strated increased responses after prostigmin. Similarly Brown, Dale and Feldberg[3] also find a marked increase in the contractions to indirect stimulation after injections of eserine.

These apparent discrepancies are not due to the anesthetic employed, as Brown, Dale and Feldberg suggest; nor are they due to the site of injection of the drugs, as Wilson and Wright state. Whether increase or decrease of the responses occurs depends on the frequency at which the muscles are activated and on the dose of the substance injected.

In the same animal under dial anesthesia the contractions of the two gastrocnemius-soleus muscles may be recorded, while the popliteal nerves are stimulated, one at a frequency of 1 per 5 sec. and the other at a frequency of 3 or 4 per sec. If eserine (0.5 mgm per kgm) or prostigmin (0.1 mgm per kgm) is injected intravenously, the responses of the muscle stimulated at the lower frequency will increase, while those of the muscle activated at the higher frequency will, as a rule, decrease.

In general it may be stated that the conditions favorable for the appearance of increased responses are slow frequencies and small doses of the drugs; on the contrary, high frequencies and large doses lead to depressed contractions. The results are readily explained by the well-known ability of acetylcholine to stimulate skeletal muscle when in small doses, and to paralyze it when the concentrations are high. The acetylcholine in question is that liberated by the motor nerve impulses and protected from immediate destruction by the eserine or prostigmin which has been injected (*cf.* Cowan[4]).

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ON THE WORD SHADE-TREE

A SMALL pamphlet distributed by a prominent publishing company for the aid of authors in preparing manuscripts directs the writer, when speaking of trees, to "Make two words in all cases except where used as an adjective, when it is compounded, as: *apple tree, forest tree, fruit tree, etc.* Adjective form: *apple-tree borer, fruit-tree beetle,* etc." If entomologists followed this rule they would speak of *Empoasca fabae* as a leaf hopper or a leaf-hopper insect. As a matter of fact, the modern entomologist is so contrary that he does neither, a practice to which we shall refer later.

The Standard Dictionary discusses its method of compounding words at some length and states some general principles. In illustrating one of the principles, it says, "The second principle makes two nouns used together as one name become one word, if the first is not really attributive. Thus, while brick is attributive in *brick house* (a house made of bricks) it is *not* attributive in *brick-yard* (a yard in which bricks are made)." On page 1642 the Standard follows this principle and hyphenates *shade-tree.* The writer approves of this compounding because it gives a greater unification of sense in speaking of this particular kind of tree. Indeed, if any one is bold enough to write it as *shadetree,* similar to "shadbush," "sunflower" and "grasshopper," the writer will gladly follow suit.

It is of interest in this connection to recall for a moment the evolution of a word as an illustration of the growth of usage in writing the English language, at least in entomology.

The older usage is seen in a treatise on entomology in which *Eutettix tenella* is spoken of as the "Beet Leaf Hopper." Later entomologists call it the "beet leaf-hopper," while present-day authors speak of it as the "beet leafhopper."

I have often suspected that my ability to form mental pictures is not highly developed. At any rate, the broken words, "grass hopper," "grass-hopper," "leaf hopper," "leaf-hopper," "bed bug," "bed-bug," do not bring to my mind any such clear-cut, definitely circumscribed mental images as do the words "grasshopper," "leafhopper" and "bedbug." Perhaps that was the reason I was glad to find that the Standard Dictionary had tied shade and tree together with at least a hyphen. To me, the hyphenated word makes a much greater unification in sense and gives this useful and beautiful object a greater attribute of dignity and entity.

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EARLY REFERENCE TO THE BLACK WIDOW SPIDER

WHAT appears to be a very early reference to the black widow spider (*Latrodectus mactans*) was printed in 1812 in "The Indian Doctor's Dispensatory, being Father Smith's Advice respecting Diseases and their Cure," by Peter Smith, of Miami County (printed by Browne and Looker, Cincinnati, Ohio, 1812; reprint, 1901, by J. U. and C. G. Lloyd, Cincinnati). On page 74, of the reprint, under No. 57, it states:

The cure of venemous Bites and Stings ought to be known, if possible, by every body; for a little delay will often render the bite or sting dreadful, and sometimes incurable. How important must it be to be able to cure

[3] G. L. Brown, H. H. Dale and W. Feldberg, *Jour. Physiol.,* 87: 394, 1936.
[4] S. L. Cowan, *Jour. Physiol.,* 86: 61P, 1936.