動物生理学 III　Handout No. 6

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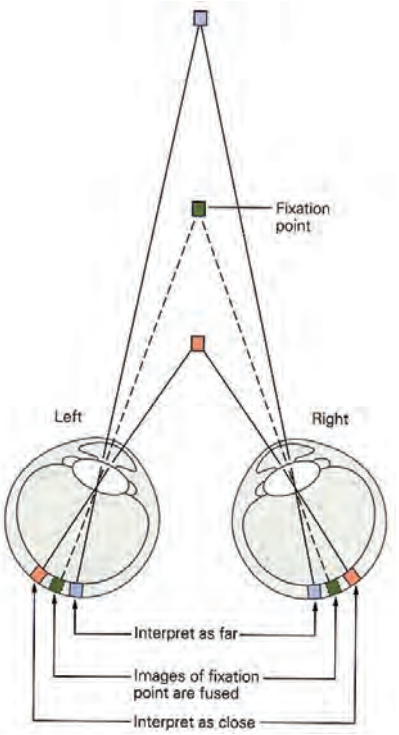

Figure 28-12 When we fix our eyes on a point the convergence of the eyes causes that point (the fixation point) to fall on identical portions of each retina. Cues for depth are provided by points just proximal or distal to the Fixation point. These points produce binocular disparity by stimulating slightly different parts of the retina of each eye. When the lack of correspondence is in the horizontal direction only and is not greater than about 0.6 mm or 2° of arc, the disparity is perceived as a single, solid (three-dimensional) spot.

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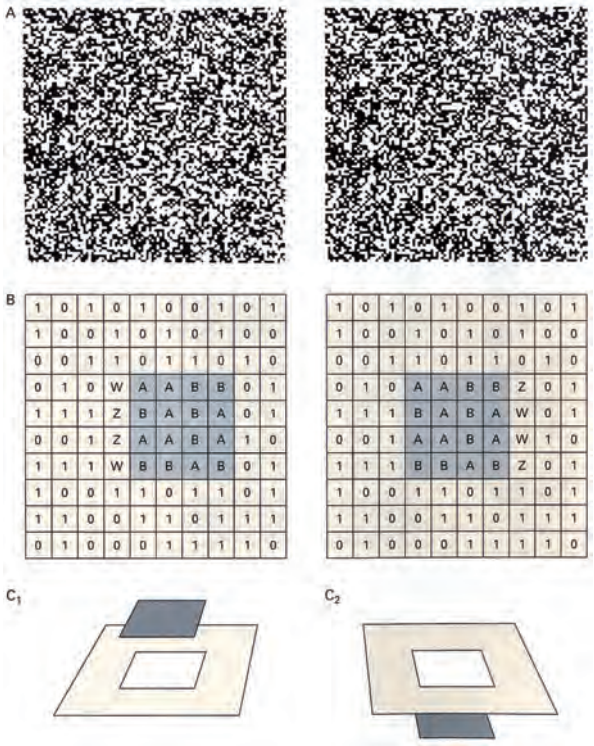

Figure 28-15 Stereopsis does not depend on perception of form.
A. A square form inside these identical random-dot displays cannot be seen by looking at either display alone. It can be seen only when the two identical images are viewed in a stereoscope, or by training the eyes to focus outside the image plane.
B. The square areas in the two random-dot patterns have different positions. The square becomes visible only because of the ocular disparity of the two dot patterns, not because either eye recognizes the form of the square.
C. In the stereoscope the random-dot images are placed behind a rectangular opening. If one inner square of dots is displaced so the left and right inner squares are closer together (1), the square is perceived in front of the larger pattern. If the inner squares are shifted so that the two squares are further apart (2), the square is perceived behind the larger pattern. (Adapted from Julesz 1971.)

