

A TURNING
POINT
IN
NUTRITIONAL
SCIENCE

by

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DR. RALPH BIRCHER

Editor of Der Wendepunkt

The great need of the moment is to disprove the appellation of "Crank" and to enter into the classic phase of our movement, desire of all those who are assembled at this Convention. Nature Cure and Vegetarism must now attain their full standing in a new kind of medical integration, in the adoption of new and wise conception of medicine, which dares to take the burden of responsibility for the biological fate of our race and civilization. A medicine, which cures "men as entities" and not only diseases or symptoms, a medicine which has the maintaining of good health as its target and subordinates itself to the intrinsic healing power within the human organism, or, as Dr. Bircher-Benner said, cooperates with the Inner Doctor, a medicine which does not shrink from the inevitable task of reeducating the civilized world and is even willing to accept high responsibility in public affairs.

As a matter of fact medicine is in a desperate plight, at present, notwithstanding its recent brilliant triumphs. It knows it. It admits it. The fight against degenerative diseases which are responsible for over 90% of mortality, has become a hopeless struggle against an ever rising flood. Step by step they must recede and they do not know what to do to prevent biological destruction. Not many years ago a seemingly unshakeable optimism reigned. The enthusiasm aroused by the discovery of the sulfa drugs and the antibiotics deluded the mind, by diverting attention to successes in a relatively small side-theatre. Now medicine sounds an alarm and calls to arms. But to what arms? Which weapons exist against the so-called degenerative diseases?

Half a century ago, Dr. Bircher-Benner, among others, foresaw this situation and warned his contemporaries: "Change your ways lest biological destruction overtake you! Daily, hourly, you violate en masse the eternal

laws of life as no race has ever done before at any time, and the consequent ill-health has become appallingly wide-spread." — "Nonsense!" was the reply; "Where are your proofs?" The signs of prevalent chronic disease would not be accepted as such, nor the loss of balance of body and mind, nor decayed teeth and the like. They said: "Look at the wonderful achievements of modern medicine, at the increase of average height and life span, at the way epidemics have been wiped out, at the miracles our surgeons perform, at the progresses of sanitation!" More recently they could justly add: "Look at the benefits of chemotherapy, of antibiotics, etc.!" —

But gradually other facts came into the limelight. In Switzerland the University of Zurich published the results of its investigation into the incidents and significance of rheumatic disease based on voluminous statistical data¹⁾ and came to the conclusion that peripheral rheumatism alone is 36 times more frequent, 4½ times longer in duration and 50 (!) times more common as a cause of invalidism than tuberculosis, the "people's scourge"! That rheumatism caused a loss of work approximating to a sum which would correspond to \$ 1300 millions in purchasing power for the United States, and that the incidence of rheumatism is progressing rapidly: in ten years the number of premature retirements through ill-health from rheumatic conditions had increased more than three fold!

In the United States the National Research Council published the results of fundamental inquiries into the food habits and state of health of the people of the States during ten years (1943). The conclusion was: **"Malnutrition and dietary deficiencies prevail in the U.S. and they are of great consequence."**

The prevalent optimism regarding the people's health suffered another shock from the recruiting results, to such a proportion that the yardsticks for assessing health and disease had to be revised. Professor Bond of the University of Pennsylvania stated: "We are just beginning to understand what true health really is."

Another shock came from the Vital statistics of the City of New York when they revealed that, in spite of the great help of insulin treatment, diabetes mortality had not diminished but increased by 65% within fourteen years (1930—1944) and that similar conditions prevailed in other chronic diseases.

The seriousness of the situation was further revealed by the investigations of the Peckham Biologists who managed, by means of alle known methods and of some entirely new ones to take the first exact health inventory of a normal, healthy, representative group of population, near London.²⁾

Applying the usual clinical yardsticks, the results were, as regards physical fitness:

1) Bedeutung des Rheumatismus für Volksgesundheit und -wirtschaft auf Grund schweizerischen statistischen Materials. By Bruck and v. Neergard, Berne, 1939.

