LETTSONIAN LECTURES

ON

DISORDERS OF DIGESTION: THEIR
CONSEQUENCES AND TREATMENT.*Delivered before the Medical Society of London.*

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LECTURE III.

In my first lecture, I mentioned that the function of digestion, like health generally, may be strong or weak. A strong digestion is capable of withstanding all sorts of adverse influences, while a weak digestion can remain undisturbed only under the most favourable circumstances. When any disturbances have occurred in the digestive function, no matter whether it were strong or weak originally, the first step towards restoring it to health is to remove, if possible, any disturbing causes which may still be acting upon it. One of the commonest of these is imperfect mastication. As I have said several times already—but the importance of the subject will excuse the reiteration—the first step in the process of solution is mechanical disintegration. Children are not long in learning this truth, for they soon find out that they get a fuller flavour from a hard sweetmeat if they break it with their teeth, than if they simply suck it. The child thus gets the sweetmeat quickly dissolved, and its sense of taste is more thoroughly gratified, but the sweetmeat does not remain so long in the mouth. If children of an older growth would remember this early experience, and apply it to their food generally, there would be less indigestion. Man is a low pressure engine, and works almost all his organs considerably under their full power. All around us in a town or city we see men who, in a walking tour, could do twenty, thirty, or forty miles without the least inconvenience, and yet in their ordinary avocations they probably do not walk two. In the country, on the other hand, we find men of good brains, who have perhaps distinguished themselves at college by their mental powers, by their close application, and by the long hours during which they could work, and who yet, in their daily life, rarely set themselves a harder mental task than to understand the leading article of a daily paper. It is the same thing with the other organs of the body. A healthy stomach can usually digest a good deal more than it is called upon daily to do. A healthy kidney can excrete twice or thrice as much as it ordinarily does; and thus, in fact, we see that, when one kidney is removed, the organism frequently seems hardly to feel the loss, all the waste-products being excreted as usual. But there is a limit to all things, and that limit is more easily reached in some cases than in others. As some one has shrewdly remarked, we have two kidneys and two lungs, but we have only one stomach, and therefore there is the greater reason why we should not overburden it. When a young man is called upon for extra exertion, either bodily or mental, he is able to meet the demand by making a spurt; but, as he grows older, this power gradually lessens. The same is the case with the stomach. Boys' stomachs can digest almost anything, though half-chewed green apples may sometimes prove too much even for them. In a youth, the stomach will digest the food even when bolted half chewed; but, as the man approaches middle age, it resents this treatment; it will no longer make a spurt to do the work of the jaws as well as its own; and indigestion is the consequence. Imperfect mastication frequently arises from too short a time being allotted for a meal, or from the mind being occupied during the meal with the idea of something to be done afterwards. It is curious sometimes to watch the phases of mastication varying in the same person during a single meal, according to the ideas which cross the mind. In some people, whenever the idea of something to be done occurs to them, motor energy seems to be evolved, and finds expression in rapid movements of the jaws and bolting of the food. It is, therefore, evident that, during meals, all ideas of action to be taken by the individual himself should be banished from the mind. In sensitive persons, also, it is well to banish the idea of action to be taken by others, because some persons have such strong sympathies that they throw their own personality into that of others, so that, if we watch them listening to a hesitating speaker, we see their lips moving and their fingers twitching.

[1258]

Persons who are taking their meals alone very frequently read during them. From what I have said, it is obvious that what they read at this time should not have reference to any of their avocations, nor even to anything which may interest them very strongly, such as politics, unless it be presented in an amusing form, as in *Punch*. But a solitary meal should be avoided if possible; for the mere presence of a companion, and, still more, occasional conversation, acts as a pleasant stimulus, and tends to maintain the nervous activity to which I referred in my first lecture as an important factor in perfect digestion. Another cause of imperfect mastication is the condition of the teeth. Sometimes the teeth and gums are tender, or one or more of the teeth may be decayed, and the discomfort or pain occasioned in them by mastication leads people to bolt their food, or to masticate on the other side of the mouth, if the tenderness be limited to one side. But where this is the case, we not unfrequently find that several teeth have already been lost on the side with which such a person does chew, and that these teeth have been lost in such a way as to make the act of mastication a mere farce. When all the teeth are gone, the person may chew perfectly well, not only by means of artificial teeth, but also without them. One of the puzzles of my childhood was, how my grandfather, an absolutely toothless old man, was able to eat and enjoy hard toast. But every tooth in his head was gone, and his gums were like the mandibles of a turtle. It is not the complete, but the imperfect, removal of the teeth which is the source of mischief. We not unfrequently find that the teeth have fallen out in such a way that only one or two are left behind, which oppose one another so slightly that they are of very little use indeed for chewing, but they thoroughly prevent the gums from coming together, and leave large spaces in which the food can escape mastication completely. The remedy in such a case as this, is to get in false teeth; for few people, now-a-days, care to be absolutely without teeth at all.

