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Articles

THE NEGLECT OF NATURAL PRINCIPLES IN CURRENT MEDICAL PRACTICE

BY

Surgeon Captain T. L. CLEAVE, R.N.

Naturam expellas furca tamen usque recurret,
et mala perrumpet furtim fastidia victrix.[1]
(Horace. Epistles, Book 1. X 24)

PART I

ENUNCIATION OF THE PRINCIPLE OF THE "NATURAL LAW"

IT is contended here that Nature, from a practical point of view, is never wrong—*as long as she is acting in a natural environment* (that is to say, the environment in which the organism concerned has been evolved). It is true that exceptions do occur, but they are so rare that from a practical point of view they should be ignored. Although this principle appears to be often neglected by our profession, it is really axiomatic to the Darwinian theory of evolution. For if an organism has "arrived," it means it must be very perfectly adapted to its natural environment—that is to say, in her natural environment Nature, from a practical point of view, is never wrong.

Where Nature does appear to be wrong one should not turn against the above principle, but should rather try to find out how the principle is still true. For example, if our tongues do not protect us against such a deadly poison as arsenic, it is easy enough to see that our tongues cannot taste it because it has never occurred in our natural environment, having been dug up from far underground with iron pyrites. It is very different from a poison such as the intensely bitter strychnine, which has long existed in our natural environment and which the tongue can easily detect.

This is easy to solve, but it is not always as easy as that. It was not easy to see why cattle died from eating the yew tree, in spite of both the cattle and the yew tree being indigenous to these islands. It may be interjected

[1] "You may drive out Nature with a pitchfork, yet she will ever hurry back, to triumph in stealth over your foolish contempt."

here that the problem of why cattle are poisoned by eating the rhododendron plant has an easy solution, in that this plant comes from the Himalayan mountains and so the cattle over here are not evolved to cope with it. The Himalayan cattle, however, can do so. As said, this explanation is not available in the case of the yew tree poisoning. But cattle do not eat the yew tree when it is growing naturally and, for example, wander about harmlessly amongst the yew trees growing on Salisbury Plain. If, however, yew clippings are dropped in the grass, as occurs near churchyard walls, the cattle eat the clippings with the grass and are easily killed.

When Nature, therefore, appears to be in the wrong, it is contended that an effort should be made to discover some unnatural element in the environment which will show that she is not really in the wrong.

For convenience the above principle of an organism's perfect adaptation to its environment will be called the "natural law," or alternatively the "principle."

At first sight this law seems very easy and also very reasonable, but as regards the ease, its application bristles with difficulties, and as regards the reasonableness, it comes into frequent conflict with many current medical opinions. Some of the difficulties may be demonstrated by taking an example of the incorrect, and then of the correct, application of this law, with some of the consequences.

PART II

EXAMPLE OF THE INCORRECT APPLICATION OF THE NATURAL LAW WITH SOME OF THE CONSEQUENCES

The example to be taken will be the incorrect application of the law to the subject of diet.

The principle in this case would appear to indicate nothing more than the advice to eat exactly what we like, or, in the language of the music hall, "a little of what you fancy does you good." The argument would appear to run that that is what Nature tells us to do, and if she is never wrong, we shall be perfectly safe in doing it.

Unfortunately there is a great pitfall: this would only be true if all the food eaten were in its natural state. Then indeed we could eat whatever we liked, just as any wild creature does, and be sure of doing so just as safely. But unfortunately our food has been altered a great deal from its natural state, and so with such advice as this we may be far from safe, as will become apparent on more careful scrutiny.

The alteration of the food from its natural state consists of two main procedures, the first being cooking and the second being the concentration of the food by machinery. (Putting food into tins, being accompanied by heat-sterilization, is not greatly different from cooking, and need not be considered separately, except in the case of tinned fruit, which has added sugar, and which will be commented on later.)

Cooking has been a common habit of the human race for so long that the race has now become evolutionarily quite a little adapted to it, and alterations

n the jaws of modern skulls are evidence of this. Also cooking does not appreciably concentrate food, which, as we shall see, is a much more dangerous procedure. So that no very tragic consequences are liable to follow cooking, but it is necessary to point to some of the more unfortunate ones.

Although boiling may actually parallel, and therefore facilitate, the first stages of digestion, other forms of cooking, and especially over-cooking, may present the gastric juice with a mass of highly-coagulated and even charred protein, making it difficult for the juice to diffuse amongst it and combine with it. This is still more true if frying has surrounded the protein with a coat of fat, which is relatively resistant to digestion in the stomach. This interference with the action of the gastric juice, by over-cooking or frying, is especially important in the case of the hydrochloric acid component, since the resulting hyperchlorhydria is a probable factor in the production of peptic ulcer. It is only necessary to contrast a piece of raw steak with the same steak over-cooked to see that in the one case there is a soft red piece of meat that can be chewed to form a semi-liquid, and that in the other case there is a hard, blackened piece of meat that prevents any such result. The difference in the neutralizing power on the gastric acid is abundantly obvious, and it is noteworthy that all the famous diets for peptic ulcer cases in the past have been based on a restoration of protein to near the natural state : for example, the Salisbury diet, based on chopped raw meat ; the Lenharz diet based on raw or poached eggs ; the Sippy diet based on milk ; and all welcoming such articles as steamed fish.

It must also be remembered that cooking may have unfortunate consequences on the teeth, which may come about in the following manner : If a sticky food, like dates, is eaten, it must clearly stick round the teeth to no small extent. Yet the natives living in the Persian Gulf, who consume great quantities of dates, have excellent teeth. Similar sticky food, if in the form of a cooked product, such as toffee, would tend to cause rapid dental caries, since the greatest cause of dental caries seems undoubtedly to be the production of acid from the bacterial fermentation of starch and sugar. What is the explanation of the difference ? It is submitted that the explanation lies in the fact that in the case of the dates the sugar is found in cells that are still actually alive. And as long as the date cells are alive, the antibodies in the living cells will continue to protect them from bacterial attack just as they did on the tree, and just as they do in our own case until we are dead. By the time the cells are dead and therefore vulnerable to fermentation, new meals will have been eaten and moved the cells along away from the teeth.

It is easy to apply this idea to the fermentation of food inside the gut exaggerating any intestinal toxæmia, but this will be referred to again later.

Finally, cooking food has the well-known deleterious effect on some of its vitamins.

To recapitulate, then, we see that even cooking food, which is relatively harmless, may still have unfortunate consequences. This does not indicate avoiding cooking, but it does indicate avoiding excessive cooking.

Concentration by machinery is the second alteration in our food by civilization ; and it will soon appear that this is much the more dangerous procedure of the two. Concentration affects, for practical purposes, only one class of food—the carbohydrates. Wholemeal flour is turned into white flour, and the bran rejected ; the pulp of the sugar cane and the sugar beet have the sugar extracted in almost pure form, and the balance of the pulp is then likewise rejected. Now whereas cooking has been going on in the human race for probably 200,000 years, so many thousands of years in fact that our jaws show at least some evolutionary adaptation to it, just as the loss of body hair shows an adaptation to the wearing of clothes, there is no question yet of our being adapted to the concentration of carbohydrates by machinery. Such processes have been in existence little more than a century for the ordinary man and from an evolutionary point of view this counts as nothing at all.

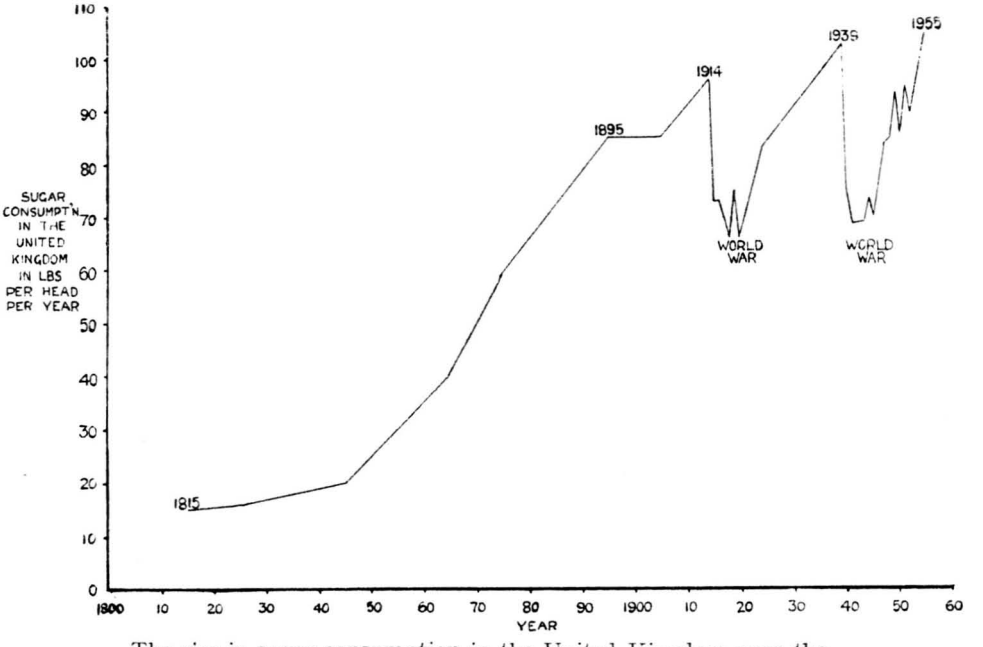
The writer hopes to show that many of our ills today are an expression of this one fact—that we are not yet adapted to the concentration of carbohydrates by machinery.