2) Biologists in Search of Material. An Interim Report on the work of the Pioneer Health Center, Peckham. London 1938, and: The Peckham Experiment. A Study of the Living Structure of Society. London 1943.

9 per cent were healthy, i. e. they showed no signs of any serious clinical disorder, but from biological and functional viewpoints most of them were not in real health.

91 per cent were sick, i. e. they presented more or less serious signs of illness!

Less than 10% of these sick persons had come to the knowledge of medical services and under treatment of doctors whilst the existence of the other 90 per cent was unknown to medicine!

66 per cent or two thirds of the sick persons felt "perfectly healthy and fit" and were very much astonished when the clinical examination revealed one or several, often very dangerous and progressing disorders. This group represented, what McCollum called "The twilight zone of ill-health" and Dr. Bircher-Benner "The incubation period". It is characterized by a condition in which the disorder is still compensated by some of the many wonderful regulatory systems the human organism is endowed with. In this state of compensated disorder or hidden disease man is able to live and work normally under the protection of civilized comfort, but when he is exposed to a more crude and less protected life, or when he reaches a more advanced phase of the process, compensations become insufficient and obvious disease appears.

At Peckham, similar results were found concerning the psycho-social health.

These findings reasonably correspond with the estimates of two American psychiatric authorities, Bond and Menninger. Only about 0,7 per cent of the population could pass as really healthy in mind and spirit, the rest were struggling through life burdened unnecessarily with nervous obsessions and other prejudicial complexes. Nobody, to-day, however poised and rational he may be normally, has mental health in reserve to endure any really heavy strain, according to Menninger. He added that the world to-day is full of unhappy frustrated people, and he asked what the handful of psychiatrists could do to help them. He thought their best plan would be to give up their lectures and patients and try to improve social conditions.

But there came another well-known psychiatrist, Rümke, University of Utrecht, Holland, who contested that improvement of social conditions would not be sufficient.*)

Neurosis has become so general, indeed, he said, that it must be considered as a popular complaint. "Certainly modern methods of psychotherapy are very highly developed but it becomes more and more obvious, he added, that they only lead to real recovery in cases where there is a considerable measure of vitality, power of development and "growing energy" . . . Any therapy is, all too often, rendered inoperative by organic disorders and weakness, exhaustion and functional disturbances, toxæmia,

*) Das Problem der Neurose. By H. C. Rümke. Bull. of the Swiss Academy of Medical Science, July 1948.

allergic conditions, vegetative disturbances and disorders of the diencephalon."

Thus we come to the point Dr. Bircher-Benner emphasized long ago: "We must begin in the physiological field. The main object is to regenerate the body and to gain new vitality or growing energy. Treatment must be psychosomatic in every case. That was his thesis and method fifty years ago and has been that of our school ever since."

In April 1947, Dr. Bluestone, Medical director of the Montefiore Hospital, New York, sounded the alarm in the Journal of the AMA, undoubtedly impressed by some of the above facts and statements or simply by the fact that we have ever more and bigger hospitals, more doctors, medicines and treatments and, despite that, an ever increasing mass of disease to treat, so that hospitals can no longer take long term patients. He said: "It seems a paradox, but medical science in its recent achievements with chemotherapy, the antibiotics and the application of blood fractions has minimized the menace of short term illness and maximized the menace of long term illness, which now stands out in bolder relief . . . There is scarcely a person who has been spared the distressing consequences of long term illness in the immediate sphere in which he moves. It is necessary to master this malignant and degenerative problem and to concentrate on therapy . . . For the physician it is a failure in preventative medicine which, in sheer statistics, is of overwhelming importance."

