

What Really Happens in Digestion and Nutrition?

A new look at the mysteries of our interior processes

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For his life on earth, man needs to use his body. Activities force him to use up his reserves, which need constant rebuilding. This is done in the first place by nourishment, which generally means food and drink. In actual fact we ought to view the idea of nourishment in a much wider sense. Our respiration can, to a certain extent, be counted as nourishment because we also derive sustenance from our environment.

Lastly we might argue that everything we imbibe with our senses can be counted as nourishment in the broadest sense of the word, because we cannot live without those impressions. How often do we not hear expressions like: 'to feast one's eyes', 'to thirst for knowledge', 'to satisfy one's curiosity'; something can be 'too much', even 'indigestible'.

In this article, however, we will restrict ourselves to the everyday notion of feeding, or partaking of food during meals, to what is generally described as the way we rebuild our body.

In modern dietetics the question of nutrition has yet another side to it: for his activities man needs energy. Only his body can give him this energy. Whether this is

converted into physical or mental activity does not concern us for the moment. Putting it briefly: our food serves to rebuild our body and to provide us with energy.

During the last hundred years great strides have been made in the science of nutrition. Sometimes one is inclined to wonder how people in the 'olden days' managed to keep themselves alive without dietetics. At any rate they succeeded, and apparently quite well too. Only the names have changed. Previously one ate meat, fruit, vegetables and potatoes; nowadays one eats proteins, fats, carbohydrates and minerals - and, of course, vitamins. If one wants to follow this pattern even further, then the important thing is to get down sufficient 'building bricks', because they are necessary for the rebuilding of the body. What is meant by building bricks is the products of the digested food. Only in the shape of amino acids, fatty acids, glycerine, glucose, and so on, can food be absorbed into our blood from the intestine and serve to rebuild our body.

One may ask: why is all the fuss of digestion necessary when the aim is only the absorption of the said bricks? If they could be supplied directly we would be spared a lot of trouble.

Apart from the fact that this would mean the loss of much enjoyment (because feeding is related with enjoyment), it is well known that this is an erroneous thought. If our food consisted merely of such bricks it would have no nutritional value, although the necessity to absorb those bricks cannot be denied. Every housewife is aware of this fact. She knows that food that is over-cooked and therefore, as it were, half digested, loses some of its nutritional value. The loss of the so-called vitamins does not sufficiently explain this fact. Vitamins, after all, suffer the same fate as the rest of the food, they are broken down in digestion.

This observation leads finally to the conviction: the less food is 'prepared', the higher its nutritional value. This has led many people to believe that under-cooked food is the most nutritious. That is right up to a point, but it must be remembered that nourishment can't be evaluated in theoretical terms only, and that much love was needed to achieve the present level of the art of cooking.

There is one conclusion that we can draw from all this: the digestion, that is to say the breaking down of our food, must take place inside our body. This leads to the surprising observation that the digestion (that is the 'destruction' of the food) mainly decides the nutritional value. It will not be easy, in contemporary dietetics, to understand this.

If, however, it is not the material result but the digestion itself that is the crux of the matter, then we must ask ourselves what digestion really is. Surely not only destruction? That would make it totally incomprehensible that this should necessarily take place within the body.

To find an answer to this question we will confine ourselves for the moment to vegetable foods and ask ourselves first: what does one eat when one partakes of a plant? Nowadays we say: a substance, matter. But one can equally say: *a shape*!

What is a shape? It is the result of an activity that has created it down to the smallest details. It is an organisation, a structure, that has emerged from a certain 'point of view'. For that reason, between the various parts of the shape a connection exists that follows a strict law. Naturally we do not know the point of view that has been at work here. All we mean to say here is that at the basis of each form there is a unity that shows itself to us in its result. Here we must distinguish between the shape and the contour, which is merely the circumscription of the shape vis-a-vis the environment. In view of what follows it is very important to keep in mind the difference between shape and contour. What has all this got to do with the subject of digestion? The best way to discover this is to examine step by step what goes on during the various stages of feeding.

A little earlier we have used another expression for eating, namely to *partake* of food. This phrase can make us aware of the fact that we can actually speak of feeding before there is any question of eating. When do we start partaking of something?

