

CHAPTER XIV

**FURTHER APPLICATIONS OF THE
FOREGOING PRINCIPLES**

THE PREVENTION OF CANCER

We have considered the elements that enter into the initiation and propagation of the carcinogenic process and of virus parasitism, and also the means of terminating both in line with the same hypothesis. The practical application of the principles discussed is now in order. Two sources of toxin that play parts in the initiation and conduction of the pathogenesis need review.

Toxic amines produced by decarboxylation of amino acids in the acid reacting colon, or in tissue foci by bacteria, block the action of the tissue cell functional carbonyl groups, and thus wipe out the oxidative protection. They cause block in oxygen transport inter, and intracellularly besides, by gelling the tissue colloids. They cause weakness and clinical fever, as do other amidines. Their elimination is dealt with later.

Toxins brewed in old foci of infection where hypoxia is maintained through scar formation and vascular obliteration. Under hypoxic conditions, the free radicals formed by dehydrogenations are not peroxidized, and react with each other to polymerize with increase of molecular weight over long periods. Such old foci of infection flare up with acute inflammation, and then disappear with absorption of the old scar at the end of the recovery process from cancer. The acute inflammatory phase of the beginning of the whole pathogenesis is thus reproduced, but this time with the cure of the lesion, and the elimination of the disease from the system. Such toxins reaching the blood stream can copolymerize with tissue metabolic products and the collagenous material that forms the interstitial fibrosis, where hypoxia is more or less a factor. They play a part in the aging and insufficiencies that follow sclerotic degenerations of the heart, kidneys and brain, as well as other organs. This fibrogenic status of the cancer patient even, before a

growth shows up should be easily recognized in the blood and tissue juices and be a diagnostic aid. It disappears after our treatment just as the concentrated scar does, and the interstitial fibrosis goes away with it, and arteriosclerosis as well. Good parenchymatous function is then returned and the victim so to speak becomes younger again. This is demonstrated in a few case histories given here, but a volume of considerable size would be required to give a good share of our experience in this matter.

The polymerizing toxins and their copolymeres with incompletely combusted tissue metabolites, and fibrogenic material and with other germ poisons while increasing in molecular weight exhibit differing symptoms from the lesser polymeres, and as the last deposits represent the largest molecular weights, the symptoms they produce disappear first with the digestion and removal of the toxin and its fibrotic deposits. As the depolymerization continues the same toxic arrangements are traversed transiently until the monomeric form of the toxin as produced by the germ is liberated. When first formed by the germ it was not oxidized, but now it is, so the whole pathogenesis is thrown out from its very inception. This is why we say the disease is cured. What applies to germ toxins applies also to the incompletely combusted tissue cell metabolites resulting from anoxia and inhibited oxidation catalysis.

One will see to it that his oxygen supply is adequate, and that he does not exert himself beyond the ability of the heart to perform well on the oxygen supply available to the heart muscle cells. In fact no function will be overdone. Pain is the warning symptom, but the damage is already done in part when it appears. One must learn his capacity and adjust himself to it. This applies to kidney function and digestion and bowel elimination as well. Thus one will combat the pathogenic factors as follows. First they must be recognized for the part they play in blocking normal function. Then they must be met with steps to prevent their action or their effects.

While these procedures have to do with the prevention of cancer, they must be employed also in the treatment of the disease. To some we can only call attention, for who can avoid the petroleum engine exhausts from flooding one on the

city streets? And how can the tar road dust be avoided by one who must use these roads. The proposal was made at the International Cancer Congress held in London nine or ten years ago to advise the public about the nature of the many industrial cancer causing poisons with which the workmen had to have contact, but some of the members of the group objected with sufficient vigor to prevent this very necessary act, I was informed.

Arsenic has long been recognized for its carcinogenic powers, and its use as an insecticide on fruits and especially to fight the tobacco mosaic virus places those who do not wash their fruits well in danger. The tobacco users cannot remove the arsenic from their cigars and cigarettes so they inhale the arsenic as a volatile compound which probably has greatly accelerated powers in that state. This we think is the cause of the increase in lung cancer rather than the products of the tobacco alone. One should think it over and employ different insecticides. These are extrinsic factors over which we have no direct control. However there are sufficient personal factors also that have to be sought out and removed both for the prevention and for the cure of cancer.

Factor No. I—The intestinal poisons or amines. They cannot exist (a) without the bacteria that produce the decarboxylases. (b) The decarboxylases cannot work without the amino acids to work on. (c) They can only work in an acid medium. So there are three ways of attacking this problem. Since the killing of the germs is not practicable, rendering them harmless is the best means of handling the situation. **Therefore maintaining an alkaline colon**, and not supplying the germs with substrate from which to produce toxins is the practical way. Since the intestinal tract is normally alkaline, it is a constructive way.

To produce and keep an alkaline colon which is its normal status, one does not eat too much food and thus keeps the bulk down, so the center of the bolus is well mixed with the alkaline secretions of the intestinal wall. This secretion runs around a pH. of 8.5 and no decarboxylation of amino acids takes place at that alkalinity. So if the bolus on reaching the colon is not too great it will not dilute the alkalinity to a point where it be-

comes acid enough (5.5 or even 3.5 in pH) whereby decarboxylation of amino acids is serious. Further, by holding down the food quantity the amount of amino acids taken are reduced so there is less material to be changed to poison. But there is the other factor of reduced amount of work to tire the bowel musculature and slow down the elimination. The less the bulk the easier the bowel can pass it on and out and the less the time for toxin absorption. It must be recalled that the colon must terminate the digestion of any left-over material, or get rid of it before it can be turned into a poison. So the alkalinity of the colon contents is the first thing to consider and bulk is the main factor here. Too much water must not be taken with meals or for an hour or two after a meal for the same reason.

To not provide germs with material for their prosperity, one should eat just what is needed for tissue building and energy requirements. One needs the salts and vitamins with the trace elements and the food substrates. Any excess provides the hazard we are trying to avoid, and accomplishes no useful purpose.

Factor No. II—is the cause of the hypoxia. Old scars if removable, and the chronically infected appendix should be removed as should tonsils that have been long infected, even though they cause no bother. This is especially true for women, for cancer of the breast is seen too often associated with such infection, and the tonsil flares up with reaction after the breast neoplasm is absorbed, thus demonstrating the etiological position of its scarred-in infection.

THE DIET

The Quantity of Food

We will take up dietary details in a minute, but first let us consider the balance between the digestive power as supplied by the stomach, liver, pancreas, and intestinal wall enzymes, and the amount of food that is taken. This ratio is so variable that no one can predict the state of affairs until it is carefully examined. Some persons have an awe inspiring proteolytic digestion. They can devour large amounts of fish, eggs, meat and chicken and prosper on it, that is for a while at least. Others cannot even take a gram of animal pro-

tein into their stomachs without suffering the effects of toxic amines a day or two later, and then a cathartic is needed to clear the system. This latter group have often sprung from the first group after they became host to some infernal fecal germ of which there seems to be an endless variety. They then are on the way to cancer. But even those who think they are safely set in the first group can give rise to the most malignant forms of lymphsarcoma and be killed thereby in a few weeks or months. The second group, on the other hand, are subject to breast and liver or gastro-intestinal cancer.

When it is found that the food does not digest in adequate amounts as shown by fecal analysis and the symptomatology, one reduces the amount to a little below the amount that can be handled readily. The food quantity is thus determined by the capacity that is actually found to be operative. As a rule persons eat much too much and a drastic cut as by a fast of a week or two on fruit or vegetable juices and vitamins will take the irritation and nonsense out of the appetite so that the normal warning that enough has been taken at a meal will be heard and understood and then obeyed. This warning is a sense of satiety that soon says stop after the meal gets going. It is almost never heeded in ordinary practice, and especially when a hostess has taken pride in the meal "she alone can prepare," and must be flattered by a "Portus" appetite. The danger is the greatest when meats and eggs are served, and the appetite is whipped up by relishes and a nice wine. This dainty sense of sufficiency, if abused, soon leaves, and one then only knows that he cannot fill up any more when the stomach is full to the brim. Then he goes from the table with a sense of satisfaction he misinterprets. Wives have the duty to warn their husbands against over-eating when Nature's warning fails, as this safety warning is easily lost after abuse. Yet after a fast it is likely to be restored. Then one knows what his needs are, and he takes the amount of food that Nature judges is correct and only so much.

The spacing of the meals must accommodate the speed of digestion too. In some the speed is great and the food is ready for absorption as nutritional units in only a few hours after being taken. In others it does not even get out of the

stomach into the intestine where the main job of digestion is done for six or seven hours. Two meals a day will then provide the correct spacing so the stomach gets a little rest before being put into another exhaustive task. And of course when it does not survive, ulcers, diverticuli and cancer come, and besides, arthritis and other affairs are invited.

