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Effect of Induced Manual Handicaps on Motor Performance of a Complex Nature

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ance afford an objective criterion of sleep. Although graphical analysis of the data showed curves similar to those presented by Richter, statistical analysis suggested that increases in resistance were associated with muscular relaxation and not with sleep *per se*. They further suggested that, contrary to Landis and Waller, activity resulted in a decrease in resistance. It was discovered that variations in resistance were roughly proportional in extent to level of resistance, thus rendering curves directly incomparable. Landis' failure to duplicate Richter's results is thereby explained. A technique for superimposition of curves on comparable ordinates is presented. The results of the experiment with infants were checked and confirmed with a group of six adults by both direct and alternating-current techniques.

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EFFECT OF INDUCED MANUAL HANDICAPS ON MOTOR PERFORMANCE OF A COMPLEX NATURE

LAVERNE JOHNSON AND A. R. LAUER

The question of how much one's ability to drive an automobile would be affected by the loss of an arm has been experimentally studied, under laboratory conditions, and statistically calculated. Comparison is made between manipulative ability, errors, stop signs and other stimuli missed, etc., as well as driving speed using right, left and both hands respectively.

The standardized indoor driving test, described by Lauer and Kotvis was used. It consists of a complex testing apparatus simulating actual driving manipulatory performance and is operated from standard car controls. The reliability of this apparatus for the length of test period used is approximately +.75. Each subject drove through the "course" once with the right hand, once with the left and once with both hands in random order, after having become familiar with the nature of the problem. Fifty-three subjects were used most of whom were college students.

Results show there is little loss in efficiency when either member is used separately. Either hand alone was shown to be 91.4% as efficient in manipulative ability as both hands used together. There is very little difference between the right and left hands. Statistical

results also show that the one-armed driver takes 8% longer time than the same driver using both hands. Errors in observation are very slightly affected by a handicap in manipulative ability, and there is no significant difference between the number of errors made with either or both hands. The correlation of manipulation and errors was $-.22 \pm .08$. The correlation between manipulative ability and time taken of the test, i.e., speed, was $+.19 \pm .09$. These intercorrelations indicate relative independence of the variables compared.

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NEW APPARATUS FOR THE MEASUREMENT OF THE ELECTRO DERMAL RESPONSE

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An analysis of the literature on apparatus used to measure electro dermal responses shows that about ten characteristics have been considered important by the majority of investigators.

Apparatus which includes most of these is presented. Its circuit and accessory photographic recording mechanism is explained. The chief distinguishing features are:

1. Measurement in standard physical units (ohms).
2. Continuous measurement.
3. A permanent record of all variations.
4. Constant visibility of the resistance level and response variations.
5. Ruggedness.
6. Adequate sensitivity for most researches in psychology.
7. Portability.
8. Simplicity of circuit and operation.
9. Use of alternating exosomatic current.
10. Dry electrodes with little polarization.
11. Very constant current through the observer.
12. Reasonable cost.
13. Single current source from a commercial supply lead.

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