

baum—Public Affairs Committee, Public Affairs Pamphlet No. 261, 28 p., illus., paper, 25¢. Recommends preventive medicine, adequate medical care in illness and authoritative health information.

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Science News Letter, February 8, 1958

OPTICS

Tiny Radiation Doses Measured by Chemical

► EXTREMELY small radiation dosages can be measured with a special luminescent powder that gives off light when it is heated, scientists at the U. S. Naval Research Laboratory, Washington, have found.

The chemical used is a phosphor that stores energy while it is being irradiated. The energy is later released by a process known as thermoluminescence, in which the energy is given off as light when the temperature of the substance increases.

The amount of light given off is determined by the amount of radiation that has been received.

The material has been used in rocket experiments to measure the tiny amounts of ultraviolet rays and X-rays encountered in the atmosphere, Dr. Herbert Friedman of the Laboratory told SCIENCE SERVICE.

The substance, calcium sulfate-manganese, is much more sensitive than the material now used in monitoring badges worn by workers exposed to radiation. The lower limits of sensitivity for most personnel dosimeters is in the region of one to 100 roentgens of radiation. The phosphor, however, measured a minimum dose of ten-thousandths of a roentgen and mathematical calculations indicate that it could measure even lower doses than this.

A practical difficulty with the material is that the amount of light given off decreases with time after the exposure. There is about a 40% loss after the first eight to ten hours, Dr. Friedman says.

The difficulty can be overcome, however, if the exposure time is known, since the amount of decay is proportional and a correction can be made for it.

The chemical has already been used by other scientists to study the ultraviolet emission of the sun and to determine the dosage of medical X-rays. Dr. Friedman reports the research with Dr. David A. Patterson, also of the Laboratory, in the *Journal of the Optical Society of America* (Dec.).

Science News Letter, February 8, 1958

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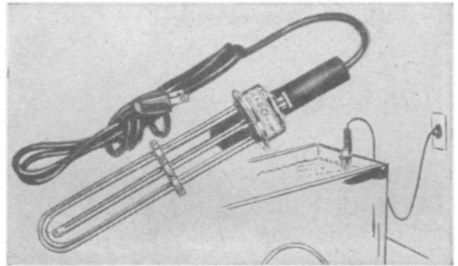
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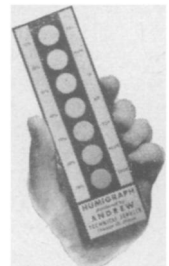
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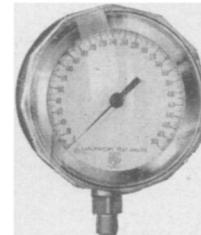
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