

New Cancer Control Experiments Called "Promising" By Scientists

A new series of experiments in cancer control with biodynes, which affect the "breathing" of cells, has proved "extremely promising," according to Dr. George Speri Sperti, director of the Institution Divi Thomae, a research organization with affiliated laboratories in various parts of the country. However, so far only one type of cancer has been treated and the biodyne extracts are so expensive and complicated to prepare that it will take years to complete experiments, reports Myron Sterans in Redwood Magazine for August. Telling how the discoveries were made and what is hoped for, he writes:

"One of the important and far-reaching medical researches of today is being carried on by the Institution Divi Thomae of Cincinnati, Ohio. If the bright promise that it seems at present to hold is fulfilled it will be only a relatively few years before cancer man's greatest and hitherto most unyielding enemy in the field of disease may be completely overcome.

"The Institution Divi Thomae—the 'I.D.T.' as it is coming to be called—carries weight in scientific circles. It has some fourteen different research units, working in various parts of the country under the central planning and guidance of Dr. George Speri Sperti, its forty-six year old director.

"The broad field of cancer research is part of the still greater field of the behavior of individual cells—since cancer occurs only when for some still-obscure reasons, a group of cells gets out of control and begins dividing, or growing, so rapidly that what is known as a "malignant tumor" is formed. The field of cellular behavior has been chosen as the central research-subject on which each Institution unit carries on every year some definite work. Between 150 and 200 carefully trained researchers work at least part of their time in Ohio, Illinois, Indiana, Texas, Louisiana, Florida, New York, Pennsylvania and Michigan on cellular behavior that may apply to cancer.

"More than 50,000 mice have been used in Institution cancer studies, and possibly 10,000 rats, and other experimental rodents like guinea pigs, as well. More than one hundred papers, have been published in scientific journals, each reporting results secured after dozens, and in many cases hundreds of separate experiments.

"Because cancer is common to plants the Institution has gone to there. In the animal kingdom they have studied cancer in chickens. Starfish have been particularly useful; if a starfish loses one of its five arms it rapidly starts to grow another. Salamanders, onion-roots, sea urchins all come within the scope of Institution cancer research projects.

"Supplementing the researches of a German named Otto Warburg, a lot of work was started on yeast cells. Dr. Warburg had searched exhaustively into the amount of oxygen consumed by sea-urchin eggs. He found that cells in fast-growing embryo tissue may use more oxygen than

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older cells. In general, the older cells are, the less oxygen they use.

"At the Institution hundreds of experiments were made for the most part with yeast cells, to find out more about cellular reactions and metabolism. One of the questions Sperti asked his research associates to find out was this: When cells die, does their so-called "breathing" stop immediately, or is there a certain amount of oxygen-consumption, produced perhaps by the action of enzymes, that continues after they are dead? They tried taking a test tube full of yeast cells and killing all of them. The oxygen consumption fell to zero. Then the test tube full of dead cells was emptied into a

tube of living cells—and the oxygen consumption of the living cells more than doubled.

"It was the beginning of what may be one of the most important medical discoveries of modern times—that cells give off infinitely minute stimulants to other cells, perhaps after the nature of hormones. Their importance is so great that the Institution has suggested general name for them—"biodynes." Literally thousands of later experiments have shown that there are three main groups or "families" of them; one that stimulates the growth of other cells, another that stimulates the breathing or oxygen consumption of other cells, and a third that affects the sugar-use, or glycolysis, of other cells. If cells are injured or sickly, they tend to give off more of them than at other times.

"Yeast-cell stimulants, apparently, differ from other plant cell stimulants and animal-cell stimulants; liver-cell stimulants apparently differ from spleen-cell stimulants, and so on, indefinitely.

"A whole new series of cancer experiments was begun. Was it

possible that one of the new biodynes, a cell-respiration stimulant would tend to make cancer cells breathe faster, and even miraculously, change back from slow-breathing, rapidly-dividing cells, to more normal cells again?

"For more than eight years, In spitum experiments have been showing that respiration-stimulating biodynes can affect cancer cells. After enough experiments had been performed with laboratory mice and other animals, the

Institutum researchers felt that the time had come to attempt the first treatments of superficial forms of cancer in human beings. (Continued on page 2—Sect. C)

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