

invariably three and almost never four—sounding like *chic-a-chee*, repeated rapidly so as to be almost confounded, and when three requiring just one-third of a second; the song is repeated at will, generally once in about five seconds for an indefinite length of time.

*Microcentrum laurifolium* (Linn.) McNeill says the note of this grasshopper "may be represented by the syllable *tic* repeated from eight to twenty times at the rate of about four to the second."

*Microcentrum retinervis* (Burm). Fig. 45. Riley gives an admirable account of this insect in his Sixth Missouri Report, from which the following statement regarding its song is taken:

"The first notes from this katydid are heard about the middle of July and the species is in full song by the first of August. The wing covers are partly opened by a sudden jerk, and the notes produced by a gradual closing of the same. The song consists of a series of from twenty-five to thirty raspings, as of a stiff quill drawn across a coarse file. There are about five of these raspings or trills per second, all alike, and with equal intervals, except the last two or three, which, with the closing of the wing-covers, run into each other. The whole strongly recalls the slow turning of a child's wooden rattle, ending by a sudden jerk of the same; and this prolonged rattling, which is peculiar to the male, is universally and instantly answered by a single sharp 'chirp' or 'tschick' from one or more females, who produce the sound by a sudden upward jerk of the wings."

"Both sexes are for the most part silent during the day, but during the period of their greatest activity their stridulations are never for an hour remitted, from the time the great setting sun hides behind the purple curtains of the west till he begins to shed his scarlet rays in the east—the species being so numerous that the sound as it comes

from the woods is one continuous rattling, not unlike the croaking of the frog, but set to a higher key. . . . I have noticed no particular difference in the day and night note, except in the greater intensity of the latter."

Davis says of the same species that it "produces two somewhat different songs, or perhaps more correctly, varies the same song in time or extent of utterance, so that unless the same individual is listened to for some time, the notes might be attributed to different species."

*Cyrtophyllus concavus* (Harr.) Since I began to study the character of the notes produced by different species of Orthoptera, it has been my fortune to hear that of this the true katydid (Fig. 46) but once or twice. This insect lives in tree tops, one or two only in a tree, in little colonies scattered here and there over most of the United States east of the Rocky Mountains. One such colony I encountered in the heart of the city of Springfield, Mass., and spent an evening endeavoring to reduce the notes to scale. The insects which I observed were from fifteen to twenty rods distant, perched in the tops of maple, cherry and elm trees, not far above my window. They ordinarily call "Katy," or say "She did" rather than "Katy did;" that is, they rasp their fore wings twice, more frequently than thrice; these two notes are of equal (and extraordinary) emphasis, the latter about one-quarter longer than the former; or, if three notes are given, the first and second are alike and a little shorter than the last; the notes are repeated at the rate of two hundred per minute; and while the interval

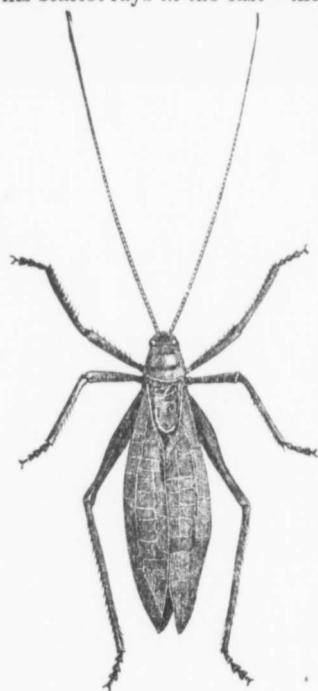


Fig. 46.

between two series of notes varies to a certain degree, it is seldom greater than two and one-third seconds, or less than a second and a quarter; usually it is between one and seven-eighths and two seconds.

The note sung its praise mity the sound

from any other the noisiest of the noise produced discordant. short intervals a stubborn in of defiantly voiced songs from some in evening between air is filled by This renders it is only by places himself

Harris says "The music is thin and trailing overlapping and conceal places, and mates. This the wing covers exactly resemble wing covers minutes, for wing covers, in the still twilight the soon as the the neighbor livelong night

McNeill there are trees its arboreal that it is no single tree. for more than are singing, songs. . . . male is not Locustid with elytra. The the evolutic apparatus is round, and