The carbohydrates are singled out for the simple reason that they alone are the foods that have been concentrated in this manner, all other foods being more or less in their natural state. If the concentrating processes were being applied to the proteins or fats, these would be included with the carbohydrates —there is no question of singling out the carbohydrates in an obsessional manner. At first sight it does appear that the fats are being concentrated by machinery, too, in the manufacture of butter and margarine. But the concentration, though incontestable, does not rise to a higher level than occurs in many natural fats, *because fat in meat occurs in pure form*. The fact that the body is evolved to cope with fat in pure form is the simplest explanation of why it appears able to cope with some special fats, such as butter and margarine, that have been raised by machinery to the same level of concentration as the fat in meat. Certainly the writer has never seen any adverse consequences from over-consumption of fat, and even in weight-reducing diets, Horder, Dodds and Moran [1], quote Kekwick and Pawan, who showed that next to high protein a high fat diet is attended with the greatest loss of weight. Too much cooking in fat, as in frying, is, however, a disadvantage as already stated under cooking.

Pursuing the subject of the concentration of the carbohydrates, it may be said that nearly all the harmful consequences that arise from this are due to the concentration leading to a definitely excessive consumption of the carbohydrates. This presumably comes about because their taste is too highly geared, as it were, for the tongue to be able to know when to stop. For example, a bar of chocolate has almost as much sugar as a dozen average English apples. The tongue would know when to stop eating the apples, but not how far along the bar of chocolate.

To show that this concentration in the carbohydrates really has led to a very great increase in their consumption, it may be stated that the consumption of sugar in this country has jumped from 15 lb. per head in 1815 to 85 lb. in 1900 and 104 lb. in 1954 [2]. During the same period the price

of sugar has dropped from 8s. 0d. per lb. to 8d. per lb., after allowing for the different purchasing power of the pound sterling [3].



The rise in sugar consumption in the United Kingdom over the last century and a half.

No doubt some increase in flour consumption has occurred too. One only has to compare how easy it is to consume slices of white bread, compared to stodgy crude wholemeal bread, to see this for oneself, but no comparable figures for flour are available. However, as all flour (starch) is digested to, and absorbed as, sugar, the end-result is similar qualitatively to the over-consumption of sugar and there is no need to deal with these two forms of carbohydrate separately. But it is important to point out that the concentration that is effected is very much greater in the case of sugar than it is in the case of flour—nearly ten times as great, in fact, as even the whitest flour. The danger of over-consumption is, therefore, very much greater in the case of sugar.

We will now discuss some of the consequences arising from the concentration and over-consumption of carbohydrates, choosing dental decay, peptic ulcer, diabetes, obesity, constipation and intestinal toxæmia. These diseases are very suitable for illustrating the incorrect application of the natural law in the case of diet.

As regards *dental decay*, the concentration of the carbohydrates magnifies the consequences on the teeth already described under cooking. This arises partly from the lack of the abrasive cleaning power of fruit pulp and stone-ground brown bread, and partly because white flour forms a sticky glutinous mass that has a great tendency to adhere to the teeth. It is hardly necessary

to recall that dental decay is practically unknown, and usually quite unknown, in any race of mankind, and in any species of animal, that is living in the wild state. This fact has been carefully brought out by Weston Price [4] for many primitive races visited by him in all parts of the globe. Or to use Professor Rushton's words, in this country : " As regards feeding habits, there is a strong belief among dentists, supported by an enormous volume of incomplete evidence, that it is the stagnation of debris of such things as low-extraction flour products and sugars which are of the greatest importance. . . . The rise in caries incidence in Britain was closely paralleled by the rise in sugar consumption, and the fall in caries during the war in Western Europe coincided with the restriction or disappearance of sugar. In countries where it was most scarce, such as Finland, Norway or the Channel Islands, the improvement in caries was greatest, and its reintroduction after the war in those places was accompanied by a great rise in the caries rate " [5].

Similarly the lack of the fibrous foods, that normally produce a high degree of protective keratinization in the gingival epithelium, is a major cause of that other great dental menace of today—pyorrhœa [6].

In the Royal Navy observers have had the opportunity of seeing the effects of civilized foods on the population of Tristan da Cunha [7]. In 1932 the population was still living mainly on fish and potatoes. Since then the Tristan Development Company has been set up to organize a crawfish market for the United States; and a canteen has been installed, where sugar, flour, sweets, lollipops, etc., can be freely bought. As the result of these benefits of civilization the caries rate in permanent teeth has jumped from 18 per thousand in 1932 to 91 per thousand in 1952, and in deciduous teeth of the children from 1 per thousand to 226 per thousand. The Medical Officer of the island cannot deal with the rapidly increasing dental problems, and so the islanders now require a dental officer, to supplement the canteen.

In the face of situations like this, and scores of similar ones outlined in Weston Price's comprehensive surveys, the importance of fluorine in the water can be seen in greater perspective.

As regards *peptic ulcer*, it is submitted that the concentration of the carbohydrates is far the most important factor in the causation, for the following three reasons :

(*a*) The concentrating processes remove a great deal of material, some of which is protein, the natural neutralizer of hydrochloric acid. The loss of protein can best be seen by taking a few examples of natural carbohydrate food, and giving the approximate per cent ratio of protein to carbohydrate in each case.

It will be seen that if we eat beetroot, for every five units of carbohydrate there is about one unit of protein to help neutralize the hydrochloric acid. Refine the beetroot by machinery and eat the pure crystalline sugar and there is no protein at all. Though all the figures given are only approximate and take no account of factors such as digestibility, the argument stands out in absolute clarity. This argument is strengthened by the fact that *if the calories were not obtained from the consumption of almost pure sugar, they*

Carbohydrate food	*Approximate per cent. ratio of protein to carbohydrate*
Apples	2 per cent.
Bananas	5 per cent.
Strawberries	10 per cent.
Potatoes	10 per cent.
Wholemeal flour (100 per cent. extraction): ..	17 per cent.
[(White flour (70 per cent. extraction)	14 per cent.]
Beetroot	18 per cent.
Blackberries	20 per cent.
Peas and Beans	40-60 per cent.
Peanuts	325 per cent.

would have to be obtained from foods which often have a higher proportion of protein than even the sugar parent-foods themselves have. For the amount of calories that could be obtained from these sugar parent-foods in northern latitudes would normally be very small. The great bulk of such calories would have to be obtained from other forms of carbohydrate, such as potatoes and wholemeal flour, in which the protein ratio is higher than in many northern fruits.

One only has to consider the consumption of concentrated sweets that commonly punctuates attendance at a cinema in this country to see the argument clearly. These produce a great flow of gastric juice, but being almost pure sugar, have no neutralizing power of the hydrochloric acid they have called forth. The gastric and duodenal mucosæ are therefore bathed in full strength acid, often for several hours. And at the end of the performance the individual is not hungry. Contrast this with the relatively unexciting apple, which not only produces a much smaller flow of juice, but which, in virtue of the protein in the pulp (and the apple is the least favourable example that could be chosen in this respect) provides some neutralizing power of the hydrochloric acid; and leaves the individual hungry, so that after the performance he could then eat a balanced meal.

(*b*) The second reason is the statistical fact of the great increase in duodenal ulcer in this country since 1900. It is often forgotten that before 1900 duodenal ulcer was so rare that it was mentioned in no textbook. But at present the total peptic ulcer incidence has increased to such an extent that about 10 per cent. of men and 3 to 4 per cent. of women develop a peptic ulcer during their lifetime. Anatomical ulcers post mortem are nearer 20 per cent., with women only a little way behind men. This great increase has occurred during the period of the great increase in sugar consumption.