But the effect, even of thorough mastication, upon the food will vary a good deal according to the nature of the food itself; and tough substances, which can with difficulty be comminuted, will be more indigestible than those which are readily broken up. Now new bread is proverbially unwholesome, and the reason for this is not far to seek. If we take a piece of a hot roll and try to pulverise it between the finger and thumb, we find that it is more or less tough and tenacious, and that we can hardly do more than tear it apart into little bits. If we take a piece of stale bread, on the contrary, we can easily break it up into a fine powder, which, of course, is much more readily acted upon by the digestive juices than lumpy flakes of new bread. Biscuits are also readily powdered; and crisp dry toast, although not so easily broken up between the finger and thumb, is still readily digestible, because it must be "broken" up by the teeth before it can conveniently be swallowed, for otherwise it would scratch the throat; although lumps of new bread of a similar size would slip down the oesophagus easily. Buttered toast is a different thing, as it cannot be readily pulverised, any more than new bread. Buttered muffins and suet-dumplings are other examples of a similar kind. Potatoes are generally regarded as indigestible, and are forbidden to dyspeptics, whilst stale bread is allowed. It is possible that there may be other reasons for this indigestibility than simply difference of physical condition, but I have little doubt that one reason at least is the fact that very many people—indeed, I think most people—are apt to swallow potatoes in lumps without thorough mastication, and these lumps will be very slowly acted upon by the digestive juices.

The fine subdivision of fatty food is also of great importance in regard to its digestion. Many people cannot bear to eat the fat of hot mutton, but yet they can eat the same when it is cold. If we try to pulverise a piece of hot mutton-fat and a piece of cold mutton-fat, we will see that the difference is much the same as that between a piece of new and of stale bread; and probably this is one reason, though there may be others, why hot mutton-fat is so liable to make people sick. But mutton-fat may be eaten hot by persons with delicate stomachs, if it be properly subdivided by admixture with farinaceous food. If, for example, it be cut up very small, and mashed up with potatoes, even children may take it without difficulty, and mutton-fat and milk is an old-fashioned and useful remedy. The more minutely we can subdivide the fat, the more easily is it digested. I have already discussed this subject elsewhere, but it is of such practical importance that I may, perhaps, be allowed to repeat part of what I have said before. If we were asked to take a pat of butter whole, the very idea of it might make us sick, but we have no difficulty whatever in taking the same amount of butter spread upon bread. Many years ago, my friend Professor Hugo Kronecker asked me the question, "How should butter be spread in a sandwich? should the whole of it be put on one slice of bread, and the other slice of bread simply put over the top of it, or should the pat of

butter be divided into two halves, and one of them spread on each piece of bread?" I was uncertain how to reply. He answered the question himself, and said that "the butter should be divided into two halves, and one spread on each piece of bread, because, in this way, the butter is more minutely subdivided, and thus not only gives a more agreeable taste, but is more readily digested." In buttered toast, we get the agreeable taste and the minute subdivision of the fat, but the advantage obtained from this is more than counterbalanced by the difficulty in breaking up the toast, which I have already mentioned.