Probably inspired by these words a joint statement backed by the leading public health and medical associations of the United States appeared in the same Journal in October 1947 reading as follows: "Numerous communities are now awakening to their responsibilities for the chronically ill and there is a great need of comprehensive planning . . . Chronic illness affects nearly every family. The notion of illness caused by old age is no longer tenable. Fully one half of the chronically ill are below the age of 45, and 16 per cent of them under 25, more than three fourths are persons in the productive years from 15 to 64 . . . The basic approach to chronic disease must be preventative, otherwise the problems created by chronic diseases will grow larger with time, and the hope of any substantial decline in their incidence and severity will be postponed . . . The promotion of optimal health throughout life is an important factor in the prevention of chronic illness. There must be a wide expansion of nutrition programs . . . Although a good deal of research is now being carried on in chronic disease, only a fraction of the total need is being met. Experience in medical research has made it clear that we must broaden our vision and think in terms of research planned and organized on a much larger scale than any now contemplated. Diagnosis and treatment of illness at its inception is essential."

I must not bring before you any statements though we could go on for some time. It would be depressing, and it is depressing indeed, unless we see a practical way of recovery. Medicine frankly admits that they see none. Some biologists, like Koelsch, take it as an inevitable fate. Some,

like de Boer, of the University of Groningen, Holland, say: "Not, it is not biological fate. We know the way out: 'Back to Nature', or, at least, back to more natural nutrition. But as soon as we begin to consider the proposition we see its impossibility, because most of us would never abandon our culinary gratifications and, what is more, we would bring out of range the powerful wheel-work of international economy."^{*)}

You see there is a considerable sincerity in these words, and the situation wants courage, so much courage, indeed, that only a real hero has it, and heroes are rare.

If the responsibility was turned over to us to-morrow, would we have the courage to take it and the means to lead the enterprise to a good end? Would our headquarters resemble a well-co-operating team of wise masters or a Babylon of tongues? Could we face and cope with both our own cravings for stimulants and artificial paradises and with the opposing economic powers? Are we prepared to apply the high medical rule ("fortiter in re suaviter in modum", that is unbending in principle but flexible and mild in methods)? Would our ideas be mature and clear, free from sweeping generalities and unchecked intuitions? Could we convince our honest opponents showing them that we have really faced and digested all the relevant scientific findings of the present and can still stick to our principles and methods with conviction? There are so many problems to face, and the moment when we are called for help may come sooner than we think.

It is not sufficient, for instance, if we point out thousands of instances where our principles had excellent results, for there are always other instances. We must be able to show and prove *how* and *why* they work.

In the face of the obvious progressive biological decline of civilized mankind we claim that living according to the eternal laws of life can regenerate mankind and that the very motor of regeneration resides in raw vegetable food. We know this for we have seen it work in so many unexpected and amazing cases, but *how* and *why* does it work?

It is not the vitamins, nor the mineral salts in raw vegetable food which do it, nor chlorophyll, nor the quality of proteins, nor the saponins, nor etherical oils, nor excess of alkalines, nor fibrines, nor saltlessness, though all these factors contribute more or less to the one end. The problem is complex and much more interesting than that. Heating and even wilting destroys many qualities the significance of which is not yet known, and mankind will possibly never know it completely. But new analytic work of recent years has given interesting insight. There are facts that may be new to you and of importance. Let me lay them before you, now:

There exists a reaction which normally happens every time a person begins to eat: we call it the digestive leucocytosis. Some message sent by the palate to the marrow through the vegetative nerve system releases a deployment of leucocytes which swarm out to the walls of the intestines, especially of the colon, as if to defend a frontline. This reaction was thought to be physiological, i. e. pertaining to health, though not understandable,

^{*)} Een orienterende beschouwing over de conserverende Tandheelkunde, Groningen 1948.

until Kouchakoff of Lausanne, discovered that it does not happen whenever a meal consists of, or even begins with raw vegetable food. This fact was confirmed by several other research workers. Then Tropp, Würzburg, added another discovery. There are specific enzymes in fresh and living plant cells which are very delicate. They perish when the plants are heated or even seriously wilted. They were thought, therefore, of no consequence to human health. But Tropp found out that this is not true. The human organism knows how to protect and escort these enzymes throughout the digestive tract, so that they can reach the colon without harm, and there they perform a basic change in the bacterial flora by attracting and binding what oxygen there is. Thus, they remove the aerobic condition which is responsible for putrefaction, fermentations, dysbacteria and intestinal toxemia, with all the far reaching consequences to human health, as yet only partially known. Let me put this in a simplified way. The question is more complex, but in most cases, a consistent diet of raw vegetable food is sufficient to effect a quick and definite cure of even very old constipation and dysbacteria. Sometimes this treatment has to be aided by the introduction of rebred types of bacteriae coli, and this is more often the case than before, because degeneration of bacterial flora in the intestinal tract is widely progressing. Often pathological microbes ascend to the small intestine and on to the liver and gall-bladder and there build a focus which first of all has to be drained and disinfected.