Let us imagine that somebody wants to eat a peach. He must first go and buy one. He goes to a greengrocer's. Let us say that he lives in a village, knows the owner of the shop, that there are several people waiting to be served and that there is, therefore, ample time to 'pick and choose'.

What is the first thing he has got to do? See if there are any peaches. That means that he must know what they look like to be able to recognise them. Let us suppose that

there is a box of peaches in the shop. He goes towards it and takes the liberty of picking one up. What does he do then? Press very gently, move his fingers very carefully. Why does he do that? To examine the quality of the peach. He will also probably smell it, another way of judging the fruit. If it is too hard, has too little fragrance, he will put it back. If it is satisfactory he will buy it.

Now he goes home and starts to eat it. What happens? He puts a piece of peach in his mouth and tastes it. This can only be done by moving the tongue and the rest of the mouth. One cannot taste without moving, in the case of solid food not without chewing. That releases the flow of saliva (not to mention the fact that the mouth 'watered' already when he was smelling the peach); there the real digestion begins.

This is made possible by certain elements in the saliva called *enzymes*, which break down the food. Each part of our digestive tract has its own special enzymes that link themselves with the food. The marvel is that in this breaking down process, which we call digestion, the enzymes themselves remain unchanged.

Something penetrates the food, causes a breaking-down and makes a closer judgement possible by means of tasting. If we try to conjure up a vivid picture of this occupation, tasting, and do not think in the first place of savouring, but rather of the question: what do I taste (one often closes one's eyes when tasting attentively)? Then we can introduce new words for tasting: to probe, to investigate, to fathom, to indicate that here we are concerned with a closer acquaintance. Everything, therefore, is a continuation of what happened in the shop (movement - the light probing of the fruit with the fingers, whereby the fingers themselves do not change; smelling, evaluating, putting back or taking the fruit away).

In the mouth the sequence is: to take in, to move, to break down with the aid of enzymes that themselves undergo no change (one might call them bio-chemical fingers), to taste (i.e. to probe the specific form and structure - a peach tastes of peaches) and to evaluate. If one does not like it one puts the peach back on the plate, if one finds it acceptable one continues to eat it. We have now passed the second stage of eating: our acquaintance with the fruit is now more intimate than it was in the shop.

What happens in the stomach? Again: movement is what we find first of all! The stomach does this even earlier, as though it is waiting for something to do. As soon as we think of food, as soon as we become hungry, even more so when we taste something in our mouth, our stomach becomes active. It begins already to secrete enzymes - we will not go further into then physiological details - and it is not difficult to think: here is a continuation of the breaking-down process and a more intensive tasting. We often become aware of a tract of tasting in the stomach and this contributes to our sense of well-being. Enjoyment in the mouth, well-being in the stomach. If our stomach does not agree it can rid itself of the food by vomiting. If the food is alright it passes through the outlet of the stomach into the duodenum.

Again we get the process of *movement, digestion, evaluation*. If there is something wrong with the food this can cause a quicker elimination, diarrhoea. Otherwise it will go into the small intestine, where the process is continued: movement, secretion of enzymes. Does yet another evaluation take place here? Would it be possible to continue the chain enjoyment-well-being? Can we really think that what happened in the mouth (and already began outside) continues inside during all further stages of the digestion?

For that purpose we shall have to refresh and broaden our ideas of what happens in the alimentary canal, where all this takes place.

We observe the world around with our senses - sight, hearing, touch etc. These are located mainly on the outside of the body. This outside is called the skin. When asking if man also has an inside we must think of the intestine, which can be compared with a tube that begins in the mouth and ends in the anus. In simple terms: the actual human body is between the intestine and the skin. In the intestine one is, therefore, not yet in the body itself. The French language expresses this very subtly. It speaks of a *milieu exterieur* - in the intestine - as opposed to a *milieu interieur* - between the wall of the intestine and the skin.

The intestine is an observing surface, just like the skin. That this is not usually mentioned is due to the fact that we refuse to accept a process of awareness in our body in which we do not actively and consciously participate. This is absolutely true: the 'self'

which in every day life copes with the impressions of our senses, is excluded from the world of perception within. But we can say from the outset: thank goodness. If we tried to meddle in the incredibly wise activities of the inner person, it might have doubtful consequences. Our organs know better. When we speak here of our organs knowing, we mean a second person within us, who is dealing with everything that we mentioned in the beginning of this article about the rebuilding of our body.