(*c*) The third reason is the racial incidence. Peptic ulcer may be broadly said to be rare in primitive peoples. For example, in the nomads of Arabia, the peasants of Egypt, and the majority of the negro races in Africa, who all subsist largely on carbohydrates, peptic ulcer is almost unknown [8]. Except in the ulcer belt of India, where the incidence is ascribed to a quite abnormal consumption of cayenne pepper, it is also rare, though, again, the inhabitants subsist chiefly on carbohydrates. It is not protein foods that

are protecting these races—it is the protein in the carbohydrate foods. And the rarity of peptic ulcer in these races today is the natural corollary to the rarity in the white races before 1900.

It is not surprising therefore that from the points of view of the removal of the protein, the consideration of statistics, and the racial incidence, peptic ulcer is included here in the list of diseases related to the concentration of carbohydrates by machinery. The stress factor will be discussed later.

Turning now to *diabetes*, it is not difficult to visualize the strain on the pancreas imposed by this massive increase in carbohydrate consumption. The great rise in the incidence of diabetes over the last century,[1] and the big fall during the rationing periods of the two world wars, can, in the writer's opinion, be definitely correlated with the consumption of sugar, but not with the consumption of the other carbohydrates such as bread and potatoes.

The reason for this is as follows : If a horse works harder, he has to be given more carbohydrates—but does not develop diabetes. If a man works harder, and is given more carbohydrates (in their natural form), he will not develop diabetes either. Similarly, in times of scarcity, Man is forced to take a large proportion of his food as carbohydrates, but this shift, as long as the carbohydrates remain in their natural form, has not caused diabetes. In bygone times the Irish peasants had largely to subsist on potatoes, but seldom got diabetes, and similarly many races of mankind live almost entirely on rice today, and they seldom get diabetes either. Diabetes is practically unknown amongst the ordinary inhabitants of, for example, China and India, only occurring there in the wealthy inhabitants that live on the Western type of diet. It is therefore essential, in order to prove the correlation between the incidence of diabetes and the consumption of sugar, to chart only the carbohydrates which have been concentrated by machinery, and which in consequence get consumed in excess of natural requirements, causing a pathogenic strain on the pancreas. And since the concentration that has been effected in the case of sugar is nearly ten times as great as in the case of even the whitest flour, it is most desirable to chart the consumption of sugar only and to ignore that of bread altogether (which would require multiplication by a weighting factor). If this is done, the correlation (between the incidence of diabetes and the consumption of sugar) becomes immensely clearer ; and it is considered here that the only reason why such correlation is not common knowledge is due entirely to inappreciation of the fundamental difference between sugar and other carbohydrates in this respect, through ignorance of the help afforded to this problem by the natural law.

It should be added that the correlation between diabetes and sugar consumption has already been pointed out in the past—e.g. by Given [9]. And the figures supplied by Joslin [10] for the United States are considered to be by no means at variance with this.

A correlation between the incidence of diabetes and the consumption of

[1] e.g. Joslin [10] quotes diabetes ranking in 1900 as the 27th cause of death in the statistics of the Metropolitan Life Insurance Company of the United States, whereas today it ranks 3rd, after cancer and cardiovascular disease.

fat has been made for the rationing periods of the two world wars [11]. It is contended, however, that the correlation should be with the consumption of sugar (that shows a considerably greater fall on the chart than that of fat), partly for the reason that the association between insulin and sugar metabolism is far more direct than in the case of fat metabolism, but mainly for the reason that fat occurs in nature in pure form, and therefore the body would not be expected to consume too much of it, as already stated.

Since what is claimed as the cause of diabetes is essentially the over-consumption of carbohydrates, it would be expected that other diseases resulting from this over-consumption would be conspicuous in this disease. This is true, at least in the case of obesity, and probably in the case of other conditions, too. In the case of obesity the occurrence is so notorious that it has been considered by some authorities as the cause of the disease. But the deeper view, expressed above, is far more logical, especially as diabetes also occurs to some extent in the thin.

Before leaving the subject of diabetes, the writer cannot refrain from expressing the personal conviction that the exhaustion of the intrinsic factor and hydrochloric acid from the stomach, leading to pernicious anæmia, is comparable to the exhaustion of the insulin from the pancreas, and has a similar but not identical pathogenesis. This is a personal conviction, based on many analogies.

Obesity.—Perhaps this is the greatest destroyer of years of life in our midst today. As one of the leading medical officers in the insurance business in America has said : " When a man's waist measurement exceeds his chest measurement, the degenerative diseases are upon him."

It will not be necessary to elaborate here the prevalence of obesity today in all civilized countries, and its striking absence in all wild races of mankind and in all wild animals, birds, and fishes ; or to correlate this difference with the over-consumption of concentrated carbohydrates.

The writer feels that it is a tragic error ever to relate obesity to an excess of appetite. To see the truth here, we have only to notice that no rabbit ever ate too much grass, no rook ever pulled up too many worms, no herring ever caught too much plankton : that no creature in the wild state is ever over-weight. They may vary in size, but never in shape.

Constipation is well known to be due to the removal of carbohydrate pulp and needs no elaboration here. Closely related to this condition is that of hæmorrhoids, due to the pressure of enlarged fæcal masses on the intra-mural rectal veins ; and probably the condition of variocele and varicose veins, too, due to the weight of static bowel contents on the extra-mural iliac and spermatic veins.

As regards the next consequence, *intestinal toxæmia*, it is important to realize that this is not the same as constipation, since it may easily occur without it. In fact, some of the worst cases have a mild putrefactive diarrhœa, verging on colitis. The subject of intestinal toxæmia has already been mentioned under cooking, when we saw that it could be facilitated by the killing of living cells in raw food, but that is a trifling cause compared to the

over-consumption of carbohydrates. This over-consumption could, and in the writer's opinion does, maintain a vast horde of bacteria in the bowel that ought never to be there—and that never would be there if there was nothing for them to live upon.

The subject of intestinal toxæmia, once so hackneyed, now seems rather neglected, yet it must be of paramount importance. To anyone who thinks it a myth, it seems worth remarking that the stools of all creatures in the wild state, though often possessing a characteristic odour, do not possess an offensive one. The stools of mankind, and of the dog living under civilized conditions, are frequently very offensive indeed, and where the nose signals offensiveness, it signals danger. One can best set out the whole argument, unpleasant method though it is, by imagining the consequences of the stacking of civilized Man's excretory products in a farmyard in the way that is performed with those of cattle, and then trying to explain the extraordinary difference by any argument that is not based on that of intestinal toxæmia.

Intestinal toxæmia really consists of two separate conditions : (*a*) the direct attack on the bowel wall by certain bacteria (such as the *B. coli*) when in abnormal numbers, and even their passage into the blood stream, causing distant effects ; and (*b*) the results of the absorption of bacterial toxins. The former causes appendicitis, cholecystitis, pyelitis and diverticulitis ; the latter could cause many quite separate conditions—conditions as different from each other as eczema and the hypertensive forms of arteriosclerosis.

Study of the occurrence of both groups in primitive races again helps. (*a*) The occurrence of *B. coli* infections in primitive races is very hard to track down, and seems to be a sadly neglected part of medical knowledge. There is, apparently, no textbook on medical diseases in primitive races comparable to the comprehensive treatise by Weston Price on dental diseases, already quoted. It is, however, possible to track down the relevant information here and there. For example, as regards appendicitis : " The disease is common in highly civilized countries and urban communities, but rare in remote rural districts and among primitive peoples. During the nine years that McCarrison practised amongst the hill tribes of the Himalayas he never saw a case of appendicitis. Natives who live on a diet abundant in cellulose are immune from the disease, but when they adopt the diet of civilization, they lose that immunity " [12]. Other similar references are available from Africa. In the writer's opinion the attack in appendicitis is not so much due to stasis produced by the removal of carbohydrate pulp as to the actual over-consumption of carbohydrates, due to their unnatural concentration, which allows overwhelming numbers of *B. coli*, etc., to flourish on the surplus in the bowel.