In regard to butcher's meat, also, there are great differences, depending both on the kind of meat used and its condition at the time of cooking. I mentioned in my first lecture, that meats which have short, easily disintegrated fibres, such as fish, the breast of a fowl, or mutton, are much more readily digested than those having long or tough fibres, such as beef. But a great deal depends, also, upon the condition of the meat at the time of cooking. I once got a most useful lesson on this point. I went into a restaurant, and ordered a beef-steak, as I had previously had them exceedingly good and tender at the same place. But that day, all my efforts to masticate the steak were in vain, although I went on till my jaws actually ached with the exertion. On complaining to the waiter, and asking where he had got that tough old meat, he said it was not old, but, though young, it was too new. They had had an unusual number of customers that day; all the usual supply of beef-steaks had been consumed, and they had sent to the market for more, but had got some meat killed that morning. Now, the old Romans, who were great epicures, used to eat still newer meat than this. They suffocated their fowls in wine, and cooked them forthwith; so we see, then, that both meat which is perfectly freshly killed, and also meat which has been kept for a sufficient time, are tender. If we analyse this condition, we see that it is simply this: meat which is cooked before *rigor mortis* appears, or after it has passed off, is tender; but meat cooked while *rigor mortis* still exists is sure to be tough. In the case of game, the practice of keeping the meat until it is tender has been overdone, and it is not unfrequently kept until it is actually commencing to decompose. The taste for "high" meat is an acquired one, and is, I think, a morbid one. It is also, I think, not without some danger, for not only may the products of decomposition formed in the meat, before it is cooked, be injurious, but decomposition will be rather apt to occur more readily in the intestinal canal. The gastric juice, no doubt, has a considerable antiseptic power, and so has the bile; but still these powers may be overtaxed, and eating high meat is one of the ways in which this may be done. It is, however, rather extraordinary to what an extent the consumption of decomposing food may be carried without any immediate injury, as we see amongst the Esquimaux and Icelanders.

The effect of keeping may, to a certain extent, be imitated by the application of a vegetable digestive ferment. In the West Indies, a tough beef-steak is rendered tender by rubbing it with the juice of a fresh papaw fruit, which contains a ferment papaine, having an action very much like that of trypsin of the pancreas.

Another cause of imperfect digestion is, I believe, bad cooking. Even if we leave out of account the actual physical detriment to the food in the way of hardness, or toughness, due to bad cooking, the absence of a pleasant flavour will in itself tend greatly to interfere with digestion. The mere thought of agreeable food is sufficient to make the mouth water, not only in man, but in animals.

I remember once seeing a striking instance of this. While walking one evening, I saw a dog sitting opposite the door of a butcher's shop, gazing intently at the meat inside. Two long streaks of saliva were hanging down from its jaws, half-way to the ground. Its attitude of eager expectancy was so striking, that I could not help going into the shop to buy something for it; but it was sitting almost directly in the doorway, so that my passing through disturbed its delightful dream, and off it went.

We have already seen that the secretion of saliva is the first link in the chain of digestive processes. The saliva stimulates the secretion of gastric juice, and the gastric juice again stimulates the flow of bile, and possibly also of the pancreatic juice. Moreover, pleasant and repulsive food will act on the stomach through the nerve-centres; while the idea of pleasant food will excite appetite, the very idea of unpleasant food will excite disgust, and even bring on nausea and vomiting. Other things being equal, then, food that is well cooked and savoury will be much more digestible than the same food cooked and served in an unappetising manner. Even in regard to serving, there is much to be learned in this country from the French and Germans. In many a restaurant in London we find the tablecloths spotted and greasy, the salt-cellars and mustard untidy, the knives and forks dirty; and, as for a table-napkin, such a thing, in many of them, is unknown. In a French or German restaurant of a similar

class, the tablecloth is very likely to be of coarser linen, but scrupulously clean; everything would be put down in a tidy and appetising fashion, and a clean napkin would be served to each guest. The food itself may be no better, perhaps not so good, but the way in which it is served would make all the difference to a delicate appetite.

