.

CAUSES:

- |                                     |                        |
|-------------------------------------|------------------------|
| Over-eating,                        | Fats and rich gravies. |
| Hasty eating,                       | Soda and saleratus.    |
| Coarse foods,                       | Lime water.            |
| pickles,                            | Mineral waters.        |
| Condiments,                         | Excessive salt.        |
| Icecream,                           | Tobacco.               |
| Ice water,                          | Tea and Coffee.        |
| Cheese and other decomposing foods. | Alcohol.               |
| Cane sugar, candy, etc.             |                        |
| Meats.                              |                        |

Drugs: Bromides, hypnotics, narcotics.

Diseases and conditions in which hypopepsia is a prominent symptom:

- |                   |                      |
|-------------------|----------------------|
| Hemorrhage,       | Cancer.              |
| Shock,            | Cacesthesias.        |
| Exhaustion,       | Myxedeme.            |
| Starvation,       | Addison's Disease.   |
| Infancy,          | Exophthalmic goitre. |
| Profuse sweating, | Autointoxication.    |



Melancholia.

Subercular consumption.

Anemia:

Pernicious anemia.

Gastritis.

Enteroptosis.

Dilatation.

Cirrhosis. *of liver*

TREATMENT FOR HYPOPEPSIS:

Increase general vital resistance.

Exercise.

General cold baths.

Sun baths.

Arc light to trunk.

Massage.

Swedish movements.

Vibration.

Local measures:

Ice bag over stomach before meals.

Wet Girdle. Internal electricity.

Radiant heat. Galvanic, Faradic, Sinusoidal.

Hot bag after meals.

Abdominal kneading. Alternate applications to spine.

Gastric massage. Ice to spine.

Sitz bath. Radiant heat over stomach.

Hot and cold trunk pack.

Gastric lavage, hot and cold.

Cold spinal douche.

Abdominal supporter to support abdominal muscles.



Drugs:

HCL.

Intestinal antiseptics.

DIET.

Special indications:

Thorough chewing.

Vegetable acids.

Peptogen.

Broths.

Malt Honey.

Raisins.

PanPeptogen.

Buttermilk.

Cottage cheese.

Kumyss.

Sour milk.

Raw eggs.

Minced, hard boiled eggs.

Hard boiled yolks.

Well chewed foods.

Potatoes.

Dextrinized cereals.

Tender vegetables, as,--

Spinach,

Green Peas.

String beans.

Stewed ~~zinc~~ celery.

Stewed cucumbers.

Ripe fruits.

Fruit juices.

Avoid:

Meats.

Clear fats.

Rich foods.

Cane sugar.

Milk.

Coarse vegetables.

Hard or unripe fruits.

Skins and seeds of fruits.

Insoluble parts of foods.

Salt.

Ordinary butter.

TREATMENT FOR APEPSIA.

Same as hypopepsia; stricture more vigorous. Diet stricter  
liquid meals--small quantity four times a day.



## SPECIAL DIET FOR TUBERCULOSIS

A special diet that is highly successful in the treatment of tuberculosis has been reported to the Berlin Medical Society by Dr. Sauerbruch. He claims to have cured by this treatment a number of cases of tuberculosis of the lungs, bones and skin. The diet, which was developed by Dr. Gerson, is low in proteins and carbohydrates and high in fats, vitamins and mineral salts, chiefly potassium and calcium. The food is largely eaten raw. The cost is nearly double that of the ordinary hospital diet.

One would naturally expect a diet rich in lime to be beneficial in cases of tuberculosis, for the reason that Nature's method of arresting this disease is to imprison the tubercle germ in a deposit of lime, thus preventing it from developing and spreading throughout the body. A diet deficient in lime would evidently favor the weakened resistance to disease and favor its development.

It is also easy to understand the extraordinarily beneficial effects of sunshine and light therapy in tuberculosis. By its action upon the skin, the light produces the wonderful vitamin D, which is absorbed and enables the body to assimilate and utilize lime in building up strong bony structures and combat the tubercle bacillus when present.



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THE INFLUENCE OF NUTRITION IN THE MANAGEMENT AND TREATMENT OF INEBRIETY.

J. H. Kellogg.

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**Ladies and Gentlemen** I am sure you will be disappointed if you expect to hear a well studied address. I got off the train this morning, and was obliged to work pretty nearly all the way, and most of the night, on work I had to bring along with me, and I will just give a few points from my experiences which may possibly, however, not meet your entire approval, but I believe are worthy of your consideration.

During the last thirty years I have had almost constantly under my care persons who have been addicted to the drink habit, sometimes quite a number. I have had some perhaps rather unusual opportunities for studying the causes of inebriety in individual men and women and in efforts to reform these unfortunate victims. So the conclusions I have reached are the result of experience rather than of merely theoretical study of the subject.

The first thing that I find is worthy of our attention in connection with this subject of inebriety is the fact that in spite of the efforts that have been made by temperance societies, by laws which have been secured through the efforts of prohibition movements, and by other means,—in spite of all these efforts that have been made to stay this great tide of evil, inebriety is increasing. In fact, in the last fifty years the evidence is that the number of chronic inebriates has increased nearly 300%. The same thing is true of other forms of drug addiction. The opium habit is increasing. These unfortunate individuals are so changed that in common parlance they are sometimes called drug fiends. "An opium fiend" is a common expression. I never use it myself, because I think it is an improper to use the term, and yet there is some reason for it.

Alcohol fiend is the term sometimes applied to the chronic inebriate,



because the use of the drug so thoroughly changes the man morally as well as physically that he is not what he was.

