

PILLARS OF SALT

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AS THE study of scientific medicine progresses one fact assumes preeminence. To be of real service to the patient the physician must diagnose the patient's disease before its ravages have laid waste his vital organs. Diseases must be diagnosed in their incipiency, long before there are organic signs and symptoms, and often before there are marked functional disturbances. Our only chance to do this is by a better understanding of the body chemistry, which includes the chemistry and functions of the endocrine glands. As the food makes the blood and the blood feeds the cells, it is necessary to know something of the chemistry of food and digestion. What constitutes nutrition, and what is the difference between nutrition and stimulation? How often is a condition of so-called "health" really the mask of stimulation that later destroys the vital organs?

When we try to classify our foods, it is difficult to know where to begin. Organic and colloidal foods; inorganic or crystalloidal foods; raw foods which may come under the heading of hydrophile colloids and cooked foods which may come under the heading of hydrophobe colloids and inert foods which do no more than serve as ballast. Then there are substances which in small doses stimulate and poison insidiously and in larger doses poison and cause deterioration of vital organs. Inasmuch as the physiologists believe that most foods should be of a colloidal or organic nature and that the chemistry of digestion is a problem of colloid chemistry, our attention is drawn to a crystalloidal substance that is now being consumed in great quantities. Its popularity has even been enhanced of late because we can now obtain it in the "iodized" state. I refer to sodium chloride, inorganic.

Long ago it was observed that in certain states of organic deterioration salt seemed to aggravate the condition. Now we know that it interferes with the elimination of certain waste products of metabolism, whereas in earlier days it was noted that the nephritic patient grew more edematous, the "Salt Rheum" increased in rheumatism or eczematous states. Haig showed that it interfered with the elimination of uric acid products. Later it was shown that in animals such as dogs and in birds such as chickens where a good deal of the nitrogen is eliminated as uric acid, the result of feeding salt, even in very small quantities, was death. Autopsy showed the liver and kidneys studded with uric acid concretions.

Yet, what is the most common argument for salt eating? That animals like it, need it, even travel miles to so-called "salt licks" to get it. How do we know that these animals are not mineral starved and lick salt as a poor substitute for

browsing leaves and twigs? Even when we give the horse plenty of salt he still chews the bark off trees, gnaws his manger boards and rasps the telephone poles. Does the fact that animals like salt mean that they need it any more than that we human beings need strong coffee because we like it? Introduce a horse to sugar and give him his choice of a sugar mash or a salt mash. He will gorge himself with the sugar mash and ignore the salt mixture. Does that mean that horses *need* sugar? At best the argument is most flimsy, and would not have a leg to stand on were it not for the fact that salt is a stimulant. It makes us feel good by elevating the blood pressure a little and stimulating the adrenal glands, with the result that the cheeks and ears glow. It also brings a happier mental state through a feeling of warmth and good health. We say that salt is necessary for life. But is it? Benjamin Rush found the American Indians as healthy as Stefansson found the Esquimaux or as Bartholomew found the Chinese of the Interior, none of whom ever ate salt.

In the days of our forefathers salt solution was used as an embalming fluid. The ancient Egyptians used oils, spices and salt in their mummy wrappings. Today we mummify the living with salad dressings made of mineral oils, spices and salt. You can see any number of these mummies walking the streets. The dry skin, shrunken bodies and white hair bespeak the hardened livers and sclerotic kidneys. I often wonder why it is necessary to embalm such bodies after they *are* dead. They are already "pickled to the gills."

It is possible for a person to eliminate salt quite rapidly through channels such as the skin and kidneys. As long as the body is strong, the resistance good and the glands of internal secretion adequate, not much salt is retained. But when the channels of elimination are inadequate salt retention, with its attending harmful consequences, results and the liver or kidneys or skin, or all three, may show at first functional derangement followed by organic destruction. Albumin, casts, red blood cells and leucocytes in the urine may be signs of so-called Bright's disease. If they are, may not such extensive kidney destruction be the third stage of salt poisoning? The second stage may be the transient albuminuria after moderate exercise or an unusually heavy meal; the first stage the excess of NaCl in the urine, which causes no signs or symptoms and which occurs when the patient feels good and thinks he is in a healthy state. In the third stage the kidneys are so impaired, that salt elimination is greatly interfered with. This is a very poor time to think that by restricting salt in the diet we can accomplish very much for the patient. Somewhere along the line there was a point where the salt began to be dangerous. The railroads have found that the best way to eliminate dangerous crossings is to eliminate crossings. Have the people cross the tracks overhead or through subways. In other words, "stay off the tracks." The eating of inorganic salt is a bad habit. Why not let the plants organize NaCl into a colloid form, in their leaves and fruits and roots and stems, and eat it that way? The urine and sweat never show an excess when it is consumed in this form.

The great Mackenzie wrote, "The first appearance of disease in the human body is invariably insidious, with little disturbance of the economy and no visible signs of

its presence. By and by the patient becomes conscious that all is not well with him; there is a loss of that feeling of well-being which accompanies the healthy state. Disagreeable sensations arise, at first vague, but later becoming more definite and these may become so urgent that he seeks advice. Still no evident sign of disease may be perceived on the most careful examination. By and by the disease, being situated in some organ or tissue, changes the constitution of that part, so that its presence is now recognized by a physical sign, when the clinical methods usually employed reveal its character."

It is only by careful chemical examination of secretions such as mucus, tears, gastric juice, urine, joint fluids, spinal fluid, and blood that we can arrive at early diagnoses of salt poisoning. Our figures for the normal are all too high, since most of the so-called normal cases were early cases of salt retention. Again to quote Mackenzie: "There are evidences which would surely indicate the nature of the disease in its earliest stages, were we capable of detecting them." If we are ever to be able to detect these evidences we must look for them as chemical pathologists.