Health and Happiness, Number 36.

Why Die Before Your Time?

HOW TO BAFFLE BRIGHT'S DISEASE.

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Hearst's Magazine.

The old Romans had a saying to the effect that many people dig their graves with their teeth.

This rather vulgar phrase probably expressed a profound truth in that day, and it is equally true in our own time. I presume it would not be an over-estimate to say that about half the people in Christendom shorten their lives more or less by over-eating or by perverse eating.

To make the paradox complete, we may recall that a pretty large proportion of the other half of humanity suffer from an inadequate ration—a shortage of some dietetic essential.

Half of the world dying of gluttony, the other half of starvation! An incongruous situation, is it not?

I speak, of course, of conditions before the war—conditions of so-called normal life; which, if the paradox be permitted, are abnormal enough. That we should yearn for long life and then should day by day permit ourselves to indulge habits that inevitably shorten life, constitutes perhaps the most cogent indictment of our status as "rational animals," that could be presented.

To offset this indictment it must be recalled that, for the major part of the adult population, eating is the greatest and the most abiding source of pleasure. The short-cut to the grave has at least the merit of being a pleasant pathway.

Not quite all the way, however. There comes a time when penalties are exacted in the way of disturbing and painful maladies. For example, Bright's Disease—inflammation of the kidneys, technically known as nephritis—may develop. In fact, this is precisely what does occur to a large proportion of the great army of gormandizers. And Bright's Disease is not at all a pleasant condition. It is a lingering but insistent type of malady, with many exceedingly disagreeable symptoms. When fully developed it cannot be shaken off. It causes the death of about one individual in fourteen in the entire population.

A redeeming feature of the malady is that it is largely preventable. Moreover, its progress may be retarded and its symptoms made more bearable by the application of rules of hygiene that every individual may apply for himself.

In order to apply the rules intelligently, however, it is necessary to understand clearly the causes of the malady; and that brings us back to the question of intelligent eating, which I purpose now to discuss somewhat in detail.

There is no more important topic before the public in these days of food shortage, whether considered from the standpoint of individual welfare or of public policy.

The essence of the matter is that the human body is a heat engine, and that edible foods are its fuel. When you burn wood or coal in a furnace you produce waste products—ashes and cinders. These must be removed if the fire is to be kept up. When you burn food in the human engine—your body—you produce waste products—organic ashes and cinders—that must be removed if your life processes are to be kept up.

From the present standpoint the essential fact is that certain of the most important of these waste products are removed from the body almost exclusively by the kidneys. When the waste-products are in excess undue strain is put upon these organs of elimination. Thus overworked, the kidneys may develop the disturbed conditions that underlie Bright's disease. That is the story in a nutshell. But it will bear elaborating.

The particular waste-products that are removed from the body by way of the kidneys are the end-products of the digestion of protein-bearing or nitrogenous foods (meats, milk, eggs). These end-products contain an increment of nitrogen that has either served its purpose in the bodily economy or has proved unavailable for the process of tissue-building. This nitrogen is combined in organic salts, the most familiar of which are known as urea, uric acid, and creatinine. These are dissolved in the blood, and are filtered out through the kidneys.

The bulk of nitrogen thus removed as a waste-product from the average human system every twenty-four hours is only about half an ounce, but even this small quantity, if retained in the body, would constitute a fatal poison. So the kidneys must be perpetually on duty, never for a moment relaxing their activities. The extreme importance of their functions is doubtless the reason why two of these organs are provided, either one of which is competent, under normal conditions, to do the entire work of both.

Incidentally, the fact that even this double equipment so commonly proves inadequate suggests the magnitude of the dietetic over-indulgence of the average individual.

To get still nearer the heart of the matter, it should be observed that over-eating of animal foods is the particular kind of dietetic indulgence that is the preponderant cause of Bright's disease.

To be sure, the text-books mention hypertrophy of the heart, hardened arteries, and rheumatism among the causes of nephritis. But these conditions, as we have seen, all hark back to disturbances of assimilation, and are to be considered as companion disturbances rather than as causes; although of course the different bodily processes are so linked and associated that a disturbance of any one of them necessarily implies a resultant disturbance of others.

It is axiomatic to say that anything which tends to weaken the kidneys or to put exceptional strain on them may contribute to their overthrow. Acute infections, certain poisons, such as bichloride of mercury, chronic malaria, and exposure to cold are among such factors. But the fundamental fact, let me repeat, is that the chief work of the kidneys consists in the elimination of nitrogenous waste-products, and that the amount of work they are called upon to do, month in and month out, is determined primarily by the amount of nitrogenous food digested.