If we could have marshalled before us here today the great army of these poor, unfortunate victims of an artificial habit, an artificial appetite, it would be a most appalling spectacle. Here then 100,000 such unfortunate men and women would stand before us so utterly changed, many of them, as to be utterly unrecognizable as the image of God in which they were created.

We are not gaining any headway in checking this terrible tide of vice that is sweeping over the race. It is a most appalling thing to consider that all the efforts that have been made during the last century, since the organization of the first temperance society, the centennial of which we are here to celebrate, there has been no progress, though something has been done at least to stay this awful tide, to delay its progress a little; but it has been sweeping on ~~unhindered~~ almost entirely unchecked; and the number of inebriates in the United States today per million is three times what it was about fifty years ago, according to statistics. The same statistics show that the number of insane people has increased 300%, and the number of epileptics has increased 300%. And if you put these different classes of degenerates together you will find that we have somewhere about 3,000 or 3,500 to the million at the present time.

Now if this number of defectives should go on increasing in time to come as it has in the past, if this rate of increase continues, the number of suicides, of insane, epileptics, and inebriates,—all forms of degeneracy which can be traced directly to the alcohol habit ~~and~~,—will become something enormous. The increase is more rapid in certain sections of the United States than in others, probably. In the State of Illinois, for example, they have at the present time 10,000 inmates in the asylums, and the Lord only knows how many there are outside of the asylums. I was talking a short time ago with the secretary of the State Board of Charities of Illinois, a friend of mine, and he told me he had made an



estimate based upon what seemed to him very probable data, and he was satisfied that there were more than 50,000 people who were more or less insane, who really were mentally unbalanced, outside of the asylums in the State of Illinois alone. These persons are all on the way to the asylum, and a large number of them will sooner or later be shut up in the asylum. Some of them will remain at liberty and will doubtless hold political offices as mayors of cities, members of boards of aldermen, and in various ways will cause a malign influence upon society. Now, it is evident to me, and I dare say it is evident to most of us here, that something more must be done. Something has been done by legislation. Recently there has been a wave of prohibition sentiment sweeping over the country, and at the present time I suppose half the people of the United States are under prohibition laws; but how much of this is due to real conversion to temperance, I have some doubt.

I was at Richmond a few weeks ago attending the meeting of the National Conference of Charities and Corrections, and I learned there what seemed to be the real motive of the wonderful movement in the South in favor of prohibition in the last two or three years. I found it was not the conversion of the southern people to temperance principles; it was simply a revolt against saloon rule. It was because the saloon rings had gotten control of everything in politics, and almost in society in the South, and the respectable people, the respectable users of alcohol, those who habitually use alcohol in moderate quantities were simply determined they would no longer remain subservient to those corrupt and degenerate men who constitute the saloon rings and the political rings in the South, so they determined the only way out was to destroy the business of the saloons, and in that way they think it will largely lose its power.

It is no use to continue our attempt to cure intemperance, inebriety, either in society or in the individual, by the antidoting method. We must go further down. This is a question which is far reaching. Nutrition really lies at



the foundation of everything in character and morals as well as in physique. The man who is a farmer, who works horses or oxen, he knows it makes a wonderful difference in the amount of work he gets done how he feeds his animals. If he expects to get a good output of labor, he must see that his animals are properly fed. The commanders of armies know the same thing to be true with reference to men. If they are going to make long marches, if they are going to do deeds of valor, they must be well fed. The things we eat today are walking around and talking tomorrow, and they are talking just as much as they are walking; they are thinking just as much as they are talking. Our character, all of our being, just as our muscles, are supported by what goes into our stomachs; and the more I look into this question, the more I am persuaded that the drink habit is largely the result of the other unnatural habits which have crowded into our modern civilization.

I read a paper not long ago on the cause and cure of civilization. This author conceived that civilization was altogether a mistake, and it was a disease that needed to be cured. I do not take his radical ground, but I am certain that there are certain evils in our modern civilization, certain perversions, I may say, which are leading straight down to race extinction, and to ultimate destruction, and these must be recognized and removed.

With reference to inebriety and insanity, note the enormous increase of insanity in the last fifty years. Fifty years ago there were only 500 insane people to the million; today there are more than 1500 to the million. Exactly the same thing is true of epilepsy, imbecility, and idiocy. Put these different forms of insane together, and we have more than 3300 of these defectives to the million at the present time, and what will we have fifty years from now, at the same rate of increase? We shall have 10,000 per million, and that will be 1%. Then in another fifty years, at the same rate, it will be 3%; in fifty years more, 9%; in another fifty years, 27%, in fifty years more, 81%, and in another fifty years,



we should have 247½; but that would be too many—more than we can get into 100½; and we can easily make a calculation and determine that in 265 years from the present time we will all be lunatics, idiots, and imbeciles, if we keep on at the rate we are going.

We are not improving. As a race we are going down. Dr. Kress called attention a moment ago to a few most startling facts revealed by the last United States census. This census shows, as was pointed out by an article published not very long ago in the Scientific American, that in ten years there had been an increase in almost every single chronic disease. Dr. Welch, of Johns Hopkins, a short time ago, called attention to the fact that our present longevity, which is only a little over forty years, less than one tenth what it ought to be, that the present rate of longevity is maintained only by the improvement in the hygiene of childhood; that it is only by saving the lives of babies that the present length of human life is maintained. Chronic disease is increasing. We are keeping away cholera and black death to some degree, and you will find that acute diseases such as typhoid fever are being controlled to some degree, but chronic diseases which grow out of personal habits are increasing at an enormous rate, and at such a rate that within fifty years, some of these diseases, diabetes for example, a disease which is rapidly increasing, will be seventeen times as prevalent as now; Bright's disease will be five times as prevalent as now, and chronic rheumatism, arterio-sclerosis and other degenerative maladies are increasing in the same ratio; so there is nothing in the world but race degeneracy before us, and complete extinction by and by, unless something is done to stop this downward tide.