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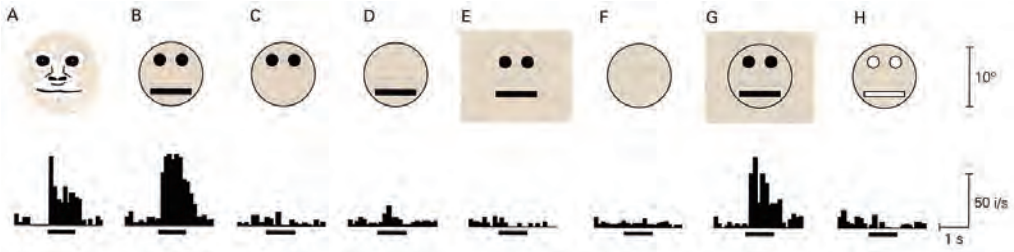

Figure 28-18 Response of a neuron in the inferior temporal cortex to complex stimuli.
The cell responds strongly to the face of a toy monkey (A). The critical features producing the response are revealed in a configuration of two black spots and one horizontal black bar arranged on a gray disk (B). The bar, spots, and circular outline together were essential, as can be seen by the cell's responses to images missing one or more of these features (C, D, E, F). The contrast between the inside and outside of the circular contour was not critical (G). However, the spots and bar had to be darker than the background within the outline (H). (i = spikes.) (Modified from Kobatake and Tanaka 1994)

④

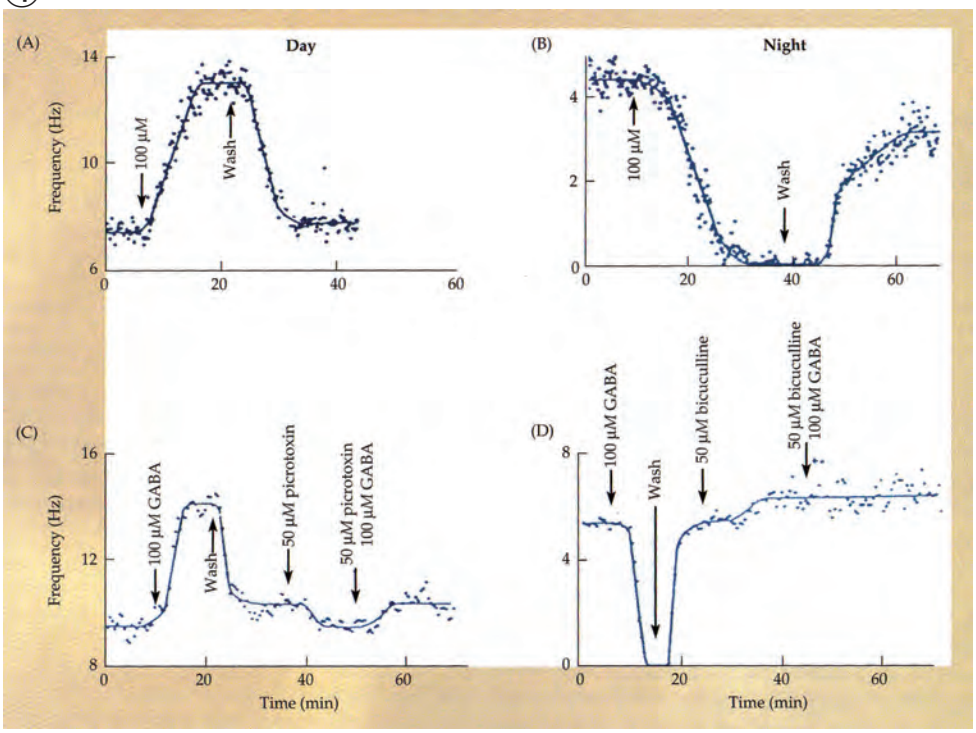

FIGURE 16.12 Circadian Rhythm of Slice of Rat Supra- chiasmatic Nucleus maintained in culture.
GABA was applied at different times while extracellular recordings were made from neurons. GABA gave rise to increases of action potential frequency in the daytime (A) and decreases at night (B). The recordings in C and D show that the effects of GABA were blocked by GABA antagonists (bicuculline and picrotoxin). The change from excitation to inhibition can be accounted for in terms of changed intracellular chloride concentrations, which were assessed by whole-cell patch recordings (not shown). The conductance change produced by GABA remains unchanged during the day-night cycle. The mechanisms that rhythmically change intracellular chloride concentration are not yet known. (After Wagner et al., 1997.)