This is equivalent to saying that the amount of ashes in your furnace depends upon the amount of fuel you burn.

To illustrate the excessive work that the average diet puts upon the kidneys, we may recall that the physiologists speak of a nitrogen output of from 14 to 16 grams per day as representing the average for a man of ordinary size. This would be the equivalent of from about 90 to about 100 grams of proteins in the diet, or from three to three and a half ounces. But some convincing experiments suggest that about half this quantity is sufficient for the needs of the average individual. Some investigators believe that even less than this would suffice.

Taken at face value, these data seem to imply that the average individual eats twice as much nitrogenous food as is needed, and thus puts double work on the kidneys day by day.

Perhaps it is not to be wondered at, under such circumstances, that so large a proportion of kidneys prove inadequate to meet the strain. The kidney that is inherently rather weak may show its exhaustion by developing an acute inflammation. A stronger kidney may gradually develop what is known as a chronic parenchymatous inflammation resulting in dangerous modifications of its cellular structure. Yet another kidney may become, in effect, prematurely old from overwork, developing what is technically known as chronic interstitial nephritis, which is regarded as an evidence of premature senility.

But all these modifications fall within the general classification of Bright's Disease, and are associated with a variety of general disorders (dropsy, heart affections, high blood-pressure, headache, difficult breathing), terminating in general toxicity commonly known as uraemic poisoning, due to retention of urea and other nitrogenous waste-products.

Meantime the kidney which is so damaged that it no longer adequately eliminates the nitrogenous waste-products may permit the passage of albumens which are found in normal blood, but which do not normally pass through the kidney membranes.

When Bright's Disease is thus fully established, it is universally admitted to be an incurable condition in the present state of our knowledge. No way is known of restoring the chronically perverted tissues of the kidneys to normality. Nevertheless palliative measures may be employed that may greatly benefit the patient and, in many instances, prolong his life almost indefinitely.

The essential object of all such treatment is to reduce to a minimum the work put upon the kidneys. Something toward this end may be accomplished by urging the skin and the intestinal tract to undertake vicarious activities. By wearing woolens next to the skin, thus inducing a relatively free perspiration, a certain amount of fluid may be removed from the body that must otherwise pass through the kidneys. Similarly the use of mild laxatives may be of service. Vigorous exercise is a sine qua non. But in the last analysis it appears that no other organs of the body can fully take the place of the kidneys in selecting, and removing from the blood, urea and the other end-products of the broken down protein molecule. So no treatment can be considered in any wise radical that does not give first consideration to the amount of such products that the system is called upon to carry off.

AVERAGE AMERICAN DIETARY.

This obviously leads to the ever-present problem of protein foods; and, specifically to the question of a meat diet, since there is comparatively little danger that the average individual will take an excess of proteins except in this form.

One need only glance at the menu card of the average hotel or restaurant, or observe the food on the table of any well-to-do family, to realize that the typical dietary of the American of today is built upon a foundation of animal proteins. The conventional table d'hote dinner includes oysters, fish, fowl, and flesh of ox or sheep, ending with cheese. Here are five animal proteins. Even a very unpretentious dinner is almost certain to contain three or four, one at least of which will be taken in relatively large quantity.

Yet it is fairly certain that the diners who partake of this fare with such relish include some individuals who are thereby poisoning themselves and putting upon their kidneys a task that these much-abused organs are able to carry out with difficulty if at all.

The broad general result of these unfortunate dietetic habits, combined with sundry other abrogations of common sense and rational hygiene on the part of the American people, is that there are now approximately 350,000 deaths in the United States annually from organic diseases of the kidneys and urinary system and of the heart and circulatory system (including apoplexy and paralysis), and that there is an apparent increase of 40 per cent. in such deaths in this country witnin the past twenty years. By way of contrast it may be noted that similar mortality tables for England and Wales, and in Prussia, Denmark, Sweden and France, show a slight downward tendency. Mortality from the organic diseases just mentioned has increased in Massachusetts, in thirty years, by 86 per cent.; in fifteen American cities by 94 per cent. While the death toll from tuberculosis and most communicable diseases has been falling, the curve that records the deaths from the diseases enumerated above has gone up with surprising regularity and alarming rapidity.

PROTEINS NECESSARY TO LIFE.

If, as has just been suggested, this increase of "degenerative" diseases is associated with the over-eating of protein foods, it certainly will not be amiss to examine in brief detail the role of such foods in the bodily economy, making specific inquiry as to the amount of protein needed in a really normal dietary and the kind of protein that may best serve the purposes of the system, with particular reference to the shielding of the kidneys against undue activities. In so doing we shall have occasion to examine certain theories of bodily action that have been put forward very recently, but which are coming to be accepted as throwing new light on the entire problem of protein assimilation in health and in disease.

