New Method Of Measuring Air Pollution Noted

Radiation from the sky may provide a means for measuring air pollution in smogbound cities.

Jack Conaway, a University of California graduate student working with ARS physicist C.H.M. van Bavel at the U. S. Water Conservation Laboratory, Phoenix, Ariz., invented this novel monitoring technique while conducting experiments with soil temperature.

Conaway was using an infrared radiothermometer to measure the amount of sky radiation reflected from the soil surface when he found that the sky radiation measurements changed drastically from hour to hour. The changes did not seem to be related to temperature, humidity, or any other readily discernible factor.

On a hunch, Conaway went to the air pollution branch of the local county health service and looked up the records of ozone content in the air during the periods covering his experiments. He found that the variations in ozone content and the variations in his radiation figures were strikingly similar. Ozone, one of the chief air pollutants in many heavily populated areas, is formed by the action of sunlight on exhaust fumes.

Present methods of measuring pollution require taking samples of the air and analyzing it chemically. The size of the area that can be sampled at one time is therefore limited.

An infrared beam of the right wavelength, directed at a nearly horizontal slant through the air above the earth's surface, could provide an instantaneous check of pollution over a large area. If ozone does affect radiation, as Conaway theorizes, and if the effect can be measured by a radiothermometer, pollution measurement would be faster and more effective.

Conaway and van Bavel emphasize that at this point their conclusions are based on scant data.

Besides pollution monitoring, van Bavel suggests one other possible consequence of the ozone-radiation relationship: Weather satellites circling the earth record surface temperature with an instrument similar to the one used by Conaway. If ozone at the earth's surface affects earth-based measurements, it may also affect measurements made from space when satellites pass over polluted population centers.

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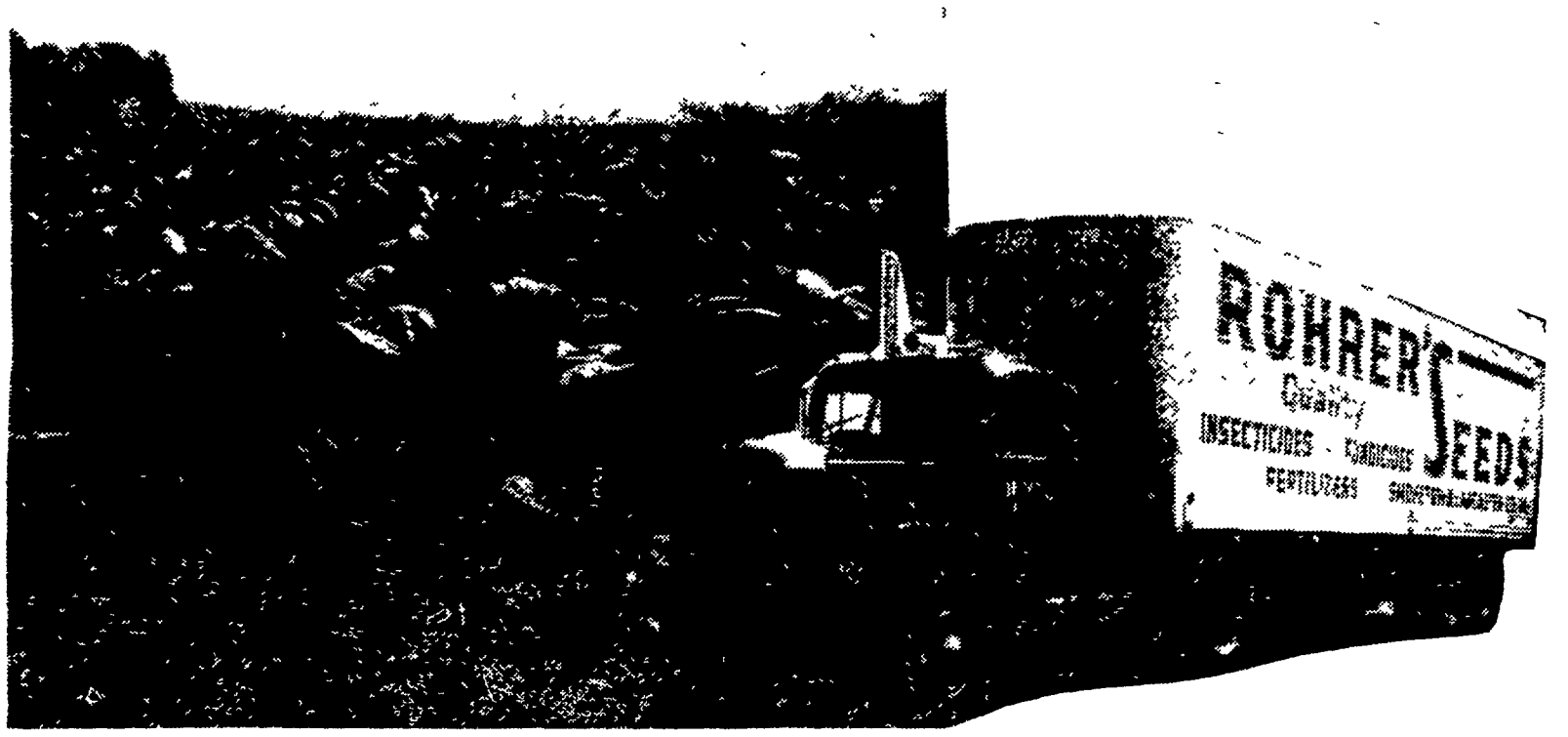

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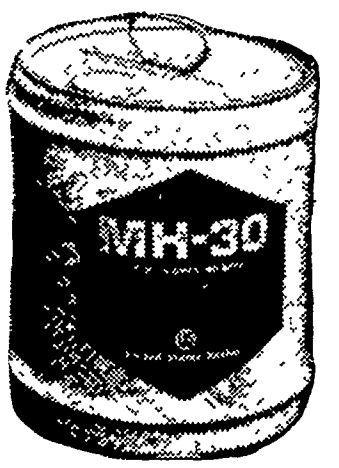

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