

This Week's Citation Classic

Archer I. Tests for emotionality in rats and mice: a review. *Anim. Behav.* 21:205-35, 1973. [Sch. Biological Sciences, Univ. Sussex, Falmer, Brighton, Sussex, England]

This paper reviews tests used to assess 'emotionality' or fearfulness in laboratory rats and mice. It is concluded that the various behavioural and physiological measures do not represent a single dimension and more detailed behavioural analysis is suggested. [The Science Citation Index® (SCI®) and the Social Sciences Citation Index® (SSCI®) indicate that this paper has been cited over 160 times since 1973.]

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"Following the work of C.S. Hall¹ in the 1930s, psychologists interested in experimental animal research have sought to measure the relative levels of fear or 'emotionality' in laboratory rodents by simple, rapidly administered tests. The best-known of these involves placing the animal into a novel arena and recording its movement ('ambulation') and amount of defecation during a short time period. P.L. Broadhurst² standardised the test in the 1950s after which it was used extensively. It provides a quick, easy assessment of the animal's behavioural state, and serves the same function as some rapidly-administered human personality tests. In fact, both represent a psychological tradition which seeks to characterize human and animal behaviour in terms of a small number of dimensions amenable to measurement by simple tests.

"I was originally trained as a zoologist, and therefore come from a very different background, that of ethology, which recognizes the complexity and variety of animal (and human) behaviour. Nevertheless, I was

interested in the same subject matter as the psychologists who were using the emotionality tests. When I was a postdoctoral worker at Sussex University (1969-1975), I began to have reservations about how accurately simple measures could provide a meaningful analysis of animal behaviour. I have always preferred writing review papers to carrying out research, and as there appeared to be no critical reviews of the subject, I set out to write one. This took longer and was more difficult than I anticipated. I sent the original version of the paper to a psychological journal and it was rejected. I then tried to make it more comprehensive and better organized. By the time I was ready to submit it again, the paper was over three times the previous length. I chose a more ethologically-slanted journal this time. One possible difficulty in getting the paper reviewed fairly was that researchers in this field were likely to have built careers and reputations using the very tests I was subjecting to critical scrutiny. The reviewers' comments were indeed lukewarm (though not necessarily for this reason!) but the editor was sufficiently favourable to accept it. He pointed out one aspect which must be a difficulty with all works of criticism, namely, that 'it is all very well to find fault with others, but what have you got to offer instead?' I did try to address the problem of alternative approaches in my final version, and I have since followed this up in a more recent article.³

"I think that the main reason the paper has been cited frequently is that it provided a useful appraisal and catalogue of studies involving tests which were widely used and yet gave rise to misgivings in many users. In this sense, my review was published at the right time, but opinions about my judgement remain divided to this day."⁴

1. **Hal C S.** Emotional behavior in the rat. I. Defaecation and urination as measures of individual differences in emotionality. *J. Comp. Psychol.* 18:385-403, 1934.
2. **Broadhurst P L.** Determinants of emotionality in the rat. I. Situational factors. *Brit. J. Psychol.* 48:1-12, 1957.
3. **Archer I.** Behavioural aspects of fear. (Sluckin W, ed.) *Fear in animals and man.* New York: Van Nostrand Reinhold. 1979. p. 56-85.
4. **Jones R B, Duncan I J H & Haghès B O.** The assessment of fear in domestic hens exposed to a looming human stimulus. *Behav. Process.* 6:121-33, 1981.