Dysbacteria is an insidious menace to the organism. We are still far from knowing all of its slow, far-reaching consequences. One consequence seems to be the sum total of allergies to which, according to Swartz, New York, about half of the civilized population is subject in a mild degree and one tenth in a high degree. A powerful cell-poison, called histamine, is said to be the common denominator of all allergies, and histamine is liberally produced, especially in case of excessive intake of animal proteins, when chronic constipation and dysbacteria prevail. There are many other consequences of this condition and a great part of existing ill-health can be removed by the influence of vegetable raw food on the digestive tract.

What then is the purpose of the digestive leucocytosis? Before the invention of fire-heating, mankind was eating unheated food. Cooking was the first great step of civilisation made possible by man's extraordinary faculty of adaption. To abandon raw food meant danger of dysbacteria in the colon by lack of living cell enzymes, but the walls of the intestinal tract are admirably endowed for blockading such a danger. To do this, they must, however, be temporarily manned with leucocytes again and again. This, of course, means an extra performance. But this extra performance became "normal" with the habit of eating mainly cooked and processed food. As soon as a meal begins with such food the palate sends, as it were, an order to equip the intestinal walls with leucocytes. There is but one means to prevent this order: to begin meals with raw vegetable food. If such a beginning once has passed the palate and established itself in an empty stomach, some cooked and even processed food may follow without

producing leucocytosis. This rule of beginning meals with vegetable raw food is the main rule of the Bircher-Benner diet system since the beginning and has arisen, as a result of the discoveries by Dr. Bircher-Benner's acute observation. By following this rule, digestive leucocytosis is indeed prevented, as Kollath, Schroeder, Tropp and Chalaupka state. The organism seems to know that then sufficient oxygen will be neutralised to prevent the ominous aerobic condition.

Let us ask now what raw food does, when it reaches the living cells by means of the blood stream. That is the most incalculable part of the nutrition process, and also its crucial zone, as those research workers say who have succeeded in penetrating into it. I mean Eppinger and Kaunitz of the First Medical Clinic, University of Vienna.^{*)} As long as life lasts, a constant interchange of energies and substances between the ends of the blood vessels (capillaries) and the tissue cells goes on at a billion points simultaneously in every part of the organism. The nutritive substance of the blood and the waste substances of the cells have to pass through two fine membranes and a narrow dividing interstice. In a dead body such an interchange would be ruled by nature's law of levelling contrasts, the principle called "diffusion", but during life the cells overcome diffusion. They tend to create the exact opposite of levelling, i. e. antagonistic contrasts and tensions of a chemical, physical and electrical nature, by attracting from the blood what they need and rejecting other material. The stronger these antagonisms are the better, for in them life finds the power of defence against disorder and the power of healing illness. On the other side, ill-health is expressed by a partial loss of this "selective" capacity of the cells, by undue and diffused exchange of minerals — salt penetrating the cell walls, for instance, — also by a lowering of the tensions, by distortion and spasms of the capillaries, by a sticky coating of the blood globules and by a sort of "m a r s h" resulting in the dividing interstices between the membranes by waste products being scattered around the cells. Cell life slows down, cells cannot rejuvenate fast enough and this small but omnipresent "m a r s h" invites, as it were, bacteriae to settle and to grow. That is an inside aspect of ill-health, a condition which may exist long before clinical symptoms appear.

