NOBELISTS ATTEND ACADEMY MEETING—Three Nobel prize winners who attended the National Academy of Sciences meeting were (left to right): Dr. Niels Bohr, physicist, Institute for Theoretical Physics, Copenhagen, Denmark; Dr. J. Franck, professor of physical chemistry, University of Chicago; and Dr. Otto Stern, physicist, Carnegie Institute of Technology.

Other scientists elected new members of the American Philosophical Society include:

Farrington Daniels, physicist, University of Wisconsin; Zay Jeffries, metallurgist, General Electric Co.; Samuel S. Wilks, professor of mathematics, Princeton University; Vladimir Kosma Zworykin, television inventor, RCA Laboratories; Elmer G. Butler, chairman of the department of biology, Princeton University; Chester Ray Longwell, professor of geology, Yale University; Eli K. Marshall, professor of pharmacology and experimental therapeutics, Johns Hopkins University; Louis L. Thurstone, professor of psychology, University of Chicago; Cornelis Bernardus Van Niel, professor of microbiology, Stanford University.

Dr. Edwin G. Conklin of Princeton was elected president of the American Philosophical Society.

Science News Letter, May 8, 1948

PHYSICS

Spying on Growing Cells

New kind of microscope, which may uncover many important facts about life processes, color "stains" with light waves without harming the living cells.

➤ COLOR "staining" with light waves without killing the living cells is a new microscopic technique that is expected to reveal much about important life processes.

This new kind of microscope, a further development of the phase microscope, will permit man to spy upon cells as they grow, multiply and carry on their important life functions. It will let scientists see in color, for the first time, both normal and cancerous growth, and may help them discover what the abnormal growth is.

But this latest development in microscopy is still very much in the experimental stage. Many refinements may be expected before instruments of this type are made available to scientists for important research.

The instrument, reported to the National Academy of Sciences meeting in Washington, was developed by Dr. F. Zernike, the Dutch physicist who visualized and made the first phase microscope. Dr. Zernike, professor of physics at the University of Groningen, the Netherlands, this year is visiting professor of physics at the Johns Hopkins University in Baltimore.

The ordinary phase microscope uses two transparent rings to reveal, in black and white, details heretofore unknown concerning delicate cell structure. Two optical companies are now making instruments of this type available commercially in America.

The phase ring separates a small portion of light and distributes it over the whole field. It works because it takes advantage of the fact that light travels in waves.

This separated light, spread over the whole image, promises an evenly illuminated background. The image appears bright where the phase of the direct light is the same as that of the background light so that it is reinforced. It shows dark when the phases of the two light parts are different so that by interference they destroy each other.

In the new color phase microscope, the ring works in an opposite way in the red than in the green end of the spectrum, giving some details more red light, others more green, depending on their thickness.

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BIOLOGY

Cytoplasm Chooses Genes Actually To Be Developed

➤ GENES, the still-unseen chemical units that determine heredity in animals and plants, are not necessarily as omnipotent as some biological thinking would hold them to be, Dr. T. M. Sonneborn of Indiana University suggested. The cytoplasm, or general protoplasm of the cell, can have something to say about what the offspring will be like, he declared at the meeting of the National Academy of Sciences in Washington.

His studies of the one-celled animal form known as Paramecium indicate that while the genes do determine what characters the coming generation may possess, the cytoplasm "picks out" the ones that are actually going to be developed. This is possible in Paramecium because in these primitive creatures the cytoplasm is a well-developed, active part of the organism when the new generation gets its start. In the beginning-cells of higher animals and plants the cytoplasm is new, undeveloped, "inexperienced," hence has little or nothing to say about the fate of the genes.

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