Alcohol is only one of the fruits. Intemperance is one of the consequences, and at the same time it is a cause; but it is one of the consequences of our abnormal habits of life. As I remarked before, nutrition lies at the foundation of everything, mental and moral as well as physical. A study of the inmates of



prisons and of almshouses show that there is a physical degeneracy prevalent among criminals, among the pauper class. For instance, epilepsy is three times as common among criminals as among ordinary people. Besides a lot of criminals as they appear before you in prison, and you will see their faces are odder. You notice one man, perhaps, who has one eye larger than the other eye; or another man whose ears do not match, and another man whose hand is smaller on one side than on the other side, whose skull is not symmetrical. Study of criminology shows most distinctly that there is a criminal type, and this criminal type is increasing. This is the result of our departure from nature, of our getting away from the right road of health, from the right road of life.

When God made Adam and put him into the Garden, he told him how to live. He was to live outdoors; his business was to dress the trees of the garden. His food was to be the products of the garden. He was to live a natural, outdoor life, and feed upon the products of the earth. You have only to read the first two or three chapters of Genesis to be convinced of that; and the history of every great nation shows that in its pristine days, in its early period of development, it was in approximately that condition. The population were agricultural, the habits of the people were simple, and their diet most natural. But as we have departed from this condition, we have acquired diseases, maladies and degeneracies until at the present time in every old country of the world, in every old civilization, we find people showing most distinctly the marks of degeneracy. One only needs to spend a little time, for example, to see what is the aggregate result to a great number of the people of a country. As you stand upon the street corner and watch the people going by, you scarcely see a wholesome face; you scarcely see a splendidly developed man or woman. You see it also in our own country. The people of New England are of smaller stature than the people of the West. The people who pass along the streets of Boston do not compare in stature with the people in most of our great western cities. At Battle Creek we are in the middle part of the country—







who was taking alcohol regularly three or four times a day. I said, "Why do you take it?" He said, "Why, Doctor, I feel better. I got to feeling so distressed in my chest, and I take a small drink of brandy or whiskey and I can breathe better; it relieves me". So one glass leads to another.

So indigestion must be looked upon, it seems to me, as a matter of intemperance; and whatever promotes indigestion must promote intemperance and inebriety. Mr. Horace Fletcher has been pointing out to us the fact that the thorough mastication of food is in some degree an antidote for intemperance. He himself was formerly a decidedly intemperate man; he smoked a great deal, and took champagne several times a day, always took wine at his meals, and was a free drinker. He found that by thorough chewing of his food, by taking pains to masticate every morsel with great care, even chewing his wine, retaining it in his mouth long enough to get all the flavor out of it, his appetite for drink disappeared. He discovered in a short time that a little wine satisfied him just as much as a larger amount did before; that a few mouthfuls were quite sufficient. He found that the taste of the wine was the thing which enticed him to drink to a very large degree, and that if he took pains to get all the taste out of the wine, it only took very little to satisfy; so you see it was not very long before champagne dropped off, and after while cigars dropped off, and along with the champagne and cigars some other things dropped off; in fact, some other things dropped off before.

I might say further that hasty eating, by promoting indigestion, by encouraging drinking at meals, is unquestionably a leading string to intemperance, to inebriety. The man whose stomach has a sense of irritation in it, who has indigestion, wants something for relief, and there isn't any drug with which I am acquainted that is so certain to give temporary relief as alcohol in some form. It relieves; it acts as a poultice; it narcotizes the nerves which give rise to the sensation of fullness. Pain is relieved by a little alcohol and hot water, perhaps a little toddy--almost certain to give relief. A doctor who was stopping with us sometime ago said to me, "Can't I have a drink?" I said, "Now, we haven't any



such thing on the premises." He said, "I must have relief; there is an awful pain, and the toddy always relieves it." But a fomentation relieved it. A glass of hot water inside and a hot cloth outside secured relief for him without the toddy, and I think it would be a good thing if more people knew that,—that the simple application of hot water to the inside of the stomach, and a hot application to the outside of the stomach will afford the same relief that is obtained from alcohol, and remove the cause at the same time; and one does not have the continued application of a fomentation over the stomach in such a way as to do him any harm.

There is another custom prevalent which must certainly lead to inebriety,—the use of mustard, pepper, and pepperance, hot, burning things, things that sting and blister as they go down. In Mexico intemperance probably is more rife than in almost any other part of the world. In certain places, such as Guadalupe, you can scarcely meet a man on the street that is not more or less intoxicated. During a festival, everybody drinks tequila and pulque, and at the same time they make very large use of mustard, and of chilis and peppers. It is a common thing to see a Mexican eat half a dozen great red peppers at a single meal. Great eaters are generally great drinkers; and my experience has been that people who use a great deal of these hot things are more likely to use alcohol. I have seen an old tepee take a glass of pepperance and drink it down as though it were a glass of old wine. He had gotten to the point where nothing but pepper or something else that would smart and blister, would produce a sensation in his mouth. The alcohol and the pepper are taken together. My experience has been that a man whose nerves are excited, aroused and infuriated by these hot burning, stinging things, is very likely to call for alcohol to quench the fire. It calms the flame, lessens the irritability which is the natural result of the absorption which takes place into the blood and the circulation in contact with the nerves. I believe that the use of these things, of mustard and pepper, particularly pepper, is perhaps as much responsible for what is called gin liver as alcohol itself. In fact, Prof.



