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 hypoththalamus, 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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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. Hanneman, H. M. Strong, F. P. Bundy, *Science*, **155**, 995 (1967)] constitute striking experimental confirmation of our proposal several years ago concerning the existence of a possible hexagonal polymorph of diamond [S. Ergun and L. E. Alexander, *Nature* **195**, 765 (1962)]. We had pointed out that, in view of the existence of a number of tetrahedral structures in both cubic and hexagonal crystalline forms (for example, SiC and ZnS), it was remarkable that C, Si, and Ge had been reported to exist in only the face-centered cubic form. By stereochemical considerations it was shown that mixed cubic and hexagonal structures can result only from stacking variations along one axis, the *c*-axis of the hexagonal lattice. Calculations of the positions and intensities of the Debye-Scherrer lines, to be expected for the hexagonal diamond phase, showed that the presence of an appreciable proportion of hexagonal stacking sequences would have the effect of broadening and shifting such face-centered cubic diffraction lines as (111), (220), (113), and (133). The recent work shows similar effects, on the face-centered-cubic lines, produced by mixtures of hexagonal and face-centered cubic crystallites in the meteorites.

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Tetrodotoxin: Action on Graded Responses

In their paper, Benolken and Russell (*1*) do not mention a well-established distinction among graded responses, and this omission distorts interpretation of their data. Generator potentials of sensory neurons, as well as postsynaptic potentials, are inherently graded responses, because the membrane component that produces them is electrically inexcitable, and thus there is no feedback between the electrogenic processes and the changes in membrane potential (*2–4*). These electrically inexcitable responses are not affected by tetrodotoxin or saxitoxin (*4, 5*). However, electrically excitable membrane components can also produce graded responses given appropriate conditions of the local circuit, or of ionic permeabilities and gradients, or of both (*3, 6*).

When this graded, electrically excitable electrogenesis depends on Na^{+}-activation, it may be expected that it will be eliminated by tetrodotoxin. Such an effect was observed for an electrically excitable graded component in the photic response of the honeybee (*7*) and this is also what Benolken and Russell (*1*) appear to have observed now in *Limulus*. The response that was eliminated by tetrodotoxin in their illustrative experiment (Figs. 1 and 2) was a pulsatile depolarization of some 6 to 7 mv. It arose from a generator depolarization of about 35 mv that was not affected by the drug.

The authors (*1*, p. 1577) summarize Benolken's earlier findings on this component as follows: "the transient response can reverse the resting potential level of the cell" (that is, it may overshoot to inside positivity) and "while graded over much of its range, the transient component exhibits regenerative properties over a portion of this range. . . ." These are characteristics of electrically excitable activity (*3, 6*). Benolken's findings, as well as other data, led to the conclusion that a membrane which is predominantly receptive in function and which is electrically inexcitable may have some electrically excitable components interspersed in it (*4, 8*). The finding by Benolken and Russell (*1*) that only the pulsatile early component of the photic response of *Limulus*, but not the generator potential, is eliminated by tetrodotoxin thus supports the distinctions between electrophysiological and pharmacological properties of electrically inexcitable and electrically excitable electrogenesis.

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The comments by Grundfest refer to a report of Benolken and Russell (*1*) in which an uncomplicated experimental question was phrased as follows: Is the graded response of the *Limulus* eye sensitive to tetrodotoxin? Tetrodotoxin blocked a graded transient component of this visual response (i) when the eye was in a light-adapted or dark-adapted state, and (ii) when transient responses were of small amplitude or as large as 35 mv. The action of the drug on the membrane sites could not be reversed competitively by photoproducts at quantum flux densities sufficient to saturate the response mechanisms in the absence of the drug. The answer to our limited experimental question seemed uncomplicated: Yes, the graded transient component of this visual response is blocked by tetrodotoxin.

As indicated by Grundfest's quote, we pointed out that this graded transient response appears to exhibit somewhat unusual properties, and we also included a reference to a discussion of "electrically inexcitable and electrically excitable electrogenesis" (*2*). We assumed that the reader might, or might not, wish to extend the interpretation of our data to more general problems. Apparently at least one reader chose to consider the data in a more general context, and we agree that our data do not seem to argue against his generalizations.

We should like to comment on one remark by Grundfest. He refers to the transient component of the response as a "pulsatile depolarization." This usage of "pulsatile" may be a source of confusion. There is one component of the graded response in the *Limulus* eye which includes a brief "initial pulse" about 10 msec in duration. The transient component, on the other hand, may persist for as long as a second in a dark-adapted eye. While the transient component is sensitive to tetrodotoxin, the drug does not affect the earlier "initial pulse."

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