

ences to all the more important relevant published material; also summaries and cross-references to aid in finding things.

The scope proposed is North American invertebrates. It goes without saying that *Apis* and *Bombyx* are not to be discussed beyond laboratory usages, since their culture has long passed the stage of pioneering that we are to record.

This call goes out to all American zoologists. Let any one who has tested out a reliable method of culture maintenance, or any device that he has found to be particularly useful to that end, write it up and submit it for a place in this book to any member of the committee.

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REVERSAL OF THE PINHOLE IMAGE

It was my good fortune to be associated with Dr. Oliver J. Lee, director of Dearborn Observatory, in a problem he investigated at the time of the solar eclipse in August, 1932. He wished to obtain information regarding temperature changes produced by the moon's shadow at various altitudes. For elevations of 700, 3,000 and 10,000 feet, this information was furnished by recording meteorographs carried by airplanes, which cruised at constant altitudes in circles about a mile in radius. Lieutenant Baker and I were in the highest plane, which stayed at 10,400 feet most of the time, but rose to 15,000 feet for a while. The report of the observations which I made to Dr. Lee that evening included one phenomenon which I have not seen described by any of the observers who were in airplanes during the eclipse.

For about fifteen minutes preceding totality, while the solar crescent was very narrow, whenever I looked where the shadow of the airplane would have been cast on the clouds more than a mile below, I saw a halo about five degrees in diameter, red on the outside, yellowish on the inner side, with a dark, shadow-like crescent at its center. The angular diameter of the shadow crescent was the same as that of the solar crescent. The thickness at the middle was somewhat greater. What attracted my attention particularly was the fact that the cusps of this shadow crescent pointed eastward, while those of the solar crescent pointed westward. After totality the whole appearance was repeated, except that the cusps of both crescents were reversed in direction.

It was a phenomenon similar to that seen by Edwin Edser in England during the partial eclipse of 1912 and described by him in *Nature* for May 2 of that year. It was the reverse of the familiar pinhole image. A huge screen with a relatively small hole at the position of the airplane would have caused a

bright, inverted crescent against a dark background on the clouds, crescent image and solar crescent having the same angular dimensions as seen from the screen. Interchanging screen and hole would interchange image and background, giving the dark crescent which I saw on the bright clouds.

I have repeated, with some modifications, the experiment Edser described. A piece of ground glass close to the condenser of a stereopticon was nearly covered with a circular disk of black paper, leaving only a bright, narrow crescent exposed. The objective of the lantern was removed. A screen with a small hole placed ten feet from the lantern produced a pinhole image on the crescent on the wall an equal distance from the screen. Then a brass ball about the size of the hole was used in place of the screen and a dark, shadow-like crescent appeared on the wall, corresponding exactly to what I saw on the clouds. A small square of black paper substituted for the ball gave the same dark crescent. A little airplane made of black paper also produced the same result. The shadow crescent was independent of the shape of the obstacle, as a pinhole image is independent of the shape of the pinhole, provided obstacle or hole is small enough in comparison with the object. As stated by Edser, in order to obtain the shadow image, the screen must be beyond the apex of the umbra of the shadow cast by the obstacle.

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THE ADRENAL GLANDS IN AN EDITOR'S OFFICE

A DISTINGUISHED physiologist wrote to the editor of SCIENCE on April 14:

At the recent meetings of the American Physiological Society in Cincinnati Dr. Britton of the University of Virginia made the statement in open meeting that SCIENCE had published an article on the adrenals by Professor Swingle of Princeton University, the publication of which was paid for by Professor Swingle, and that the pages of SCIENCE have been subsequently closed to Professor Britton and possibly others on the subject of Professor Swingle's original paper or article. If true, this appears to me both a curious and serious situation. I had the understanding that SCIENCE was an organ of the American Association for the Advancement of Science. If scientific articles published in SCIENCE are paid for by authors, that fact should be stated, it seems to me, in connection with the article as it appears in SCIENCE, because otherwise we appear to be in danger of under-cover paid propaganda.

A distinguished physicist wrote on April 19:

From a number of influential and reputable sources, I have run into a considerable amount of irritation over the article by Swingle, Pfiffner, Vars, Bott, and Parkins