The problem then is to restore the selective power of the cells and organs. If we achieve this, recovery follows wherever the blood stream reaches; if we fail in this, nothing else will really help in the long run. In Vienna two famous research workers tried every possible means of achieving this and found out that there was only one successful measure to be taken, namely the application of raw vegetable diet "exactly according to the prescriptions" of Dr. Bircher-Benner. Under its influence the life-giving antagonistic tensions grew and capillaries were slowly restored to their vigorous, efficient state. You see how vegetable raw food works.

^{*)} Transmineralisation und vegetarische Kost, in: Ergebnisse der Inneren Medizin und Kinderheilkunde. Vol. 51, 1936. And: Über Rohkostbehandlung, in Wiener Klinische Wochenschrift, July 1, 1936. And: Die Permeabilitätspathologie als Lehre vom Krankheitsbeginn. Wien 1949.

It is an unspecific, general treatment, tending to restore the organising centre in every cell of the organism.

It is easy to say the words "vegetable raw food". Many think it is easy to prepare and then mostly fail and blame the treatment instead of themselves. This diet must be well understood in its principles and it must also be learnt. There is much biological care and culinary art in it, evolved with constant endeavour during fifty years. Bungling will inevitably spoil it. And a human organism is no machine. The effect of the raw vegetable diet is very strong — sometimes comparable to cutting of a knife into an abscess. A special technique has to be applied to find out the proper dosage and proceeding in each individual case; constitution and side-effects have to be observed and many aids used in order to overcome possible difficulties.

The discoveries of Eppinger and Kaunitz roughly described above are of greatest interest and should be amplified. They still fail to reveal precisely, which factor in raw food has its unique regenerative power. Here Dr. Bircher-Benner's theory, discovered half a century ago, still fills the gap. It has evolved since, but Dr. Bircher-Benner searched for many years for a sound working hypothesis to explain this unique curative power present in raw vegetable food. He found the explanation in the second principle of energetics which governs the quality and organisation of energy.*) This theory was a great help to further research and a compass to further discoveries, whilst furnishing guidance and preventing undue overrating. The theory is confirmed by some and rejected by others; but I personally think it will play a great role in the future. It can as yet neither be proved nor disproved by exact measurement. We are not going to discuss it here, but this regenerative power in raw vegetable food is one of the two main problems of nutritional science as we see it. The other is that of quality and economy in protein metabolism. It is the third point of my address, and may interest you most of all.

Protein is without any doubt the most essential of foodstuffs. Most experts adhere to the conclusion that it should therefore be taken in liberal quantities, whereas the school of the "protein economists" hold that the more a foodstuff is essential, powerful and still mysterious, like the proteins, the more it must be used with discrimination and care to avoid both shortcomings and excesses. As, in modern times, the danger of excessive intake is much more imminent than that of deficiency, and even deficiency can develop in spite of over-eating if the food is lacking in balance and quality, we insist on economy. Highest quality only, represents real economy. Whereas the optimal daily intake was generally supposed to be 120 grams, we fix it at 50—60 grams for an adult person who works moderately. The National Research Council fixed it some years ago as low as 70 grams, but general opinion and consumption still are much higher. These discrepancies are of great practical importance. I think they are

*) The Essential Nature and Organisation of Food Energy and the Application of the Second Principle of Thermo-Dynamics to Food Value and its Active Force. By M. Bircher-Benner, M. D., John Bale Sons & Curnow, Ltd., London, 1939 (5/—).

the nerve centre of the nutrition problems, and they have much to do with a second opinion to which most experts still adhere as to a holy dogma: that of animal protein being superior in quality to vegetable protein. Official instructions everywhere recommend that protein intake should come entirely from animal sources at least to the proportion of one third if not one half of the total intake, and thousands of analyses and animal experiments seem to corroborate this. I suppose that you will all smile, when you see how constantly they mean meat when they spell "animal protein", though their "proofs" only justify milk.

