9. In all subjects the largest P_3 waves were evoked after the signals in the attended ear. In several subjects a smaller P_3 was sometimes evident following the signals in the unattended ear, indicating that information from the unattended ear was occasionally being examined. No. P_3 was discernible after the standard tones in either ear. As Fig. 2 indicates, the difference between the N_1 evoked by standard as compared to signal tones was not substantial.
10. The mean interstimulus interval (for both ears together) was 375 msec in experiment 1 and 450 msec in experiment 2. Wilkinson and Lee (*5*) also delivered stimuli (one of three tone frequencies) at a rapid rate (mean interval = 673 msec) with the aim of forcing subjects to ignore irrelevant tones. They found that counting a stimulus enhanced the N_1-P_2 component by about 10 percent ($P < .05$). The authors attribute this effect to augmenting of P_2 by a positive d-c baseline shift rather than to selective attention. No independent effect upon N_1 was reported.
11. The overall percentages of the signal tones detected had the following medians (M) and interquartile ranges (R). Experiment 1, left ear (M, 90; R, 84 to 96); and right ear (M, 81; R, 70 to 92). Experiment 2, left ear (M, 88; R, 82 to 94); and right ear (M, 94; R, 90 to 98).
12. The P_3 wave (often preceded by a negative wave at 200 msec) is elicited upon the detection of many types of auditory and visual signals (*7*). A study by R. Eason, M. Harter, and C. White [*Physiol. Behav.* **4**, 283 (1969)] is a visual analog of our experiment, with stimuli being presented to the two halves of the visual field rather than to the two ears. Stimuli in the attended field evoked large waves of long latency (beyond 150 msec) which may reflect post-recognition processes (which include P_3) instead of a tonic set favoring the attended field.
13. D. E. Broadbent, in *Attention: Contemporary Theory and Analysis*, D. I. Mostofsky, Ed. (Appleton-Century-Crofts, New York, 1970), p. 51.
14. The stimulus set and response set distinction has been posed in various terms by different theorists, for example: attention and abstraction [D. E. Berlyne, in *Attention: Contemporary Theory and Analysis*, D. I. Mostofsky, Ed. (Appleton-Century-Crofts, New York, 1970), p. 25]; input selection and target selection [A. M. Treisman, *Psychol. Rev.* **76**, 282 (1969)]; filter and template [F. G. Worden and R. Galambos, *Neurosci. Res. Program Bull.* **10**, 1 (1972)].
15. In Broadbent's formulation (*13*), a response set alters the decision criterion for recognition of the selected target. The proposed relation between P_3 and response set is therefore supported by reports that P_3 amplitude is closely correlated with decision criterion during threshold detection tasks [D. Paul and S. Sutton, *Science* **177**, 362 (1972); K. C. Squires, S. A. Hillyard, P. Lindsay, *Percept. Psychophys.*, in press], and with signal likelihood (*7*). At present it is difficult to determine whether P_3 is a sign of the actual perceptual recognition process, the subsequent response activation, or of a concomitant nonspecific arousal or motivational event.
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Axonal Transport—Simple Diffusion?

Fischer and Schmatolla (*1*) proposed the existence of an axonal transport process which is resistant to colchicine. Their autoradiographic data and controls demonstrated the arrival of a small ion, via the axon, at the first synapse in the visual system within a half-hour of injection in the eye. I suggest that the process operating in their experiments is simply diffusion.

If one tentatively accepts the experimental situation as one of diffusional movement of putrescine away from the ganglion cell, where its concentration is held approximately constant by a large pool in the vitreous humor, then the diffusion equation takes the form (*2*)

$$C_x/C_0 = 1 - \text{erf}\, x/2\ (Dt)^{1/2}$$

where erf is the error function. We can substitute the experimental values for the eye-brain separation, $x = 0.03$ cm, and the shortest observed arrival time, $t = 2 \times 10^3$ seconds, and calculate the diffusion constant, D, necessary to account for the appearance of a specified fraction, C_x/C_0, of the original concentration at a point down the nerve.

If one could detect 1 percent, then a substance whose diffusion constant was as low as 3×10^{-8} cm^2 sec^{-1} could be detected. Although it is difficult to determine precisely from the autoradiograph in (*1*), there appear to be no more than one-tenth as many grains over the brain as over the retina. However, even if a concentration ratio of ½ was necessary for detection, a diffusion constant of 5×10^{-7} would suffice.

Intracellular diffusion constants of small organic and metal ions comparable in molecular weight to putrescine have been measured in both frog nerve (*3*) and muscle fibers (*4*). Since the values obtained were 100 to 500 times that needed to account for the observed movement of putrescine, it is unnecessary to hypothesize a transport mechanism other than passive diffusion. This result illustrates that diffusion will likely prevent accurate measurement of axonal transport of rapidly diffusing species over small distances on a time scale of hours.

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Magid's comment conveys the impression that we have postulated a new mechanism of intraaxonal transport. In our report we described the transport of putrescine within the optic nerve, but did not speculate on the mechanism. Diffusion itself is also a transport phenomenon. Whether the described putrescine transport occurs by diffusion or any other transport mechanism cannot be concluded from our results.

Using our published data Magid estimates a diffusion constant for putrescine within the axons and compares this constant with intracellular diffusion constants of small organic and metal ions comparable in molecular weight to putrescine. In principle this method is legitimate if one compares the diffusion constant of putrescine to the diffusion constants of other putrescine-like ions. For example, Ca^{2+} is one of the ions which has putrescine-like physiological and biochemical properties. Unfortunately, the diffusion coefficient for Ca^{2+} in nerves is not known, but it is known in muscle cells (*1*). In the case of muscle the diffusion coefficient is about 100 times smaller than in pure aqueous solution. There are good reasons to assume that chemical interactions of putrescine ions with the components of a nerve cell may further reduce putrescine mobility.

Numerous experiments involving axonal transport of protein with an incorporated labeled amino acid give evidence against simple diffusion as a transport mechanism. If protein synthesis in the perikaryon is inhibited by cycloheximide or puromycin in the presence of an unphysiologically high concentration of injected labeled amino acid, the transport of this labeled free amino acid is not seen. According to Magid's hypothesis one should see diffusion of these amino acids at a speed comparable to that of putrescine. Furthermore, in experiments with colchicine in the presence of excess amounts of labeled amino acids, transport of these amino acids is not seen. Should one suppose that simple diffusion can be stopped by colchicine?

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