Many decades ago the school children were shown pictures of stomachs of men that drank liquor. These were ugly imaginary productions for sale to the board of education. But while they taught us what kind of stomachs we never wanted to have, they did not teach us the truth about their production. Since the little camera was invented that can be swallowed and then used to take pictures of the stomach within and of all sides, it is found that the "hobos" that eat very little and survive on bibling liquor even of the cheapest kind, indeed have the nicest stomachs. These stomachs are never overworked with food that can rot inside and injure. But instead, they receive their daily antiseptic lavage with beer, whiskey, gin, moon-shine and the like. The fates of the kidneys and liver are a different matter. These go to destruction only too soon so the hobo ends up in a terrible fix that is as bad as the man who never drank but ate to capacity on every occasion.

Caloric and protein requirements as set by dieticians a few decades ago have been in error as practical experience shows. They have been much too high. The man who shovels coal steadily all day on a light breakfast; a sandwich at noon and a light dinner at night has baffled the doctor, but it should not, for the energy of the food was efficiently turned into work and the mechanism was not hindered by block to the oxidation catalysis through the enormous amounts of toxic amines into which the large meal could be converted. The small food ration gives the whole system a chance to practice an efficiency to which the biochemist too often denies existence, because he has been deceived by faulty experiments.

If the protein requirements as set for an average sized man are cut to one half, they are probably enough and maybe too much for ordinary needs. The waste materials are so cut and the toxins formed so little that the fibrosis that separates the working machinery of muscle and gland cells from their

vascular nutrition as age advances gets little chance to form, and so the same functional efficiency is seen in the frequent fast, or the meager eater, that one sees in the child. That clarifies the amount of work a laborer can perform on a low protein ration. Our patients lose their fibrosis and often gain the same circulatory advantage. Since the proteins are the sources of the dangerous poisons, they need the most careful watching instead of the starches and fats that we hear so much about as causing the deadly lesions of vascular disease. In fact with a correct protein intake, the natural, unmolested starches, sugars and fats are burned efficiently, yield energy, and leave no residues to cause the lesions they are imagined to cause. One need not worry about cholesterol on a sensibly low protein diet, or so much about sugar or starch, even in some serious cases of diabetes mellitus, for I have seen such instances where the famous experts claimed no help could be given and where generous increase of insulin failed to stop the onward progress of the disease, that a protein free diet so called, as of fruit sugar, honey, vegetables and fruits brought on a steady satisfactory recovery while the insulin was being rapidly withdrawn.

The unwillingness of the "routine specialists" to view the functional insufficiency of an endocrine gland, even when it uses carbohydrate as the substrate for its activity, as possibly due to an error in the utilization of proteins places him at a great disadvantage for he is then held to the routine of aggravating the pathogenesis by a high protein diet. This point should be taken seriously and the real cause of the diabetes in each case should be determined. In some it is a focal infection, in others a diverticulosis in the colon, and in others it can be cancer or syphilis and even tuberculosis. In others it is an anergy where a toxin diverts the energy that should produce insulin into a wasteful channel, or blocks its production all together. When the nature of the toxin is realized, it might be possible to do away with it.

Every diabetic can not throw away the conventional regime and indeed it has saved many a life when rigorously followed. So the pioneers in its development deserve the everlasting gratitude of humanity for their achievement, but that does not mean

that the disease was conquered. For indeed the regime that is approved has never cured a case as yet and every diabetic has died with diabetes under such care.

The best diet is one which in least amount is able to support the energy and growth or repair needs of the body under the circumstances that exist at the time. There are several ways of going about its determination. The so-called scientific procedures require much apparatus and invite serious error. The most reasonable procedure to find the least amount of food needed to keep the weight and strength in good order, is by trial, guided somewhat by the calculated caloric requirements per kilo body weight, and the amount of work done or heat required to hold the body temperature right. Setting-up exercises and weight estimates may be needed and the diet should be protected from contamination by oxidation inhibitants such as the fruit acids that carry calcium and other cations off into the urine. *Too much citric, tartaric and lactic acids should therefore be avoided.* The diet should contain no toxic materials nor should it produce them. It should stimulate digestive juice flow and gastro-intestinal movements, but not overdo them. As we have seen, too much bulk, aside from carrying useless and potentially dangerous protein excess, can also bring about the toxic amine production that inhibits secretion of digestive enzymes and paralyzes intestinal motion.

Too much bulk not only tires the muscles of the digestive tract so they cannot move and expel the contents they should and thus allows for the support of bacteria and the generation of toxins, but the great bulk stretches the walls of the viscera so they are thinned out and the blood supply for any area is reduced. Likewise the blood vessels are drawn out in length and thus reduced in caliber. The result is reduced blood supply again right when the tissues need the best oxygen supply to carry on their work. This relative hypoxia is another factor in producing cancer and gastric ulcer. So while too much bulk provides the conditions and material for toxic amine production, the fact that it occurs and is not withstood by the patient shows that he is sick and also what the pathology is chemically. One must therefore search for defects in bowel structure that favor it mechanically as via a kinked appendix or a diverticulo-

sis. It is here that the toxic amines are produced for the most part.

Structural Defects

There are invalids who are poisoned by the least amount of protein of animal origin. As time progresses this sensitivity increases until they are forced to live on the raw fruits and vegetables, to escape migraines, urticarias and other allergic affairs. The intestinal radiographs showed enlarged gall bladder and a diverticulitis without visualizing the appendix. The sphincter ani and pylori muscles as well as the gall duct muscles tend to be spastic and there are other signs of vagotonia. The sensitivity increases with the increase in the structural changes as time progresses. Obstruction with fecal retention and toxin production is the anatomical cause of the invalidism and with time the resistance to the toxic amines and other products is broken down while the facilities for their production increase. Each diverticulum is an area where the wall has become paralyzed by the action of the amines as we explained before and a local vicious circle is established.

The appendix may by previous inflammation become adherent to the caecal wall posteriorly so it is not visualized on the radiograph except at a late period after the cecum is emptied and as this visualization occurs so rarely one may never find it. This fact alone means that a pocket of obstruction probably exists until proven otherwise. It probably started the diverticulosis, and the latter will not be cured until the appendix is removed. A course of terramycin may clear the symptomatology and permit the victim to go on an animal food spree so long as the colon and its recesses are kept sterile with the antibiotic. But as the liver will not take such treatment for too long, the test carries its dangers. These should be profited by with an immediate exploration and appendectomy while the colon is held fairly clean. This is the logical procedure.

One may while following an animal protein free diet, take the oxidation catalysts of our text and thus get the intestinal wall to win against the diverticulosis, and maybe even get rid of the fibrosis that has bound the appendix in its vicious position, and thus condition it to empty normally. But the adhe-

sions may be too firm to yield, so that surgical removal is required after all.

With removal of the appendix and following a careful diet and use of the carbonyl catalysts one may gradually overcome the trouble and the vagotonia will disappear, the gall bladder will empty and the bile get into the intestine where it can do its work instead of accumulating in the gall bladder and blocking bile production and elimination. The yellow color in the eyes and skin may thus be removed and this easy observation serves as an index to the progress being made during the recovery.

The Quality of the Food

Foods are selected so as to avoid their potential toxin production as caused by bacterial action, favored in the manner discussed above, or to avoid an actual toxic contaminant. The latter may be contributed from the soil as in the case of selenium, or it may be an insecticide residue.

Meats not only supply too much protein for ordinary use, the excess offering substrate for toxic amine production, but they carry other elements essential to bacterial activity not found in fruits and vegetables until the latter became putrefied. Their exact nature we do not know. They are not the vitamins of course, except that we suspected vitamin B₆—Pyridoxal phosphate. This is the co-enzyme essential to the amino acid decarboxylases which produce the toxic amines. D-alanine, pyridoxamine, and pyridoxine serve bacteria in different degrees selectively for production of the energy carrying phosphate even though they are used by higher animals with equal ease. And while the streptococcus fecalis can not decarboxylate without the vitamin B₆ complex as coenzyme, this is not the stimulant that is most important to bacterial prosperity to which we refer. Even the lactic acid bacillus requires B₆ as the phosphate itself, which it alone can use as a growth factor. Of course the energy stored in the phosphate requires work to accomplish this phosphorylation, and ATP plus an enzyme are required for the transfer. Therefore the accessory affair may be a dynamic situation of this kind, one factor being supplied by the meat in greater amounts than it is offered by vegetables and fruits,

while the enzyme may be offered by some germ in the intestinal tract. The value of the lactic acid bacillus may be, not the acid it produces which would favor decarboxylation and the production of the toxic amines by the acidity of the bolus it necessarily produces, but the fact that it can not use the pyridoxal or its amine, and when in great enough numbers will monopolize all of the pyridoxal phosphate the toxic germs can produce through their enzymes and thus starve them out. Bacteria need the phosphate for many of their vital reactions as for tryptophan synthesis from indole and serine, and for its conversion to nicotinic acid, for certain transaminations as well as the decarboxylation of amino acid that interests us. Hence the use of such foods as buttermilk or its products may do good or harm depending on the balance that exists with other factors in the intestine. And not all persons are like. This is indeed the point we are working toward, the analysis of each case as it comes with regard to the animal protein back-ground. So while lactobacillus products may serve in the prevention of cancer in some persons, they may prove very harmful and even rapidly fatal to cases of bowel cancer where obstruction has piled up a predominance of decarboxylating bacteria before such poison producers can be starved out of the way via pyridoxine phosphate deficiency. I have actually seen this injury done by kumyss and sour milk recommended by their enthusiasts.