Beiz, of Paris, has shown by experiments with alcohol that the same effects which follow the use of alcohol follow the use of mustard, pepper, and other condiments of like sort. He produced gin liver in a rabbit which looked just like the liver of a man who was addicted to the use of alcohol. Hardened liver, contracted liver and spleen were produced by pepper. And white pepper was found to have six times the power to produce gin liver that gin itself has. This investigator illustrated his subject with microscopical slides of livers and other organs damaged by this substance. This experimenter showed that alcohol does not act directly upon the liver in producing these bad effects; but it is rather through its effect upon the digestive organs, producing effects similar to those produced by these other condiments I have mentioned, and these effects <sup>are</sup> ~~may~~ be produced upon the liver ultimately.

Undoubtedly an impoverished diet, deficient feeding, leads directly to intemperance, and many people resort to alcohol to relieve the misery of an insufficient diet; probably a deficiency of fat in the diet is a more common cause of this than deficiency of other elements. Fat is one of the expensive elements of food. A poor family will have plenty of bread and potatoes, but they can not afford pure butter and cream, and there is consequently an unsatisfied state of the appetite. Fat is a substance which gives satisfaction, and it is this substance which gives satisfaction in meat eating. That is why a man must have some butter on his bread to satisfy him. So the poor man is very likely to have a craving for something, and alcohol, these people find by experience, relieves that pain, so that beer, a very cheap alcoholic substance, relieves the craving which is the result of an impoverished diet. It is the unfortunate conviction on the part of the laity that alcohol is strengthening that leads naturally to this as a source for satisfaction. It is very curious how far-reaching and deeply seated this belief is. A story was told of a baker in London some time ago who discovered a method of utilizing the alcohol produced in it by the process of fermentation.



He connected a still with his oven so that while the bread was rising he could collect the alcoholic vapors and condense them, and he was able to sell all his bread and at a somewhat lower price than his neighbor. He got along very well until the fact leaked out, and the rival finally put out the sign, "Bread with the run in it", and he got all the trade.

The notion that alcohol is somehow strengthening leads people who are under-fed to adopt this artificial prep.

But perhaps the most far-reaching and the most potent cause of intemperance and inebriety is the high proteid diet. The idea that alcohol is strengthening and that it is particularly strengthening, that it is a concentrated food, is as more common and no more erroneous than the equally popular notion, perhaps more popular notion that the high proteid diet is necessary for strength. This idea is prevalent everywhere. It is held by physicians, by many scientific men, as well as by people in general. There was an amusing illustration of this at the meeting of the National Medical Congress held in Toronto two or three years ago. A paper was read there by Dr. Chittenden, of New Haven, who has been making experiments for several years back upon this question of diet as relates to the use of proteids, and in his experiments upon men he gradually reduced the amount of proteid until finally they were taking practically no meat at all, and he demonstrated that their strength was increased by this low proteid diet instead of diminishing. He experimented as well upon himself and several professors of Yale University, and the results were so splendid in restoring the Yale professors to health and increasing their health and vigor and efficiency, also in his own case, that he has continued the low proteid diet, and diminished the amount of proteid more and more until at the present time he is taking less than one third of what he formerly used. He has reduced the amount to so low a point that more than all the proteid he uses is found in bread. The proportion he employs is found in potato. He can not take meat, because he can not add meat to anything else which is recognized as good



food without getting more proteid than is required, and the result, as I said before, has been only increased efficiency. Various experiments have been made at the universities on men in relation to this question as well as upon animals, and in this paper read before the National Medical Congress, Dr. Gifford gave an account of these experiments, and demonstrated, I think, the fact that the low proteid diet is in every way advantageous. But when the Professor finished his paper, an eminent English physician rose to his feet and took decided issue with the author of the paper. He called attention to the fact that a handful of English soldiers who were beef eaters were able to control the many millions of natives in India; that a small standing army there controlled that great nation of Englishmen who are not meat eaters, and this was proof of the great value of flesh in producing vitality and vigor. This professor had no sooner taken his seat than a splendid looking man with a dark skin took the floor, asked for a hearing, announced himself as Dr. Ramana, of Madras, India. He said, "I am a native of India. My ancestors for many hundreds of years have never tasted flesh. I have myself never tasted flesh. The gentleman says a little handful of Englishmen are able to control the millions of Hindus who are not flesh eaters, and he thinks it is because the Englishmen are flesh eaters that they are able to fight and willing to fight because they are flesh eaters; that may be true; but, gentlemen, I wish to say to you that the reason why the Hindu does not fight is not because he is unable to fight, but because he does not want to fight. Now, I stand here before you, and I am not a flesh eater—never tasted flesh in my life. I am ready to meet any flesh eater in this audience who wishes to come forward to test the quality of my muscles. I am the secretary of the athletic association of Madras." There was a great cheer, and there was nothing more said about the necessity of meats as a means of building muscle. I suppose quite a number of people began to think about that time of the fact that the ox builds his muscle on grass and corn. Muscles are originally made out of the products of the earth, and are not made of meat. The



idea that one must eat the ox in order to be strong seems to come from the same source as the cannibalistic idea. I once asked a member of a formerly cannibal tribe why he believed in eating flesh. He said, "Why, we do not eat flesh because we like it. We eat it in order that we may possess ourselves of the qualities of the man we eat. When a chieftain is killed in battle, he is eaten by the conquering chief. When he eats him, he becomes possessed of his valor, his courage, also of his wives and his property"; so it is really a sort of ceremony rather than a feast of gluttony.