If we consider the surface of the intestine to be an observing organ then it is a short step towards the understanding that between mouth and stomach there is the transition between two worlds of observation. That which occurred outside our body (in the shop and then in the mouth) can be considered as continuing in the stomach and intestine and other digestive organs: a constantly more intimate knowledge of the secret of the 'shape' of our food, in this case the plant - which literally gets analysed. In other words: one is dealing with a continuous and deepening acquaintance with the shape; first seeing, then tasting, and lastly digesting. The digestion is another form, a metamorphosis of tasting! This is a concise way of expressing it.

When we continue this reasoning in a logical way, starting from the viewpoint that the digestion is a continued, refined tasting and thus an ever more intimate acquaintance with the shape of the plant, the question arises: what interest does the body have in this continuously renewed acquaintance? We must not forget that this interest is at the same time related to the dietetic value of our food, as we have discovered in the beginning.

We must remember that the plant is not only matter, but at the same time that it represents a shape. The same could be said about the human body. We are dealing not only with matter that replaces loss of matter, but also with a shape (plant) that is being probed, analysed by another shape (body).

We have given a certain definition of 'shape' and discussed the activity that brings it into being. An artist also creates shapes, forms, but this is a different kind of creation from that of the shapes in nature. The artist is himself a living being. As long as he is engaged in the creation of a work of art, his own life is indeed tied up with the form he is creating. When it is finished the form still carries the hallmark of that life, but it is no longer tied up with it. With the living shape, such as the plant and the body, this is different. 'Life' itself has created the form and remains linked with it until death. Then the form as such cannot be maintained any longer and disintegrates into the above mentioned components of bricks.

We come again to the question: what significance is there for the living body in tasting plant-shapes, analysing and probing them?

To find the answer we must first reflect upon the quintessence of the shape of the plant. As we have already mentioned, this is not covered by the outline, which is only the limit of the plant as we see it. The shape is the result of a creative process that stops at a certain point, that "congeals in an outline". Where do we find these forces, whence do they work? From within the *environment*, from the realm of earth, air, water, heat and light, of which all act directly upon the shape of the plant from without. To that extent, the plant is a completely open creature. In its original form it consists of stem and leaves, of lines and planes.

In the higher animals (and man, of course) we find exactly the opposite: they are constructed from the *inside*, from the intestine. Therefore animals have a content. Plants have no content, they have an 'out-tent', i.e. their environment is part of their body, just as that which takes place in our intestine and lungs is part of us. In relation to the plant man has directed his environment towards the inside.

Conversely one can say that what in man is inside is the environment for the plant, and as our skin is the boundary of that inside so is the outline of the plant the boundary of the inside that surrounds the plant. That which acts from the air, the water, the soil etc. on the surface of the plant is therefore really part of the plant. We need to learn to view the plant in an entirely new way.

It's no use standing too close by; we must tackle it differently and study the plant in its environment from a distance. Normally we find that the plant is composed of roots, stems with leaves, and flowers (we use one of the 'higher' plants as an example).

To the question: "How do we know that the plant has roots, the only answer is: we see them when we pull the plant out of the soil. Otherwise the plant is fastened to the

earth, it is fused with the soil. From this point of view the whole earth belongs to the plant. It is preferable not to think of one plant on its own, but of the layer of plants inasmuch as it covers the earth. Thus the whole earth is the centre in which the plants 'take root', disappear. On the other side, where the flowers are, the plant also 'disappears' into an environment with which it is linked.

Where the flower appears, the plant stops growing. It is as if an entirely new influence comes into play here, curbing growth and making the plant produce flowers. Here a new world begins, in which the plant as flower begins to radiate with fragrance and colour, in response to everything that comes its way from the environment, especially from the sun. In the flowering, plant and sun unite. Therefore the plant has in its flower the same link with the sun as the roots have with the earth.

Finally, even the middle part of the plant is not a closed, independent entity. The plant has a direct open link with that which the leaves absorb as light, air and water, and which causes the synthesis of the chlorophyll and the formation of *farina* (carbohydrates). One need only remember the stomata on the leaves where this direct contact with the environment takes place. Viewed in this way a plant in its totality is much bigger than one would suspect.