The best plan is to leave meat or animal products out of the picture except for butter and cod liver oil and honey, and use the better forms of nutrition provided by fruits, vegetables and cereals.

The diet of best quality then will not encourage lactic acid producing germs in the intestinal tract, except the lacto-bacillus in certain favorable instances. The lactic acid producing streptococcus fecalis not only is a great lactic acid producer, but it does so to favor its decarboxylating enzymes, so this is one germ we would do well to get rid of. There are others of much the same significance, and *to block them all we search for bacteriophages* whose natural habitat is the food. We are now examining a certain cheese which shows the desired action at an

early period in its maturation. Such phages are transient in their useful phase of existence. The Lincoln phage used in the respiratory tract may serve as an intestinal purifier, too. At present, it is too early to say for sure.

The intestine is supplied with a great variety of bacteriophages that are active in killing toxic germs. Especially valuable are those that kill the toxic amine producers. Thus the paralytic effects of infections within the colon can be prevented and the energy of the tissues in general is not reduced by the oxidation inhibitors evolved by decarboxylating bacteria. One might say that his intestinal function is as good as his bacteriophage, other things being equal. When the cultures that carry these minute friends of life are depleted, they should be renewed. In the United States, therapy of this type is not generally practiced. However, when one sees the wide and successful use of the bacteriophages, as in Brasil, one can see how they can reduce the demand for cathartics and headache medicines and possibly contribute to the resistance against cancer. Thus the food has a chance to be digested properly and be absorbed as nutritional elements and play its part in the tissue economy as nature intended, instead of becoming serious poisons.

Among the bacteria destroyed by the bacteriophages, the *Escherichia coli*, *Salmonella typhi*, *Shigella dysenteriae*, and the *Streptococcus faecalis* are included. Thus a wide range of protection is offered by the normal intestinal bacteriophages. They can be supplied therapeutically by mouth or enema, to re-establish the normal protection. We believe that bacteriophage intestinal cleansing can be included in our detoxication regime, with the idea in mind that it may be safe for some patients to eat a little meat and drink clean milk in addition to following the vegetarian diet.

Practical observation shows that antiphage changes in the bacteria of the intestine where elimination is constantly going on, is not such a problem as in infected sinuses and focal infection where drainage is impeded.

Any group of vegetables and fruits or cereals that form a pleasing variety offer all the food elements needed if they are prepared correctly, and come from good soil. Good soil is

one with all the necessary trace and gross elements, and without the toxic materials as arsenic and selenium, or the sulphides that may enter as contaminants. *Aluminum of the clay soils as compared with the aluminum-free sandy soils* offers disadvantages too, and for this reason also the whole rye which is generally grown on sand is a better source of nutrition than wheat grown on clay. Orchards sprayed with arsenical insecticides offer a definite hazard, and naturally occurring selenium may so poison the food as to favor the development of cancer. And as we know from experience, it actually blocks the recovery process as instituted by our treatment. Peas, and especially canned peas grown in the middle western states have often been so poisoned and have blocked nicely progressing recoveries many times. We therefore forbid all peas from the diet unless the soil is analyzed and found acceptable. Even at that the protein content is too high to serve people that are not working hard physically, and the same holds for lentils. Our patients require a diet much poorer in protein than peas contain.

The newer insecticides are also poisonous as cattle have died after eating the "cake" left after pressing the oil out of corn, and people have been made seriously sick from the use of the oil. The need of good cleansing is seen.

Corn likewise finds its biggest production in the Middle Western States where selenium abounds in patches as in Ohio and Michigan and it can prove somewhat carcinogenic. Corn oil is found to be so in experimental animals, by E. C. and A. J. Miller, and while no reason is assigned suspicion should be directed here, as well as in the peroxidation of the unsaturated fatty acids it contains. All soils should be held under suspicion until proven selenium free, so serious is this matter.

There are regions where the cancer incidence is markedly less than in others and where good teeth are the rule. Portugal is found to have a low cancer incidence in the rural districts. The diet values are sharply contrasted in such countries as Belgium where the peasants eat plenty of whole rye bread, and the city people eat the white bread and canned foods. Both groups eat meat and cheese, the peasants less, however. The peasants rarely have to see a doctor and cancer is much less

frequent than in the city dwellers whose diets and ills run much like in other cities. The peasants are mostly gardeners and their crouching position at work aids bowel elimination too. They are hard workers and obey the blessing to earn their living at the sweat of their brows.

Protein Food Selection

A word about the protein content of vegetables and cereals is in order, since the popular conception is that they contain such meager amounts that they do not serve the nutrition adequately. The error of this conclusion is evident from the fact that the cow can make enough milk by eating grass or hay to supply the village children with protein and calcium for building bone and muscle, skin and hair, brain and viscera, and still have enough left over to feed her calf. If all this nutrition did not come from the grass or other vegetables, where did she get it? The fleet deer, the strong ox, and the tireless horse and donkey, the POWERFUL elephant lack nothing on the vegetable diet, and neither does man. Compare the protein content of raw beef cuts with rye grain. One pound of raw boneless beef contains 84.5 grams of protein. Beef with bone offers 73.5 grams of protein, and beef ground into "hamburger" offers 73 grams of protein. Rye flour, one cup or 80 grams contains 7.5 grams of protein or roughly 43 grams per pound. Thus it carries half the protein content of an average meat. Nuts carry from 9 to 10 % protein and milk contains only 3.5 %, while liver carries the usual 20 %. Lentils dry offer 25 % protein. Lettuce has 1.5 % and cabbage 1.4 %. So one can choose more protein in his vegetarian diet than is good for him. The fate of the amino acids determines the nutritional value of the food, for if they are decarboxylated and converted into poisons that weaken the muscles and all other functions, not only is their nutritional value lost, but they hinder the functions that are in progress as well. The foods should be well digested and protected from vicious bacterial action so their products of digestion serve as the nutrition they are intended to be.

Proteins should be selected with reference to their freedom from such amino acids as arginin which on decarboxylation yields the poisonous agmatine in an acid reacting colon and in

foci of walled in infection. Arginin is proven by Irons and others to increase cancer growth greatly. Its elimination from the diet they showed discouraged cancer development. We think the agmatine product is the factor at fault. However, nuts, fish-eggs, seeds, should be avoided with other foods of high arginin content. Peanuts are one of these which seem to favor the development of pathogenic germs in the colon and appendix. When roasted they offer a double injury through their burned fat—acrolein content. Foods must be studied therefore in line with the principles set forth in this outline.

Compositions of Ordinary Foods in Proteins

In order to soften the fear that one may starve to death for want of proteins when eating only vegetables, fruits, and cereals a comparison will show that there is no basis for the fear. These figures are taken from tables supplied by the U. S. Dept. of Agriculture and are authoritative. If one compares the protein supplied with the requirement of only 0.3 gms. per day per kilo body weight one sees how stupid it is to overload the metabolism with the habitual amounts of nitrogenous material that are pathogenic. Two big buckwheat pancakes or three wheat cakes at breakfast will supply it for the whole day. One hundred grams of peanut butter supplies 26.1 grams of protein, 100 grams of beef roast pretty well baked dry or roast lamb would do as well, and so would 150 grams of liver, or three quarters of a liter of milk, or 150 grams of rye flour cooked into a porridge or bread. This would be about three good slices of whole dark rye bread, or one fair sized lamb chop, a bowl of pea soup, or a big piece of fish, or a hand full of nuts. On such a diet the protein excretion by the bowel would also be a minimum and in equilibrium with the intake, and the intracellular nutritional pool would be well enough supplied for metabolic purposes while not so great as to invite parasitic invasion.