In my first lecture, I spoke of cookery as a powerful moral agent, capable of influencing men's opinions and feelings to a very great extent. That food itself is a moral agent has been long recognised, and has found expression in the proverb, "A hungry man is an angry man;" but that the moral influence depends on the way in which the food is cooked, as well as on the food itself, is not so generally admitted. And yet it has long been known, for we read that Isaac directed his first-born son, Esau, to prepare savoury meats, such as his soul loved, so that, after he had eaten thereof, he might bless his first-born with all the fervour of which he was capable. Considering the different effect upon the appetite of well cooked meat and of unsavoury food, it would be strange if they both excited equally pleasant feelings, and had an equally beneficial effect upon the temper. Some may think that, in speaking of cookery as a moral agent, I am greatly exaggerating its power; and they may regard it as idle folly if I go still further, and say that cookery is not only a powerful moral agent in regard to individuals, but may be of great service in regenerating a nation. Yet, in saying this, I believe I am speaking quite within bounds, and I believe that schools of cookery for the wives of working men in this country will do more to abolish drinking habits than any number of teetotal associations. I do not at all mean to say that the vigorous efforts of teetotal societies, Good Templars, Blue Ribbon Army, and others, have been altogether a failure; but I do not think that their plan will ever be crowned with complete success, and I believe there is a better way of attaining their object. Supposing you had a friend lying in bed, wrapped up in blankets so that he could not move hand or foot; a fly settles on his nose, and he begins to make faces to try and remove it. You do not like to see him making faces, and wish him to stop. Which would be the most rational method of doing so? Would it be to exhort him to summon all his fortitude to keep his face still, notwithstanding the annoyance, or would it be better for you to drive away the fly? No doubt it might be an excellent moral training for him to use his self-control and keep his countenance placid notwithstanding the irritation, but the simpler and more effective method would be to drive away the fly. Moreover, in nine cases out of ten, his power of self-control would be insufficient; and this is exactly what occurs with persons who have a strong desire for intoxicating liquors. Many years ago, I met, in a teetotal journal called the *Adviser*, with an account of an old drunkard, who uttered the bitter complaint, "The neighbours always speak of my drinking, but they never speak of my drouth."¹ The old man was in the right; and, if we are to abolish drunkenness, we must remove the thirst which leads to it. I have discussed the causes, physical and moral, of this thirst more at length elsewhere; and the only ones with which I shall concern myself now are bad food and imperfect cookery. In my first lecture, I mentioned that, so long as the food was only in the intestinal canal, it was still outside the body as far as nutrition was concerned; and thus the malnutrition which gives rise to a craving for alcohol may be a consequence of imperfect digestion, as well as of an insufficient supply of food.

I have spoken of food and of cookery as moral agents, but a clear headed clergyman in New York has perceived that dentistry may be a moral agent, and he has insisted on all the people attending his mission-chapel keeping their teeth in good condition. If anyone have bad teeth, he is sent to a dentist, who fills or extracts them as may be needed. A dentist is supplied who does the work for nothing, if the patient cannot afford to pay. (The *New York Medical Record*, February 24th, 1883, p. 224.) Since the clergyman adopted this plan, he has had very much less trouble from drunkenness in his congregation.

The relation between the consumption of alcohol and the quality of the cookery has recently been investigated in Switzerland, and it has been shown that, where the food is insipid and unappetising, the people have recourse to a glass of "schnaps" to make up for the deficiency.² We have no experiments at present to show how savoury and unsavoury food, respectively, affect the circulation in the brain; but it seems highly probable that savoury has a much more stimulating action than unsavoury food on the cerebral circulation. I have insisted a good deal upon the important vascular changes which are produced by the act of swallowing, and these changes appear to afford an explanation of some curious phenomena. It is frequently stated that a glass of beer, slowly sipped, will intoxicate a man; whereas the

¹ Scotch word for thirst.

² Schuler. *Die Ernährungsweise der arbeitenden Klassen in der Schweiz*. Bern. Stämpfli'sche Buchdruckerei.

same quantity, swallowed at a draught, will have little or no effect. I do not know how far this is true, but it is not the kind of statement that would be readily invented, so that I think there must be foundation for it in fact. We can easily see that the disturbance of the circulation, consequent upon frequent sipping, may so aid the effect of the alcohol that intoxication may ensue, although the alcohol alone could not have produced this effect. But, while frequent sipping may be thus used, on the one hand, to produce intoxication, it may be employed, on the other, in the cause of temperance. Some time ago, I saw in an American periodical a cure for drunkenness. The person was advised, whenever the craving came on, to sip a glass of cold water. At first sight, this may seem a poor substitute for a glass of whisky, and very unlikely to remove the craving for alcohol; but, as I have mentioned in my first lecture, a glass of cold water, slowly sipped, has more effect upon the pulse than a glass of brandy swallowed at a draught; and may therefore be a very efficient substitute, indeed, for alcohol.

