



**LIGHT RAYS BRING EXPLOSIVE DEATH**—Ultraviolet rays kill a microorganism by creating an internal explosion which burst the outer skin. In the upper left, are normal paramecia. After 30 seconds of exposure to a Westinghouse Sterilamp, they become distended, in the upper right. Cell walls continue to swell in the lower left, and the paramecium dies when its skin bursts, lower right.

bacteria in the air. However, no positive statement can yet be made concerning the effectiveness of glycol vapor in lowering the incidence of respiratory diseases.

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Oct. 2, 1948), in answer to the query of a physician, carried the following statement: "The use of triethylene glycol as a preventive for colds and virus infections is still highly experimental. We lack satisfactory evidence that under the conditions of use which would be practicable in a home, office or factory any significant diminution in the incidence of viral infections can be obtained."

Glycol vapor is sprayed into the air in a mist so fine it cannot be seen. It kills the germs floating on tiny droplets of moisture that may be coughed, sneezed or exhaled by the infected person because its molecules have an attraction for water. They penetrate the moist bacteria and overwhelm them with their chemical concentration. However, glycols are ineffective at humidities below 20% or above 80%.

This invisible, odorless and non-irritating chemical, called triethylene glycol, is a relative of the automobile and airplane engine antifreezes. The method of its use was developed by Dr. O. H. Robertson and associates of the University of Chicago.

Buildings with air-conditioning or venti-

lating systems can be equipped for glycol vaporization at small cost. Home atomizers are being manufactured that may prove effective in smaller quarters. Several chemical and pharmaceutical companies have installed this apparatus to maintain a sterile atmosphere.

At present, there are many technical problems which complicate the use of this method, such as regulating the humidity, taking bacterial counts to make certain the glycol has been applied properly, and use of dust control measures, for glycol has little effect against dust-borne bacteria.

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#### GENETICS

### Photograph Apparent Genes With Electron Microscope

► GENES, which have become virtually an international issue since a recent Soviet ukase declared they don't exist, have apparently had their photographs taken with the aid of the super-magnifying electron microscope. The pictures appear in SCIENCE (Jan. 7), together with an explanatory article by the men who took them, Drs. Daniel C. Pease and Richard F. Baker of the University of Southern California.

They made sections less than one-twenty-five-thousandth of an inch thick of glands

taken from the tiny heads of the gnat-sized little fruit-fly, the geneticist's special pet. On these they turned the searching electron beams, that show up in photographs details far beyond the reach of the highest powers of ordinary microscopes.

The photographs disclosed the presence, within the chromosomes, of small, fairly even-sized bits of matter, occupying positions that previous theoretical considerations, backed by mathematical calculations, indicated should be the positions of the genes, the hitherto invisible physico-chemical units that control heredity in plants and animals.

"It seems reasonable to suppose," state the two researchers, "that the discrete particles we have seen are genes."

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#### CHEMISTRY

### New Soap Substitutes Can Help Fight Germs

► NEW SOAP substitutes which kill germs as well as remove dirt were described to a local meeting of the American Chemical Society in Philadelphia.

A teaspoonful of the new detergents will produce a gallon of suds and match the germ-killing strength of a pound of carbolic acid. Uses can range from cleaning and sterilizing surgical instruments to washing household utensils.

Prof. J. B. Niederl of New York University and Prof. M. E. McGreal of St. John's University explained that the new "multi-cleanser" soap substitutes are called morpholinium alkyl sulfates. The new detergents are made entirely of organic chemicals and do not leave the caustic, slippery feeling on the skin that soap does, the chemists pointed out.

One out of every four or five pounds of cleansers bought for household use last year was a synthetic detergent, Drs. Arthur B. Hersberger and C. P. Neidig of the Atlantic Refining Company of Philadelphia reported at the meeting. This compares with only two percent for the synthetics in 1945 and less than 10% in 1946, they said.

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