When one eats apples, pears or peaches, plums, etc., where the protein content is from three tenths to seven tenths percent, one is supplied with so much energy producing carbohydrate that the amount required for a cleansing fast need not be disagreeably large, and could be carried on for many days

before the protein reserve stored in the tissues would be depleted dangerously. Thus fruits offer the best simple means of cleaning house. Bananas give over one percent protein and 30 % carbohydrates as well as much calcium and phosphate and ascorbic acid, and only 0.4 % of fat. They are an ideal energy producing diet. The egg is about the richest all round food there is outside of carbohydrate and ascorbic acid, running about 13 % protein and 12 % fat. It is the ideal diet for the support of tissue growth, including, blood, bones, skin, hair or feathers, muscle, viscera, brains, nerves, and even endocrine glands, and their secretions. It gives for each 100 gms., 54 mgms. calcium, 210 mgms. phosphorus, 1,140 I. U. vitamin A, 0.10 mgms. thiamine, 0.29 of riboflavin, 0.1 mgms. niacin, and 2.7 mgms. of iron. Evidently ascorbic acid is not so essential to early tissue growth but has to do with energy production, as its structure also indicates.

Bran of wheat on the other hand offers, 12.0% protein, 3.4% fat, 4.2% carbohydrate, 7.8% ash, and per each 100 grams, 94 mgms. calcium, 1,312 mgms. of phosphorus, 10.3 mgms. of iron, 0.37 mgms. thiamine, 0.39 mgms. riboflavin, and no ascorbic acid. Thus for an all round diet a mixed choice is necessary and must include fruits and vegetables eaten raw so as to have the benefit of the vitamin C as fully as possible. Apples carry 5 mgms. ascorbic acid per 100 grams, raw asparagus 33 mgms. per 100 gms. and cooked asparagus 23 mgms. per 100 grams. Raw Broccoli offers 118 mgms. and cooked Broccoli 7 mgms. per 100 grams, while cabbage offers about half that amount and lemon juice about the same as cabbage. Meat runs low in carbohydrate and vitamins A and C, zero in fact. There are many tables prepared by different analysts that do not agree very well. Probably the best is Agriculture Handbook No. 8, issued by the U. S. Agriculture Department on the composition of foods.

Relativity and Balance in Diet

In nutrition as in mathematics, everything is relative. We have demonstrated the case for the vegetarian diet that all our patients must start with until their oxidation capacity has been restored to a better grade than was "normal" with them

for a decade or two. Then the animal proteins may be taken, but until accurate measurements of the blood pH values and the Oxidation Reduction potential and oxygen concentration are established, the tests to see if meats may be added by a trial meat meal or two are not to be made. It may be only a month after the treatment that the patient is found in condition to take a little boiled meat or fish, but it may be much longer. The care with which he cooperates from the start will be one determining factor at least.

It must be remembered that when patients come to us, they are in the terminal stage of a deficiency disease. In other words they are in "the red" or far on the negative side of the metabolic balance. **Many cannot even digest a simple article of food and must be given peptic and pancreatic extracts to gain a little start.** Many have to start farther down the ladder than that. They cannot even handle the digested food products after these are absorbed into the blood stream and reach the liver. **The only thing to do with them is to give them a fast,** in so doing a little ability that is not used up will be at hand to make a little nutrition useful. One such case, Mr. John K., a case of cancer of the colon received from the Henry Ford Hospital with his abdomen completely filled with cancer that ate through as large fistulous cauliflower masses all over its surface, who lost from 200 lbs. to less than 113 lbs. in weight, and what he had left was mostly skeleton. After the recovery process was well under way, he started to gain weight so fast that the Henry Ford Hospital in its check up could not believe it. His weight went from less than 113 lbs. at the end of June to over 160 lbs. by the end of August when he returned to work. Thus, though we had to starve him a little at the start, the increase in his nutritional ability went forward in geometric proportions. It should also be remembered, that a patient with "fungating carcinoma of the colon" is not able to consume the large quantities of food a normal person would to maintain body weight and health. That this Cancer condition must be corrected before sufficient food can be taken by the patient to maintain his present weight and build it back to the normal. In such matters one must first fence for an advantage, and then use it,

but not break it down by overdoing it. The Mrs McA. case is another where for a few weeks she gained two and a half pounds a day. These gains were made on vegetables.

Some patients become vegetarians by choice. Later they may eat meat, but it did not appeal to them. They wondered why they had worried so much about it. They soon forget it and enjoy well cooked cabbage, potatoes, and the other vegetables, and not only like them, but feel better, lighter, quicker, cooler, and their perspiration does not have a bad odor either, nor does their breath. They stay free from sickness too and rarely if ever catch a cold and when they do it is of little consequence and soon passes off. Man was made to live on fruit and vegetables, and the sooner he returns to them the better off he will be.

Selection of Fats, Sugars and Cereals

The best fats are those rich in unsaturated fatty acids that have not been processed by reduction to prevent them from becoming rancid, and that have not been exposed to air so as to become rancid. They are toxic when rancid, since the molar peroxides formed and their decomposition products are irritant and can give rise to aldehyde polymeres with free radical terminals that serve as co-carcinogens, much like the overheated fats in which glycerol is converted to acrylic aldehyde polymeres with free radical terminals. Such fats are indeed stimulants to cancer growth as 40 years of experience in medical practice has convinced the writer. Overheated fats are not allowed and slowly oxidized fats are likewise not allowed in the diet we recommend for the reasons just stated.

The value of the fat as a protective agent lies in its unsaturation and this must be protected by not being exposed to air. Corn and peanut oils are naturally of this type but they do not always get the protection of being pressed out with air exclusion and during packaging as olive oil does. Yet they should as corn oil has been shown by the Millers to be slightly carcinogenic while olive oil is somewhat protective. The selenium content of corn oil may require consideration too. Therefore if fats are eaten they should be cooked by boiling in water, and olive oil containers must be well stoppered and

not too large so that exposure to admitted air is the minimum possible. Lard and all rendered fats are overheated and contain the co-carcinogenic acrylic aldehyde polymeres. And eggs fried in bacon, sadly enough, must be looked upon askance, unless one is on a hunting or fishing trip where physical exertion is plentiful. The Portuguese who use olive oil freely rarely have cancer and generally have good teeth. They protect the oil from injury by air or other exposures.

The saturated fats as produced by reduction may not be a bit carcinogenic. But they do not protect from cancer and germ toxins either as do the unsaturated fats. The process of oxidation starts coupled oxidation chains in the toxin and fuel materials that carry their combustion. Therefore it has long been observed in our practice, that members of the family that ate fat meat escaped the tuberculosis that those who only ate the lean at the same table were subject to. The Eskimos also escape cancer, it is supposed for the same reason.

The selection of sugars brings up a few questions too. We hear how white sugar is the root of all evils. I have never been intelligent enough to appreciate this, and except for the fact that if any bleach material is retained to do harm, the sugar is otherwise harmless. The fact that it is purified and the best part of the cane or beet juice is thrown away, is a big point against it. The brown sugar or molasses is therefore a superior food. But they carry also the ability to stimulate bowel activity and perhaps also some antibiotic values that protect the intestinal contents from harmful bacterial changes.

Cereals are all good. Rye is maybe the best as it is grown on sandy soil and its silicon sun activated products in the bran are oxidation aids of value and maybe for this reason the black rye bread eating peoples are far more efficient and free from cancer and live to a greater age than the white bread eaters. Right in the colon where the vanguard of disease is brewed, they can manage their detoxications and protect all the tissues from damage from intestinal products that kill. Sand soil does not contain selenium as does clay where wheat is grown.

Food Preparation

Other factors are to be considered with regard to cereal

selection, and preparation. One that is most important and always neglected maybe, is the grinding into flour fresh just before using. Among other reasons, such as protecting the fats from oxidation outside the body, the oxidation of vitamin E can prove a danger, and as vitamin E is a poor quinone when oxidized it can displace a live quinone which can do service in the tissues which the oxidized vitamin E cannot do. Medicines with this material we believe are a potential danger too, and one should get his vitamins fresh from the grain like he should its other products as he would if he chewed it to swallow. But not being able to do that he can use a grinding machine and immediately bake the product or cook it into a porridge. The finer it is ground and the shorter the time of heating the better. It is likewise better to use freshly ground bran.

