

BIOLOGY

Making Life Is a Possibility

The importance of the structure of nucleic acid to an understanding of life and its synthesis is stressed by the "father of modern virus research."

► TAILOR-MADE LIVING matter will be created in the laboratory and from this "first, long step," scientists will go on to control human characteristics and all life.

This laboratory control will give science and the world a "short-cut" for by-passing the long evolutionary process in developing mankind, Dr. Wendell M. Stanley, Nobelist and director of the University of California's Virus Laboratory, predicted in delivering the R.A.F. Penrose Jr. Memorial Lecture before the American Philosophical Society in Philadelphia.

The laboratory production of living matter hinges on the solution of finding the specific structure of nucleic acid, the basic life substance, Dr. Stanley said.

"I believe," he told the Society, "that the elucidation of the structure of nucleic acid in all of its aspects is the most important scientific problem we face today. It is vastly more important than any of the problems associated with the structure of the atom for in nucleic acid structure we are dealing with life itself and with an unique approach for bettering the lot of mankind of earth.

"It is possible that the solution of this scientific problem could lead eventually to the solution of major political and economic problems. Never before has it been possible to realize so fully our utter dependence on the structure of nucleic acid. Eventually chemists should be able to synthesize a small polynucleotide specifically arranged, hence one may now dare to think of synthesizing in the laboratory a structure possessing genetic continuity and of all of the tremendous implications of such an accomplishment."

Dr. Stanley told SCIENCE SERVICE the solution to this problem is a first step to be sure, but once it was taken, it would lead to man's control of germ plasm and thence to control of populations and mankind.

The Nobel Prize winner, who is also called the father of modern virus research, made a strong case for the hypothesis that human cancers are caused by viruses.

"Certainly," he said in his lecture, "the experimental evidence now available is consistent with the idea that viruses as we know them today could be the etiological

agents of most, if not all, cancer, including cancer in man."

In a carefully documented talk, in which much recent and unreported research was presented for the first time, Dr. Stanley painted an over-all picture of the interdependence of viruses, cancer, genes and life.

Calling part of his title "A Declaration of Dependence," Dr. Stanley said, "it is obvious that viruses, cancer, genes and life are tied together by a whole series of relationships, that viruses can act as genes and genes as viruses under certain circumstances, that viruses can cause cancer and that viruses are structures at the twilight zone of life partaking both of living and molecular properties."

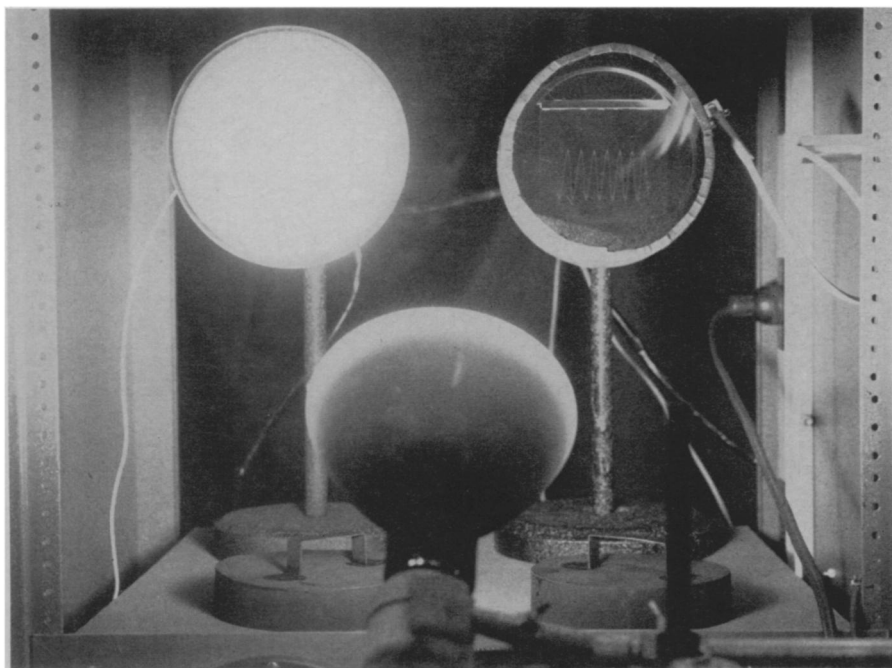
He also pointed out that studies with viruses have shown they can be non-killers in one host and then "mutate" to form a new strain of virus that always kills its host. Viruses can also remain dormant for a long period of time, generations in some cases, and then erupt to do their damage.

If genes can carry viruses, he hinted, then cancer-causing viruses could conceivably be passed on from one generation to another.

New viruses of man are discovered almost every week, Dr. Stanley emphasized, and "we now have many more human viruses than we know what to do with . . ."

The great wealth of newly discovered viruses, he added, plus our knowledge of the latent phenomenon provide ample justification to re-examine quite carefully the relationships between viruses and human cancer.

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BETTER TELEVISION VIEWING—The new television tube is shown during a comparison test. Although a pattern is displayed on both tubes, the pattern on the conventional tube on the left is obliterated. The pattern on the new daylight viewing tube may be easily seen in spite of the bright light shining on it.

TECHNOLOGY

TV Screen Visible In Bright Daylight

► A TELEVISION screen that permits bright daylight viewing has been developed at the Naval Research Laboratory in Washington.

Basis for the new screen is a process for depositing the phosphor on the TV tube's face as a thin transparent film instead of the opaque white powders now used.

The powdered surface in present tubes is a good reflector, so good that in strong sunlight, the reflection is brighter than the picture. With the transparent film, sunlight goes through the film and is lost in the tube's darkened interior so that contrast is maintained even when bright daylight shines directly on the tube.

The second advantage of the films is the sharpness of the picture formed using them. The conventional powdered screens have a grainy texture that scatters part of the light formed when the electron beams hit them, resulting in an image with hazy borders.

The film process was developed by Dr. Charles Feldman of the Naval Research Laboratory. It has been used successfully to deposit a full range of colors on TV screens.

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