Discussion

The apparent discrepancy between the present study and the previous studies which indicated that drive summation occurs in the water escape task can probably be explained on the basis of the complexity of the tasks used. The studies by Morey (1934) and Braun et al (1957) used mazes. The study by Levine et al (1959) cannot be so simply explained, since they too used a straight runway. It will be recalled that they ran their Ss in water at room temperature, and they used pre-trial shock to "activate" the animals. It has been shown in the present study that swimming was not at an asymptote in the warmer temperature, so it is reasonable that more activated animals could perform faster. The effects of pre-trial shock are apparently greater than the effects of 72 hr. pre-trial food deprivation. It remains to be seen whether shock prior to swimming will enhance swimming speed in 15° C water.

It seemed apparent that by the second day learning was complete and performance was the only variable then being studied. It must be concluded that the deprivation levels used in this experiment do not enhance performance in the water escape runway; however, the data concerning the number of times the food was taken indicated that the food had different value in the two temperature conditions. Specifically, the food was sought less after the experience in the colder water, indicating the rats were more "concerned" with other things after being in the cold water. It should be recalled that after the first day the animals were less deprived, and it could be that increasing the deprivation period prior to the second and third experimental days would produce different results.

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A method of measuring brain lesions

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Abstract

It was noted that the most frequently used method of measuring brain lesions is probably the planimeter. The planimeter method is time consuming and planimeters are not readily available to most psychologists. The dot grid method was described and recommended for its savings in effort and expense with negligible sacrifice of accuracy.

Problem

Cartographers (Robinson, 1953) and foresters (Spurr, 1948; Avery, 1962) have devised several methods of determining the area of irregular fields. Psychologists sometimes need to determine irregular areas as in the case of cortical ablations. The majority of psychologists using rats as Ss have employed Lashley brain diagrams (1929) to determine the amount of cortex removed. The most frequent method used is that of determining area with a planimeter. This is a preferred method for its accuracy, but it is time consuming, and the planimeter is an expensive instrument. Some psychologists have used weight apportioning methods, but this is very time consuming and has less accuracy. An alternative to both these techniques that psychologists have apparently overlooked is the dot grid method. This is inexpensive, quick and accurate. There are other techniques available for area determination, but the present writers wish to describe and recommend the dot grid method.

Method

Avery (1962) noted that dot grids can be purchased or improvised inexpensively. One commercially available dot grid was prepared and described by Bryan (1943), and this can be purchased at forestry supply houses. A dot grid can be improvised by marking a transparent sheet of acetate at 1/16 in intervals; thus the grid contains 256 dots per square in. Greater or less accuracy can be obtained by decreasing or increasing the spacing of the dots.

The dot grid is placed over the cerebral cortical portion of the Lashley diagram and the number of dots falling within the figure are counted. Three readings are recommended to assure accuracy; an average of the readings may be taken in the event they do not agree. Bryan (1943) recommended counting every other dot that falls on the boundary line, but the present writers suggest equal accuracy will be obtained by counting all dots on the line of the brain diagram and on the line demarcating the lesion. The number of dots in the lesion divided by the number of dots in the brain diagram gives the per cent of cortex which has been removed.

Discussion

Abell (1939) reported that the dot grid method has 1.84% error compared to planimeter controls. It was not possible to discern from Abell's study what his dot grid interval was. It is possible that the error is less in the dot grid spacing described here (i. e. 256 dots/sq in). In any event, a two per cent error is quite tolerable when the advantages in time, effort and expense are considered.

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