(*b*) As regards the absorption of toxins, we may take as an example the hypertensive forms of arteriosclerosis. Pressor amines and derivatives such as indole and skatole have been blamed for this condition by many earlier writers, but much confusion of thought has subsequently obscured this simple conception. The over-consumption of meat, for example, has been blamed, yet meat is one of the substances that is not appreciably interfered with in civilized conditions, and is therefore one of the last materials that the natural

law would indicate as a scapegoat. Consistent with this view is the absence of arteriosclerosis in the Eskimo, who commonly eats 15 lb. of meat and fat per day (the Siberian Yakuti consume 25 lb. a day). Yet Sinclair, of the Laboratory of Human Nutrition at Oxford, who visited the Eskimos and published a paper on their diet, has the following observations to make on arteriosclerosis in them [13] : " Wilber and Levine (1950) concluded that In the Alaskan Eskimos there is a consistently high serum cholesterol on the one hand ; repeated clinical surveys, on the other, indicate an almost total absence of cardiovascular renal diseases in the population.' Others have commented on this absence in the Eskimo on his customary diet. Rabinowitch (1936) believed he had 'definitely disproved the incidence of arteriosclerosis in the Eskimo, at least in the Eastern Arctic' ; his data seem to show that it was common in those Eskimos consuming our diet, but there was no evidence of arteriosclerosis in the most northerly parts he visited where the true Eskimo dietary was practised. The same seems to be true of diabetes mellitus and appendicitis." Incidentally, Sinclair in his paper shows the tragic consequence of giving the Eskimos " bannock "—a mixture of white flour, white sugar, and lard—in place of their natural diet, which leads to their rapidly developing many of our diseases. This paper is immensely revealing in all its aspects. The absence of arteriosclerosis today in such primitive races as these is again the natural corollary to the relative rarity of such conditions as coronary disease less than half a century ago in civilized races like our own, just as we saw in the case of peptic ulcer, diabetes, and indeed all the conditions now under discussion.

All this must not be taken to mean that the toxins causing the hypertensive forms of arteriosclerosis are not of protein origin. They almost certainly are just that, as the end-products of the fermentation of sugar are only CO_2 and H_2O, but the point is that without the sugar a comparable bacterial attack on the protein could not occur. Any bacteriologist would appreciate the fact that leaving out the sugar from the culture medium greatly delays the culture of such organisms as the *B. coli* and *B. proteus* on the protein available. And that is what is contended is involved here, from the over-consumption of carbohydrates.

These examples of the consequences of the over-consumption of carbohydrates must not be taken as a complete list. Far from it. It would, for example, be most instructive to deal with the striking effect of the removal of the vegetable pulp on the reaction of the urine, with consequent alteration in the solubility of such substances as uric acid and oxalic acid, leading to calculus formation. It is sometimes forgotten that these crystals are precipitated, not because they are in excess, but because the reaction of the urine has rendered them insoluble. But space does not permit.

Nevertheless, to recapitulate, we have seen at least some of the consequences of an incorrect application of the natural law, taking the example of diet, where following natural desires on the altered foods of modern civilization leads to all sorts of serious trouble.

PART III

EXAMPLE OF THE CORRECT APPLICATION OF THE NATURAL LAW WITH SOME OF THE CONSEQUENCES

With the same example of diet, it may be said that the correct application of the law to this consists indeed in the very careful following of our appetite, but only in respect of foods in their natural state. Let us deal with the latter first.

Foods in Their Natural State.—By this term we mean any foods that have not been overcooked or concentrated by machinery (foods containing white flour and commercial sugar). This leaves the vast majority of foods unrestricted, and entails very little sacrifice. It leaves all the meat, fish, eggs, milk and milk products, fruits and vegetables that could be desired, since none of these has been appreciably altered from the natural state. In fact, by altering the diet, say, 10 per cent. in respect merely of over-cooking, and the concentrating of the carbohydrates, we achieve, say, 90 per cent. of the results of the only truly natural and safe diet—a raw, or almost raw, one. And even this 10 per cent. alteration consists of substitution, not elimination. There is not much hardship in substituting wholemeal flour for white flour; and not very much in substituting such material as fresh and dried fruits, and beetroot, for commercial sugar.

The economic difficulties, however, are quite another matter, and may be insurmountable for some classes of society, as will be mentioned in the conclusion.

If we depart from this natural diet, we do so at our peril, but once we understand the principle involved, we are not very likely to come to grief even if we do depart from such a diet at times. For example, there is a world of difference between a cautious sprinkling of sugar (and the crudest is demerara) over raw fruit, and the ignorant massive consumption of the enormously concentrated materials sold in confectionery and sweet shops. The same would apply to the cautious addition of sugar to tea and coffee, or to wholemeal breakfast cereals. In this world the greatest dangers are the ones run by taking risks that are not known about, whereas running a calculated risk is much less dangerous: forewarned is forearmed. This applies very much to the risks involved by departures from a natural diet, which makes the subject so important to understand.

Even in applying this principle conscientiously, however, there are certain pitfalls. For example, the greatest benefit in the writer's experience has been achieved in treating many conditions by reducing the sugar consumption to the natural level, and perhaps most strikingly in treating chronic boils. It is found, however, that honey and dates cannot be substituted for sugar, although they seem natural enough, but this undoubted clinical fact can be reconciled with the natural law, and not vice versa, in the following manner. Honey is not really a natural food in any appreciable quantities. It would be impossible to take it away from the bees under natural conditions. Even as recently as 15,000 years ago, and probably much more recently still, we were

only getting honey by smoking out bees' nests—and doing that would yield remarkably little. And dates are not natural to races of our complexion. They are natural enough, and safe enough, to dark-skinned races. The sugar content of the date is nearly 60 per cent., and 20 per cent. seems about the limit that is found in the fruit growing in the environment of the white races and that can therefore be safely tolerated by them. Incidentally, the sugar content of the banana is 20 per cent. and this fruit never causes trouble clinically.

It has now been shown broadly what foods are natural enough for us to be able to trust to our appetite in the taking of them, and it will be seen that there is already a conflict with some medical opinion, which would condone the use of white flour. To condone this, however, on the supposition that the deficiencies in white flour can be made good from other foods appears to be open to grave criticism, under two separate headings :

(i) The results will never be exactly the same as the natural product. For example, all the missing minerals and vitamins could be restituted to the white flour and yet the abrasive effects of the original wholemeal flour on the teeth and gums could be missing, with the result that caries and pyorrhœa ended the story ; to say nothing of any less obvious consequences further along the alimentary canal, such as hæmorrhoids. Trying to be clever in this way at Nature's expense must always be a dangerous policy. How dangerous, in fact, is only too obvious if we look around us today and see the tragic frequency of even the few diseases mentioned above, to which such a policy has led.

(ii) Many members of the community are in any case either too poor to afford the money, *or too old to afford the energy*, to make any restitution to the white flour worth the name. For them the natural product is of supreme importance, and they are likely to suffer seriously from any medical assurance that white flour is " all right." Their flour should surely be one that, if they took it alone, would keep them free from the serious consequences of concentrating the carbohydrates mentioned above.

Having now broadly stated what foods are sufficiently natural to be safe, let us turn back to consider in some detail the actual subject of the appetite itself.

Appetite.—The very great importance of following the appetite accurately is easily understood if we consider the diverse food habits of mankind in various parts of this planet.

At the North Pole the Eskimos are almost pure meat-eaters, rarely eating any plant foods at all. *Per contra* at the equator many races are almost pure plant-eaters living chiefly on roots such as the yam, cassava or sweet potato ; or on cereals such as maize ; or on a very wide range of fruits. The gorilla, the most powerful of the higher apes, is another example of a pure plant-eater. Furthermore, all meat-eating creatures are accustomed to isolated big meals following a kill, whereas plant-eating creatures are usually eating something or other all day long. This difference in meals is dictated by the plant food being

so much more dilute than the meat foods, which necessitates a much longer time spent in consuming them.

In these islands we have descendants from northern races, such as the Vikings, and also descendants from southern races, such as the Romans. It is not surprising therefore that some, especially perhaps the fair ones, will be predominantly meat-eaters and will lack the so-called sweet tooth ; whereas others, especially perhaps the dark ones, will be predominantly plant-eaters and will have the sweet tooth highly developed. The former will tend to prefer an infrequent big meal ; the latter, frequent little meals.

With all these differences it is easy to see the very great importance of following the appetite ; that one man's meat truly is another man's poison ; and that the size and frequency of meals will vary greatly from one individual to another. It is also easy to see how heedless of the natural law must be the conception that the plant foods are better than the meat foods, as vegetarians are liable to postulate—for some people, especially perhaps the blonde ones, the exact opposite is the truth.

In our civilization, eating routinely-presented meals often leads to violation of this great principle of appetite, both as regards what to eat and also when to eat. A man may not want what food is available, but would want some other type of food if it were there ; or he may not want any food at all at that particular time, either because his mind is bent on the matter in hand, or because he is worried over something or other, or merely because he is very tired. But social and other circumstances may dictate eating the meal then, and so he disregards his appetite and eats something he is not hungry for ; the natural law is broken and the damage is done.

