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**The Effect of Temperature on the Repetition Rate of Chirps
in the Song of the Grasshopper, *Neoconocephalus ensiger***

Hubert Frings and Mable Frings
Pennsylvania State University

The song of *Neoconocephalus ensiger*, the sword-bearing coneheaded grasshopper, is a continuous rapidly repeated series of chirps, ordinarily produced only after dark. The repetition rate of the individual chirps is related to temperature. The speed at most temperatures is too great for accurate counting to be made by ear. By recording the song at high tape speeds on a tape recorder and playing it back at reduced speeds, it is possible to study the temporal details. The repetition rate at 46° F. is about 260 chirps per minute. This increases to about 780 chirps per minute at 79° F. When plotted as temperature versus the logarithm of the rate, a straight line is approximated, except at lower temperatures, the Q_{10} being about 1.95. The variability among individuals around the means is 5 -- 10%. The data accord with the hypothesis that the pacemaker determining the rate of chirping is a chemical reaction. Individual differences in the songs of different animals are great enough to be easily detectable to the human ear without physical analysis. These may be temporal -- missing beats or irregularities -- or in the nature of the sound -- degree of "raspiness" or actual sonority.

**The Loci of Receptors Sensitive to Sucrose Solutions
in Trichoptera**

Hubert Frings and Mable Frings
Pennsylvania State University

Six species, representing four families, of Trichoptera or caddisflies were observed in the free state and when mounted alive on wax blocks to find their contact chemoreceptors. These were found to be on the maxillary and labial palpi and on all the tarsi. In general, the Trichoptera reacted like typical sucking insects. These results are in sharp contrast to the ideas usually stated in text-books, although fully concordant with research results in the literature that have apparently been overlooked.