

## BIOLOGY

# Sabin to Do Cancer Study

New methods of research developed with hamster tumor cells have given Dr. Albert B. Sabin the clue to the work on human cancer that he expects to undertake.

► HUMAN CANCER research is about to begin in the laboratory of Dr. Albert B. Sabin of Cincinnati, who developed the live oral poliovirus vaccine.

"I believe that I am at the very beginning of long research," he told SCIENCE SERVICE. "I was much farther along in the early years of poliovirus research after 1931. But a year ago I would not have had any method to try on human cancer. Now I can begin."

Dr. Sabin worked with Dr. Meinrad Koch at the Children's Hospital Research Foundation. They used SV 40 virus, accidentally discovered a few years ago because of its capacity to destroy cells of African cercopithecus monkeys in tissue culture. The two scientists gained insight into tumors in which presumably the virus was no longer present but which can now be proved to be present in a non-infectious form.

Up to now the experiments of these two scientists have demonstrated the induction of a greater frequency of development of SV 40 virus in the hamster tumor cells by these three procedures: prolonged cultivation of the tumor cells on glass outside the body, by intimate contact with the highly susceptible cercopithecus monkey cells in tissue culture, and under special conditions by X-ray.

Although the number of cells induced in this way is not large, nor is the amount of virus recovered, it has been possible to detect infectious virus in tumor cells that otherwise seemed to have none.

"The significance of these findings for the study of human cancers is that they provide new methods for the possible detection of viruses that might be the causative agents of the tumors," Dr. Sabin said.

He reported on virus-cancer relationship at the 100th annual meeting of the National Academy of Sciences in Washington, D. C.

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## Viruses, Cancer Link

► SCIENTISTS have been advised to work on the assumption that viruses, in one form or another, are implicated in human cancer by Nobelist Wendell M. Stanley of the University of California, Berkeley.

The failure to find a virus of importance to the cause of human cancer by direct isolation from human cancer material should not deter such a search, Dr. Stanley said in reviewing the achievements of the past 25 years in cancer research at the 100th annual meeting of the National Academy of Sciences in Washington, D. C.

"Hopeful" is the word to use in considering viruses and cancer because of the

progress already made, he told SCIENCE SERVICE.

The fact that viruses can cause cancer in animals is directly pertinent to the human cancer problem, Dr. Stanley believes. Among his suggestions for future research are: ascertaining the stability of a given kind of infectious nucleic acid with greater preciseness; possibly finding better test systems, perhaps involving a bank of a great many types of human and animal cells; exploring the interplay of viruses and chemical carcinogens.

"It is obvious that we are really only at the beginning in our search for human cancer viruses and that a tremendous amount of experimentation must be done before we can reasonably expect some successes," Dr. Stanley said.

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## Extend Algae Life

► SLOW DOWN the growth rate of a one-celled living organism, and its life is extended. For algae, at least, a less speedy life is a longer one.

When the rates of respiration and photosynthesis in the one-celled green plant are decreased, life processes inside the cell are slowed down and can be extended, Dr. Constantine Sorokin of the University of Maryland reported to the 100th annual meeting of the National Academy of Sciences at Washington, D. C.

Algae youngsters are far more active in building up their cells by photosynthesis, respiration and using light energy than older members of the algae species.

Older cells become unable to rebuild their enzyme systems, even in the presence of external nitrogen, Dr. Sorokin explained. Younger cells can actively reconstitute their enzyme systems without external nitrogen by using internal resources of nitrogen.

The rate of the life processes can be changed by temperature, light and nutrition, he found, and the algae life-span of eight to ten hours may be extended. This extension of life is only on the one-celled level, Dr. Sorokin cautioned.

Aging is far too complex a phenomenon yet to understand in the higher organisms. Overcrowding of cells, competition and transportation difficulties are some of the processes that obscure study of aging and growth. What has been considered as "aging" in cells of complex organisms is largely a result of malnutrition, degeneration and disease.

The phenomenon of age will be better understood, Dr. Sorokin believes, when details of growth processes in the single cell are clear. Scientists are striving to

understand the metabolic turnover—the building up of the protoplasm of life, and its destruction by activities of the living cell.

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## Nerve Conduction Theory

► EVERY PART of a nerve fiber transmits electrical nerve impulses. This finding contradicts beliefs of physiologists held for 25 years, a Rockefeller Institute scientist reported to the 100th annual meeting of the National Academy of Sciences at Washington, D. C.

Formerly it was believed that the narrow gaps in the nerve fiber, known as nodes, serve as the actual transmission sites of nerve impulses, and that these impulses jump from gap to gap. Only one part in 5,000 of the nerve fiber was believed to be used in nerve impulse transmission.

Dr. Rafael Lorente de No, assisted by Dr. Vicente Honrubia, also of the Rockefeller Institute, proved their point by photographing TV-like pictures demonstrating electrical excitement in every part of a frog's nerve fiber.

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## Stomach Juices Checked

► TO AVOID causing ulcers, the stomach knows when to turn off its digestive juices—that is, a healthy stomach knows.

After the food has become thoroughly mixed with gastric secretions, the acidity reaches its limit for healthy digestion. If it went higher, the pure gastric juice could digest away the wall of the stomach or duodenum, thus producing a peptic ulcer.

The mechanics of regulating gastric secretion were reported by Dr. Lester R. Dragstedt of the University of Florida to the 100th annual meeting of the National Academy of Sciences at Washington, D. C. Studies showed that when food is applied to the mucous membrane of the antrum of the stomach, the hormone gastrin is liberated into the bloodstream and stimulates the gastric glands. However, if the food is acidified before it is applied to the antrum, no stimulation of secretion occurs.

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## Model of Moon Unveiled

### See Front Cover

► THE MOST DETAILED relief model of the moon in existence was unveiled at the 100th annual meeting of the National Academy of Sciences in Washington, D. C.

The moon model, created by Rand McNally & Company of Chicago, is a six-foot-diameter hemisphere depicting 50% of the moon's surface in three-dimensional relief on a scale of one inch to 30 miles.

Based on the moon model in Chicago's Adler Planetarium, the globe was completely recarved and refined by Rand McNally artist-cartographer Kenneth Fagg.

Seen on this week's front cover is Robert Michael Green, Arlington, Va., examining the moon model.

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