Such precautions are logical in view of the chemistry of vitamin E. It is one quinone whose physiological service does NOT follow its oxidation powers. Thus its physiological activity is proportional to the methyl substitution in the quinone ring, while this substitution lessens the dehydrogenating activity of the carbonyl group even though it contributes electrons to the double bond. Thus the physiological activity is greatest when the oxidation powers are least. This holds for the oxidized form which may then substitute for an actively oxidizing quinone and so exclude valuable quinone action from the metabolism. Its function is of course to protect mature rats from placental atrophy and fetal absorption, and to prevent degeneration of the spermatogenic tissues in the male. In certain animals its deficiency causes a condition resembling multiple sclerosis in man, but the vitamin has no curative action in man, afflicted with this disease.

The cooking should always be done with as low a flame as serves efficiently. Thus volatile flavors are not lost so rapidly. While some foods cooked in aluminum ware taste better than when cooked otherwise, still others have a better flavor when cooked in stainless steel or pyrex. The latter is the best as no chemical reaction takes place between the vessel and the material. A good brand of stainless steel has much the same advantage. The solubility of aluminum in water, diluted acids and alkalies, make it become a part of the food. It

may readily react with the food in more than one way, and some students of the subject have condemned it, bringing forth many convincing examples of its harmfulness even to healthy persons. It does disturb the calcium and phosphate balance, and it may be harmful in paralytic diseases. Whether or not it plays a part in the increasing incidence of Infantile Paralysis I do not know. Some say that the use of aluminum has to do with the greater prevalence of cancer. We do forbid its use by our patients however as a safety measure. This may be one reason patients under strict observation and care do best. To preserve the wonderful cooking advantages of aluminum, it should be made into an alloy that is insoluble.

The Fast

One amusing means of classifying one's patients is their reaction to a sudden suggestion to fast for a while. The resentment may be exhibited in some as a sort of "shooting in self defense" response, while a critical laugh, of "do you think I am crazy" may be the response of another. However when the purposes and advantages are understood, the task is undertaken quite eagerly, and more than one big league ball player reported better efficiency following it. The fast need not be absolute or prolonged. In fact it should be only a change in the process of nutrition and the word "fast" should not be used at all as it is not accurate unless actually an abstinence from all food except water is undertaken. Only in rare instances and for a few days is such a drastic affair required. The word however offers the "victim" a flattering sense of self control. Some essentials for nutrition must be provided, as the trace elements and vitamins. One may add some soda bicarbonate, and an intestinal disinfectant as camomile tea or one of the Brazilian herbs which do such wonders. Another plan is to just eat watermelon as much as one can eat with comfort to sweep the tract clear while avoiding other foods. This too is a little diuretic. When fruits come in season and are at their best they may be eaten exclusively with benefit, provided they cause no special harmful symptoms. This holds also for a big meal of strawberries for those who find them agreeable. Alpine Preizel berries are famous for some protective action, and so a selec-

tion of food when its season is at its best, while abstaining from known insecticide poisoning, will bring the turn for the better by elimination of toxin production and perhaps even changing the intestinal flora. The fast may be made on apple juice. The apples should be well washed to remove all insecticide deposits, and hence soap and brush and water should be employed generously. One may drink all he wishes unless he is a severe diabetic and then he can increase the amount as the oxidation inhibitors are washed out from the intestinal tract. The enema with a teaspoonful of soda to a liter of water may be helpful here too, and for the same purpose. Molasses is somewhat antibiotic and a stimulant to peristalsis and could be used in the enema too. Honey serves both effects as well. After a day of slight headache hunger leaves and one feels rewarded in his lightness and speed, and his clearer thinking. Food should be taken gradually when the fast is broken, and the sensation to quit eating when enough was had will come again. It should be heeded and developed.

Dietary Regimes and Remedies

Various dietary regimes have been put into use to overcome the intestinal intoxication that breaks the way for disease. The grape cure, the cabbage cure—all have had their adherents. Tartaric acid is not burned in the body and it combines the important tissue cations and takes them out into the urine. The loss is serious. All the acids which lower the pH of the intestinal contents are also augmentors of decarboxylation of amino acids and its toxic amine production. Grape and sour milk regimes are therefore dangerous when overdone.

The fast or the comparative fast, using enough powdered chalk to cut any excessive acidity from the fruit, is reported to give the best results. A more rational development of such procedures is the William Howard Hay diet. The Hay idea was to not mix the proteins, fats, and carbohydrates during any one meal. Take starches at one meal, proteins at another, etc. Thus he reduced the dilution of the enzyme that was to do the main work, and kept the bulk down. The Arturo Guzman diet is much the same; but Guzman emphasizes the need to not dilute the food with too much water, and to suspend drinking till an

hour before the next meal. The selection of dietary articles that go well together was also emphasized.

The Kellogg diet was well propagandized and supported by sanitarium facilities. But I could not see the advantage of the sour milk products, in view of the harm that has definitely been done by such a regime. So my own idea was the simplest possible. Follow the Hay system of the monodiet in a sense—but as it is provided by nature, vegetables at one meal, and fruits at another and cereals at another. The latter carry the high protein fraction and beans could be taken then with the black rye bread, too. Then the seasonal spree on whatever is in season and at its best—as a few days on watermelon, a few days on peaches, and when apples come in give them and pears a whirl, and the same for the berries. If one thus follows what nature provides as the wild man would get it in the woods, he would not miss anything either so far as fun or benefits are concerned. One should eat generously for the first day or two, which would serve as a replacement exercise. Raw food including raw potatoes, radishes and apples with their oxidases, give the intestine a purification that it occasionally requires to prevent intestinal poisoning from popping up or staying chronically. Probably a retained typhoid infection is at the bottom of many such cases. The antibiotics that are intended to serve as sterilizers of the intestinal tract have enjoyed their best success in the acute case, but in chronic cases they are temporarily successful only and the aftermath is the persistence of a more resistant and toxic parasite than before the antibiotic was used. I congratulate anyone who has seen better results. Besides, liver damage is often too great, or there may be a mental injury that does not pass off too easy. Simple household remedies as sulphur and molasses should be studied bacteriologically to learn the reason for the prolonged duration of the good they accomplish. It may be traditional, but some old women with progressive arthritides have enjoyed their sulphur better when mixed with a little gin, and think what one may, the benefits they enjoyed have stretched out for decades. The intestinal flora seems to lose its viciousness when confronted with sulphur flour dealt out in that way. *Calomel*, the most denounced of all remedies, and maybe justly at times, still was

in use popularly when cancer was a rare disease. But now with much cancer and no *calomel* one wonders if after all it was not one of the best intestinal antiseptics, and hence a preventive measure against cancer.

Then there is the difficult but miraculous system of Homeopathy. Think of a doctor differentiating between thousands of remedies to find the exact one that is needed to secure a real cure in a particular case. It often took days in the chronic cases. Yet Homeopathy must be revived if we are going to send better physical specimens to the army, and in much higher percentage than we can now. Science has not yet reached the state of development to understand it. Still it offers the best service sufferers from liver disease can receive. When the correct remedy is chosen the response is often miraculous. The writer has never received homeopathic training except what was self-imposed after becoming envious of the results Homeopaths obtained in cases of liver disturbance where no allopathic approach was even to be dreamed of. Fine shades of distinction in these complaints made it possible to adapt the treatment with the same accuracy that a key fits a lock. Allopaths cannot understand this.

With good digestion and elimination and a non-toxic regime, one has little chance to get sick at all, even the common cold finds no soil to take hold. The vascular diseases stay away, and remarkable efficiency stays with the subject even as the years go by. When the digestive powers fail, *pepsin*—*pancreatin* will help. Since cancer is a secondary development, its prevention follows the cure in the true sense of pre-existing diseases by the proper Homeopathic remedy. Cancer was much less prevalent when the diseases of youth were cured by Homeopathy instead of suppressed and allowed to go chronic through faulty treatment. Homeopathy eliminated the basis for the disease and so the cure could be complete instead of hanging on to brew the toxins that cause tissue atrophies and neoplasias as we have described them. The future is bright with the recent revival of this wonderful science. Now that the mystery is taken out of the high dilutions it employs by the recent advances in isotope chemistry and their investigation as used in

Homeopathic potencies, many vague phenomena receive a physical basis which invites an intense therapeutic interest.

Decades ago we observed that with the reappearance and reversal of the symptoms of the pathogenesis as the cure process advanced, that the final symptoms that returned as the cure was just completed, gave a drug picture of a remedy which could have been used to really cure an acute infection. But under allopathic care it was not given. The pathogen therefore remained to evolve a long pathogenesis that ended up in cancer. The reversal of the affair by our remedy cleared the whole procedure from the system and showed in the final symptomatology of the cure what Homeopathic remedy would have cured it years ago in the first place when it started had it only been given then.