If we let our thoughts roam once more over the realm of plants, if we conjure up this realm from a great distance in our imagination, we find that the roots - round, calm and cool - are concentrated in the centre, and that the part that is radiant, changeable and warm is on the periphery, whilst in the green middle area of the plant we find a structure in which the rhythmic repetition of a specific shape, the leaf, can be recognised.

Presently we will encounter something similar in the shape of man and it is important to state right now that we are dealing here with a primeval law: wherever a rest-seeking tendency interacts with a tendency towards movement, there appears a rhythmic principle (trembling strings of a violin, leaves rustling in the wind, ripples in the sand).

In the middle part of the plant, in the area of the leaves, the atmosphere is the environment. It is no poetic phantasy, but a concrete fact, that the plant thus represents the link between two worlds - earth and sky. The ever changing relationship of these worlds in summer and winter is directly reflected in the realm of the plants, because the plant is a seasonal creature.

In this way the plant can be rightly described as a threefold organism: root, stem-leaf and flower are the visible writing in which we can read this.

In the human figure we can speak of the same phenomenon. the head is rounded, the elements of rest and coolness belong to the life of head and thought. In the lower part of the body, the area of limbs and metabolism, we find a radiating form, movement and warmth. It is not for nothing that somebody with a headache asks for a cold compress and somebody with a stomach ache asks for a hot water bottle. Between the two is the rhythmic system, where the principle of rhythm, of repetition, can be found in the functions of lungs and heart and in the structure of the spine and ribs. Much more can be said about this threefoldness (- nowadays the term is triple articulation). The main thing for us is primarily to look for the similarity between the structure of the plant and the figure of man.

From the broad description above we have seen that the shape of the plant and the human figure are the reverse of each other in their threefold structure: what the plant has below, man has above, and vice-versa.

When we take this comparison between the structure of the plants as a whole and the structure of the human form into consideration, we can also understand that it is not for nothing that it was known long before modern dietetics existed, that radicals (root vegetables including the potato) influence especially the head and its functions, leafy vegetables act on the middle part, while the connection between fruit and metabolism has been tested by long experience.

Something still remains to be said about the way in which our body can maintain itself with the aid of nourishment as described above. We have seen that there exists an affinity of shape between plant and man (for the origin of this phenomenon we must refer to other literature on the subject, particularly Rudolf Steiner's *An Outline of Occult Science*). In other words: what is the significance of our body being confronted regularly

with plant-shapes? A simple comparison will suffice to make clear whence comes the solution.

Let us suppose that I ask someone who knows nothing about the mechanics of clocks and watches to take a watch to pieces. The result may well be the end of the watch. But something else has happened. The person in question is enriched by the knowledge of the way the watch is constructed. This, as we have said, is but a comparison of what takes place inside the body, but now we can continue that train of thought as follows.

Not only do we have a physical life that contains the secret of our shape and maintains it (which we usually call 'to live') but in addition we have a spiritual life, a life of the mind. It is not easy - nor is it appropriate at this point - to go further into the mystery of: What is life? - a question that can lead to the deepest secrets of existence. All that can be said here is that life is life, in whatever form. Thus it is acceptable to think that we live somehow with our spiritual and intellectual life, or that we derive our vitality from our body. Our everyday experience tells us this anyhow.

What significance does the realm of plants have for us? To start with we can distinguish three kinds of plants: plants that feed us, plants that cure us, and plants to look at. It is no exaggeration to say that we cannot live unless we have all three. The 'beautiful plants' are as important as the others. It is moreover charming to think that every important event in our lives, every celebration - birth, engagements, weddings, anniversaries, jubilees and finally illness and death - is always accompanied by flowers.

But the role of the realm of plants is much wider. Our heating comes from the sun, from wood, coal, natural gas and oil. All ultimately derived from plants. One could call plants our sun-world on earth. Our respiration is made possible by the breathing in of oxygen, exhaled by plants.

If we have an inkling of geology we know that the soil would be swept away by rain and wind, were it not for the roots of plants that provide it with the necessary support. Sand-dunes, for instance, are only held together by the Lyme grass that grows on them. Rivers and arable land are unthinkable without the plants that cover the earth. How often was a desert the result of deforestation?