Now there seems to be a deeply rooted supposition that we must eat meat in order to be strong. It is the same thing as that we must take alcohol in order to be strong. Meat does not give an element of strength to the body, but gives an element of weakness; and it is certainly a cause of the desire for alcohol, in my mind. Now, along with increased flesh eating, there has been an increased use of alcohol. Wherever you find a nation of great meat eaters, you find a nation using largely of strong drink, gin, rum, and various liquors are most largely used by nations who are great meat eaters. You can not find the contrary anywhere. You find the smoking and meat eating and alcohol drinking going on together. I have never yet found a man who was an inebriate who was not largely given to the use of flesh food. I have found it more difficulty to cure a man of his beefsteak habit than of the alcohol habit, and I found it a matter of very great assistance.

Now can meat compare to the use of alcohol? It seems such a preposterous proposition to many of you; I dare say it seems to you barely worth while to listen to what I have been saying about it, it is so different from what you have thought. I beg you to give the matter some thought and consideration, and let me present to you a few facts. In the first place, meat introduced into the body introduces an element which is not needed, an excess of an element which the body does not require. Dr. Chittenden has shown that. The body can utilize each day only from an ounce to an ounce and a half of proteids; that is the element of which lean meat



is composed. ~~Everything~~ The white of egg represents the same element; the gluten of wheat represents also the same. If we take more than that what because of it? Every particle of meat which is taken in addition to the quantity which furnishes the required amount of proteids--an ounce to an ounce and a half of dried meat,--every additional particle is converted at once into poisonous substances. For only an ounce, or less than an ounce is needed for the restoration of materials, for repairing losses,--every additional portion is converted into poisons. See the difference. Here is a bit of cornstarch, we will say, and here is a piece of bread. Let it burn in the oven, in a stove, or on a stove. The odors produced are not extremely offensive; but suppose it were a piece of meat instead--the odors are perfectly awful. The burning in the body of bread does not produce poisonous products, but the burning of meat does produce highly poisonous products; the phosphorus and sulphur which are present in meat in large proportions are converted directly into poisons of a very deadly character, and these poisons saturate the tissues. That is one reason for the headaches so common among meat eaters, for the oppression, the brain dullness, and the rest of the symptoms which are so numerous in flesh eaters.

But there is greater mischief than this, in excess of meat which is not immediately digested and absorbed, there is always some such excess when one eats meat at all. There is some portion of residue which is not at once digested and undergoes putrefaction. A piece of meat will putrefy within the body as quickly as outside the body. A dead rat in a corner of a room is not a very pleasant thing to have about; there are foul odors produced; there are poisonous gases rising; there are deadly poisons produced in the tissues of that decomposing animal. A piece of beefsteak undergoing decay within the body produces exactly the same things that are produced in the decomposing animal outside of the body. If you put a piece of beefsteak in your pocket and carry it around for a day or two, what will be the result? What will be its condition? Or if it is a piece of beefsteak lying over



the skin, and to the skin, that will be its condition in a day or two. Inside the body the condition is exactly the same as though it were outside the body. That is why the fecal discharges of omnivorous animals are so unobnoxious, why the bowel movements of the sheep and other non-flesh eating animals are not so heavily putrescent and offensive. The same thing is true with reference to human flesh eaters, and to humans who are not flesh eaters,--exactly the same thing is true. Prof. Bruchard showed that when a man was subsisting upon flesh foods, an extract made from the bowel discharges was twice as toxic as when a man was fed upon a non-flesh diet. Further experiments have been made in about this in the study of bacteriology, and it was found that when the diet consisted largely of flesh, or in a very moderate degree, of flesh, that the growth of bacteria is enormously increased. For example, the contents of a teaspoonful of dried fecal matters of a healthy individual which is living upon a natural dietary would contain perhaps 500 or 600 million bacteria; but when meat is added to the dietary, within a day or two this number is increased to 50,000 million, that is, multiplied a thousand fold, and in the same proportion the putrefactive poisons generated in the body are increased. For example, there is one poison which can now be very easily determined, known as indol. We are constantly making many thousands of examinations of this kind at Battle Creek, and I am basing my remarks upon these, not upon theory. If you will come to our laboratory, we will show you these examinations which are being made every single day. In a healthy person whose dietary does not include flesh there will be found no indol whatever, absolutely none; but in a person using a flesh diet, or who has only recently discarded a flesh diet, there will be a large quantity of indol, so that it is really wonderful that the body is able to tolerate it; and the examination of the renal excretion shows the same poison is being carried out through the body, and it is only necessary to get in contact with such a person to notice the bad breath, the coated tongue which are unquestionably in large measure due to this poison.



These poisons also, Prof. Hetchnikoff has shown are the cause of the hardening of the arteries which gives rise to increase of blood-pressure just as the clogging of the water pipes of a water system require more work of the pump and a higher pressure in order to pass the proper quantity of water through; so in the same way, the hardening of the arteries, the shrinking of the small vessels gives rise to the rise of blood-pressure and induces old age, because shrinking of the arteries cuts off nutrition from the brain and other vital organs, so old age is the natural result of this poison. Hetchnikoff, the eminent French scientist who succeeded Pasteur, has laid great emphasis upon this and called attention to the fact that the putrefactive poisons of the colon are the real cause of old age. These poisons have been found also to be the cause of a great number of chronic diseases. They cause other symptoms, for instance, emaciation, pigmentation of the skin of the face and brown circles around the eyes, the dingy sclerotic, the bad breath, skin diseases, eruptions of various kinds,—all these are the natural outgrowth of the absorption of these poisons, the natural result of their taking into the blood. Now, alcohol is a natural antidote for these poisons, that is, through its effect upon the blood-pressure. Alcohol dilates the blood-vessels and so lowers blood-pressure, while these poisons raise the blood-pressure, and produce irritability. Guvier and others have pointed out most distinctly that flesh eating and produces irritability of character. Lord Byron noted that with reference to the English people. You perhaps remember his line, Man is a carnivorous product; he must have prey. One day he was taking his dinner, and a friend dining with him, and he noticed his friend cutting a piece of beefsteak, and saw him looking a little bit ferocious, gritting his teeth as he was cutting a rather tough piece of steak, and he said to him, "Doesn't it make you feel ferocious to eat beefsteak." His friend said, "Well, I have not noticed it." Lord Byron said, "When I eat beefsteak it puts the very devil into me, and I have to starve him out."



