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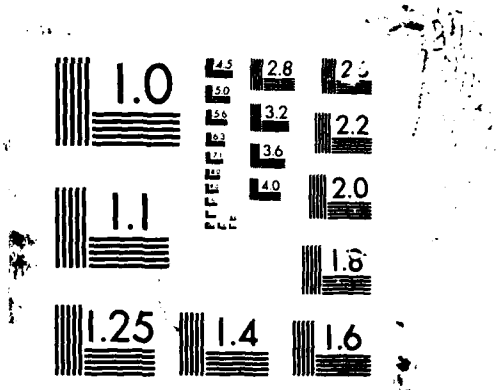
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The following is an abstract of a Ph.D. Thesis sub-itted to the Department of Applied Mathematics, Brown University, May, 1986. The manuscript is available in full.

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*
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Visual Cortex
Neural Systems

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*
Single unit recordings were obtained from 300 cells in area 17 of 20 kittens. The subjects were reared in the dark from about 2 until 6 weeks of age. Immediately prior to recording, brief periods of visual experience were allowed with one eyelid closed. Kittens were tested after 0,1,2, or 7 days of monocular experience. Responses to light bars moving in each of 12 directions presented to each eye were analyzed to provide quantitative indices of ocular dominance, orientation selectivity, and reliability for each cell.

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Ocular dominance shifted toward the open eye with as little as 6 hours of monocular experience. Similarly, reliability and selectivity in the experienced eye improved rapidly. These variables appeared to saturate quickly however: reliability did not improve significantly between 1 and 2 days. Selectivity continued to increase during the second day, although at a slower rate, leading to a slightly later saturation. No major changes were obvious in the deproved eye.

The results suggest that visual experience following dark rearing leads to a rapid improvement in evoked responsiveness, reversing the degradative effects of the deprivation.

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Visual Cortical Unit Response Properties in Kittens given brief Monocular Experience following Dark Rearing

Alan B. Saul

Department of Applied Mathematics
and
Center for Neural Science,
Brown University

Key Words: selectivity, ocular dominance, visual cortex, dark-rearing, neural systems

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Full copy of manuscript is available.

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Abstract of "Visual Cortical Unit Response Properties in Kittens given brief Monocular Experience following Dark Rearing" by Alan Bruce Saul, Ph.D., Brown University, May 1986.

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