SHORT COMMUNICATION

The Maudsley Reactive and Nonreactive Strains of Rats: A Clarification

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The origin of the Maudsley reactive and nonreactive strains of rats and the construction of the survey of researches using them are briefly reviewed in the light of Archer's criticisms. The reasons for reasserting that they represent a valid dichotomy in emotionality are summarized.

KEY WORDS: rat; selective breeding; emotionality; Maudsley strains.

The rehabilitation of the open-field test of emotionality in the rat, following its restandardization in 1957, has led to its becoming one of the more widely used, standard test situations in animal psychology laboratories throughout the world. Not surprisingly, in view of its origin in Hall's laboratory in the 1930s, this utilization has been especially pronounced in psychogenetics, probably as a result of the availability of descendants of Hall's original selection and the widespread dispersion subsequently of their successors, the Maudsley reactive and nonreactive strains of rats, in laboratories in Europe and North America. The outcome of the use of these strains has been surveyed twice, once by Eysenck and Broadhurst (1964) and more recently by Broadhurst (1975). This latter survey has attracted the critical attention of Archer (1975), who asserted the need for an objective appraisal of the differences between the two strains which were documented in the surveys mentioned. In each case, this documentation took the form of no more than the briefest specification of the techniques and tests used, a note of the generation of the selection employed, and an evaluation of the outcome, all in tabular form in order to keep the presentation within manageable com-
pass—there being over 60 entries in the table in the first reference cited, and no less than 280 in the second. Caveats were offered in the introduction to the second table, which included both references to other surveys of the material reviewed, including one by Archer himself, together with an explanation of how I made the necessarily capsulelike judgments on the bearing each result had on the general hypothesis that the strains represent a valid dichotomy with respect to a concept of underlying general emotional reactivity. Despite this, Archer has perhaps been overinfluenced by the brevity into questioning the conclusions arrived at. He does so on the following general grounds: the inadequacy of the definition of the construct of emotionality used and the assessment of the results bearing on it on the basis of subjective criteria, which does not permit the falsification of it, and the exclusion of interpretations of the data other than that of emotionality.

While the complexity of defining emotionality and the existence of various levels at which attempts can be made to do so are recognized, there is one definition implicitly used throughout the survey and, indeed, explicitly referred to in the statement that "the strain designations 'reactive' and 'nonreactive' relate solely to the defecation scores in the open field" (Broadhurst, 1975, p. 299). It is against this single operational definition of the procedure by which the two Maudsley strains were genetically selected that all the other findings are assessed, and which necessarily excludes others. As for the element of subjectivity involved in each of these numerous assessments, again it should be noted that the reader was forewarned and, indeed, "invited to consult the reference concerned, but may still disagree!" (p. 301). Explanation of the kind called for by Archer (1975) of the grounds upon which assessments were made would have demanded a treatment transcending the limitations of space available for a survey of this sort, in view of the various behavioral and physiological models involved in appraising the numerous data on the two strains now available to us.

Moreover, the proof of the pudding is in the eating: if large numbers of negative assessments had perforce to be shown, then the relatively modest positive conclusion arrived at ("a construct of emotionality still seems to be supported by the differences noted . . . ," p. 315) would not have been tenable, thus disconfirming the hypothesis. Clearly, there can be no question that the hypothesis can be proved to be correct, only that the weight of evidence seems to favor it. In this case, we started with a relatively simple hypothesis, namely that the defecation measure from the open-field test is expressive of a more general trait of emotionality. Much evidence was then amassed to show that this defecation index has considerable genetic determination, principally by the successful selection of strains showing variation in it. It then remained to show that we had selected not simply for defecation but for the hypothesized more general trait. Deductions from