During the highly fatal epidemics of Influenza of the First World War the Allopathic treatment was used mostly. The death rate was about 46% under aspirin and whiskey, according to the U. S. Public Health statistics. These also showed that the Christian Scientists who used no medicine, not even a cathartic, only had a death rate of 3.5% while the homeopaths had a death rate of from 1% to 1.5%. These statistics were collected on many thousands of cases and covered the whole country.

DIGESTIVE AIDS

Bowel Cleansing and Catharsis

All foods are a mixture of protein, carbohydrate and fat in varying proportions, with one or two of the three, fading out to zero proportions. Thus bananas for example, carry much carbohydrate, small amounts of protein and no fat. Meat carries much protein, some fat and no carbohydrate. But man eats by habit in such a way that the heavy protein foods are taken first, and if a carbohydrate is desired it is taken last. It appears that the Creator arranged the digestive process to accommodate this habit, as the shape of the stomach and position of the acid pepsin enzymes for protein digestion provide. Thus when protein food is taken first it is deposited in a layer against the wall of the sac or fundus portion where it quietly lays undergoing the action of acid and pepsin required for the first

steps in protein digestion. When this change is accomplished the liquified product is allowed to flow onward into the duodenum where the digestion is continued in an alkaline medium.

The food is not churned about as in a mixing machine as was taught for so long. The carbohydrates which require an alkaline medium to start their digestion by the ptyalin of the saliva are taken last and deposit on top of the protein layer where digestion progresses without being hindered by being mixed with the acid secretions of the stomach wall. Since ordinary eating habits also include eating meat and potatoes at the same time and an antagonism is set up which is mutually hindering to both protein and to carbohydrate digestion, Dr. Hay recommended that each meal should take but one variety of food. One meal should consist of proteins, another of carbohydrate and fats, and thus hindrance is reduced to a minimum. The results of his system have been very satisfactory.

However even on a most rational diet the problem of elimination of waste products may be difficult as the result of some old typhoid fever infection or the obstructive tendencies of adhesions following an old appendicitis. The subject requires deep study in many an invalid therefore.

Elimination

One of the greatest problems the invalid has to face is to get rid of the debris left over from the digestive procedure before germs are able to convert it into food material for their own prosperity while at the same time converting it into the very poisons that are making the person an invalid. The amount and condition of the debris will depend upon the thoroughness of the digestion process and this will depend upon how it was started in the first place. Therefore thorough mastication of the food is required, and the time allowed for eating should be generous in proportion to the amount taken. This we have shown must be a minimum amount and not the maximum as is the usual habit. When the work of the stomach and small intestine have been the best, the amount of debris to support bacteria will not be greater than the bowel can get rid of in good order. If under those circumstances there is hindrance to the elimination, one must find out what it is and correct it.

Worries, nervous tension, and the habit of not heeding the call of the bowels to evacuate, may set up a stubborn constipation. The obvious cure anyone can figure out. But to make sure, let us say that attention to the call must be practiced liberally even if a cathartic is needed to get things going again. The enema may be used to the best advantage here as is required until the habit is re-established, and to do this the scheduled trips to the toilet are required as were taken before the neglect was permitted. The enema must not displace the effort to move the bowels naturally, but should supplement it.

Intestinal spasms especially at the several sphincter muscles tend to block the onward progress of the bolus. At the same time a paralytic sort of relaxation of the musculature of the body of the viscus makes matters worse. Both features unite to constitute a reflex which is normally designed to keep the organ quiet to accommodate healing as when our cancer cases with bowel involvement are undergoing healing. The situation is troublesome until the healing is finished, and the enema at this time may be a daily necessity for a while at least.

So when the patient blows up with gas after a meal, there is some reason for the bowel to relax. It may be the need for a rest to survive from too hard a task, that is too much has been eaten day after day. It may be that an obstruction has made the bowel tired in trying to force the material through. It may be that the undigested food material is offering the germs the chance to produce so much toxic amines that these act on the muscle cells to paralyse them by blocking their oxidations as we described above. The sensible thing to do is give the bowel a rest, by a fast or by eating very lightly or just going on fresh vegetable or fruit juices for a few days and washing the bowel out with a mild soda solution. One must also look for an obstruction if the condition persists. It may be due to adhesions causing a kink, or due to a tumor. Sometimes an ulcer will cause the reflex to give the part a rest to accommodate healing. But when the bowels do not empty completely and the retained material accumulates until a cathartic must be taken, gluttony is the general cause for the constipation. A radiograph may show what is wrong and if the poisoning comes from material retained in a diverticulosis or a kinked appendix.

The choice of a cathartic is a serious matter as is its use. When necessity demands it there is no sense in putting it off. But after the evacuation is obtained, the cause must be corrected. *Milk of magnesia* is an easily available and good remedy, as is *sodium citrate* or *sodium sulphate*. In cases of heart disease the magnesium ion may be a disadvantage and *sodium citrate* or the *sulphate* should be used. The amount taken should be large enough to do a thorough job of clearing out the debris and the cathartic as well. Castor oil of the olden days was as injurious as the taste threatened it must be. It blistered the bowel inside after it reached an alkaline intestinal medium where it was split into its blistering components. All the other irritant affairs like cascara, aloes, and senna act the same way. They ruin the bowel.

The enema taken with patience is the best procedure. The water should be warm as one has during a high fever, about 42° Centigrade or 108° Fahrenheit. This temperature relaxes the spasms that may otherwise make the entrance of the fluid difficult. The pressure must not be too high either as it can excite a reflex to expell it. Therefore the position of the body, the height of the water bag, and the most favorable temperature need to be ascertained and adapted to each patient for the most comfortable and easy passage of the water into the colon and through it over into the caecum, where the worst putrefaction generally is found. To aid this process and provide more comfort and less spasm one may use a tampon about the tube that is inserted into the anus. This tampon should surround the tube about four centimeters below its tip so it can be pressed against the external sphincter in a way that prevents the loss of fluid. Thus the muscle does not have to be contracted to retain the water, and the effect of this relaxation is felt throughout the whole bowel, and lessens the tendency to other spasms throughout its length. The tampon can be made from a cork. A hole is bored through it to accommodate the tube, and it can be rounded off so as to not prove painful. A solid small rubber ball could be used if one can secure a cork bore to cut the passage through it. Before inserting it into the anus, it should be lubricated with some oil as olive oil, or one of the vegetable fats used for cooking. *Vaseline should not be used* as mineral oil

products are sometimes carcinogenic. This has even been demonstrated for mineral oil sold as a laxative.

Avoidance of coffee, chocolate, meats and even teas with high tannic acid content are rational adjuncts. The use of fruit juices freshly prepared and a solution of *calcium carbonate*, *potassium and sodium carbonates*, in small amount afterward to neutralize the excess acidity of the fruit is rational. After amines have poisoned the bowel wall, the musculature may be depleted chemically so as to not produce the energy required for the work of moving the bolus along or forming secretions. In this situation the trace elements may be a distinct help, as the *homeopathic 12x*, of *copper sulphate*, cobalt, tin, zinc, and manganese. At times the 30x tablets work better. They dynamize the oxidation catalysis in many directions and help the energy production required for muscle activity and secretion by the intestinal tract. Such electron transfer agents serve oxidations.

Constipation is in large measure due to liver insufficiency, and this is recognized in one of the favored treatments with bile salts, Taurocholic acid and Glycocholic acid salts. After liver shock by various chemicals one meets in some laboratories, or by virus infections, the support of liver function is needed, and the extract of its detoxicating principle is of value. Several are on the market that contain some of the bile salts and these help the intestinal function when the liver fails to respond to ordinary catharsis.

The carbonyl catalysts improve liver function immediately in most instances. This is seen in the efficiency of bowel emptying, the improved color of the skin and sclera. The intestinal musculature no doubt shares the improvement in function, as do other tissues of the body.

Finally muscular work and lack of worry and plenty of sleep, and even the after dinner relaxation and nap may be essential. The exercises given in army training are all good, and especially the crouching and the hopping butterfly affair do good when all other measures are not sufficient alone. Gen-

eral directions can only be given here as each case must be studied on its own merits and needs. Practically every case in this category requires pepsin-pancreatin remedies with each meal.

Fads

Fads in diet have their value. They teach us the meaning of error on a large scale. Surgery has its same fads. Appendectomies were a bonanza a few decades ago. The escape from gastro-intestinal and other diseases followed in grateful numbers. This fad should never have been discouraged. Ovaries are easy to remove. Healthy ovaries were taken out by the bushel, and race propagation was injured in geometric proportions. The victims were converted into chronic invalids, predisposed to cancer, and made fat in an ugly way. Their lives were ruined and most of the surgeons knew it. Yet it taught much in metabolism that is useful today. Then the draining of the gall bladder was presented to the public. What was done was to collect the bile that had already entered the intestine. No catheter could possibly enter the common bile duct when introduced through the patient's mouth. Still it gave useful information as to the alkalinity of the duodenal secretion with which the bile had mixed.

