**SUPPLEMENTARY DOCUMENT NO 2 FOR CHAPTER 5**

*Extracts from reports from Donald Hebb’s Department on Sensory/Perceptual Deprivation*

*With authorship by Hebb’s colleagues, not Hebb himself.*

The first full paper reported perceptual effects during the period of deprivation which were surprising to both subjects and experimenters, even dramatic. Most subjects reported a series of unusual experiences, which were called ‘hallucinations’:

‘Where more “formed” (i.e. more complex) hallucinations occurred they were usually preceded by simpler forms of the phenomenon. Levels of complexity could be differentiated as follows: In the simplest form, the visual field, with the eyes closed, changed from dark to light colour; next in complexity were dots of light, lines, or simple geometrical patterns. All 14 subjects reported such imagery, and said it was a new experience to them. Still more complex forms consisted in “wall-paper patterns,” reported by 11 subjects, and isolated figures or objects, without background (e.g., a row of little yellow men with black caps on and their mouths open; a German helmet), reported by seven subjects. Finally, there were integrated scenes (e.g., a procession of squirrels with sacks over their shoulders marching “purposefully” across a snow field and out of the field of “vision”; prehistoric animals walking about in a jungle). Three of the 14 subjects reported such scenes.’

‘There were also reports of hallucinations involving other senses. One subject could hear the people speaking in his visual hallucinations, and another repeatedly heard the playing of a music box. Four subjects described kinesthetic and somesthetic phenomena. . . Two subjects reported a phenomenon which they found difficult to describe. They said it was as if there were two bodies side by side in the cubicle; in one case the two bodies overlapped, partly occupying the same space.’

‘. . .subjects were first surprised by these phenomena, and then amused or interested, waiting for what they would see next. Later, some subjects found them irritating, and complained that their vividness interfered with sleep. There was some control over content; by “trying”, the subject might see certain objects suggested by the experimenter, but not always as he intended.’

On leaving the cubicle, (it was stated in the 1954 paper) for a few minutes after return of normal sensory input, they were dazed, objects appeared fuzzy, and not well separated from the background; the visual world appeared two-dimensional for a short period.

In a second paper[[1]](#footnote-1), further detail is added:

‘. . There was a considerable amount of movement in the hallucinations: landscapes might appear divided into strips, which moved in opposite directions; parts of a scene, or entire scenes, might become inverted, and pivot slowly from side to side. At times this type of movement was unpleasant, and caused the observers to feel nausea.’

A later paper[[2]](#footnote-2) examined aspects of visual perception in the aftermath of the period of deprivation. Habitual competencies of normal perception were lost: ‘Size constancy’ – the fact objects are perceived to stay the same size as they moved towards, or away from an oberserver – was markedly reduced. ‘Shape constancy’ – the fact that objects appear to stay the same shape when viewed from different positions – was also probably reduced. On first emerging from isolation, subjects reported that the position of objects in the visual field was unstable, moving as the subject moved his head, suggesting loss of automatic compensation of visual perception for head movement. These changes often led to impairment in real life situations. One subject got lost within the washroom and explained: ‘One reason why I can't find my way is that when I try to visualize where I am, everything seems to be expanding and contracting and waving about.’ Visualising the external world as a thought exercise (for instance in route planning) had become impossible for some.

1. Heron W, Doane BK, Scott TH. (1956) Visual disturbances after prolonged perceptual isolation*. Canadian Journal of Psychology*, 10, 13–18. [↑](#footnote-ref-1)
2. Doane BK, Mahatoo W, Heron W, Scott TH. (1959) Changes in perceptual function after isolation. *Canadian Journal of Psychology*, 13, 210-219. [↑](#footnote-ref-2)