To prevent any misunderstanding on this point, I should mention that the effect of sipping upon the pulse is not a permanent one; it lasts while the sipping is continued, if the sips be taken at short intervals; but it passes away after the sipping ceases. While its effect upon the pulse is thus greater for the time than that of alcohol, it is much less permanent. When I wrote my paper on "Nervous Depression as a Consequence of Dyspepsia," the effect of sipping upon the action of the vagus had not been discovered, but its stimulant action had been observed clinically; and I then recommended that a glass of soda-water, with or without the juice of a lemon squeezed into it, should be slowly sipped when the feeling of weakness came on, and a biscuit eaten along with it, if desired.

But, besides cooking and mastication, we have to consider a most important question—the kinds of food which a person may eat. In a healthy man, the best guide, both as to quantity and quality, is the appetite. Food that is eaten with a relish is, as a rule, wholesome; and sometimes it is rather astonishing to find how people's instincts guide them to what is suitable for them, in utter defiance of all *a priori* notions. As Dr. Austin Flint very sensibly puts it, "the diet should be regulated by the appetite, by the palate, and by common sense." Too great a regulation of the diet is sometimes very injurious; and this, I believe, is more especially the case in persons of a nervous temperament. I have already mentioned that some cases of acidity, and even of severe pain, do not depend upon any abnormal acidity of the gastric juice, nor of the contents of the stomach; nor yet do they depend upon any imperfection in digestion, for Leube has found that, in such cases, digestion is often performed very thoroughly and rapidly indeed. The pain in these cases depends upon hyperesthesia; and, if the patient begin to cut down his diet, one article after the other may disappear, and the mischief will only become worse. The nervous system becomes more and more irritable as the blood becomes more impoverished, and the system may break down completely from inanition. In such cases, as I shall have afterwards to mention, forced feeding, or, as we may term it, stuffing, the patient, is of the greatest possible service.

But, as Dr. Flint wisely puts it, the palate and the appetite alone will not serve as reliable guides to the quantity and quality of food. They must be regulated by common sense, or, in other words, by experience. We find this in the case of animals. A horse turned loose into a field of new clover may eat so much as to kill himself by overdistension of the stomach and intestines. A cow turned loose for the first time into a pasture in which colchicum, or other poisonous plants, grow, may eat of them at first, and be ill in consequence; but, after it has become acquainted with their injurious action, it will avoid them. The appetite which regulates the quantity of food, and the palate which regulates its nature, must both be trained; and we must also use our experience, in order to make sure that we do not misinterpret their demands. When a person has been fasting for many hours, his appetite becomes ravenous, and he is apt to eat far more than is good for him. We are sometimes apt to treat ourselves as we occasionally treat others, and be in too great a hurry to gratify the demands of our own appetites, as well as to answer the questions, or grant the requests made to us by others. Solomon says of the man who hastens to reply to a question before he has fully heard it out, that "it is a folly and shame to him," and the same is true of the way in which we sometimes treat our appetite.

Let us take the ordinary case of a man who has breakfasted at 8 in the morning, and has had nothing to eat till 7 at night. He sits down with a voracious appetite, and gorges himself until he becomes semicomatose, and resembles a bloated boa-constrictor rather than a rational being; or else his overloaded stomach rebels, and a fit of violent vomiting and purging induces his relations to send in a hurry

for their medical man, and urge him to come with the utmost speed, for So-and-so is dying of cholera; and yet the poor appetite was not to blame. The nervous system had been starved and wanted food; but, as I have already insisted more than once, food in the stomach is outside of the body for the purposes of nutrition, and requires to be absorbed before it is available for the wants of the organism. No doubt the stomach, as it becomes gradually distended, informed the brain, through its nerves, that food was on its way. But still, this was not sufficient, and the appetite remained unappeased. By the time enough food has been digested and absorbed to satisfy the cravings of the nervous system, too much had been put into the stomach, to its detriment.