From this fad much was learned about the emptying habits of the gallbladder. We even thereby changed our old notions as to how this organ behaved. It was learned that the contractions of the caecal end of the colon influenced the gall-bladder emptying and the "muscle sense" which served the digestive needs, could proceed without intervention of nerves. The whole interaction is so finely adjusted and incomprehensible even today when we consider the digestive system as a unit, one must marvel at the wisdom which created the adaptability that performs so wonderfully minute after minute whether we respect it or not, and while we have no inkling of what is being done for us. Therefore when the physician requests a little attention to diet as a situation may demand, the patient should not revolt, but be grateful for the knowledge he is putting into use.

CARCINOGENIC INJURIES

Physical and Chemical

Almost twenty years ago the International Cancer Congress held at London received the proposal from certain leaders in cancer research, that the industrial carcinogens should be described and exposed so that the death toll from that source could be stopped. However certain industrial interests were represented in the membership whose fiscal policies demanded that the subject should not be even touched. Since the death rate from cancer is becoming so very serious, leading clinicians like Pullen and Ochsner are adding to the warnings of Ewing regarding the practical carcinogenic influences, as the rough physical examination, the biopsy, and cigarette smoking. To take a biopsy is very much easier than studying the clinical facts at hand and correlating them with the physical findings so as to arrive at a surer diagnosis by harmless and instructive means. "Instructive means" will reveal the facts of the pathogenesis which show how the disease developed and what its initiating factors were, and hence what should be done to combat the very foundation of the trouble. One knows then too, how to estimate the recovery progress under treatment from the basic facts.

For a long time the biopsy in the diagnosis of cancer was claimed to be harmless and not likely to disseminate the disease. At the 1954 International Cancer Congress held at Rio de Janeiro, it was finally admitted that the biopsy was harmful and dangerous in spreading cancer. When a physician knows his gross pathology he can regularly diagnose cancer without the aid of the microscope in any case that is established, for the infiltrations and metastases are evident as well as the characteristics of the tumor. The greatest diagnostic authority, James Ewing stated that "the resort to the biopsy was an admission of lack of knowledge." This of course could be due to insufficient information in any particular case, or it could be the inability to interpret the information that stared one right in the face. At any rate modern diagnosticians with courage are breaking loose from the old surgical dictum that the pathologist must make the diagnosis for the physician,

This is fine progress of course since the *pathologist* is an *autopsy* expert and the physician should be an expert on the manifestations of life, both normal and abnormal.

In the very early accessible forms of cancer as in the breast or a lymph node in the neck, groin or axilla, the whole growth that is visible can be removed and sectioned for the microscope. There is an advantage in that the cancer cell groups that are cut are the long strings or sheets that are invisible and so much of the neoplastic cells are not shoved into the lymph spaces as when the incision is made into the tumor itself. Such early growths may appear easy to remove fully, but in a matter of weeks one knows differently, and the microscopic study predicts the events that are on the way. Complete removal of the breast may indeed get the rest, but one cannot count on it as from 15% to 30% of even the smallest breast tumors, as one centimeter in diameter, are found to have spread to the inside of the chest before the operation was done, so the skill and diligence of the surgeon is spent with the odds against success.

After the characteristics of malignancy are established, the greatest care should be used to not injure the tumor or its surrounding tissue. Pressure will shoot malignant cells into the lymph and blood streams and make the disease general, so as to weaken bones till they fracture and fill the lungs so the oxygen supply is cut down. This is indeed a most unfortunate event, as the recovery depends primarily on the chemistry of oxygen as we have demonstrated above. After a growth has so developed as to distort the shape of the breast or of the viscus it invades, one can make a diagnosis from its changes in shape with change of the position of the arms and the way the breast hangs on bending forward or to the side as the result of the attachments made by the infiltrations. To make the diagnosis sure even without touching the patient additional information from the history may prove sufficient. But the texture revealed by gentle palpation will disclose the nature of the infiltrations and of the metastases, making the diagnosis firm without a biopsy. From these data in the gross pathology, the microscopic

characteristics can be described by one who is expert by experience.

The initiation of neoplastic change in a tissue as we showed, depends not only upon the toxin or virus that enters the neoplastic act, but upon the injury to the deeper circulation that supplies the tissue. Thus a fairly wide source of blood supply should receive obstruction so that there is a central area of anoxia established where the malignant change can get going. We called attention to this fact in "Cancer and Its Allied Diseases" in 1926, and the fact is now beginning to receive confirmation. Hence the blow with the broom handle or the heavy object that injures the breast causes the anoxic area where virus and toxin can go to work. But when the tumor is already started the blow need not be more than a moderate touch or squeeze or pull. The anoxic area is already there and rupture of the very fragile capillaries causes an infarction which gives the neoplastic agent the balance of power so to speak and it can then run away without any hope of natural control. I have seen young women with lumps no larger than an English walnut, that an expert would diagnose as absolutely malignant, make the rounds of a few surgeons for their opinions and after each had squeezed and tugged on it to his satisfaction the patient in each instance became afraid to return for the operation and so in eight weeks instead of a walnut she had the breast eaten off and the whole chest including the other breast involved with cancer and the lungs so full, she could not recite the A.B.C.'s without fighting for breath between every letter that was spoken. These surgeons were in the game for decades and should have known better, and they did. The danger one faces in looking for advice is another phase of the cancer problem—a personal one however.

A woman must protect her breasts from tight corsets, and from any injury or pressure that interferes with the circulation. If a blow is sustained the part should be immediately very gently massaged, and an arnica tincture or Witch-Hazel applied. Warm packs, not hot however, may be applied but not so as to produce pressure. The bowels should get a good cathartic of some salt and not some mixture of aloes, cascara or other

irritant—"Milk of Magnesia" in generous amount so a complete evacuation is had that keeps up until the bowel is empty. At the same time the magnesia gives an alkaline reaction that stops the toxic amine production. There should be a pure fruit and vegetable diet for a month or two, and no peas, lentiles or any form of animal food admitted, no tomatoes, perhaps. Vitamin C, as in berries, apples, etc., or taken in crystalline form with riboflavin, niacin and thiamin. Thus the factors that would settle into a malignancy have been given a battle against which they will very likely not win. The woman should never smoke, and if an injury should come, any carcinogenic agent as *smoke, coffee, burned fats*, etc. are to be eliminated.

It is also necessary to protect the body chemistry against the sulphides, as the sulphidryl group readily adds to the double bonds of conjugated systems of carbonyl and ethylene, and thus inactivates the tissue oxidations somewhat similarly to the cyanides. Sulphide injures the oxidation catalysts, and hemoglobin as well, and thus blocks the transport of oxygen. Sulphides in drinking water, or developed in the intestine by bacterial action on proteins of animal origin antagonize the defenses against cancer and all other diseases. The importance of pure water and correctly selected foods should be plain. Coffee owes its nice flavor to the sulphidryl group in an aromatic complex. It causes arteriole spasms and necrotic degenerations in the stomach wall. One can drink warm water flavored with molasses and fresh cream, and find this substitute to serve very nicely.

Hot drinks cook the inside of the stomach and oesophagus cause scar tissue formation that ruins the vascular supply. This gives the neoplastic agent its most favorable chance. So first test what is eaten or drunk with the outside of the lips. Here the heat and cold fibers are present, whereas in the mouth they are almost absent. Trial will show. If the outside of the lips find the temperature good, one can go ahead and swallow.

THE SELECTION OF THE CASE

It is evident that our clinical tests or demonstrations have been made on cases that are classified as incurable. It is logical that the most basic catalysis in vital chemistry should

be investigated in such cases. However there are secondary changes in advanced cases of any disease that will determine the outcome, even though the basic fault has been corrected by the treatment reagent. So an important part of the analysis of the case should be to determine the presence of such factors that could bring defeat, even though the fundamental pathology has been corrected. Such questions as the following have arisen. A patient of 55 years of age has a history of 15 years of cardiac insufficiency, with several serious infarctions. The aorta is dilated and elongated so as to cause considerable cough, and some difficulty in swallowing. The effects of the anurismal pressure on the trachea and oesophagus are pictured in the radiograph, and the presence of considerable thrombosis is also indicated within the aorta. Areas of calcification of the wall and its weakening are evident. The patient is under sedation to control the cough. The auricular beat is too frequent for counting running well over 200 per minute, and the ventricular beat is 97, irregular and weak. There is some air-hunger. There are other evidences of a depleted survival factor, a destructive lesion on the foot, diagnosed as cancer for example, and excessive adiposity. The question in such a case is would the improvement in the oxidations that is necessary to dispose of the toxins that brought on the vascular lesions give the myocardium such a boost that the systole would be strong enough to rupture the aorta, or loosen up some thrombotic material and cause a fatal embolism? We have seen it happen. The danger was recognized and explained to the family, but death was inevitable and expected very soon, and the desire was to have the treatment even though it was evident that several months would be required to heal the aortic lesion enough to withstand a good ventricular beat, and the indications were that the accident must come before that.