What damage ? One element is hyperchlorhydria and another is intestinal toxæmia. The latter is considered due to undesired food not being wholly digested, thereby again leaving a surplus of food material in the bowel to support intestinal activity. The former, hyperchlorhydria, is due to the stagnation of food in the stomach which occurs in direct proportion to the absence of hunger, and which allows the concentration of hydrochloric acid steadily to build up. But even without this scientific explanation most of us know, from personal experience, of the acid eructations that follow eating something not wanted, and how conspicuous by their absence are such eructations after eating something revenously desired. Even a glass of milk—the most digestible of foods—will, if taken when we do not want it, " lie like a ball on the stomach " and cause these acid eructations in full measure ; whereas a pork chop—amongst the most indigestible of foods—will, if taken when we are ravenous for it, never be heard of again.

Eating something unwanted, by causing hyperchlorhydria, is no doubt a factor in the causation of peptic ulcer, and it is here that stress, of which one hears so much today, may operate. The natural law indicates that ambition and worry can never *per se* be the cause of peptic ulcer, because it is natural and beneficial to be ambitious ; and also to worry about possible dangers—as Shakespeare said " Be wary then, best safety lies in fear." When worry ceases to be constructive, Nature replaces it by resignation.

It is noteworthy, however, that it is the ambitious and worrying types of individual who are most likely to put other things first and the dictates of their appetite second, and are therefore most liable to be caught out by eating something they are not hungry for. To this extent there is some truth in the "stress" cause, but there would be no truth in it if close attention were paid to the dictates of the appetite.

It is interesting to note that a captured wild animal will not eat at first, whilst it is in a mentally-agitated state; it prefers to lose weight. But as confidence returns, it will commence to eat. If Man did the same and refrained from eating when in an agitated frame of mind, he, too, would lose weight, but he would not develop a peptic ulcer, assuming that when he recommenced eating, his food was natural enough.

To sum up, then, the correct application of the natural law in the matter of diet is that we should most accurately follow our appetite, both as regards what to eat and also when to eat, always assuming the foods to be in their natural or near-natural state.

Having our minds clear on the subject of diet is very important; because it is often said that to live medically is to live miserably—which is only too true. But to live naturally is to live happily, and there is a world of difference between the two. It is very unfortunate that any form of natural diet is usually taken to mean living on nuts, turnip juice, etc., whereas really it should mean as big a range of beef-steaks, turkey, salmon, etc., as can be afforded.

The beneficial consequences of the above correct application would be incontestable. The teeth and gums woud be kept healthy; the gastric juice would be easily neutralized; the islets of Langerhans would not be swamped by large concentrations of sugar; there would be no surplus of food in the bowel to support excessive bacterial activity, causing serious local and general results, and the bowel itself would work easily and without complications. It all sounds somewhat Utopian, yet it happens in every creature in the wild state as a matter of course. Why should we only ail, the roof and crown of things?

An elaboration of this argument leads to a rather different classification of diseases from any that exists at the present time, as we shall now try to show.

PART IV

BASIC CLASSIFICATION OF DISEASES IN ACCORDANCE WITH THE NATURAL LAW

The natural law would classify all diseases into two main groups—the natural and the unnatural.

(1) The natural group occurs in nature and is due to one living organism preying upon another. The principle admits of no other natural diseases, except for developmental abnormalities and occasional tumours. (As regards

the position of tumours in this classification, the writer would unhesitatingly place the vast majority of them in the unnatural group, but will not go into the subject further here, as he has already embodied his views on this in a publication elsewhere [14].) The natural group of diseases consists of all the spontaneously-communicable infections and infestations. One states spontaneously-communicable because the essential characteristic of this group is their infectious nature. Without this, such diseases would not be able to survive generation after generation. If an infection is not spontaneously-communicable, as in chronic furunculosis or in the *B. coli* infections causing appendicitis, etc., it is not to be regarded as in the natural group of diseases, but as a secondary infection arising in a disease of the unnatural group.

(2) The unnatural group of diseases, which consists of all the other known maladies of the human race, does not occur in Nature, but does occur in humanity, and also in animals, living in a civilized or partially civilized environment ; and this group represents the impact on the organism of this environment—that is to say, an environment to which the organism has not been evolved. This group accounts for the majority of diseases seen in civilized countries today, infectious diseases now being in a considerable minority.

At this stage one might refer to the light thrown on this classication of diseases by some consideration of the diseases that occur in animals. A perusal of some of the textbooks of veterinary surgery is not only a very interesting experience, but it confers added perspective on the nature of disease that is most valuable.

In surveying such a panorama of disease it becomes very clear that the dog assumes a position in relation to other animals very similar to that occupied by civilized man in relation to other, primitive races.

In modern conditions the dog, which in Nature is almost a pure carnivore, has largely been turned into a herbivore. In Nature in an English countryside it would spend its time catching rabbits, rats and other similar mammals, and would never turn aside to eat the ears of the wheat ripening in the field The nearest it would ever get to that would be occasionally to make itself sick by eating a few blades of grass. Yet in civilized conditions, especially in those of poverty, the dog lives on wheat, in the form of bread, dog biscuits and related foods, to a much greater extent than it does on flesh. Meat and fat are expensive foods ; bread is a cheap food ; it is not surprising, therefore, that most dogs in English homes live on a preponderance of farinaceous, as opposed to protein, materials.

This results in the dog being exposed to all the unfortunate consequences of an over-consumption of carbohydrates that have been mentioned earlier in the case of civilized man. Thus the dog suffers from dental caries, diabetes, obesity, chronic interstitial nephritis and so on ; and no doubt if dogs were more carefully examined in the last stages of their lives, these conditions would be found still more frequently.

Although tumours will not be dealt with in these pages it is interesting to quote from Hamilton Kirk [15] : " Tumours in dogs are very commonly found, but in cats much less so. The malignant variety is, unfortunately, very

prevalent; in fact, cancer may be said to be quite common." And later: "As previously stated, cancer is all too frequent in dogs, and Withers may again be quoted as stating that 'of nearly 400 dogs which died or were destroyed and were examined post mortem, there were 100 cases of neoplasms, of which over half were carcinomata of various kinds.'" It appears that malignant growths in the dog are at least five times as common as in the cat and at least ten times as common as in any other animal.

But all the above diseases are rarer in the cat. Why? Because the cat, also a pure carnivore, differs in its food habits from the dog, under domestic conditions. Although it lives with humanity, "it walks alone," and avoids most of the food eaten by the dog. It lives on milk, fish, mice, birds and so on, rather than on biscuits. The carnivorous cat, in short, under civilized conditions, largely stays carnivorous. And that is the obvious explanation why the diseases of civilization are more rarely seen in it.

Consideration of such facts as these from the case of animals makes the classification of diseases into two main groups, the natural and the unnatural, even more easily appreciated, perhaps, in the sister science of veterinary surgery than in that of medicine itself.

To resume the subject of this classification, it may be said that its importance lies in its application to treatment, which is radically different in the two groups.

The treatment of the first group, the natural diseases, should consist of the most *unnatural* manœuvres possible, since the occurrence of these diseases in Nature necessarily indicates that she herself is unable to cope with them successfully. A good example of a natural disease is being attacked by a tiger. It is no use defending ourselves in such circumstances with our hands. A gun is desirable. And similarly we are fully justified in looking around for other guns for other types of organism attacking us, such as tapeworms, spirochætes, bacteria and viruses, whether these guns consist of drugs or antibiotics or antisera.

It is in the treatment of this group of diseases that our profession shines. Spectacular cures have been discovered for syphilis, for malaria, for gonorrhœa, and so on.

When we come to the second group, the unnatural diseases, we find a very different picture. The treatment of this group in the early stages should be as *natural* as possible, and should lie in the replacement of the unnatural environment by the natural one in the particular factor concerned—which very often means the institutition of a natural diet. It should not lie in antidoting the cause, except for the surgical removal of tumours, which comes into a special category. In this group, it would seem, the profession substantially fails. Fundamental cures are seldom obtained and the doctors suffer from these diseases as much as their patients, because, it is submitted, antidotes are used instead of the restitution of natural conditions.

When the diseases in this group, however, have lasted long enough to cause advanced, irreversible consequences, it will usually be too late to cure them by natural methods. In these cases additional, unnatural methods,

become imperative. For example, decayed teeth, advanced diabetes, hæmorrhoids, acute appendicitis, renal calculus—what can any form of natural treatment do for these ? Practically nothing. However certainly such an approach would have prevented them, and however certainly it would still prevent fresh advances in them, it is practically useless in these diseases as they exist in their late stages. Replacement therapy, surgery, etc., now become a *sine qua non*.

The writer believes that, if it led to a greater grasp of the natural law, the profession might derive considerable value from studying the methods of naturopathists and other related cults. But in their failure in most cases to grasp the supreme importance of unnatural treatments in the Group 1 diseases, and also in the late stages of the Group 2 diseases, these enthusiasts unfortunately seldom appear to achieve anything except a passing notoriety ; and the good they could have contributed becomes lost.