Stated in the fewest possible words, the situation is this: Every living tissue has the protein molecule for its basis. The chief constituents of this molecule are carbon, hydrogen, oxygen, and nitrogen. It is the nitrogenous element that distinguishes protein foods from other elements of the diet, namely the carbo-hydrates and the fats, both of which comprise carbon, hydrogen, and oxygen, but neither of which contains nitrogen.

The muscular and glandular systems of the body, and the main constituents of the blood, are proteins, or nitrogenous substances. The activity of these organs and tissues implies the breaking down of their protein molecules. It follows that the organism must constantly have a fresh supply of proteins brought to it in the food, else its tissues would waste away, leading to early death. So we cannot possibly get along without a certain amount of protein food.

On the other hand, it is now known that the muscular tissues do not exhaust their nitrogen supply rapidly, even when they are in very active exercise. Apparently some of the nitrogen atoms in a muscle-cell are used over and over, only a residual number being eliminated to form the nitrogenous waste-products that the kidney handles. Meantime, however, the blood corpuscles, which in the aggregate make up a bulk of about four pounds in the average body, are nitrogenous bodies that are constantly being destroyed in vast numbers in the liver. They must be recruited with equal rapidity from the parent cells in the bone marrow if normal conditions are to obtain.

And of course the corpuscle-building cells in the bone marrow cannot work without nitrogenous material, which must be supplied from the digestive tract.

In cases of slightly different type, the primary digestion of starchy and fatty food may be very defective, or there may be excessive demands upon the energy of the system, so that such foods are burned up and eliminated, the by-products being water and carbonic-acid gas, the latter of which escapes by way of the lungs. In such a case, anaemia is more generally recognized because the patient is thin and obviously bloodless.

A not-unnatural assumption on the part of the patient, which the physician often substantiates, is that such an individual needs "good red meat" and plenty of it to "make blood" and "build up his strength." Yet in point of fact, where the origin of the difficulty is as above outlined, meat is of all things the one that the patient does not need, and one that he cannot take without positive detriment.

Placed on a vegetable diet, with the protein intake at a minimum, and given treatment to stimulate the blood-forming organs to renewed activity, such a patient may recuperate rapidly, gain weight and strength, and have his blood brought back to normal, while the kidneys are relieved of excess work and given the best possible opportunity to become rehabilitated.

As to the particular line of medication that may best contribute to stimulate the blood-forming organs to bring about this restoration of normal bodily conditions, I shall speak briefly but explicitly. Recent experience suggests that all the older remedies, including iron, arsenic, and sundry digestive tonics, are of negligible importance, as stimulators of the blood-forming mechanism, in comparison with the hypodermic use of non-specific vegetable proteins.

As I have personally been responsible, jointly with my office colleague, for the inauguration of this line of treatment, I would speak with due reserve concerning its possibilities. But as we have now made careful observation of not far from five hundred cases, extending over a period of three years, and as, in our experience, a radical modification of the blood-count under protein treatment that would seem miraculous by any other method has become a commonplace, I may be excused for speaking with a measure of confidence.

RESULTS OF THE NEW TREATMENT.

I have observed the red corpuscles of a patient suffering from a grave form of anaemia increase from three and a half million to five and a half million to the cubic millimeter in ten days, with absolutely no treatment except the hypodermic injection, on alternate days, of five or six drops of a two-per-cent. solution of vegetable proteins extracted from such commonplace substances as mustard seed, alfalfa meal, and millet.

I have previously explained the action of the proteals as based on the fact that any proteins in the bloodstream are attacked by certain of the white corpuscles, and subsequently by the red corpuscles, and that the destruction of the assailants stimulates the blood-forming organs to produce their successors, on a well-known physiological principle. The probable reason why the introduction of the proteins hypodermically produces so spectacular a result is that these are proteins to which the system has not become accustomed or immunized as it has to the ordinary food proteins.

As a matter of course the functional activities of the various organs and tissues of the body, all being in the last analysis dependent upon an adequate blood supply, respond to the improvement in blood conditions. It goes without saying, also, that while administering the treatment that leads to such improvement in the blood, one is careful to remove, if possible, the causes of the original disorder.

An ordinary slice of bread contains five or six grams of proteins; an ordinary helping of potatoes, carrots, or parsnips, four or five grams; of beans or peas, eight or ten grams each. By bearing these figures in mind, you may estimate the amount of proteins in your individual diet. By limiting the protein intake to 40 or 50 grams the destruction of blood corpuscles will be minimized, and the work put upon the kidneys reduced by perhaps 50 per cent.