

To determine the reliability of the positive reaction, 2 of the hypersensitive animals were tested simultaneously with rabbit, swine, and autogenous uveal pigment. Both of these animals showed a uniformly positive histologic reaction to all 3 suspensions of pigment, thereby demonstrating once more the organ-specific antigenicity of uveal-tissue pigment. One of these animals was retested 8 months later and was found to be hypersensitive at the end of this period.

Summary. 1. A method of preparation of "uveal-tissue-toxin" is described. 2. Repeated intracutaneous injections with heterologous (bovine) uveal-tissue-toxin produced simultaneous sensitization to heterologous (swine), homologous, and autogenous uveal pigment in 6 out of 22 rabbits. 3. Similar sensitizing injections with homologous uveal-tissue-toxin produced no sensitization to uveal pigment in any of the 11 rabbits used. 4. Repeated injections of uveal-tissue devoid of staphylotoxin produced no sensitization to uveal pigment. 5. The criterion of hypersensitivity was based upon the histologic cellular reaction observed in tissues excised 2 weeks after the injection.

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Cesium in the Mammalian Retina.*

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Fox and Ramage¹ and Sheldon and Ramage² reported that they were unable to identify, by spectrographic methods, cesium in the tissues of animals of widely divergent genera. Since it is well recognized that different methods of spectra excitation favor the identification of some elements it occurred to us that by use of the interrupted arc method (McMillen and Scott³) we might get the identifying lines. Fox and Ramage and Sheldon and Ramage used flame excited spectra in their studies. An examination of several hundred tissue and fluid samples from various mammals by our method failed to give any positive results.

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¹ Fox and Ramage, *Proc. Roy. Soc. Lond.*, 1931, **108**, 157.

² Sheldon and Ramage, *Biochem. J.*, 1931, **25**, 1608.

³ McMillen and Scott, *Rev. Sci. Inst.*, 1937, **8**, 121.

Through the kindness of Dr. Douglas Coles of The Veterinary Research Laboratories, Onderstepoort, Transvaal, South Africa, we obtained several ox eyes. In the course of routine spectrographic analysis of these specimens for barium, cesium was found in the retina. This led us to study spectrographically the retinæ of some 60 eyes obtained from a local abattoir. Of this group 19 were from pigs, 17 from oxen and 24 were from sheep. Presumably the animals came from a rather wide though illy defined area of the Middle West. No more definite information could be obtained on this point.

By carefully controlling the method used it was possible for us to exclude contamination from other sources. The eyes were slit and fixed in cesium-free formaldehyde as it was found much easier to separate the retinal layers in the hardened material. The instruments used in manipulating the tissue did not add cesium to samples of other tissues and consequently it is not at all likely that they did so in this case. The tissues to be examined were allowed to digest in a small amount of cesium-free HNO_3 in chemically clean vessels. The resulting liquid was applied to cesium-free carbons and arced as described by McMillen and Scott (*loc. cit.*). A Bausch and Lomb medium Quartz Spectrograph with a slit width of 0.02 mm was used in our experiments. An exposure of 320 flashes of about 0.5 second duration was sufficient to produce good plates.

In our experiments we made a rough attempt to localize the element in the retina. The retinæ were separated into 2 layers, the thinnest of these being the nerve fiber layer and internal limiting membrane and the thickest being the cellular layer which consisted of pigmented epithelium, rods and cones and their nuclei, neuroglial and bipolar cells. Cesium was identified without great trouble by the 4555.5 Å line and was checked repeatedly by comparisons with similar tissue to which the element had been deliberately added. In no case did we fail to recognize the element in both layers of the retina examined. There was no essential difference in the species or in the layers of the retinæ in our series. It is evident from these findings that cesium may be presumed to exist constantly in the retinæ of the species studied. Furthermore it is present in distinctly greater quantities than in other tissues and fluids of the body as in no case was it identified by similar or other methods except in the retina.

No attempt is made here to attach any physiological significance to the finding. We would suggest, however, that it is a peculiar coincidence that an element so active photoelectrically is found only in a tissue layer which is capable of translating photon impacts into nerve impulses.