Gradually it becomes apparent, however, that the protein problem, in spite of so much intelligent research work, is very far from being solved. Pioneers on this field everywhere admit this. Protein molecules have relatively enormous dimensions. They are like little worlds unto themselves, apparently capable of infinite variations and nearly as mutable and unstable as life itself. Until now only 80 to 90 per cent of the total protein mass has been identified in form of amino-acids, the rest seems to be inscrutable. Still the molecules of protein are not really seizable, not in quantity and much less in structure. We are far from knowing their knitting pattern.

Amino acids are considered as the building stones of protein, and much stress is laid upon the so-called essential amino-acids which the human organism is said to be unable to synthesize. But it has recently become uncertain both whether they are building stones in such a sense and whether our organism cannot synthesize them under varied conditions. Cuthbertson, of the Rowett Research Institute, Aberdeen, recently declared that the opinion that animal protein is first class and vegetable protein second class has become meaningless, "for it resides on a few incomplete analyses of purified proteins instead of natural protein compounds as found in food-stuffs". Purified protein, he said, shows other qualities and is a different thing from living protein of exactly the same protein content. The organism does certainly use the amino-acids in some way as if they were building stones, but it splits them up, decomposes them first and recomposes them again to a sort of prime protein and then begins to specialise by amplification according to the aim. This highly differentiating work is carried out by means of ferments, called Cathepsines, but here human understanding practically reaches its end: These Cathepsines are protein molecules themselves of an utterly unseizable nature and different every time according to the purpose they serve. They act as models or patterns sent to the building ground, and the elements compose around and knit themselves according to the model they have "in sight".

Therefore, another well-known expert, Abelin, of the University of Berne, says: The answer to the question as to whether a certain protein intake accomplishes its duty in the face of life, gravitates in the vital health quality of the body cells themselves, in the moment when the protein is offered to them, and not in the question of whether certain amino-acids, essential or not, are lacking. Some forms of proteins, says Abelin, respond to the slightest alterations of life conditions and blood

composition through nutrition or toxication, or blood viscosity and conditioning of capillaries, even to traces of foreign cell-substances. Thus, we understand, that the results highly depend on whether unnatural, or highly processed civilized food is used, or natural food, mainly raw.

There are still more important things to be said. I want to draw your attention to a recently published work which I consider fundamental from several aspects. It is packed full of new and valuable information. I mean the book of Schuphan¹⁾. The high evaluation of animal proteins was partly due to the fact that vegetable proteins had hardly been analysed at all, apart from cereals and leguminous plants. Some very old analyses carried out with antiquated methods had been copied and recopied. To proceed to new ones was considered unnecessary. This opinion was reinforced by three lines of thought: One was that the total protein requirement was set too high; the second was the opinion that plant foods were too low in protein content to be adequate; and the third that vegetable analyses were considered to be much too troublesome and costly, compared with milk or cereal or meat analyses. Schuphan, on the other hand, carried through new analyses, based on new and better methods, of most vegetables. Together with Lintzel he also worked out a new and more adequate yardstick for the physiological efficiency of protein as a function of biological value and real digestibility. In consequence, the protein of potatoes ranks highest with a physiological efficiency of 66 per cent, then come rice protein, rye protein, oat protein, Indian corn protein, always the whole grain, with 62 to 54 per cent, then brussel sprouts and other vegetable proteins with 53 per cent and less, and please note this, cow's milk protein for adults ranks only as 50 per cent and meat protein on the same low level with leguminous plants at about 45 per cent! That means a reversal in the evaluation of protein qualities. And this had been reached without deviating from the amino-acid theory!

And now the best is yet to come! I mean the last discovery in this field, that of Kollath and Ginnäs, at the Karoliska Hospital, Stockholm. The conclusion of the experiments must still be awaited before definite results can be given, but much can be told from information already published.²⁾

Just before the war, Kollath, then at the University of Rostock, discovered the strange possibility that normal life-continuance can be maintained on devitalized food even far below the full health level. He called it "mesotrophy". By this word he meant to indicate a half-nourished condition of life which nevertheless is compatible with overfeeding. Animals could grow up and reach full age on purified food stuffs devoid of all mineral salts, except a little zinc and potassium phosphate, and devoid

1) Gemüsebau auf ernährungswissenschaftlicher Grundlage. Ein Lehr- und Nachschlagewerk mit 35 Abb., 24 Darstell. u. 99 Tabellen. Von Prof. Dr. habil. Werner Schuphan. Hans Keune Verlag, Hamburg, 1948.