If, instead of hurrying the food down, the person had been content to eat slowly, with intervals between his courses, as, for example, if he had been put down to a *table d'hôte* abroad, the chances are that the dinner would have done him no harm, for the long intervals between the courses would have allowed some of the food taken at first to be digested and absorbed; and, the craving appetite being thus lessened, the temptation to overeat would have been removed. Not unfrequently we hear people say that they are well when living abroad and dining at a *table d'hôte*, although the food that they get there is not nearly so good as what they get at home. The reason, in all probability, is, that they are obliged to spend more time over their meal, and are unable to swallow it down, or, as the Americans phrase it, "to get outside of it," so quickly as they can at home.

The remarks of Dr. Beaumont in regard to the question of appetite, as a regulator in eating, are so apposite that I shall quote them. Since they were written, medical opinion has passed to the opposite extreme from that which he denounces, and starving, rather than stuffing, has become the fashion. A reaction has set in against the starving system; but let us hope (although we can hardly expect) that it will not pass beyond the just views of moderation which Dr. Beaumont advocates. He says: "There is no subject of dietetic economy about which people err so much as that which relates to quantity. The medical profession, too, has been accessory to this error, in giving directions to dyspeptics to eat until a sense of satiety is felt. Now, this feeling, so essential to be rightly understood, never supervenes until the invalid has eaten too much, if he have an appetite which seldom fails him. Those even who are not otherwise predisposed to the complaint, frequently induce a diseased state of the digestive organs by too free indulgence of the appetite. Of this fact, the medical profession are, generally, not sufficiently aware. Those who lead sedentary lives, and whose circumstances will permit of what is called free living, are peculiarly obnoxious to these complaints. By paying particular attention to their sensations during the ingestion of their meals, these complaints may be avoided. There appears to be a sense of perfect intelligence conveyed from the stomach to the encephalic centre, which, in health, invariably dictates what quantity of aliment (responding to the sense of hunger and its due satisfaction) is naturally required for the purposes of life; and which, if noticed and properly attended to, would prove the most salutary monitor of health, and effectual preventive of disease. It is not the sense of satiety, for this is beyond the point of healthful indulgence, and is Nature's earliest indication of an abuse and overburden of her powers to replenish the system. It occurs immediately previous to this, and may be known by the pleasurable sensation of perfect satisfaction, ease, and quiescence of body and mind. It is when the stomach says enough; and is distinguished from satiety by the difference of the sensations—the former feeling enough, the latter too much; the first to be produced by the timely reception into the stomach of proper aliment, in exact proportion to the requirement of nature, for the perfect digestion of which a definite quantity of gastric juice is furnished by the proper gastric apparatus. But, to effect this most agreeable of all sensations and conditions—the real Elysian satisfaction of the reasonable epicure—timely attention must be paid to the preliminary processes, such as thorough mastication, and moderate or slow deglutition. These are indispensable to the due and natural supply of the stomach at the stated periods of alimentation; for, if food be swallowed too fast, and pass into the stomach imperfectly masticated, too much is received in a short time, and in too imperfect a state of preparation, to be disposed of by the gastric juice." "But it is with idle people as with children. Leave them without occupation, and their chief amusement will then be derived from the indulgence of their appetites. Hence the prevalent pastime of forenoon-visits to the pastry-cook's, where the appetite is indulged with as little regard to the real wants of the system, or the condition of the stomach, as if digestion were meant merely as an appendage to taste. Many young persons do themselves serious injury in this way,

and then complain loudly of the discomfort which attends the subsequent indigestion of a heavy dinner. To relieve the weakness, arising not from exhaustion, but from the oppression of satiety, they resort to wine, as if, by adding fuel to the fire, they could reasonably hope to extinguish the flame." (Combe's *Physiology of Indigestion*, ninth edition, by James Cox, M.D., 1849, p. 77.)

