In all cases summarized here, including our own five subjects, only one chromosome of the homologous pair 17 had the structural variant. Two questions about this morphological deviation, however, remain unanswered. First, is the constricted terminal segment a satellite and, second, is the secondary constriction a "nucleolar organizer"? Consequently we cannot decide whether this is a "SAT-chromosome"[8,9], like the acrocentric satellite chromosomes of the *D* and *G* group. Others have observed marker 17 involved in "satellite association". In our material we have seen this only six times in 350 metaphases, and so do not think that the constriction in the short arm of the marker 17 is a real "SAT-zone".

According to an observation of Miller *et al.*[10], chromosomes 17–18 should frequently be situated at the periphery of the metaphase figure. There has been no direct confirmation of this finding by autoradiography. Because marker 17 was easily identified in our subjects, we can show that in 95 per cent of the scored cells this chromosome is indeed situated at the periphery. In view of previous observations of a marker 17, it seems likely that there is a real structural polymorphism in chromosome 17.

E. SCHMID
M. BAUCHINGER

Strahlenbiologisches Institut,
Universität München.

Received November 1; revised November 25, 1968.

[1] Ferguson-Smith, M. A., Ferguson-Smith, M. E., Ellis, P. M., and Dickson, M., *Cytogenetics*, **1**, 325 (1962).
[2] *Lancet*, i, 1063 (1960).
[3] *Cytogenetics*, **2**, 264 (1963).
[4] Moores, E. C., Anders, J. M., and Emanuel, R., *Ann. Human Genet.*, **30**, 77 (1966).
[5] German, J., Ehlers, K. H., and Engle, M. A., *Circulation*, **34**, 517 (1966).
[6] Emerit, I., De Grouchy, J., Vernant, P., and Corone, P., *Circulation*, **36**, 886 (1967).
[7] McGavin, D. D. M., Cant, J. S., Ferguson-Smith, M. A., and Ellis, P. M., *Lancet*, ii, 326 (1967).
[8] Heitz, E., *Planta*, **12**, 775 (1931).
[9] Resende, F., *Chromosoma*, **1**, 486 (1940).
[10] Miller, O. J., Breg, W. R., Mukherjee, B. B., Gamble, A. van N., and Christakos, A. C., *Cytogenetics*, **2**, 152 (1963).

Effects of Two Kinds of Distance Information on Visual Judgments of Absolute Size

IF a person is asked to make a judgment of the distance between him and some object which he is viewing, and if he has no cues on which to base such a judgment, it seems plausible to suppose that he could make the judgment if he knew how large the stimulus actually was. Whether or not subjects can take size information into account when making visual judgments of absolute distance in completely reduced conditions has been the subject of some controversy[1–5]. Recent results[6] have suggested, however, that this does happen, whether size information is contributed by past experience with the visual stimulus, by means of a haptic comparison–object, or verbally.

If subjects can combine information about the physical size of an object with information about its retinal subtense in order to judge its distance, then they might be able to make judgments of size when provided with information about the distance of an object which is being viewed in completely reduced conditions. Although the effect of size information on the judgment of distance has frequently been investigated, the analogous effect of distance information on judgments of size has not previously been examined.

Three groups of twenty-four subjects (undergraduates at the University of Sydney) participated, each seated in a light-tight dark room. They viewed the stimulus with the preferred eye through a viewing tube and a reduction screen. The stimulus was a patch of light (a base-down equilateral triangle with 8 inch sides), which was 15 feet away from the subject and at his eye level when he was seated at the viewing tube. Previous work[6] had demonstrated that unwanted residual cues to size and distance are absent from such an experimental arrangement, and that the end of the viewing tube does not form a visible frame around the stimulus. All that the subject could see in this case was a bright triangle of light against a uniform black background.

Table 1. SIZE ESTIMATES

Group	Mean (inches)	*S.D.*	Range (inches)	Semi-interquartile range (inches)
1	3·44	3·38	0·5–7·5	2·00
2	7·81	2·86	5·0–12·0	1·79
3	8·90	4·42	4·0–15·0	2·76

Each subject was requested to estimate, in feet and inches, the length of the base of the stimulus. Subjects in group 1 were given no information about the distance of the stimulus; they constituted a control group. Subjects in group 2 were informed that the stimulus was 15 feet from them. Subjects in group 3 were seated with their back to one wall of the room, looking across at the opposite wall which was 15 feet from their end of the viewing tube. These subjects had spent an hour of each of the preceding 23 weeks of term-time in laboratory sessions in this room, and so it was anticipated that the far wall would possess a "familiar distance" analogous to the familiar size possessed by such objects as playing cards or matchboxes. Each subject in this group was also asked for an estimate of the distance of the stimulus, after he had estimated its size. The mean of their distance estimates was 14·41 feet (with a standard deviation of 4·89 feet). Because this value was close to the true value, 15 feet, it may be maintained that the experiment was successful in realizing the condition of "familiar distance".

The size estimate results are shown in Table 1. The means for groups 2 and 3 were significantly different from the mean for the control group ($t=4·71$, df$=46$, $P<0·001$; $t=4·67$; df$=46$, $P<0·001$ respectively) and neither of the former means were significantly different from the actual size of the stimulus, which was 8 inches.

It is quite clear, then, that each source of distance information contributed effectively to the subjects' judgments of absolute size. Whether distance information was obtained verbally, or by means of prior experience of the experimental situation, subjects were able to combine this distance information with information contributed by the retinal subtense of the stimulus to judge the size of the stimulus. Not only does this demonstrate that the absolute size of a single retinal image has perceptual consequences, a proposition which Gogel[3] and Hochberg[7] have asserted to be false, but it indicates that, just as familiar size and verbally indicated size operate as cues for judgments of distance, so familiar distance and verbally indicated distance operate as cues for judgment of size.

MAX COLTHEART

Department of Psychology,
Monash University,
Clayton, Victoria,
Australia.

Received September 9, 1968.

[1] Ittelson, W. H., *Amer. J. Psychol.*, **64**, 54 (1951).
[2] Gogel, W. C., Hartman, B. O., and Harker, G. S., *Psychol. Monog.*, **71**, No. 442 (1957).
[3] Gogel, W. C., *Psychol. Bull.*, **62**, 217 (1964).
[4] Epstein, W., *Varieties of Perceptual Learning* (McGraw-Hill, New York, 1967).
[5] Baird, J. C., *J. Exp. Psychol.*, **66**, 155 (1963).
[6] Coltheart, M., thesis, Univ. Sydney (1968).
[7] Hochberg, J., *Perception* (Prentice-Hall, New Jersey, 1964).