# Letters

## Dermooptical Perception: A Cautionary Report

Because of the recent interest in this country and in the U.S.S.R. in studies dealing with visual perception by extraocular means, it is important to call the attention of scientists to the following event which occurred in our laboratory.

Our attention was brought to a subject, an adolescent, who appeared to possess dermooptical perception localized in some unspecified facial area. Prior testing had indicated that the subject read unfamiliar texts despite exclusion of light from the eyes. Since the reading material was held at a normal distance, the phenomenon posed not only the problem of nonretinal photosensitivity but also the problem of image formation in the absence of a lens or pinhole mechanism. This seemed to violate the laws of physics, but we were confronted with the subject's obvious ability to perform. We decided to begin with a complete mapping of the face to determine whether specific sensitive areas other than the eyes could actually be found.

The subject's performance was indeed impressive. Blindfolds were secured with adhesive tape along all edges. The subject read fluently material selected at random. Usually a "warm-up" period of a few minutes was required. The subject usually began by indicating that extreme concentration was required for the task and reported the following introspections: first an orange-red light appeared and finally white light, which was the signal to the subject that the special condition for extraocular reading had been reached.

Although a number of highly skeptical investigators studied the subject's performance, at first no flaws could be found. The bandage seemed foolproof. We could find no other opportunity for cheating and began to believe that we might be dealing with an unusual phenomenon. It finally became apparent, however, that the subject's "concentration of attention" consisted of tensing of muscles in the vicinity of the blindfold until a very tiny, inconspicuous chink appeared at the edge. Placing an opaque disk in front of the chink prevented reading, but not immediately. The subject had excellent memory and usually continued for a sentence or two after blocking of the reading material.

Closing the chink similarly prevented reading until a new opening at the edge of the adhesive occurred. However, closing the opening by applying pressure at the edge of the adhesive was made difficult by the subject's claim that pressure to the face interfered with sensitivity. The most effective blindfold we were able to develop consisted exclusively of two small pieces of adhesive tape which were used to fasten the eyelids shut. This also elicited the complaint of "too much pressure"; the subject seemed not to realize that the complaint of too much pressure at the eyelids was inconsistent with the claims of extraocular, or at least extraorbital, facial sensitivity. The subject was permitted to "adjust" the new occluders and was then able to read. An application of zinc ointment at the edges of these occluders, without exerting pressure, prevented reading—until a new chink was created. The white ointment made it much easier for the experimenters to detect the occurrence of a chink.

While the subject certainly demonstrated a high level of talent in reading at unusual angles through an aperture which often could not have exceeded a millimeter in diameter, it was quite clear that there was no need to invoke any new sensory receptors for vision. During this inquiry it came to our attention that magicians had long been performing similar feats, and it proved helpful to have a professional magician participate in our investigations. Our observation of the subject did not yield any evidence that there was awareness of "peeking." Indeed, use of similar blindfolds on ourselves showed that the vision obtained under these conditions was subjectively quite unusual and easily disassociated from the experience of normal vision.

In conclusion, it is worth emphasizing that, prior to our final thorough investigation, unsystematic testing by several scientists had failed to contradict the subject's extraordinary claims of extraocular reading. While the investigation reported in this letter cannot be considered a direct refutation of other reports of extraocular visual perception which have appeared in the literature, our experience does highlight the exhaustive precautions which must be taken when dealing with such claims.

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## Company Budgets for Basic Research

How much should an organization spend on fundamental research? For a business based on technology, with growth dependent on technological improvements, this is indeed a good question. The size of the applied-research budget, while not easy to arrive at, can be determined on the basis of new products or services sought. But one cannot apply this kind of rationale to basic investigations. Those who expect inquiries into the nature of things to produce results of substantial and immediate benefit to the business are very likely to be disappointed. It usually takes much more than is generally imagined to fill this chasm. Many more people today realize what most of those close to fundamental research have appreciated all the while: the glamor is chiefly in the doing.

Good fundamental research, if used properly, can be the best means of keeping current in a field, of providing ready expert consultation (provided there are good internal communications), of establishing an atmosphere in which good "applied" brains are extended and function more effectively, and of stimulating supervisors to do a better job of management. Fundamental research is a tool by which better work can be performed, and an organization should invest in it according to its aims in this respect.

Many organizations exert great efforts to maximize what they can afford for more and better equipment and buildings. To maximize what they can afford for brains usually requires cutting appropriations elsewhere, and often this is not done. On the contrary, it is usually the basic research