Lord Byron demonstrated his belief in this regard by long periods of abstemiousness. You will find in his diary this statement, that when he was writing Childs Harold he wrote to his publisher, "I hope to have it finished in a couple of weeks; I am sticking to Pythagoras." He meant he was living on an absolutely non-flesh diet. Pythagoras was the great Greek advocate of the non-flesh diet. He had learned from the Hindus and the Egyptians. He believed in the doctrine of the transmigration of souls, and would not eat an animal because he might be eating his grandmother if he did; so he abstained. While Byron was sticking to pythagoras he was a decent man. When he began to eat meat,--you know what kind of man he was.

The man who has filled his blood with these toxic products found in meat suffers from high blood-pressure, from irritability. There is a nerve tension, there is after while a neurasthenic state which alcohol relieves most admirably, temporarily; it is a sovereign drug and relieves the fears of the man with high tension. And that is the reason why doctors have for ages recommended alcohol for the old man. We know now that alcohol does not strengthen the heart, but weakens it; but it temporarily dilates the arteries of the old man, allows more blood to flow into his brain, and so relieves the tension and the discomfort from which he suffers. The neurasthenic who has such a great variety of symptoms, who has all the symptoms included in the text-books, pressing pain in the back of the head, creeping and crawling sensations in the arm, sensations in the tip of his toe, heats, colds, and various other sensations, takes a glass of wine, a little champagne, or some other--beetles tonic, perhaps, which secures to him immediate relief, only temporary, it is true, but still relief for which he feels very grateful, and, not knowing the cause, he goes on aggravating the conditions continually, doing the thing that makes him sick, then taking alcohol for relief.

Unquestionably to my mind neurasthenia is more largely the result of flesh eating than of any other cause. I have very rarely found a case of very pronounced neurasthenia who did not have a coated tongue. I have rarely found



a neurasthenic who did not get well when he was put upon a natural dietary; so I am quite persuaded that the large use of meat is one of the distinct causes of alcoholic intoxication. <sup>Meat</sup> produces high blood-pressure; alcohol lowers blood-pressure. <sup>Meat</sup> produces gastric discomfort by producing hyperacidity of the stomach and irritation of the stomach, and an all-gone sensation. Alcohol at once completely relieves this unpleasant sensation. A meat diet, filling the body with toxic substances from the flesh of other animals introduces an unnatural state, a feeling of fatigue, a sensation of weariness, exhaustion, weakness. Alcohol immediately relieves this by paralyzing the nerves of fatigue, so that the man, although he is just as weak as before, is not aware of the fact. He feels strong when he is not strong. Alcohol produces a great variety of neurasthenic symptoms, and meat eating produces these symptoms which are at once relieved by alcohol. Alcohol is such a pleasant remedy, can be so easily ~~and~~ taken that one is very quickly ready to resort to its use.

Meat eating is one of the causes of insomnia, as it produces an abnormal irritation of the nerve centers; so the man who is tired out at night, can not go to sleep. He is suffering from auto-intoxication, and ~~intestinal auto-intoxication~~. ~~Alcoholic intoxication is just the thing to relieve him.~~ I was talking a short time ago to a lady patient, examining her, and I called her attention to the fact that she was suffering from insomnia; and I noticed her bad breath, coated tongue and other symptoms, and I said, "I think, madam, you are suffering from auto-intoxication." "You are entirely mistaken, sir; I am not intoxicated; I have not touched a drop of liquor since night before last"; and she immediately confessed to me that she was in the habit of taking alcohol every night, and that was one night she happened to skip the dose, so she was not intoxicated at that moment. But she was intoxicated, and intoxicated with food, with products of putrefaction of meat in her own alimentary canal; and she was herself habitually resorting to alcoholic intoxication to antidote the effects of food intoxication.



I am quite persuaded from what I have seen of sick people, and all I see a good many every year, that food intoxication is an even greater evil than alcoholic intoxication; that alcoholic intoxication is only one of the minor evils that grow out of the greater evil; and that we are never going to cure alcoholic intoxication or chronic inebriety, which is growing in prevalence in our country, and in every other country, unless we get down into the problem and study the subject of nutrition. I have had some practical experience in seeing people delivered from the alcohol habit. People who come to us at Battle Creek generally have been everywhere else before they came, because our method of treatment and diet is not popular. We haven't anything to bring people there except dire necessity. A large number of the people who come to us come as a last resort; they do not know what else to do, so they come to us, and they are generally in such bad shape when they come that they are willing to do anything, to eat anything, to do anything, and to allow anything to be done to them that is likely to help them. I have found that a wonderful change occurs in the man almost as soon as he drops off his meat-eating, not only as regards the alcohol habit, but as regards the tobacco habit. It is a common observation for people to say, on our diet, "Now, it is something curious, but I do not want to smoke any more." After four or five days, or a week, a man says, "It is singular, but I tried to smoke this morning, and it actually made me sick. What are you putting into the food to make this change in me?" It is not anything put into it; it is something left out.

