to insure its location when requested by readers of the article. The form of reference *4*, below, is within the style of references appearing in *Science*, and could be easily adapted to editorial policies of other scientific bodies. If the material is bound in more than one thesis, as will be the present case, the writer might cite the copy available in the library more frequently used by his colleagues, or the one best equipped for rapid interlibrary loan, or, if he is associated with an academic institution himself, prestige considerations might dictate citation of his college library.

The use of graduate theses for scientific communication would seem to be a partial but satisfactory solution to the problem of diminished space and expanded output. Such usage might be welcomed by those who may need to familiarize themselves with the insert in only one such thesis for full background information on a series of journal publications. Journal space is scarce, ingenuity is not.

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"Feedback" in Evolution

In his review of *Behavior and Evolution* (Anne Roe and George G. Simpson, Eds.), C. H. Waddington [*Science* **129**, 203 (1959)] discusses the lack of emphasis by the several authors on the "various types of 'feedback' or circularity in the relation between an animal and its environment." He says that the relation of the behavior of an animal to the evolutionary process is not solely that of a product, but is also one of the factors which determines the magnitude and type of evolutionary pressure to which the animal will be subjected. Behavior is at the same time a producer of evolutionary change as well as a resultant of it.

In his recent articles, and particularly in his recent book *The Strategy of the Genes* (1957), Waddington has clearly demonstrated "genetic substitution" by means of evolutionary feedback through natural selection. I agree with Waddington that this process is important for an understanding of much adaptive evolution, including the evolution of adaptive behavior. However, in his book review, Waddington seems to have missed my discussion (pp. 319, 323, 331), which is in essential agreement with the point of view expressed by Waddington in his criticism, and which he says did not "emerge completely into the light of day." For the feedback from behavior to isolating mechanisms, a process that Waddington feels did not receive sufficient emphasis in the chapter by H. T. Spieth, I should also like to call attention to *Principles of Animal Ecology* (1949), by Allee, Emerson, Park, Park, and Schmidt, for a discussion of this point (pp. 619, 630, 695).

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It was only the feeling that my review was already unduly long that prevented me from giving references to the few remarks, such as those in Emerson's interesting paper, which referred to "feedback" relationships in evolution. The passage in which I expressed a wish to have heard more about such matters was not so much a criticism as it was a comment prompted by the British convention that no review, however favorable, should suggest that a book is quite incapable of being improved. After all, "feedback" is, at least in connection with biology, a rather vague concept; I still think it requires a good deal more discussion and experiment than has yet been devoted to it.

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Biological Bromination

In the 20 March issue of *Science* [**129**, 778 (1959)], J. W. Burger and Ti Li Loo give an interesting account of bromination of phenol red by the dogfish. However, they state that there appears to be no recorded instance of bromine being incorporated into an experimentally introduced exogenous material. Attention is invited to the fact that we have shown [*Proc. Soc. Exptl. Biol. Med.* **80**, 241 (1952)] that dibromindigo appears in the urine of rats after intragastric injections of hexabromostearic acid.

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We thank McClendon and Gershon-Cohen for bringing their article to our attention.

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