

BIOCHEMISTRY

Enzymes Affect Cancer

► LOOK TO STUDY of enzymes for the solution of the mystery of cancer and possible chemical cure for it, Dr. Van R. Potter, associate professor of cancer research at the University of Wisconsin, told members of the American Chemical Society in Omaha.

Pepsin, a chemical in stomach juices which helps digest food, is an enzyme many laymen have heard about. There are many others in the body which scientists know and are studying. Prof. Potter explained the function of enzymes as follows: "Enzymes act somewhat like switchmen in a railroad yard or like valve-operators in a chemical factory, determining which way the materials of the body shall be used. In cancer cells, defective enzyme systems would act like saboteurs in a switchyard, sending trains off on the wrong track. These switchmen, which we call enzymes, no longer need to be thought of as vague influences. Thanks to the work of hundreds of chemists, we know that, like vitamins and hormones, enzymes are definite chemical compounds, except that their structures are even more complicated. Like other chemical compounds, enzymes can be subjected to quantitative chemical analysis, using the specialized methods of enzyme chemistry."

He traced the course of progress in the case of one particular class of enzymes, the energy-transformers, and showed how discoveries in the decade

between 1930 and 1940 led to a simple concept of how foodstuffs are oxidized in the body, and how the resultant energy is stored in chemical reservoirs instead of being converted wholly to heat.

Prof. Potter showed how he had used this work on normal tissues as a blueprint for the study of the enzymes of cancer tissue. It was found that certain enzymes which were abundant in some normal tissues like liver and kidney were scarce in tumor tissues, while other normal tissues such as lung, spleen and skin had even less than the tumors.

"What is needed," he said, "is a measuring stick to tell us how much of an enzyme a particular tissue needs. In other words, in order to know whether you have enough gasoline in your car, you need to know the distance between you and the next filling station."

In summarizing the facts accumulated thus far, Prof. Potter added: "This body of knowledge is a beachhead from which further attacks on other phases of cancer metabolism can and are being launched. For the fullest exploitation of this beachhead we need the help of the fundamental investigators who keep supplying us with new blueprints. I am confident that the mystery of cancer will ultimately be explained in terms of enzymes, and when that time comes, we can be more helpful about looking for methods of chemotherapy."

Science News Letter, October 19, 1946

the bland diet, the sick call rate dropped to 4%. There were no cases of nausea and vomiting and only 15% of the complaints were due to intestinal disturbance.

The egg and milk mixture sped Army wounded and post-operative patients in Europe back to duty in about one-third the average time.

The high protein content of the mixture, together with its high calorie value from the fat and carbohydrate it contains, and its lack of irritation to stomach and intestines constitute its advantages.

"Prolonged convalescence will be a rarity," Dr. Pollack predicted, when this war lesson is applied.

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MEDICINE

Mixture Speeds Recovery

► YOU WILL spend a third less time recuperating from your next operation or serious illness if your doctor applies a feeding lesson learned in treating war wounded and starving victims of concentration camps.

A mixture of powdered egg and powdered milk, which tastes like egg nogg or ice cream and can be poured down your throat if you are too sick to sip it from a spoon, is the food you will get, plus a little water.

Speed-ups in recovery achieved by this diet, called a "revolutionary innovation in the basic care of the sick," were reported by Dr. Herbert Pollack, of Mount Sinai Hospital, New York, at the meeting of the American Chemical Society.

As chief medical consultant for the Army in the European Theater, Dr. Pollack worked with concentration camp victims while the bullets were still whistling overhead.

Of 92,000 soldiers liberated from German prison camps and treated with this bland diet, only eight died, he reported, although 40% of them suffered from severe malnutrition and at least 80% were undernourished.

At Recovered Allied Military Prisoners camps, there was an average daily sick call rate of over 20% when the men were fed an ordinary Army ration. About four-fifths of the complaints were due to stomach and intestinal disturbances. One week after introduction of