Dr. Gross mentioned to you a work in Chicago in which he engaged some twelve years ago. I was there at the same time, and I am glad to tell you the same work is going on still. For seven years I spent every Sunday of my life in Chicago working among drunkards down in the very lowest slums of Chicago, and we opened up a little mission there to see what diet, baths, and hygienic surroundings, correcting physical conditions, would do in helping men. I went to the chief of police of Chicago just fifteen years ago and said to him, "There is



the dirtiest, wickedest spot in Chicago? I want to start a health mission where we will begin with cleaning people up, doing something to feed them correctly, then add our spiritual and religious help after beginning with the physical." He said, "Well, just around the corner anywhere here; this is about the worst place in Chicago." So we found a place around the corner in the basement, and we even had bath-tubs, laundry tubs, shower baths, and among other things we started a penny lunch counter in which a man could get a great big bowlful of bean soup, with no meat in it. We had the best kind of opportunity for work of this kind, and there were plenty of men, for the World's Fair was just over, about that time, and many poor fellows were dead broke on the streets, and there were plenty of starving people so we had an opportunity to see the effects of the non-flesh dietary. I am glad to tell you the lunch counter is still going on. If you get stranded in Chicago, you know we have a place there where you can get good Battle Creek Sanitarium diet a good dinner for five cents, and get all you can possibly eat. And there won't be a bit of meat in it either. I talked to the manager of the place one day, and said, "You take note upon this subject of diet and record for me cases of men you know have been helped by it." He said, "I can give you scores of them." Perhaps I might give you an illustration of a case that occurred a little while ago. A man had been with us for three months who had not been sober before for fifteen years. He had not taken a meal outside of the place during that three months, and he did not seem to care for alcohol ~~the more~~ any more, but he said to the man in charge the other day, "Williams, I am going off; you won't see me for several weeks, two or three weeks any way." He said, "Where are you going, and what are you going away for? Are you dissatisfied?" "Oh, no, but I want a little change." He said, "You know I have not been on a spree for three months, and I feel as though I would like to have a little tonic; I am going on a spree, and the first thing I shall do is to eat a great, big juicy beefsteak to give me a whiskey appetite." That man had discovered for himself that as long as he ate the low proteid diet he did not have any appetite for whiskey; he could not drink it; but had to go and get



a beefsteak in order to whet his whiskey appetite. He was a man who had been for fourteen years a wanderer from home, and his father was a great merchant in Philadelphia. He said to me that the last time he saw his father he kicked him out the door, and he said, "Don't you allow us ever to see you again"; and he said, "I have never been home since fourteen years. He was one of the roughest men I ever saw in my life. He would come into our place and knock our windows down, almost come in crazy with drink. He was a large, strong man, and he would come in and swing his arms, and see people down with a swing. He would come in and get his meals there, and pretty soon he took his meals steadily with us, and we got hold of him, and he somehow got strength to get above the appetite; and I think the moral influence of the place helped him also. So after while we took him over to Battle Creek and put him in our machine shop, and we found him to be a very skilled machinist. He went steadily straight ahead for a year, took his meals at our boardinghouse there. One day I was very much shocked to get a telephone message from the chief of police, and he said, "Mr. White is down here drunk, and he belongs to your place." That was a very severe blow to me, for I counted on this as a triumph. I said to him, "Mr. White, how did you get into this shape? You have been a year without drinking." He said, "Doctor, I will confess the truth to you. About three weeks ago I got to thinking if a beefsteak wouldn't taste pretty nice, and I thought maybe it would, so I went down to a restaurant, got a beefsteak, put some pepper and mustard on it and ate it; and when I came out of that restaurant I felt as though I must go into a saloon, and I just managed to get away, and I ran with all my might to get home, for I had to run to get away from temptation. I got along all right for three weeks, then began thinking about beefsteak again; so I tried it again, and when I went out I went right straight into a saloon, got one drink after another, and I don't know how many I took, and I couldn't help it any more than I could fly." He sat there crying, "Dear, dear, dear, it was the beefsteak done it, it was the beefsteak done it." He was convinced of it.



I had never spoken to him a word with reference to the influence of diet. He attributed it to his beefsteak. I might mention a great number of similar experiences.

Perhaps a circumstance I might mention which would interest you would be the experience of General Booth in the Salvation Army. They have in London a place where they take in inebriate women. They take in women ~~and~~ could not be put in any other place. The police take women who ~~are~~ incorrigible direct to them. They must be the worst, most degraded women on the face of the earth. They had a great deal of trouble with these women, for they were extremely intractable. They found they were extremely difficult to deal with; they were so wild, maniacal, and the desire for drink was so overpowering it was a very distressing thing to help them, especially during the first five or six weeks after they were brought in. General Booth, by the way, does not eat meat, and the leading leaders in the Salvation Army have discarded meat. About three years ago, under the influence of General Booth and some of his associates, they took meat out of the diet of these women, and they said the change in these women was simply marvelous. She herself was not prepared to recognize such a wonderful change. Instead of having five or six weeks' battle with these women, in three or four days after they came in, they were wonderfully changed, so that they had very little trouble with them; and in a week the appetite for liquor seemed to be entirely gone. The experiment was begun there three or four years ago, and has been carried on ever since. They found such wonderful advantages from it that they have continued the practice in that place up to the present time; and they are quite confirmed in the belief that the disuse of flesh is one of the most important things that can be done in the attempt to reform an inebriate.