Appetite and palate have both their own work to do in regulating the quantity and quality of the food; but each of them requires, as Dr. Flint says, to be regulated by common sense, for otherwise they sometimes disagree, and the pleased and tickled palate sometimes endeavours to force down a much larger quantity of savoury food and delectable dishes than appetite declares to be either necessary or good for the organism. When pushed beyond a certain point, the appetite rebels, and "the full soul loatheth the honeycomb;" but before this point is reached, a good deal more than enough may have been eaten; and if the same process be repeated every day, serious mischief will ultimately result, and the more accommodating the appetite is, the more serious will the mischief be. Many a man has been saved by a weak stomach, which punished its owner by sickness or headache whenever he tried to overburden it, and thus checked his tendency towards excess at the very outset. Where the stomach and intestines are more accommodating, and continue to digest all that is put into them, the burden of the work is shifted elsewhere, and either the liver fails to reconstruct the new material with which it is deluged, or the tissues are poisoned, and the overworked kidneys become degenerated. The palate, too, sometimes makes demands which are apt to be misconstrued. As the late Professor Laycock observed, patients recovering from a severe illness not unfrequently have a strong desire for salt herrings, pork, or ham, things which would be almost certain to disagree with them if their appetite were indulged. But the fact is that the patients do not want the pork or herring; what they really desire is salt, and they crave for these articles because they contain salt. If salt be given to them in the form of a mixture, their appetite is appeased, and the harm is avoided which the herring or ham might have caused.

If we were to attempt to lay down a diet-table, containing all the things that a person, whether healthy or dyspeptic, may eat, the task would be endless; it is much simpler to say what he may not eat. The oldest diet-table in the world might have been a very long one if everything that might be eaten had been named; whereas it was very short—"Of every tree of the garden thou mayest freely eat, but"—and here follows the one exception, of which Adam might not eat without injury. The next diet-table is still more extensive, "Every living thing that moveth shall be meat for you, even as the green herb have I given you all things; but"—and here again comes the singular exception—"the flesh with the life thereof, which is the blood thereof, shall ye not eat." In a third diet-table, intended not for mankind generally, but for people under peculiar conditions, we still find the same rule followed; the foods that were to be eaten being classed together under one or two sweeping definitions, and only a few exceptions mentioned by name. Dyspeptics may be regarded as a peculiar class of people, requiring fuller instructions as to diet than healthy people, and a few general directions to them are by no means out of place. Thus, they may be directed to avoid new bread, buttered toast, muffins, and pastry, all of which are difficult to disintegrate. They may be told to eat fish, or to prefer meat which has a short fibre, like mutton, chicken, or game, rather than to take those meats where the fibres are long and tough, like beef.

There are some substances taken as food which are utterly indigestible. We know that prehistoric man was fond of strawberries, because the seeds of these fruits which some man, ages and ages ago, had eaten and voided unchanged, still remain to inform us of the fact. Most seeds, when whole, are indigestible; and on this quality, indeed, their distribution over the earth's surface depends. Even when broken, like the kernels of nuts or almonds, they are sparingly digestible; and the same is the case with the skins of fruits, and the harder fibres in the stalks of vegetables. Where the intestines are slow to act, such things as strawberries, raspberries, figs, nuts, prunes, and apples, may be allowed, and even recommended; but, where the intestines are irritable, all such things must be forbidden. Acid fruits are not only indigestible in themselves, but are apt to leave irritation behind; and Dr. Beaumont found that, an hour after giving St. Martin some raw ripe sour apples, the stomach was full of fluid and pulp which was quite acrid, and irritated the edges of the fistulous opening, "as is always the case when he eats acescent fruits or vegetables." The acrid condition went on increasing to the end of an hour and a half; and, at the end of two hours, the mucous membrane appeared irritated, although the apple had passed out of the stomach into the intestine, probably in an undigested condition, and, as we know in other cases

