

ments did not occur spontaneously nor could they be evoked by manipulation.

Abolition of movement or changes in blood pressure resulting from section of the spinal cord does not avert the decrease in the concentration of brain NA occurring with high decerebration (Table 2). On the other hand, the absence of any change in its concentration in low decerebrate spinal cats or in that of brainstem 5HT in either group indicates that spinal section does not by itself produce a change in the amounts of these amines in the lower brainstem within 3 hours. Spinal section prevents the depletion of adrenal NA but, surprisingly, not that of A occurring with high decerebration. The decrease in the concentration of adrenal A in high decerebrate spinal cats is unexplained but may only be a consequence of the small sample size, since the difference between the amounts in low and high decerebrate spinal cats is not significant ($P > .05$).

The defense reaction, when elicited by a lesion of the brainstem, results in a reduction in the amount of brainstem NA unassociated with any change in the amounts of 5HT; it also causes a decrease in the amount of adrenal NA and A. Such a pattern is similar to that produced by electrical stimulation of the amygdala and hypothalamus, which evokes the defense reaction (1). That the decline in brainstem NA is not the result of depletion of NA reserves secondary to transection of tracts is supported by the fact that the depletion of NA in animals with permanent sections of central tracts is not seen for at least 2 days (4), and also by the finding that the amount of NA in the brainstems of animals with low decerebration does not decline. Nor is it the result of the principal somatic and autonomic concomitants of the defense reaction since the concentration of NA in the brainstem falls to the same degree in high decerebrate cats as it does when expression of the defense response is abolished by transection of the spinal cord.

When peripheral sympathetic neurons are electrically stimulated, depletion of NA in sympathetic terminals is the result of a disproportion between the release and synthesis of NA (5). That depletion of NA within neurons in the brain is to some extent proportional to the degree of neural activity has also been demonstrated (6). Thus, it seems likely that the decline in brainstem NA seen when the defense reaction is elicited by high decerebration or

by electrical stimulation of the hypothalamus or amygdala (1) is the result of augmented activity in NA neurons. The absence of changes in the amounts of 5HT during rage suggests that the activity of neurons containing 5HT is of less importance in this behavior than is that of the neurons containing NA. On the other hand, neurons containing 5HT may be able to maintain a synthesis great enough to compensate for increased activity. It is also likely that the depletion of adrenal NA and A in the defense reaction results from the release being in excess of synthesis, during the increased sympathetic discharge to the adrenal.

Our study supports the premise that in the brain neurons containing NA are active in the expression of the defense reaction in the cat. That depletion of NA is not unique to this behavior should be emphasized, for depletion of brain NA associated with preservation or even elevation of 5HT concentrations may occur in drug-induced excitement or physical and emotional stress (7). It is likely that neurons containing NA are a component of the loosely defined arousal mechanisms of the brainstem which are maximally engaged in any form of excited behavior, including the defense reaction.

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Hampea and the Boll Weevil:

A Correction

In reporting the occurrence of the cotton boll weevil (*Anthonomus grandis* Boh.) on plants of the genus *Hampea* in Veracruz, Mexico, I stated that the host plants were "tentatively determined to be *H. integerrima* Schlecht." and added that "the plants differ clearly in floral characters from *H. rovirosae* Standl." (1). These statements require correction.

I recently examined a wide range of material of *Hampea*, including the relevant types. It became clear that the specimens (2) cited in the earlier paper represent *Hampea rovirosae* Standl. This observation constitutes a significant northward extension of the range of this species.

The basis for the earlier misconception lies in the incorrect measurement of the calyx that Standley reported in his description of *H. rovirosae*, and in the emphasis that he gave to this feature in his key to the genus (3). Standley stated that the calyx of *H. rovirosae* is 10 mm, whereas I measured calyces of the several buds on the holotype (4) and obtained a mode of 7 mm. In only one bud, in which the calyx is torn, was a measurement of 10 mm obtained. In the specimens cited (2), calyces range from 4 mm to 7 mm with a mode of 5 mm. Flowers of staminate and pistillate plants do not differ in this respect. Comparisons with the type leave no doubt that the plants observed to be the host of *Anthonomus grandis* Boh. are *Hampea rovirosae* Standl.

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- 4 May 1967

Hexagonal Diamonds in Meteorites

The recent synthesis of hexagonal diamond at high pressure and its subsequent discovery in the Canyon Diablo and Goalpara meteorites [R. E. Hanne-man, H. M. Strong, F. P. Bundy, *Science*, **155**, 995 (1967)] constitute strik-

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