I want to call attention to the importance of putting the reformed inebriate upon a natural, non-flesh dietary. The reformed inebriate is a cripple, and he always will be a cripple. You can make the man sober. The grace of God



can help him, and proper hygiene and environment can help him so he ceases to drink, but nothing can replace the damage which has been wrought upon his body by those long years of intemperance. The injury is still there. It may cease to get worse; it may improve somewhat, but the damage is still there. Allow me to enumerate a few points with reference to this crippled condition and the relation of meat eating to it. In the first place there is the stomach. Long use of alcohol has crippled the stomach so that it is no longer able to produce gastric juice formerly. Gastric juice is one of the most important defenses of the body; the gastric juice destroys germs, disinfects foods, etc., destroys bacteria, and so renders food safe. If it were not for that, the very first time you would eat beefsteak it would <sup>destroy</sup> destroy your life; but there are means by which ~~germs~~ bacteria are destroyed. Every morsel of beefsteak you get from the market has anywhere from three millions to twenty millions of putrefactive bacteria in it. The dead animal in the market is undergoing decay just as well as the dead animal lying in a fence corner. These same processes are going on--not advanced so far, perhaps, but far enough make it really tender. The flesh of an animal <sup>dead only</sup> killed a few hours ~~ago~~ is tough; and it is only after decay sets in that this rigor mortis disappears under the influence of germs acting upon the flesh and <sup>that</sup> it becomes again tender. The surgeon has to exercise great care in operating upon the flesh of a man or woman, so as not to tear it to pieces, but after death it becomes hard and tough, and never becomes tender again until it rots, and advances in decay. So there are always to be found in flesh an enormous number of bacteria. In oysters, for example, we have counted in our laboratory as many as thirty five millions of bacteria; in a bit of sausage not bigger than the end of your thumb, in fifteen grains, a quarter of a dram we have found more than <sup>3,000</sup> 1,500 millions of bacteria, and more than half of them the deadly kind of bacteria that produce disease,--inflammation, cholera morbus, cholera infantum, catarrh of the bowels, and other mischiefs of the



the same character. Now, when the drunkard has spoiled his stomach until it is no longer capable of producing this disinfecting gastric juice, and makes it impossible for him to disinfect such things when that defense is broken down; then this portion of decaying flesh taken into the stomach continues to decay; the decaying process goes on, advances, and as it reaches down into the colon and remains there perhaps a day or two, if the activity of the intestine is not what it ought to be, that putrefactive process advances further. And the bad breath so many people ~~have~~ carry about with them is simply putrefactive poisons absorbed from the colon and carried out through the lungs. The malodorous perspiration is another consequence of the absorption of these putrefactive materials from the colon to the blood and elimination through the skin. The drunkard has lost that defense, so he must take into the stomach food which will not putrefy.

Suppose we should try an experiment. We might take four glass jars, and put into one jar an oyster; into another a piece of bread; into another an apple, and into another a potato, and put them away for a couple of days or a week, then open them. You know right away what the difference would be. The apple and the potato have produced no malodors; the bread has produced no malodors, but the beefsteak and the oysters,—you would be glad to fly out of doors. The presence of such a thing is intolerable, almost too much to think of.

One of the most important defenses of the body is the mucous membrane of the intestine. It is a filter, a defensive wall that keeps poisons out. But when this defense is broken down, these putrefactive poisons swarm into the body and are absorbed in far greater than ordinary quantity. So this person's blood is filled with an abnormal quantity of these toxins, and he should eat foods which can not undergo putrefaction; and that is true of natural foods. The food which God gave us, the natural products of the earth do not undergo putrefaction either inside the body or outside of it. Beans do not putrefy. Bread may sour and mold,



but it does not rot; and the same is true of other articles of food which come from the earth, and especially if we take foods in their natural condition such as fruits and nuts in their ~~natural~~ ~~state~~-living state. Then they are much less likely to undergo this putrefactive process.

After they have been absorbed to the blood, they go next to the liver. The liver is a shut door to keep poisons out, and it destroys poisons too, but the liver of the drunkard has lost its power to destroy poisons. Then there are the thyroid gland, the thymus gland, the suprarenal capsules, and the lymphatic glands. These do another very wonderful work in defending the body against poisons--they produce antitoxins for poisons, but these are worn out so that the poisons remain in the drunkard's body, because the drinker, by the habitual use of alcohol, is taking into his body substances with which these poison-destroying glands have to deal. Alcohol is a poison which must be dealt with by these poison-destroying organs. Then there are the kidneys which remove poisons from the body. But the kidneys of the habitual drinker are worn out in performing an unnecessary work in relation to alcohol. So the kidneys of the drunkard are worn out, and the liver and all the poison-destroying glands are exhausted and worn out. So his diet should be in the highest degree pure and clean and free from poisons; and if his life is to be lengthened, it is of the highest importance he should give this matter attention.

One word to summarize: The suppression of inebriety in the community and in the individual requires first of all a return to natural conditions in nutrition and in habits of life. Inebriety is only one of the consequences of the departure of the race from the normal conditions of life. It is not altogether a cause of these degenerate conditions; it is a cause, but it also is in large measure a result. The work for temperance reform is not simply to abolish an evil custom; it is not simply to correct a vice; it is to save the race. The people of the 60th century are carrying about with them the burdens of all the follies of the preceding centuries. Dr. Oliver Wendell Holmes says every man is an omnibus in



which ride all his ancestors. Society is an omnibus, the race is an omnibus, and we have in it all our ancestors and all their follies. We can not get any of the drunkards out of the omnibus. The only thing we can do is to keep the new drunkards from coming in, and to suppress the hereditary drunkards which are coming along the line. Before we can get the inebriate out of society, we must cease to cultivate the alcohol habit; we must cut the strings which lead from the dinner-table to the saloon; we must dry up the springs of inebriety which are found in every kitchen; we must weed out the inebriate-producing habits which our degenerate civilization has fostered; we must exterminate the roots as well as the branches and the trunk of this upas tree of human life,--the foe of religion, the enemy of society, the robber of the home, the assassin of the human race.

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