

through a heavily-forested, flat country with numerous water bodies and a relatively small number of open clearings.

During Nagri time the medium-grained predominated over the fine-grained clastics. Rainfall was probably more seasonal than during Chinji time, but a forested environment prevailed, though perhaps becoming more broken than during the Chinji. Only with the Dhok Pathan is the lithological and faunal evidence indicative of the formation of open prairie and, at the top of this zone, an arid environment.

I am surprised that Leakey objects to my faunal analysis of the palaeoecology of the Nagri zone, because he has himself used this type of procedure in inferring the ecology of the fossil sites of Rusinga Island. In any event, Leakey has failed to demonstrate that my conclusions on the ecology of the Nagri formation should be changed.

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Do Disappearance Patterns in Low Illumination constitute a Perceptual Phenomenon or a Response Artefact?

If a dimly illuminated target is steadily fixated in a darkened room, all or parts of the target may seem to disappear and then reappear. There have been several reports that such disappearances are "structured" or "meaningful"¹⁻³. For example, whole lines presumably tend to disappear and reappear as units. Such "structured" disappearances have also been reported in stabilized retinal image and after-image conditions⁴. Hebb interpreted the seeming ubiquity of whole line disappearances as support for the idea that the whole line is a basic perceptual "unit" in complex visual percepts.

Before disappearance reports can be interpreted to support any theory it is necessary to know whether they are a genuine perceptual phenomenon or a response artefact. A subject may report only "meaningful" and "structured" fragmentations simply because they are easier to report. There is some evidence for this with respect to stabilized retinal images⁶. What would happen if it were equally easy for a subject to report whole lines, parts of lines and angle disappearances? Would the apparent absence of part line disappearances hold and would whole line disappearances occur to the extent reported in the literature? We have investigated these questions.

In our first experiment a 5 inch square was presented 6 feet and 12 feet (in balanced order) from the subjects. Three male and seven female subjects were told they would have to fixate a point in the centre of the square, that they might see all or parts of the square disappear and reappear, and that we were interested in three kinds of reports. What constituted a whole line, part of a line, and angle was explained on a sample square. The experimenter pointed to different parts of the square and elicited all three responses an equal number of times. The square was cut out from black contact paper, with a 0.5 inch thick line, and was backed with a sheet of bond paper which diffused light from a 6 W, 120 V bulb lowered to 24 V by a rheostat. Subjects were allowed to become

accustomed to the dark for 5 min and the square was presented in a darkened room for 2 min. One minute rest was given between tests. "Whole", "part" and "angle" responses were simply tallied.

Of 117 reported disappearances, 47.3 per cent were whole lines, 28.2 per cent were parts of lines, and 24.5 per cent were angles. (Angle disappearances could include whole or part lines, and so five more subjects described only angle disappearances. Of these reports, 77.4 per cent involved part lines and 22.6 per cent whole lines. It is therefore likely that the percentage of part line disappearances reported here is an under-estimate.) Thus, although whole line disappearances predominated, part line fragmentations were reported far more often than is evident in the literature.

A second experiment was run with sixteen female subjects involving four tests: the two of the first experiment and two in which a square coated with 'Nite-Brite' luminous paint was presented 6 feet and 12 feet from the subject (details in ref. 1). We wanted to replicate the results of the first experiment and to compare responses when illumination was supplied by electric light and luminous paint. Subjects did all four tests, in balanced order, with the same instructions as in the first experiment. Between trials, the luminous figure was scanned by a GE white fluorescent bulb to revivify the luminescence.

The results are quite similar to those of the first experiment. Whole line disappearances account for 41.8 per cent of the reports, part lines for 32.3 per cent, and angles for 25.9 per cent.

Table 1. NUMBER OF FRAGMENTATIONS IN DIFFERENT CONDITIONS (SECOND EXPERIMENT)

	Luminous paint illumination		Fluorescent illumination		Total
	6 feet away	12 feet away	6 feet away	12 feet away	
Part	31 (7.7%)	41 (10.2%)	31 (7.7%)	27 (6.7%)	130 (32.3%)
Whole	32 (8.0%)	72 (17.9%)	36 (9.0%)	28 (7.0%)	168 (41.9%)
Angle	23 (5.7%)	45 (11.2%)	18 (4.5%)	18 (4.5%)	104 (25.9%)
Total	86 (21.4%)	158 (39.3%)	85 (21.2%)	73 (18.2%)	402 (100.1%)

Analysis of variance reveals no significant differences between luminous as opposed to electrical illumination and a tendency towards significantly more disappearances when the square was 12 feet from the subject ($F(1,30) = 3.89$; $0.10 < P < 0.05$).

We have found that whole line disappearances are the most frequent responses, but are not as predominant as has been reported. Their frequency is about equal to part line and angle disappearances together. We cannot therefore cite the presumed empirical ubiquity of whole line disappearances as evidence for the idea of the whole line as a basic perceptual "unit".

Our results suggest the importance of ease of report as a factor influencing disappearance reports. Apparently, with the subject experiencing various elusive and complex visual phenomena, it is easier for him to offer the simpler report, "a line" (or another "structured" percept) than the more elaborate "lower, middle, or upper part of a line". The results reported here suggest that at least some proportion of the "structured" disappearances so frequently reported before, and the infrequency of "unstructured" disappearances, may be an artefact of ease of report. It therefore is important in experiments of this kind, to give the subject an equal opportunity to report "structured" and "unstructured" disappearances.

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