

SYMBOLISM IN THE WHITE RAT

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This paper represents part of a larger program to determine the nature of the sensory cue and the symbolic processes in the delayed response.

The problem box was an H-shaped maze in which the sides of the H (30 inches long) may be designated as the stimulus compartment (SC) and response compartment (RC) and the bar (24 inches long) as the delay compartment (DC). On entering SC the animal was forced to turn either right or left. In either case it then followed DC to RC, where it had the choice of turning right or left. At either end of RC was a food box but the door to only one of these was unlocked in any trial, depending upon the direction of turn in SC. One group of nineteen rats (homolateral group) were required to turn in the *same* direction in RC as in SC. All except one rat scored 70 per cent and most of them 80 to 90 per cent correct choices in forty successive trials. This level was reached within 100 to 580 trials.

Another group of thirteen rats (heterolateral group) were put through the maze under the same conditions except that they were required to turn in RC in a direction *opposite* to that in SC. Only five of them mastered this problem and the number of trials required was considerably greater.

The time required to traverse DC was approximately one second. Additional delays of one to twenty seconds were introduced for both groups after mastery. All rats responded accurately after an additional delay of one second (total two seconds). However, only one exceeded this delay, total being six seconds.

Rats which were most rapid and smooth in their running (i. e., those with less tendency to stop or make other disorienting responses) made higher scores and reached mastery earlier. The percentage of correct runs near the point of mastery in which there were no spontaneous pauses at crucial points was more than twice as high as for trials with such pauses.

It is concluded tentatively that the rat can delay a response to the system of cues involved in this problem not more than six seconds and that duration of the delay is a function of a motor set which prevails during this period. Further data are being obtained as to the nature of the cues and other factors involved in the delayed response.