

PHYSICS

"Sky Rays" Range Through Whole of Light Spectrum

THE NIGHT SKY glows with a faint light that seems to come from nowhere. It certainly is not made of scattered starlight, for it is richest in wavelengths of the red and infra-red regions of the spectrum, whereas scattered starlight is poorest in exactly these rays. This sky radiation has been called the "cosmic radiation" of the night sky by Dr. V. M. Slipher of the Lowell Observatory, Flagstaff, Ariz., who reported on his long study of the subject to the American Geophysical Union.

This designation, however, should not be confused with the cosmic radiation proper, which consists of extremely penetrating rays or particles studied by Hess and Kolhoerster in Germany, and by Millikan, Compton and Swann in this country. The cosmic radiation proper almost certainly comes from outer space, whereas the sky rays studied by Dr. Slipher are almost as certainly the product of the earth's atmosphere, excited into faint luminescence by radiation from the sun.

Through All Wavelengths

Dr. Slipher's sky rays range through the entire gamut of wavelengths from ultraviolet to infra-red, though some of the colors are stronger than others. He spoke of a prominent yellow line that appears in his spectrographic photographs, and of a green line due to glowing nitrogen that can be caught just before dawn and just after evening twilight but not at midnight. This line seems to be identical with the most prominent band of wavelengths in the light of the aurora.

Dr. Slipher made his studies with a specially built instrument that enabled him to obtain spectrum photographs of five parts of the sky at the same time: the four points of the compass and directly overhead. Comparing these simultaneous photographs, he discovered that the sky near the horizon gives off radiations rich in red and infra-red rays, while at the zenith these are relatively feebler, though the violet rays in the visible spectrum are as strong there as elsewhere in the sky. This effect Dr. Slipher attributed to the greater density of the atmosphere near the earth's surface,

which selects out the rays of longer wavelength and partially blocks the violet and ultraviolet rays.

Dr. Slipher was called to England to receive a medal of the Royal Society just before his paper was to be read, so that the actual presentation of his paper was made by a colleague.

Science News Letter, May 6, 1933

PHARMACOLOGY

Methylene Blue May Kill Instead of Saving Life

THE DYE, methylene blue, which has been widely heralded as an antidote for deadly cyanides and carbon monoxide gas, may kill people instead of saving their lives when used to treat victims of carbon monoxide, Prof. Yandell Henderson of Yale University declared at the meeting of the Federation of American Societies for Experimental Biology.

In his laboratories at Yale, Prof. Henderson said, Dr. Howard W. Haggard has been using the dye to treat dogs that were near death from the effects of the deadly, invisible carbon monoxide gas which is found, among other places, in the exhaust gas of automobiles. The dogs would have recovered with the usual treatment for carbon monoxide poisoning. They had

been exposed to the gas in amounts just short of that which causes death. When given methylene blue treatment, instead of recovering, they died.

This investigation has brought out plainly that what the dye really does, Prof. Henderson commented, is to convert the oxygen-carrying hemoglobin of the blood to methemoglobin. This compound is powerless to supply oxygen to the tissues and the victim then dies of asphyxia. Carbon monoxide kills in the same way, the gas forming a strong chemical union with the hemoglobin and thus preventing it from carrying oxygen to the tissues.

In the same discussion of the dye treatment, Dr. W. B. Wendel of Washington University had reported that in cases of cyanide poisoning, the dye is only of use in limited amounts. Here it acts by taking the poisonous cyanide out of the circulation, but at the same time it makes a certain amount of hemoglobin powerless. If much cyanide is in the system, so much of the dye is needed to counteract it that most of the hemoglobin is diverted from its vital function.

Dr. P. J. Hanzlik of San Francisco, upon whose recommendation the dye was tried in the treatment of cyanide poisoning, said that it has absolutely no permanent value in carbon monoxide poisoning and that other measures must be used.

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Among the coins of Roman Britain, archaeologists have found some so small that 50 can be arranged inside a circle the size of an English penny.

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