at least, it would even be apt to produce diarrhoea. Some drinks are peculiarly liable to cause indigestion; amongst these are sour wines, some kinds of beer, and tea. Sour wines, especially if taken regularly, are apt to bring on a condition of gastric catarrh; and, in certain conditions of the system, a single glass even of good wine appears to act almost like poison. It seems to undergo acetic fermentation in the stomach, and produces acidity, discomfort, or pain. I do not know what these conditions of the stomach are in which a single glass of good wine will produce this effect, even in persons to whom it is not usually injurious. I have noticed, however, that sometimes this tendency to acidity is associated with a hyperæsthesia of the mucous membrane of the œsophagus, so that port or sherry causes an unpleasant burning feeling all the way down the gullet, while usually nothing more would be felt than a pleasant warmth, if any sensation were observed at all. Tea is very apt to cause a feeling of acidity and flatulence. Sometimes the acidity comes on so soon after the tea has been taken, that it is difficult to assign any other cause for it than alteration in the sensibility of the mucous membrane of the stomach or œsophagus. Tea contains a quantity of tannin, as we very readily notice by the black spot which a drop of it will leave upon a steel knife, and it contains also caffeine and volatile oil. The effect of the tannin is to interfere very considerably with the digestion of fresh meat; and there are many people in whom tea, taken along with fresh meat, will upset the digestion. It does not interfere with the digestion of dried meat, such as ham and tongue; the fibres of these having already become shrunk and toughened in the process of curing. Tea at breakfast is not so apt to cause indigestion, probably because bacon or tongue are more frequently taken along with it at this meal than fresh meat, and also because the long interval which has elapsed between breakfast and supper or dinner allows the stomach to become completely empty before any new food is put into it. Tea in the afternoon, two or three hours after lunch, will sometimes bring on acidity almost immediately; and I am inclined to think that this is due either to its producing increased sensibility of the gastric mucous membrane, or, what is perhaps still more probable, to its altering the movements of the stomach, so that the mucous membrane of the cardiac end of the œsophagus becomes exposed to the action of the contents of the stomach. These are much more acid two hours after a meal than they are immediately after it; and they will thus produce a much more irritating action upon a sensitive mucous membrane. A part of the mischief wrought by tea in the lower classes is due to their allowing it to infuse for a long time, so that a large quantity of tannin is extracted. This danger may be avoided by simply allowing boiling water to stand in the tea-pot for five minutes or so, and then pouring it off into another teapot, where it may be kept hot for a length of time without undergoing any change. Another reason is that they drink it extremely hot. Heat is a powerful stimulant to the heart, and a cup of hot tea is, therefore, much more stimulating and refreshing than a cold one; for not only does the hot tea act more powerfully on the heart through the nerves of the stomach, but the heat will reach the heart directly through the thin diaphragm. The practice of sipping the tea almost boiling hot is, however, apt to bring on a condition of gastric catarrh. Coffee does not affect the stomach to such an extent as tea. In its preparation, however, a substance called caffeine is produced; and this, along with the caffeine which is present in both coffee and tea, appears to dilate the abdominal vessels, and cause a feeling of fulness in the abdomen, with a tendency to piles in some persons. Cocoa is less liable to cause acidity or abdominal discomfort than tea and coffee; but, when continued for some time, it is apt to give rise to those symptoms already described under the head of biliousness. In all probability, this depends partly on the amount of fat it contains, as cocoatin, from which the fat has been removed, is less likely to produce the symptoms than chocolate.

(To be continued.)

DONATIONS AND BEQUESTS.—Mr. George Sturge has given £300 on account of £3,000 to the Middlesex Hospital, £100 on account of £1,000 to the Hospital for Women, and £50 on account of £500 to the British Home for Incurables.—The Misses Hampson have given £500 to the Royal Albert Asylum for Idiots and Imbeciles of the Northern Counties, Lancaster, in memory of their brother, the late Mr. William Hampson.—An unknown friend, per Mr. C. Cooper, postmaster, Stoke-upon-Trent, has given £50 additional, making £275, to the North Staffordshire Infirmary at Hartshill.—A friend, per Mr. D. C. Griffith, has given £100 to the Middlesex Hospital.—Miss Susannah Fuller, of Barton Mills, has bequeathed £100 to the Mildenhall Cottage Hospital.—The Sussex County Hospital has received £100 under the will of Mr. H. Bingley.—Mrs. Francis has given £50 to the Middlesex Hospital, in memory of her father, Dr. J. Hall Davis.