We shall now pass on to the next section, where first a few examples of general treatment, and then a few examples of special treatment, will be discussed in the light of the principle that has been laid down.

PART V

EXAMPLES OF GENERAL TREATMENTS IN ACCORDANCE WITH THE NATURAL LAW

Since the law sometimes comes into conflict with current medical opinions, we may strengthen our courage in following it by remembering the tremendous force that we have behind us if we do follow it. We have only to notice the miracles of adaptation in living creatures that surround us to realize the magnitude of this force. In the midst of so much scientific medicine today we seem to have lost sight of the power of Nature far too much and far too often ; and many of us might do well to cultivate a much greater reverence for natural principles.

If our treatments are in conflict with Nature's decrees and we are nevertheless so certain that they are right, we should ask ourselves how many of such treatments, not based on the principle we have discussed, will be in vogue in ten years, let alone a hundred years or a thousand years. Does any treatment of a century ago exist today ? The mortality of treatments that occurs even in our own medical lifetime is remarkable ; prolong the period to a century and very few will remain ; prolong the period to a thousand years and who will say that one will remain ? Yet the treatments that are based on natural principles remain the same from age to age.

Let us take a few illustrative examples :

It might be well to commence with the subject of diet, whilst this is still fresh in our minds. We have in textbooks a diet for this and a diet for that—diets for renal disease, diets for high blood pressure, diets for peptic ulcer, diets for a renal calculus, and so on and so on. Yet the natural law indicates that there is only *one* correct diet—the natural one, which has already been described, with the appetite deciding which parts of it and how much. There

is no escape from this, if we are to follow, fearlessly, logical conclusions and not try to be cleverer than Nature is. As opposed to the ever-changing medical ideas on various diets, this one remains unchanged from generation to generation.

Closely connected with what we should eat is how much we should drink (using that word for watery, not alcoholic, beverages, since few alcoholic ones would qualify as natural enough to be safe). It is surprising that doctors should lay down how much water anyone should drink. Admittedly there are special circumstances when a patient's fluid intake has to be decided for him, in the form of intravenous infusions, in some mentally-depressed states, such as in shock or frank unconsciousness, occurring in burns and after certain operations, etc., but to lay down how much fluid a patient should drink in more normal circumstances seems very remarkable. Yet it is done. For example, in a recent *Lancet* (Feb. 11, 1956), in one of the leaders, a reference is made to Adolph's [16] view that the thirst is not a reliable guide in hot climates to the amount of water that should be drunk.

This astonishing conclusion, based on the assumption that the body should maintain a constant weight in hot conditions, is entirely unconvincing to the present writer; especially as he, like many other people, loses about half a pound each day, on arrival in the tropics, until a total weight loss of nearly a stone has resulted. Presumably Nature decrees this reduction in order to facilitate heat loss, partly by the greater surface/weight ratio that results, but mainly through the shedding of fat insulation. Anyone, who is interested, may read this reference for himself and decide whether, in a hot climate, he is going to drink the amount of water indicated to him by Nature or the amount indicated to him by E. F. Adolph and his American colleagues.

Very similar to views such as the above, and of some importance to the Royal Navy, is the opinion that the human tongue is not able to decide how much salt should be taken in hot climates. The natural law would state that if table salt was available, as it is even in cold climates to counterbalance the amount lost in boiling vegetables, it would be rare for the tongue not to be able to decide the extra amount needed.

The fact that in hot climates much of the salt is excreted each day in the sweat rather than in the urine should, it would seem, not be a source of alarm, as the body appears merely to be utilizing the skin to save work by the kidney; just as, in depressed states of the respiratory centre, some of the CO_2 is got rid of by night sweats, the body here utilizing the skin to save work by the heart and lungs.

It is interesting to recall that in hot countries animals sometimes go considerable distances to get enough salt, and it is strange that humanity should not be allowed to make a comparable decision. Yet some of those holding the contrary view even recommend that the extra salt—that would otherwise be vomited by the body—should be eaten in special capsules, so that it is smuggled past the natural barrier of the stomach.

Speaking not with entire ignorance of the subject, having served in the

Persian Gulf, the writer feels that too often the symptoms ascribed to salt-lack are none other than the natural debilitating effects of a hot climate.

Admittedly in all these questions of water, salt, etc., in hot climates the climate is not natural to white men, but that does not preclude the tongue being of decisive help in these matters, and yet such indications from Nature seem seldom or never considered.

This subject, by association, brings to mind the recent recommendation by Dr. Bombard [17] to castaways to drink salt water, also a subject of interest to the Royal Navy. Quite apart from the great verdict of history, and the physiological fact that sea-water has a concentration of salts nearly double the highest concentration of salts that the ordinary mammalian kidney can excrete, the excretion of which therefore entails a loss of fluid of nearly two for one, there is the decisive help from Nature in that no animal, except the wholly special case of the desert rat, will, when dying of thirst, have anything to do with salt water. Even a seal dying of thirst will have nothing to do with it [18]. (The seal normally gets its fluid from the tissue fluids of fish.) Dr. Bombard will have a job on his hands if he is going to prove that Nature is wrong throughout the mammalian world, and it seems fortunate that so far he has not convinced either the Royal Navy or the United States Navy on this point.

But not only do members of our profession commonly prescribe what people should eat, and sometimes how much water they should drink, but, to take our next example, they sometimes even prescribe how people should breathe. Breathing exercises might be logical enough in depressed mental states, as after certain operations, but to prescribe this treatment in, shall we say, chronic bronchitis and emphysema, is to come into undoubted conflict with the natural law. Yet quite apart from the logical deductions from this law, we have in orthopnœic heart failure ample evidence before our very eyes that Nature knows exactly what posture to adopt to utilize every respiratory muscle. It was pleasant to read recently a very considerable deflation by Sinclair, McNeill and McKenzie [19], of any alleged value in this treatment.

The next example is that of stimulants. Reverence for the principle enunciated would preclude the use of any of them (unless they were antidotes to another drug that had already been administered).

It is easy enough to point to the early benefits of any stimulant, but it is contended that careful attention to the unhappy after-depression more than cancels these out. One writes " more than " because if Nature is doing her best, as the principle would maintain that she is, then if her output is forced above the line, a *greater* fall in output below the line must be suffered afterwards. Otherwise no disadvantage will be incurred, which—according to the principle—must be the case in disturbing a situation that is already optimal.

As an example, in the case of an unconscious patient who is going to die in, say, six hours, an injection of a powerful stimulant may restore him to consciousness for a short while ; then he subsides back into unconsciousness—and the principle would now indicate that he dies in less than six hours.

There is no stimulant known to the writer where this argument can be proved to be incorrect. And that is even true of digitalis in heart failure uncomplicated by auricular fibrillation.

In auricular fibrillation the case is quite different, because here the effect on the heart muscle includes a depressant effect on an abnormal conducting path, with a wholly beneficial result on the cardiac contraction. That is in no sense the same as a direct beneficial effect on the contraction of the heart muscle itself. It is very difficult to prove that any immediate benefit of digitalis in the non-fibrillating heart is counterbalanced by a shorter cardiac life, but that would be the conclusion that would follow from the natural law. It is interesting to note, however, that in heart failure of more rapid type, ranging from that occurring in acute fevers to that in states of collapse, where any benefit from digitalis would be more obvious, none has ever been established.

The writer fully realizes the controversial nature of the application of this law to the exhibition of digitalis in heart failure not accompanied by auricular fibrillation. He had used this drug in such cases scores of times, and no doubt would do so again. Yet he believes that the principle is not proved wrong on these occasions, and that length of living has been traded for greater comfort. And exactly the same argument would hold in the forcing of the kidney by, for example, mercurial diuretics to excrete water that it otherwise would not excrete.

Lastly we may take the example of vaccines. The natural law would lay down that a vaccine is quite logical in the prevention of disease, but never in the treatment of one. It is perfectly permissible, in other words, to build up a standing army, against an invasion that the body could not foresee, but it is not permissible to try to produce more soldiers during an actual battle than Nature herself is able to do. There can be no escape from this conclusion either, and in fact no vaccine is known to the writer that has proved of unequivocal value in the treatment, as opposed to the prevention, of any disease. He is glad to see that he is not alone in this opinion [20].