Another matter important to the selection of the case and the guess at a prognosis is the patient's ability to use enough oxygen not only for his ordinary needs but also for the increased demands for oxygen required by the recovery process. When a patient is in an oxygen tent before the treatment is given, the chances are that the vital processes are already suffering

from hypoxia, and the causes must be investigated. The lungs may not be able to take in enough air for ordinary use. This may be due to pleuritic effusion, pulmonary infarction, bronchial obstruction, presence of tumor tissue, hemorrhage into the air space, etc. Then there may be obstruction to the circulation that should carry oxygen laden blood to the tissues, as by thrombosis, tumor pressure, etc. The blood itself may not be able to carry oxygen in sufficient amount, due to hemoglobin failure, weak heart action, etc., or the tissues may not be able to accept the oxygen as when their colloids are gelated. Then even if oxygen is received in good amount there may be an absence of oxidation catalysts in the amounts required. Any of these defects could prevent the recovery process from getting a sufficient start to reach "first base." The prognosis is bad in all such cases. If the hypoxia is due to great displacement or by pressure by a tumor that has been irradiated, and the mediastinum is involved, myocardial injury is expected, and the chances for success are about zero. Cases of that type could be cited. It simply needs to be remembered that since the success of the treatment depends upon the improved use of oxygen, its accessibility should be assured at the very start. Patients have done well though the hemoglobin was less than thirty percent, but these were uterus cases where the tumor mass was not enormous and a good deal of the anemia was due to hemorrhage, and as soon as the treatment was given the bleeding stopped. Cases with enormous chest involvement that require the oxygen tent offer a poor prognosis.

Irradiation, if heavy, will never permit a real recovery. It is given because it blocks the traces of oxidizing power a cancer cell still has, so the cell dies or is badly inactivated for a while. The cells that survive rally in time however and are more malignant and quite resistant to the irradiations. In the meantime the irradiation reduces or destroys the oxidizing power of the normal cells and reduces them to the cancer class in this respect. They lose their protective carbonyl group activity and are open to integration with any carcinogen that comes along. Besides the irradiation has a general toxic effect that injures the bone marrow and reduces red cell production, inac-

tivates the ultra cell structure that conducts the highest type of oxidations that determine cell differentiation, and hereditary transmissions that provide for the coordinations of function for the tissue economy, and for race advancement and survival. Thus the offspring of radiologists are defectives ten to a hundred times as often as the children of general practitioners. And the radiologist himself shows the injurious effects of his frequent but minute exposures in a decade or two.

Necrotic bone produced by the irradiations is a secondary center for further irradiation that destroys more bone and induces malignant change in the soft tissues near-by. As the bone dies it becomes radioactive too and carries the destructive process forward without termination. When bones of the head are so affected the brain receives fatal doses of irradiations and edema is induced that may end life very suddenly, or with a prolonged mental torture that should be mentioned because of its religious significance. Occasionally we have had cases of cancer of the lower jaw with the adjacent soft tissues of the face and neck involved, where we have observed after careful attention, that the necrotic bone sequestered and eliminated itself in several pieces, leaving the soft tissues apparently healthy and healed. No further bone necrosis took place in the period of observation (5 to 8 years), but the ultimate outcome could have been a disaster in each such case. Careful watching was necessary and the carbonyl catalysts were repeated at properly chosen intervals. This is rather difficult too since the irradiation effects mask the reactions, and one scarcely knows where he is at in the recovery process, so that the most careful conduct of the case includes a lot of careful guessing. Many histories and photographs could be presented to illustrate the different phases of this chapter, but nothing more would be achieved than this summary presents.

There is a phase to irradiation that is never mentioned. The radiologist of the past decade or two used to report in the authoritative Radiological Journals his cure of high percentage of cases. He reported on the first shock effect of the irradiation which looked like improvement. The later effects, the real results were in these very cases very different from what he

reported. He probably never saw the cases again and did not know their fates. But in addition to the situations that are mentioned above, another is to be observed which the radiologist watched with alarm, but such cases are not mentioned either so far as I know. They should be reported as part of a general biological effect much like the adaptation of a germ or virus to an antibiotic agent. The effect must be distinguished from the production of a new neoplasm of high resistance to irradiation right in the area treated. Most such new growths are bone sarcomas with rapid fatality. But the change we have in mind is the conversion of a neoplasm itself from one, that seemed to disappear under the shock of irradiation, into a tumor that thrived on further doses of irradiations. The energy of the treatment went into the process of neoplasia. This is one clinical observation that argued for the interpretation of the energy transfer into the mitotic chemical reactions as a photochemical affair. Normally we suggested that the energy of exothermic reaction going on in the field were picked up by the carcinogen and transferred to the chemical processes of mitosis at a rate optimum for its acceptance and stimulation of the neoplastic chemistry (Natural Immunity, Koch, 1936). This is however, an interatomic affair. It seemed to the writer that the intra-atomic damage of irradiation resulted in secondary changes at the inter-atomic level where energy was let loose that the carcinogen could make use of in this way, that is by its fluorescence. Later, the British and French cancerologists measured the fluorescence they identified as responsible for the carcinogenic property in coal tar and synthetic products. The writer was criticized by the A.M.A. Journal for stating that the cause was an organism, invisible, and carrying many of the properties of the syphilis germ. Even though there was no microscope of anything like the electronic type to identify the germ, yet the clinical facts proved the infectious nature of cancer, and we hold that the organism was responsible through a ligation with the host cell that permitted the transfer of energy from exergonic processes aroused there, into the mitotic processes as a continuing change. Today it is demonstrated that a virus that can cause cancer is a few thousand times more re-

sistant to irradiation than normal or cancer cells. So at least it has a chance to carry the process from dying cancer cells to living normal cells, or to cells already changed to cancer cells. The disintegration of highly built structures of the cancer cell whether the result of irradiation or of necrobiotic changes caused by a carcinogen of synthetic type, yields energy and this is what we hold the carcinogen transferred at a rate optimum to the neoplastic job. The disintegrations of the tissues in syphilis could easily lend themselves thereto, and it is hard to tell where the syphilitic change left off and the carcinogenic change started. The Journal of the A.M.A. should have been a little more lenient, and thus would have avoided the disrepute their hasty criticisms have merited. Further they criticized thirty years ago when there was no biochemical advice to direct them, and no biochemical theory to support or oppose. Cancer matters are far too serious for such extravagances.

As experience grows with this therapy other interferences that could prevent success will be learned, and the status of the patient before treatment of interfering types with that afterward will be a guide of some value.

CHAPTER XV

THE SOCIOLOGICAL SITUATION

The high incidence of cancer among babies is a subject for concern. In our book, *Cancer and Its Allied Diseases* of 1926, we predicted the time when cancer would predominate among those who had not reached puberty in a way that would threaten race extinction. Today we see cancer as one of the most frequent causes of death in children, whereas forty years ago one saw a case of leukemia or of hypernephroma only rarely and it was the sole neoplastic disease seen in children so far as I can recall aside from a rare retinoblastoma. Today children and young adults are the victims of rapidly fatal neoplastic disease in many of its forms. Since the oxidation mechanism has demonstrated its protective and curative features, the cause for the breakdown before the rapidly advancing cancer must be of such nature that it inactivates the oxidations. Smoking, gasoline and Diesel engine exhausts, denatured foods, and not enough physical work, plus the exhaustions of worry and the social fatigues, wholesale injections with every sort of germ poison or drugs, some of which are able to increase the incidence of Infantile Paralysis four-fold, the inability to obtain Homeopathic medication, and the practice of aspirin dosing for every little complaint, constipation, too much animal food and white bread, plus the increase in viral disease, create an environment in the home which favors cancer. Add to this the industrial contacts with carcinogens, the tar dust and motor exhausts of the roads, the tobacco smoke from arsenic disinfected tobacco, and one lives constantly in a carcinogenic environment. Any one of the above mentioned affairs could prepare the tissue cells for a carcinogenic virus, and even in the wide open country a new born baby of robust parents may not find it possible to escape. The following case illustrates. It is given in the form of the mother's affidavit since it is subject also for analysis of the professional situation as we have experienced it. The baby was cured by one injection of our carbonyl catalysts.