It is therefore no fake mysticism to say that we owe our heat, air, water and earth to the plants. In other words, without the plants life would be impossible. The mineral world gives us our solid ground, our tools and our visible bodies; the plants give us life. As soon as we start eating the plant, however, the word 'life' acquires a special significance. By probing the plant, by tasting it, our body acquires the possibility to build up substances that correspond with the human form. The following brief explanation can clarify how we can pursue this train of thought in yet entirely different directions, whereby the connection between plant form and human form becomes ever clearer.

When the substances of our food have passed the intestinal wall, they arrive in the blood that, from the intestines, flows together into one great blood vessel, the portal vein. All the blood from the intestines flows through this vein to the liver. What happens in the liver can, up to a point, be followed and analyzed biochemically. The various functions of the liver, such as construction fission, accumulation, secretion and detoxification, to name but a few, form an important chapter in our physiology. The result is that from these building materials human substance is again constructed. In short: the organic substances of our body are proteins, carbohydrates and fats (especially oil). The question arises: if these substances are produced in the human body by the liver, what produces them in the plant, since it has no liver? True, the plant has no liver, but neither has it an inside, or contents in which there are working centres, as our organs might also be called. Instead of a content it has what we have called an 'out-tent', to indicate how diagonally opposed the shapes of plant and man are, despite their profound affinity. What is *content* for us is *environment* for the plant. As already mentioned, this embraces the earth, the atmosphere and the cosmos.

The plant is an open being. We must seek the origin of the wisdom from which the plant has been built in the periphery, far away, just as in our liver we have the organ in which that wisdom manifests itself in a way we cannot comprehend. In contrast, the liver of the plant is to be found far outside it. Is it possible to follow this idea further? Not

in the framework of exact science. But it is through these exact facts that the creative force, the in-act, ultimately manifests itself.

One is justified in saying that it will never be possible to explain the actions that take place in an organ like the liver with the aid of the characteristics of the substance; these actions, and the facts that result from them, lie on entirely different levels of consciousness. To these facts belong the shape of the plant and the structure of the substances of which it is composed. If we think that the origin of the viewpoint from which the shape of the plant as well as its bio-chemical structure have originated are to be sought somewhere 'far away', our modern research methods lead us to an as yet unabridged gap.

If we then look back to by-gone days, when man was still familiar with a world that our present-day consciousness cannot enter any more, and which was called "the world of the gods", we encounter something which points partly in the direction of an answer. In those days one spoke of the world of the gods as the creative world, but one distinguished various elements in this creative process, and attributed names to them. These names are closely connected with the present day names of the planets.

The influence of the planets as we imagine it today has nothing in common with its counterpart of the past. Then planets were spheres of influence that acted directly upon the living nature of the plants out of the periphery of the earth. The planets as we see them now are but representative manifestations thereof. In those days there was never any question of material activity. One recognised various influences that play a part in the creation of the shape, a structure; the impulses of wisdom, movement, shaping forces, curbing influences, etc. One distinguished different influences and impulses and these were attributed to special beings, many of whose names still live in legends. Thus the beings that were felt to be the source of the wisdom that one recognised in everything were collectively called Jupiter, and because wisdom is an integral part of creation, Zeus-Jupiter was at the same time considered to be the most important of the gods. Hence the liver was the Jupiter-organ, because the consciousness of those times saw wisdom in the function of the liver.

The other organs (centres of various activities) were also called after beings. Spleen and gall bladder (as a liquid organ) were seen as connected respectively with Saturn and Mars.

What does this mean? That the forces from which the plant is constructed and that must be looked for in the periphery are, in man, active in the organs. The plant is open towards earth, cosmos and environment; man carries his cosmos within himself, he has become independent vis-a-vis the earth, he has his own 'atmosphere', i.e. his inner self, his spiritual life.

We have indicated here in a few words the direction that could alter our notion of the world and could lead us from the threat of stagnation and therefore of the death of our knowledge, to a new development and therefore to a new life.