These examples could be extended to include many others, such as the contravention of the natural law entailed by the use of anti-pyretic drugs in fevers, which is done all over the country every hour of the day in the form of A.P.C. powders, etc. ; by the use of iron in cases of anæmia, without coincident strenuous efforts to alter the diet to include those natural foods that not only contain iron but also all the other materials required to build red cells ; by the use of aperients, that usually become totally unnecessary on a natural diet, though it may be desirable to supplement such a diet with a tablespoonful or two of raw bran each day (made into a paste with, for example, a little porridge to facilitate swallowing) ; and so on. But space forbids, and enough has been said to give a good idea of general treatments in accordance with the principle that has been laid down.

We will now turn to a few examples of special treatment, to complete the picture presented.

PART VI

EXAMPLES OF SPECIAL TREATMENTS IN ACCORDANCE WITH THE NATURAL LAW

Some of the diseases mentioned in Part II, notably dental caries, pyorrhœa, hæmorrhoids, varicocele and varicose veins, will be omitted, because the prevention and the early treatment of these lie obviously in the natural diet, whereas the late treatment lies just as obviously in a surgical operation.

The other diseases already singled out in Part II will now be considered, since their treatments to a large extent follow from what has been written of their causation, and then, for contrast, an example of a very different type of disease, Raynaud's disease, will be considered, to demonstrate the application of the natural law in an entirely different field.

It will be convenient to re-state here what is meant by a natural diet in the special treatments that follow :

(1) Any food not overcooked, and not concentrated by machinery. This excludes all foods containing white flour and commercial sugar (including tinned fruit) ; and also honey, dates and malted liquors.

(2) The most careful attention to the dictates of appetite before eating any food, even if it is in its natural state.

Peptic Ulcer.—It has already been pointed out that the two causes of the production of the hyperchlorhydria, which is the essential activating cause in nearly all cases of peptic ulcer, are the following :

(*a*) The loss of the natural neutralization of the hydrochloric acid by the protein in the food, slightly by over-cooking (especially if constituted by frying), but overwhelmingly by direct removal of the protein in the concentration of carbohydrates, either in the actual foods or by proxy in other foods that would have been eaten instead of them.

(*b*) The disregard of appetite—i.e. the eating of food one is not hungry for, most noticeable in conditions of stress.

How should we assess the relative importance of these two causes above ? It is important to know, and the answer does not appear to be difficult : the former seems to be much more important than the latter.

For is the stress of modern life, that would be the main cause of the latter, really so great ? Are any of our worries today greater than those of primitive man in the past, or even of many near-primitive races today, many of whom do not know where the next meal is coming from or what the next year will hold for them ? Yet peptic ulcer is as rare in these people as starvation is common. Also the great increase in duodenal ulcer in Great Britain since 1900 seems far more likely to be due to the rapidly progressive alteration in our food from the natural state, of which we have spoken, than to any sudden great increase in our worries from that date. The big families and poor wages of the nineteenth century in Great Britain would often have made the worries in the present welfare state appear relatively trifling.

There seems little doubt, then, that of the two causes of the hyperchlorhydria, the non-neutralization of the acid is much more important than the disregard of the appetite.

Smoking and drinking have not been mentioned because, though aggravating factors, they cannot be basic causes, as both are commonly absent. Nor has any effort been made in this short space to differentiate between the gastric and duodenal varieties of peptic ulcer. They are both here considered due to the same basic causes, already explained, and therefore to be curable by the same basic treatment. Many factors can decide which of the two ulcers occurs in any given case, such as hypersthenic and hyposthenic builds, differences in the food-structure between the social classes, and so on. None of these facts, or of many more that could be quoted, alter the basic causes.

And now we come to the question of the treatment. Does that like the prevention also lie in careful attention to the two basic causes in proportion to their relative importance ? Yes, it must : but it would be unwise to assume that food in a natural state and careful attention to the appetite will, even with the temporary assistance of alkalies, necessarily be successful. In cases of chronic indurated ulcer, irreversible consequences may have resulted in the gastric or duodenal wall. In these cases partial removal of the stomach, tragic though it may be and unnatural though it certainly is, definitely becomes indicated.

It will be noticed that the above conception of the treatment of peptic ulcer is not infrequently at variance with the present medical fashion. For instance, some would say that peptic ulcers heal on an ordinary hospital diet, if the patient rests in bed. But this removes no cause, and in the absence of a re-education of the patient in the matter of diet, how can any lasting cure occur when he gets up again ? Then there are many who would recommend that the patient should take many small meals each day, irrespective of whether this is the particular appetite-pattern of the patient or not. Such a treatment cuts right across Nature's decrees and would assume that starvation *per se* is liable to cause a peptic ulcer, for which there is not the smallest evidence.

But we need not worry too much if the treatment indicated by the natural law is at variance with the medical treatment in fashion at the moment. For one thing, the medical fashion over the treatment of this disease is seldom in vogue for very long—over a dozen have come and gone in the past twenty-five years. And for another, doctors get peptic ulcer about $2\frac{1}{3}$ times as frequently as the average members of the community [21].

Diabetes.—The indications of the natural law here would be to reduce the carbohydrates to their original, unconcentrated form by the substitution of wholemeal flour for white flour and all its combinations ; and by the substitution of such substances as raw and dried fruit, and boiled beetroot, for commercial sugar. These two measures necessarily result in a big fall in carbohydrate consumption and so remove what is considered to be the cause of the disease ; and a recovery in the islets of Langerhans nearly always ensues. If this recovery is enough for the sugar to disappear from the urine, and for the blood sugar to return to normal, as may be so with some of the older, earlier cases, well and good. But if the sugar does not disappear from the urine, and the blood sugar remains consistently raised, then the

deficiency of recovery in the islets must be compensated for by adequate insulin replacement therapy.

It will be seen that the application of the principle to the treatment of diabetes comes down heavily in favour of those whose policy is "take care of the carbohydrates and let the proteins and fats take care of themselves", a policy frowned on by many. Not only are the proteins and fats considered blameless, and therefore call for no restriction, but no two individuals are the same over the ratio of their fat and protein requirements: "Jack Spratt, etc." happens very frequently in real life. And it must be to the patient's happiness and benefit to let this ratio be the natural one. Furthermore, the ratio is constant throughout life and so there will be little tendency to any kicking over the traces in respect of it.

The total calorific food requirements will clearly depend upon the work the individual performs, and the warmth of the climate, and will be dictated by the appetite; but a constant figure can usually be struck for long periods.

Obesity.—The treatment of this condition, carrying as it does the seeds of so many other disorders, ranging from arteriosclerosis to flat foot, is amongst the most important in medicine. It seems absolutely vital to approach the problem on the basis already given—that the cause lies in the concentration of foodstuffs by machinery and never in the appetite being at fault.

The initial treatment of a case of obesity must necessarily include a period of partial starvation to get rid of the existing surplus of fat. In one case this period of starvation lasted eight months, during which time the patient's weight fell by as many stone. During this period of partial starvation the carbohydrates and the fats are cut practically right out, but proteins are allowed fairly freely, and fruits and vegetables absolutely freely (except for some curtailment of potatoes).

Once the weight has been reduced to normal for the height, at an average rate of about a stone a month, the natural law is applied to prevent the condition recurring. That is to say, the carbohydrates are ruthlessly reduced to the unconcentrated level, even potatoes being cooked unpeeled, but the consumption of food is not otherwise interfered with. Since beer contains malt sugar, any alcohol taken is restricted to wines and spirits — an obvious but important corollary. The consumption of fat is not interfered with, except that frying is prohibited.

It has been found that this approach to the treatment of obesity is wholly satisfactory. In one of the very earliest editions of Price's textbook of medicine, thirty years ago, the contributor to the chapter on obesity suggested that the simplest way to effect the necessary reduction of weight was to let the patient eat any food he liked—as long as it was raw. Although he has never had to use this method, the writer has mentally many times lifted his hat to the contributor who suggested this approach, which appears to be basically so correct.

Intestinal Toxæmia.—(*a*) Actual Infections—e.g. *B. coli* Infections: Apart from such acute infections as acute appendicitis, for which obviously surgery is indicated as soon as possible, the treatment of *B. coli* infections of

the bowel and urinary tract lend themselves particularly well to the application of the natural law.

The basic treatment is similar to removing the refuse on which flies are breeding, instead of killing the individual flies. In short, the restoration of the carbohydrate foods to their original, unconcentrated form, plus the careful consideration of appetite, leads to a big fall in carbohydrate consumption, and prevents the surplus of foodstuffs in the bowel that is maintaining the hordes of *B. coli*, and so removes the cause of the trouble, both in the bowel and in the blood stream (and thence in the urine).

In the urinary cases of *B. coli* infections, if this treatment is carefully carried out—and the practice has been to give these patients during the acute phase a diet of mashed potato and a little butter, plus an abundant supply of raw fruit—the urine will of itself change to the alkaline side, leaving little for the physician to do in this respect. In fact, the greater the consumption of acid fruits, the more alkaline becomes the urine. But the improvement that occurs is based on something much more fundamental than the reaction of the urine, as explained above.

