

This Week's Citation Classic

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Scott J P. Agonistic behavior of mice and rats: a review. *Amer. Zool.* 6:683-701, 1966.
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This is a general review paper concerning the agonistic behavior of the two mammalian species most commonly used in research on aggression and is organized around a multifactorial theoretical framework which was the basis for the later development of a more highly integrated polysystemic theory. [The *Science Citation Index*[®] (*SCI*[®]) and the *Social Sciences Citation Index*[®] (*SSCI*[™]) indicate that this paper has been cited over 150 times since 1966.]

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"In the early 1940s I, along with Benson Ginsburg and others, originated the use of the house mouse for research on aggression. The suitability of this species lay chiefly in the fact that it was easy to elicit among mice the kind of injurious and often fatal violence that is of primary concern in human affairs.

"The paper under discussion is the second of two review papers that followed up research in this field. The first¹ pointed out that causes of fighting could be found on any level of organization from the genetic to the ecological, and this theme was expanded in a later book.²

"This second paper was originally presented as a summary of a symposium organized by R.E. Ulrich. I am pleased to hear that it has been often cited, but I can only surmise the reasons. Among others it was reprinted in Southwick's book of readings on Animal Aggression and hence is easily accessible to both zoologists and

psychologists.³ Also, I would like to think that it is cited because it is a well-written critical review of then current research, covers an extensive field, and indicates new areas that needed to be explored. It also helped to put to rest the issue of spontaneous internal stimulation of fighting.

"Its title includes the term 'agonistic behavior,' a concept that I had originated and which has since become widely accepted. Defined as behavior that is adaptive in situations of conflict between members of the same species, it is a much more precise and analytically useful concept than the term aggression, whose meaning has become so widely extended as to make it almost useless as a research tool.

"If I were to write a similar paper today I would have to chronicle extensive progress that has been made in fields that were barely mentioned in it. For example, there is now an extensive literature on agonistic responses to odorless stimuli in mice.⁴ Methods of inducing serious fighting in rats have been developed by several experimenters, and the Blanchards⁵ have demonstrated that it is organized so as to minimize serious injury. Fighting among females has now been seriously studied: in mice by Ebert and Hyde,⁶ and in the rat by the Blanchards.⁷ Notable advances have been made in the field of endocrinology, especially the organizing effect of testosterone in neonatal mice.⁸

"The one serious shortcoming of the paper is that it was based on a multifactorial theory of behavior and only foreshadows the theoretical framework which I have since developed into a polysystemic theory.⁹ The same theme is extended to include the evolution of agonistic behavior in a forthcoming paper."¹⁰

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4. Kessler S, Harmatz P & Getting S A. I. Strain differences in the capacity of male urinary odors to elicit aggression. *Behav. Genet.* 5:233-8, 1975.
5. Blanchard R J, Fukunaga K, Blanchard D C & Kelley M S. Conspecific aggression in the laboratory rat. *J. Comp. Physiol. Psychol.* 89:1204-9, 1975.
6. Ebert P D & Hyde J S. Selection for agonistic behavior in wild female *Mus musculus*. *Behav. Genet.* 6:291, 1976.
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8. Whitsett J M, Bronson F H, Peters P J & Hamilton T H. Neonatal organization of aggression in mice: correlation of critical period with uptake of hormone. *Hormone Behav.* 3:11-21, 1972.
9. Scott J P. Violence and the disaggregated society. *Aggress. Behav.* 1:235-60, 1975.
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