

Add.

Glasef

Ref.?

CASE REPORTS OF EFFECTS ASSOCIATED WITH
ACCIDENTAL EXPOSURE TO MICROWAVES

Russell L. Carpenter, Northeastern Radiological Health Laboratory, USPHS
Bureau of Radiological Health, Winchester, Mass.

The effect of microwaves on the lens of the experimental animal can be ascertained fairly simply, for by examination we can be sure that the lens is normal and clear before it is exposed to radiation, we can examine it daily or more often after it has been irradiated, and we can conduct the experiment in an anechoic room and measure the power density of the radiation field in which we place the animal. Although the presence of the animal may perturb the microwave field and distort it so that we cannot be sure of the power density incident on the eye, we nevertheless can duplicate conditions in each experiment so that the only variable, if any, is the geometry of the individual animal.

In attempting to assess the hazard posed by microwave radiation to the human eye, we must perforce depend upon: (A) studies of a large group of individuals whose occupation is or has been such that it can be reasonably presumed their chance of being exposed to microwave radiation was significantly greater than that of similar age groups of the general population; and (B) individual cases in which the subject is known to have been accidentally or unintentionally exposed to microwave radiation and subsequently developed lens opacities.

In both instances, there is little likelihood that the conditions of exposure to radiation can be reconstructed as regards such parameters as power density, field pattern, duration, and frequency of exposure. The amount of radiation acting on the eye can seldom be determined and because the evidence is incomplete, perforce, the microwave radiation must be considered only as a likely suspect. But even though the evidence may be purely circumstantial, it nevertheless should be critically considered rather than ignored or categorically dismissed.

A. Statistical studies have been reported by Clark and Zaret, and Dr. Zaret will describe his work to you shortly. During the past year, we have been conducting a study of former Air Force personnel who had worked with radar aboard the EC-121 radar picket planes, most of them as in-flight radar technicians. The eye examinations were performed under the direction of Dr. William Richards of the US PHS Hospital in San Francisco. We have been fortunate in having had 67 such individuals volunteer to submit to ophthalmoscopic and slit-lamp examinations. Their present ages were from 22 to 57 years. The results to date are as follows: considering cataracts, vacuoles, pigment, or granular or punctate opacities as imperfections or defects of the lens, this group showed 61% having lens imperfections of this type and 39% having lenses completely clear. Arranged in age groups, there were: in the age group 26 to 35, 72% lens imperfections; 36 to 45, 50%; and 46 to 55, 61%. Diagnosis of cataract was made for 6 individuals, with ages of 32, 34, 41, 46, 51 and 53, respectively. Two other individuals, not included in the above findings, were also seen. Both were former naval radar workers, were in their fifties, and had cataracts.

On March 11th, a representative group of these individuals was examined by a team of eight ophthalmologists. In their opinion, none of the lens findings was unique or represented a type of change not seen in individuals who had had no

→ ?