2) Der Vollwert der Nahrung und seine Bedeutung für Wachstum und Zellersatz. Experimentelle Grundlagen. By Prof. Dr. med. Werner Kollath, Stuttgart 1950. These results are confirmed by recent control experiments in Munich.

of all vitamins, except a little thiamine (B₁). They developed no specific symptoms of disease from the clinical point of view, not even avitaminoses, but showed signs of degeneration like chronic constipation, a maleficent condition of the intestinal flora (or dysbacteria), demineralisation of the bones, the decay of the molar teeth similar to that in civilized mankind. The addition of classic vitamins did not improve this constantly poor state of health. The main characteristic of this mesotrophic state of life was insufficient regeneration of the cells. Only fresh food, in abundance, containing green leaves, cereal germs, yeast etc., could prevent, and, in the initial phase, correct this state. When the mesotrophic animals died at a normal age, autopsy revealed serious disorders in several organs similar to degenerative diseases known in mankind.

These results were temporarily challenged by the chemists of the Leuna Chemical Works and refuted on the claim that they could not be repeated. Only later was it known that they had not strictly adhered to the same experimental conditions. Now the results have been repeated in Stockholm, under strict control, and Dr. Kollath's theory is fully confirmed and even amplified. The mesotrophic state is a reality, and it has even become more probable that it corresponds with a similar state of civilized mankind. It needs not only a little thiamine, zinc and potassium phosphate together with pure proteins, fats and carbohydrates, but also, and this is important, a little streptogenin, existing only in animal protein (milk) and therefore called the "animal protein factor". It is no amino-acid however. Do you foresee the consequences of this discovery?

To make it clear, we must reverse the order. Civilized food contains hardly any green leaves or cereal germs and therefore causes in civilized mankind a state of health near to mesotrophy, i.e. a life-continuance on a poor and degenerative health level almost without the necessity of getting vitamins and mineral salts. Therefore, when one takes civilized food for granted and as a given condition not to be changed, as most contemporaries do, the intake of animal protein becomes a necessity indeed, and then you may admit their point and even stress it — but it is valid only for the mesotrophical state of life with all its consequences: ill-health and degenerative diseases! For that is all they achieve. If, on the other hand, you start with a natural diet containing a sufficient amount of fresh food, green leaves and cereal germs, then mankind can not only exist without animal protein, but it can attain a much higher level of health, say a Hunza level; or, to express it more correctly, then and only then can we reach full health and stamina. Biologically speaking, a certain proportion of animal protein may be of no prejudice at all to buoyant health. It may even endure it under certain circumstances as in semi-arctic countries. But so much is certain: full health is attainable without animal food, even without milk. This is practically proved by about one third of living mankind, I mean the rural populations of the major part in China, Indonesia, and the Highlands of Latin America. They have mostly been checked by scientific research and represent experiments of much higher relevance

than any animal experiments for they stretch over centuries and millions of human beings.¹⁾

The people of Hunza in the Karakoram, north of Kashmir, are also a striking example of buoyant health until old age built up on food with extremely little animal protein. This is to be stated contrary to the opinion created by Sir Robert McCarrison and some English and American books on Hunza: Dairy produce do not figure largely in the Hunza diet, as they suppose, but only to a very scarce extent, and not throughout the year. This is confirmed by Colonel and Mrs. David Lorimer, the only persons who have lived in Hunza and studied its mode of life for some time.²⁾