The above approach to *B. coli* infections has proved most beneficial, and there is nothing in it to preclude the use of other measures, such as an exhibition of antibiotics, to accelerate the destruction of these organisms. The same approach may similarly prevent surgery later in the more chronic infections with this organism, such as occurs in chronic appendicitis and chronic cholecystitis.

(*b*) Diseases caused by Absorption of Bacterial Toxins : The most obvious example of these is acute urticaria, where it is abundantly clear that the toxins are being absorbed from the bowel, and to this may be added several other skin diseases, such as many cases of eczema (especially in the young) and chronic boils. In urticaria and eczema the effects of the toxins striking the skin can be seen to the naked eye ; but in chronic boils the effect cannot be seen until staphylococcal organisms from the overlying skin have invaded the injured cells and caused a secondary lesion.

In order to remove the cause of the trouble in these cases, it is necessary to attend to the source of the toxins, which nearly always lies in the bowel. As previously explained, the substitution of a natural diet and the most careful attention to the appetite leave the causative organisms in the bowel nothing to live on, and the result is the disappearance of the toxins they have been producing.

In the urticaria and eczema cases the result of this approach has been often, and in the case of chronic boils almost invariably, successful, but reduction of the carbohydrates to the natural level must include the prohibition of malted liquors, and also of honey and dates, for the reasons given earlier. In the tropics mangoes must similarly be excluded (" mango boils " being well known to Europeans there). It is also particularly important to be careful to consider the appetite, so that nothing is eaten unless it is strongly desired. (The whole approach is, incidentally, quite inapplicable to the treatment of either styes or axillary abscesses, which, unlike boils, are considered

due to a very different cause—lowered resistance from physical over-exhaustion.)

The question of the careful regard of appetite is closely linked with the question of emotional upsets. These are well known to influence many skin diseases, and the way they operate is probably as follows :

Unhappiness reduces the appetite and so the patient is liable to eat something he is not really hungry for. This results in incomplete digestion of the food eaten, and so, again, the fatal surplus occurs in the bowel for the bacterial elaboration of toxins. But in addition there may result imperfect products of digestion, on the analogy of a smoking internal combustion engine when the combustion is incomplete, and the absorption of these products may be responsible for some of the conditions—e.g. chronic urticaria.

Although careful regard of the appetite should in theory take care of this situation, it is obviously a tremendous help to track down and remove any emotional factor, so as to restore *joie de vive*, and therefore a good appetite, and so prevent these effects in the bowel. This applies equally to many other conditions, such as peptic ulcer.

If the above approach of the natural diet and the careful attention to appetite is applied to acne vulgaris, the result is also very good, but never quite as good. (In acne rosacea, however, it is almost invariably excellent.) And this less good result applies also to some other skin diseases, in spite of nearly every one of them being, in the writer's opinion, due to intestinal toxins (the obvious exceptions being the primary infections such as impetigo, ringworm, etc.). Why are the results less good in some of these cases ? The reason is probably that the alteration of the ordinary diet by the 10 per cent. or so mentioned in these pages, although it secures 90 per cent. or so of the results of the true natural diet, does not secure 100 per cent. In these exceptional cases it would be necessary, presumably, to go right down to the 100 per cent. level—a raw or near raw diet. Such a course is extremely difficult, especially in the Royal Navy, where maintaining it would be impossible on return to duty, but it appears to be a clearly called-for piece of research. The same is true of certain other diseases, of tragic consequence and unknown primary causation, such as ulcerative colitis, and some cases of rheumatoid arthritis, if resistant to cure.

Meanwhile, other conditions that are considered here to be caused by the absorption of intestinal toxins, such as hypertensive arteriosclerosis and coronary disease, call for the application of the natural diet in just the same way as the above skin diseases do. For reasons that are obvious from earlier pages the writer is confident that coronary disease will never be found to be due to the over-consumption of fat, however likely it is to be due to the over-consumption of carbohydrates. The work quoted above on the Eskimo, including their blood cholesterol, will give cause for reflection to those holding the former view at the present time.

Finally, it is not hard to understand, on the above views, the lower incidence of many of the diseases now under consideration—e.g. coronary

disease—in those whose work entails hard physical exertion, since such exertion prevents much of the fatal food surplus in the bowel that otherwise might occur.

Raynaud's Disease

To demonstrate its flexibility, the natural law will now be applied to the very different condition of Raynaud's disease, taking the standard form of it caused by cold.

Consideration of the principle in this disease indicates that the peripheral vaso-constriction is merely part of the body's normal reaction to cold. The peripheral radiators are cut off so that the heat of the body as a whole is conserved, and conserved in particular for the vital central organs such as the heart and lungs. If this phenomenon did not occur, an earlier death would occur in fatal cold, owing to the more rapid cooling of the vital central organs. It is to be expected that the phenomenon would be more prominent in individuals descended from southern ancestors than those descended from northern ancestors, since the former would be less evolved to deal with cold than the latter. Therefore to say that the disease is an exaggeration of the normal rather misses the point. It would be more logical to say that the individuals who suffer from it are considerably less evolved to cope with cold conditions than the average inhabitant of these islands, but that their reaction to cold is qualitatively normal. This would remove the label " disease " and indicate very clearly the logical treatment.

The condition is almost exclusively seen in young women. The basic reason for this is considered here to be that women do not wear trousers. Just that and nothing more. And this explains, too, why the disease is present mainly in *young* women. Because as the age increases, the glamour decreases : silk begins to give way to flannel, and nylon to lisle and then to wool. In later life many a female has mustered up such voluminous folds against the cold that she is protected just as much as is the male—and Raynaud's disease has usually disappeared (a thing which no true disease of any artery would be expected to do with advancing age). The first logical step in the treatment would therefore be to put sufferers into slacks for the winter, as well as a good woollen vest and jumper. If this is not sufficient, they should wear the equivalent of long woollen pants, as they do with ski suits, and as many men wear normally. It is true that many men scoff at anything more than cotton underwear, but there are also many who need a very thick woollen vest in the winter and long woollen pants. And this logically should be available to women too. The build-up in the central heat, it will be noticed, is very important, as then more heat can be spared for the periphery. But the wearing of fleecy gloves and boots is obviously desirable, too. If these measures fail, which must be extremely rare, the only logical treatment is for the sufferer to migrate southwards, to a warmer climate, such as Africa and certain parts of Australia.

It is quite impossible for anyone who has a reverence for natural principles to consider in Raynaud's disease the treatment of cutting the sympathetic fibres controlling the peripheral vessels of the arms. Such a treatment would

run the obvious risk of inflicting on the patient a fatal attack of pneumonia in conditions of severe cold.

Exhibitions of calcium gluconate, parathyroid extract, acetylcholine and other drugs must cause surprise, and " repeated intermittent passive congestion by rubber bands placed round the wrists for a few minutes," amazement, to anyone whose conception of this disease is as set out above.

In completely different conditions, such as senile gangrene and Buerger's disease, the peripheral vaso-constriction is being employed by the body, not to conserve heat but to maintain—via the blood pressure as a whole—the circulation through other more important vessels, such as the coronary and cerebral vessels. The removal of this peripheral vaso-constriction, by section of the sympathetic fibres, should—according to the natural law—cause coronary or cerebral thrombosis to occur earlier than it otherwise would do, and so is again contra-indicated. And the same is true of the sympathectomy treatment of malignant hypertension, which carries the added danger of reducing the renal filtration, unless relief of headache is the sole objective.

PART VII

CONCLUSION

An effort has been made to set out reasons for a greater regard for natural principles in modern medicine. In particular it has been tried to show that many of the ills of today are due to a massive interference by machinery, progressively over the last century, with the carbohydrate components for our diet, leading to a great increase in their concentration, which in turn has led to a great increase in their consumption.

Does it follow that a backward move by civilized Man is indicated, to a more natural level ? Not necessarily. Our present troubles may mark a phase in the evolution of mankind, similar to phases that occurred with the introduction of wearing clothes and with the introduction of cooking. No doubt those innovations caused much trouble in their time, too. Whether it is better to suffer and adapt, or to stop doing both, is a question that the struggle for existence in the form of economics will settle for the human race independently of its own wishes—and it seems very likely that the decision will be : suffer and adapt.

Be that as it may, it appears of the greatest importance to us to understand with perfect clarity the exact situation that exists today, partly to effect national economic policies with regard to food, and partly to enable us personally, as opportunities present, to act to the best advantage for our patients and ourselves.

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