



Fig. 3. Retinal image size and distance for an object 1,000 mm in height.

systems. It should be emphasized that the non-linear function relating image-size with distance cannot account entirely for the appearance of spatial distortions. The calculations described above were confined to a static photo-optical system and size-constancy is far too great in magnitude to be described by either of the relationships illustrated in Fig. 3. Its appearance may be explained partially in these terms, however, because images tend to be larger in size with increasing distance than would be expected if they were related by an inverse function.

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¹ Hochberg, J., *Audio-Visual Communication Rev.*, **10**, 22 (1962).

² Donders, F. C., *Anomalies of Accommodation and Refraction* (Publications of the New Sydenham Society, London, 1864).

³ Helmholtz, H. von, *Handbuch der Physiologischen Optik*, **3** (Voss, Hamburg and Leipzig, 1866) (trans. by Southall, J. P. C., *Helmholtz's Treatise on Physiological Optics*) (Dover Publications, New York, 1962).

⁴ Descartes, R., *La Dioptrique*, published with *Discours de la Méthode* (Leyden, 1637).

⁵ Gregory, R. L., *Eye and Brain* (Weidenfeld and Nicolson, London, 1966).

Identification of Concealed Randomized Objects

WE should like to make a few comments on two recent responses to a communication by J. G. P. *et al.*¹

Several of the questions raised by Farge² quite correctly point to the lack of details amplifying the general statements to which the article was limited because of space restrictions. Readers who are interested in being more fully informed should read the full research reports that have been appearing in the *Journal of the American Society for Psychical Research* beginning with the January 1968 issue. These articles contain details of the cardboard used in preparing materials for these experiments.

The identifying numbers were written inside the covers. They were never visible to the subject, and the experimenters saw them only at the end of each run after the subject's responses had been given and when the experimenters exposed the numbers to themselves for recording purposes. But even though the numbers were not visible

to the subject, we did not claim that the formation of response habits while the individual covers were exposed to the subject during series 1, 2 and 3 provided any evidence for ESP.

It is not reasonable to assume that the subject could have been responding to differential placing of the covers within their jackets in those series in which the covers were concealed. The jackets were only wide enough to permit the covers to be inserted without forcing, and they were always placed squarely against the lower ends of the jackets. The experimenter who randomized and concealed the covers was always completely screened from the sight of the subject and the experimenter who tested him. The experimenter working with the subject always gave the stack of prepared stimulus objects a random cut before they were used. Thus neither the experimenter who concealed the covers nor the experimenter who placed the stack in front of the subject had any sensory knowledge of the final order in which they were used during the run.

We were not concerned in our experiment with making distinctions between the subject's use of clairvoyance (direct extrasensory perception of a physical object), telepathy (extrasensory perception of the thoughts of another person) and other possible modes of ESP response, though we think that clairvoyance is the most likely explanation of the results so far obtained.

Series of trials have already been performed both with empty covers and with empty jackets. In the former case, highly significant response preferences discriminating among the covers continued on the same pattern as when the cards were inside. Tests with the empty jackets were made after the subject had developed response patterns for them, and these associative habits continued when the empty jackets were concealed inside 'Jiffy' book-mailing bags.

In his comments, Robertson³ gives no direct indication of having read the article itself, for he was reacting only to the heading "parapsychology" under which our report was classified. Scientific terminology introduced when it is first needed at an early stage of research, such as the word "atom" in physics, tends to be kept in use when the advance of scientific understanding makes the literal, original meaning inappropriate. We do not claim that "parapsychology" and "extrasensory perception" are ideal terms, but they have (like "atom") gained a currency in the literature that appears to justify their continued use as long as everyone really concerned understands what is meant. But we fear this may exclude the writer of that letter if we may judge from the parable he related. His statistical example has no relation to the research methods used by qualified investigators in parapsychology and it suggests that he has a totally erroneous conception of the evidence on which the case for ESP rests. Parapsychological experiments are not concerned with the occurrence of something improbable such as particular results from tossing coins or drawing cards. They are instead concerned with the improbability of correspondences between statements made about such events in the absence of normal knowledge concerning the outcome on the one hand and the actual events on the other hand. We have been surprised at the number of persons who have not grasped this elementary principle.

Naturally, we do not claim to have the answers to all of the questions raised by the results obtained so far, and the research with this special subject is continuing.

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² Farge, E. J., *Nature*, **220**, 412 (1968).

³ Robertson, A., *Nature*, **220**, 835 (1968).