An example to the opposite exists in the Eskimos of East Greenland, for the first time closely studied and analysed by the Höygaard Expedition in 1936.³⁾ More than 90 per cent of the food of these Eskimos consists of flesh, mostly eaten raw. Their food is very natural, but not adequate to human nature. It shows no marked deficiency in any classical vitamin or any mineral salt. But the daily average diet contains 299 grams of (animal) proteins instead of 60 grams, 169 grams fats instead of 50—80 grams, and only 122 grams carbohydrates instead of 400—500 grams. These Eskimos are apparently healthy, supple, cheerful, hard-working and intelligent when very young, 20, 25 or so, but when 35 have lost their youthfulness, energy and skill, are lazy, clumsy, look old, are seriously arteriosclerotic and die from influenza or hunting accidents. Average life span is only 27½ years. Compare with this the youthfulness, good looking, suppleness and efficiency of Hunza men in old age! It shows to my way of thinking that the Hunza diet, mainly raw fruit and green vegetables, whole grain cereals and sufficient addition of green leaves, is adequate to the original constitution of the human race and the Eskimo diet is not.

Let us summarize then and do it with the words of Dr. Bircher-Benner in his last book "THE NEW DOCTOR"⁴⁾: "There is a rescue indeed: the return to the realm of order in life, possible only by insight and self-conquest. Wherever I look, I see people shrinking from it. The so-called healthy ones — in reality there are none left — they live without insight, are fond of their habits and will not listen to the word 'self-conquest'. Only the sick are accessible, generally not before they have become amenable

1) Nutrition Research in China. By Dr. William H. Adolph (formerly University of Peiping), Cornell University, Ithaca. in: *Jl. Amer. Dietet. Ass.* Nov. 1946. — Dr. K. F. Eitel, Hudson Taylor Memorial Hospital, Changsha, in: *Der Wendepunkt*, Oct. 1947. — Vitamin A Deficiencies in the Netherland East Indies, by Dr. A. G. van Veen and Dr. S. Postmas of the Eijkman Institute and Institute for Nutrition Research in Batavia, in: *Jl. Amer. Dietet. Ass.* Aug. 1947. — Ein Vergleich zwischen Ukraine und Schweiz in Hinsicht auf Lebensweise, Ernährung und Gesundheit, by Ferd. Balz, in: *Der Wendepunkt*, July and August 1947. — The Nutrition Problem of Mexico, by Dr. Robert S. Harries of the Nutritional Biochemistry Laboratories, Massachusetts Institute of Technology, in: *Jl. Amer. Dietet. Ass.* Nov. 1946.

2) D. L. R. Lorimer, *The Burushasky Language*, 4 vol., Oslo 1935. — E. O. Lorimer, *Language Hunting in the Karakoram*, London 1940, and personal communications of the authors. — Dr. Ralph Bircher, *Hunza — das Volk, das keine Krankheit kennt*, 6th edition, Berne 1953 (also in French, Dutch and Svedish).

3) *Studies on the Nutrition and Physio-pathology of Eskimo*, by Dr. Arno Höygaard, Oslo 1941.

4) An English edition is ready for print.

and often too late. Even they have to be won over to the way of regeneration. They are plastered with fifty prejudices and unaware of the fundamentals of good health. Only distress provides them with ears to hear. As Hercules did with the hydra, one has to cut off the heads of their prejudices one by one, and then comes the moment, when the patients self-conquest begins, — the decisive moment. Will they consent and begin to fight with joyful courage? Ah! It is a great enterprise, a project worth the unceasing effort demanded! How easily can one shrink back! How simple and quick would it be to write a prescription, to give an injection!"

"To restore the essential order of life in all its relations: in nutrition, in contacts with the environments — is natural cure, causal therapy, the 'Therapia magna': I call it the Order therapy! — In every illness it should be applied as a first principle. Other therapies would enter into consideration as supplementary ones and after critical evaluation. I mean surgery, homeopathy, electrotherapy and especially allopathy. Do not misunderstand me! There is no disregard, nor disdain in my words for these secondary therapies. I fight for the building stone, which the workmen have rejected and which must be the corner stone in the formation of the new doctor."

"He is the Doctor whom the civilized world of to-day needs. Of him Henry E. Sigerist said: 'The physician is going to become the counsellor of the statesman'. And to quote Lord Horder 'The work of the doctor will, in the future, be ever more that of an educator and ever less that of a man who treats ailments'."

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