3:10. Effects of medial temporal lesions on delayed reactions. R. E. CORRELL AND W. B. SCOVILLE, *Hartford Hospital.*

The effects of bilateral lesions of the medial temporal lobe structures (uncus, amygdala, hippocampus, hippocampal gyrus) on learning and retention of ten-second delayed response (DR) and five-second delayed alternation (DA) were studied in a series of 15 rhesus monkeys. Retention of preoperatively learned DR and DA was not impaired. Postoperative new learning of DR and DA was impaired. There was a more severe deficit on DA than on DR. The deficit on DA was most severe when DR was learned first. Implications for the role of the temporal lobe in memory function are discussed.

3:20. Reversal learning by cats with prestriate and orbitofrontal lesions. HELEN B. WARREN AND J. M. WARREN, *Yerkes Laboratories of Primate Biology.*

Ten normal cats, six with lesions in the suprasylvian gyrus (Prestriates) and eight with lesions in gyrus proreus (Frontals), were tested on 30 reversals of a discrimination habit based on combined visual and positional cues. Both groups of operated animals were significantly inferior to the normal controls on Reversals 1 through 15. The Frontals, but not the Prestriates, were also significantly inferior to the Controls on Reversals 16 through 30. It was concluded that both lesions impair serial reversal learning, but the impairment resulting from orbitofrontal lesions is more persistent. Similar losses in reversal learning are observed in primates.

3:30. Intermanual transfer in split-brain monkeys after somatic cortical ablation. MITCHELL GLICKSTEIN AND R. W. SPERRY, *California Institute of Technology.*

A previous study reported that callosum section tends to block the normally strong intermanual transfer of somesthetic discriminations in monkeys, but that such discriminations may transfer in a minority of cases. To test whether this transfer could be forced by unilateral cortical ablation, two monkeys were used that had previously exhibited no transfer even after extensive overtraining. Somatic arm Area I was ablated unilaterally, and after recovery, subjects were trained to perform new tactile problems and tested for transfer. Both monkeys now exhibited high-level transfer. Results confirm the capacity for intermanual transfer in split-brain monkeys and suggest mediation via ipsilateral somesthetic projections.

3:40. Delayed object-quality discrimination in hemicerebrectomized monkeys. DONALD C. KRUPER, ROBERT A. PATTON, AND YALE D. KOSKOFF, *University of Pittsburgh and Montefiore Hospital, Pittsburgh, Pennsylvania.*

Five hemicerebrectomized and five normal monkeys were tested on a delayed object-quality task (DOQ), using randomly presented intertrial delays of 20, 40, 80, and 120 seconds. Although the normal subjects performed significantly better on the overall scores, significant group differences occurred on only 40- and 80-second scores. Separate interval scores, within the same groups, showed the following relationships to the 20-second scores: (*a*) lower performance on all longer intervals by the operated group and (*b*) lower performance on only the 120-second interval by the normal group. DOQ performance was lower as a function of the delay variable, more for the operated than for the normal subjects.

3:50. Simultaneous learning of two conflicting problems by split-brain monkeys. COLWYN B. TREVARTHEN, *California Institute of Technology.* (Sponsor, Roger W. Sperry)

It has been shown that conflicting visual discrimination habits can be established in right and left hemispheres of the split-brain monkey (corpus callosum, optic chiasma, and anterior commisure cut) by seriatim or concurrent training of separate eyes. Polarized light techniques were here employed to test if the two separate and opposing discriminations could be learned simultaneously, i.e., with each trial contributing to the learning in both hemispheres. Superimposed patterns of polarized light were back-projected on two plastic screens viewed through polarizing filters, one for each eye, oriented at right angles to each other. Results show a tendency for one dominant hemisphere to learn at the expense of the other, but in some cases there is indication that both learn simultaneously.

4:00. The effects of hemicerebrectomy on the solution of the oddity problem by monkeys. STEPHEN A. KUSHNICK AND CARL E. WEDEKIND, *Montefiore Hospital, Pittsburgh, Pennsylvania, and the University of Pittsburgh.*

Four object-quality trained hemicerebrectomized rhesus monkeys were trained in the standard oddity procedure, in order to evaluate the effects of this operation on the "abstract" abilities in monkeys. The data demonstrated that hemicerebrectomy produced no significant impairment in oddity learning. Descriptive comparisons of the data with that of normal monkeys and other brain lesion groups demonstrated that performance by hemicerebrectomies was similar

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