Ss of Group I chose the arm to which they were later trained an average of 35.3%. After training to criterion, sectioning and regeneration, the anterior and posterior regenerates displayed average correct response levels of 68.6% and 69.8% (since the means of the anterior and posterior groups were nearly the same during preference testing and retraining, they have been combined in Fig. 1). Statistical analyses (t-tests) indicate that the scores of the regenerated Ss during the post-regeneration preference testing differed significantly from the preferences exhibited by the original Ss (tails: $p < .005$; heads: $p < .025$). Examination of the number of trials required to achieve criterion also demonstrates savings in the regenerated Ss; while the original Ss took an average of 39.8 trials to reach criterion, their regenerated anterior and posterior sections took 21.8 and 20.7 trials respectively to reach the same criterion ($p < .025$ for each group when compared with the original Ss).

The response levels observed in the Ss of Group II show that when the animals were allowed to select either arm to escape the maze, their performance is random. None of these Ss ever selected the non-preferred arm 9 out of 10 times. The data obtained from Group III demonstrates that the process of regeneration cannot account for the improved performance in the regenerates of Group I. When the naive regenerated animals of Group III were trained, their acquisition scores were not significantly different from those of the original Ss in Group I. The anterior regenerates required 42.4 trials and the posterior portions 41.3 trials to reach criterion. The Ss of Group IV displayed a correct response level of 60.1% during their second performance test which was significantly higher ($p < .05$) than their initial preference of 34.9% (these data not shown in Fig. 1). These

scores were not significantly different from the levels observed during preference testing in the regenerated portions of Group I animals.

From these results, it is clear that the residual traces of training are pronounced in the regenerated offspring of previously trained planarians. Furthermore, the performance of the anterior and posterior derivatives are equal, confirming the original findings by McConnell et al (1959) for a classically conditioned response, and the data reported by Ernhart & Sherrick (1959) for a water-filled two-unit maze.²

References

- Brown, H. M. Photoreversal of the light-response decrement in planaria due to ultraviolet light. *Amer. Psychologist*, 1964, 19, 484. (Abstract)
- Brown, H. M., & Beck, E. C. Does learning in planaria survive regeneration? *Fed. Proc.*, 1964, 23, No. 2.
- Coming, W. C. Evidence of right-left discrimination in planarians. *J. Psychol.*, 1964, 58, 131-139.
- Coming, W. C., & John, E. R. Effect of ribonuclease on retention of conditioned response in regenerated planarians. *Science*, 1961, 134, 1363-1364.
- Ernhart, E. N., & Sherrick, C. Retention of a maze habit following regeneration in planaria (*D. maculata*). Paper presented at Mid-western Psychological Association, May, 1959.
- McConnell, J. V., Jacobson, A. L., & Kimble, D. P. The effects of regeneration upon retention of a conditioned response in the planarian. *J. comp. physiol. Psychol.*, 1959, 52, 1-5.
- VanDeventner, J. M., & Ratner, S. Variables affecting the frequency of response of planaria to light. *J. comp. physiol. Psychol.*, 1964, 57, 407-411.

Notes

1. Present address: Department of Psychology, Fordham University, Bronx, N. Y.
2. The present paper is a portion of the research carried out under Grant NSG 475, National Aeronautics and Space Administration. The author is indebted to S. Feinstein, D. A. Feinstein, and C. Rouse for their assistance in the research.

ERRATUM

Moyer, K. E., & Chapman, J. A. Effect of continuous vs. discontinuous shock on shuttle box avoidance in the rat. *Psychon. Sci.*, 1966, 4 (5), 197-198.—In this experiment the description of procedure was incorrect. The Ss were described as running from a dark grid to a lighted one in order to escape or avoid shock. The reverse was, in fact, true. The Ss ran from the lighted grid to the dark grid.