In this way we can gradually develop new ideas about man and his environment, that appeal to a completely different element in us. Contemporary thought addresses our intellect, our head. What has been said here may awaken 'something' that in the course of history has been drowned by the need of people to restrict their knowledge more and more to the exact. This 'something' resides in the heart, not in the head. There is a knowledge of the head and equally *a knowledge of the heart*.

Thus it can become understandable that our body has to be reminded constantly of its origin, so to speak. It would seem that the source of life through its metamorphosis in ever-changing fields undergoes something that we might call forgetting. Eating *refreshes*. (Do we not speak of refreshing one's memory?) If we say finally that the shape of the body - like all other shapes in nature - has been created from the Word, the various ideas we have developed become links in a chain. The saying "In the beginning was the Word" begins to acquire a new meaning. This also sheds a different light on our food. Everything that has been said about food-plants and their cultivation, about tasting, digesting, the maintenance of our shape, even the use of expressions like forgetting, remembering, refreshing and of the source of life, begins to coalesce.

What is the advantage of contemplating the problem of our food in this way? Is our usual way of thinking not satisfactory? Do our dietetics need to be reviewed? I believe so. But first we must discuss the reason why. We live in a time of immeasurable

it influences not only us, but also the plants. But of equal importance is the influence on the children who share the meal with us. The reverence "for the minute", that is exemplified here by the adults (educators) plays an important part in their upbringing. Precisely because an example is set in earliest youth, when a child still copies, the grace said at table has such great value. The fact that one waits a moment, restrains oneself, does not immediately 'grab', influences our whole life in the long run.

I am often asked: in the present day one has to cope with problems like pressure cookers, mixers, deep-freeze [and micro-waves]. Are these good methods, do they make sense?

It has been proved by experience that people who treat their food in this way find their taste changing. A doctor friend of mine once said, "People always ask: how does it *taste*?" They ought to ask, "*How* does it taste?" By changing our attitude to food and nourishment, our taste changes, our judgement of food improves. Thus the difference in smell and taste in vegetables that have been treated with chemical fertilizers and those grown by the biological-dynamic method, becomes clearer all the time. This makes it possible to answer the questions we just put: if it smells good and it tastes good there is no problem. But taste and smell must be cultivated, and this can be done by adopting the manner of eating we have described. People who already possessed a delicate sense of smell and taste felt clearly that 'violent methods' - chemical fertilizers, mixers, deep-freeze and pressure cookers all act with 'violence' - have an adverse influence on taste. After such treatment the plant is no longer its original self. In other words: the plant no longer speaks its own language. There will gradually be other consequences of cultivating a sense of taste. People will stop smoking, drinking alcohol and will eventually lose interest in meat. All this has been tested by the experience of many people. To my mind this is a healthier way of giving up habits than the "thou shalt not" method applied by circles that are anti-something. It is, of course, undeniable that in some cases an urgent warning or piece of advice can be important. But on the whole it is more fruitful to obtain results by *educating the taste*.

It is to be expected that somebody will say that a large part of the world population still eats meat. You have only discussed plants as nourishment. What about meat, independent from possible abstinence based on ideals? The answer begins with a counter question. What is meat, where does it originate in man and animals? In the last resort meat also originates in the realm of the plants. Even the carnivore is, in the last resort, a herbivore. Meat can be characterized as a food with plant substances that have already been pre-digested. That is why meat is so quickly done and so easy to digest.

That does not mean that meat is good for us. Easy digestibility can be important, but for many constitutions it may be better to demand something of the body to spur it to greater activity. Yet, for thousands of years we have been omnivores and it would be unwise suddenly to want to put a stop to that for reasons of principle. Nourishment as described here will by itself lead to a different attitude to meat. The same goes for smoking and drinking.

To close, the following anecdote can show that there are still snakes in the grass. It happens occasionally that I go into health-food shops. Forgive my plain-spokenness when I say that there I often meet people who, on the one hand, are convinced that God has pre-defined the length of their life, but who hope to sneak in a little extra time by 'healthy' nourishment. I sometimes say out loud: "Dear people, you must not chew your food". This usually causes a flutter. One hears whispers: "What's the matter with him? Has he turned against us?" I then continue: "You must taste!" To taste one must chew, of course, but the *aim* has been shifted. The one who chews thoroughly wants to profit as much as possible from his food. The one who tastes pays attention to the plant to which he owes his life.