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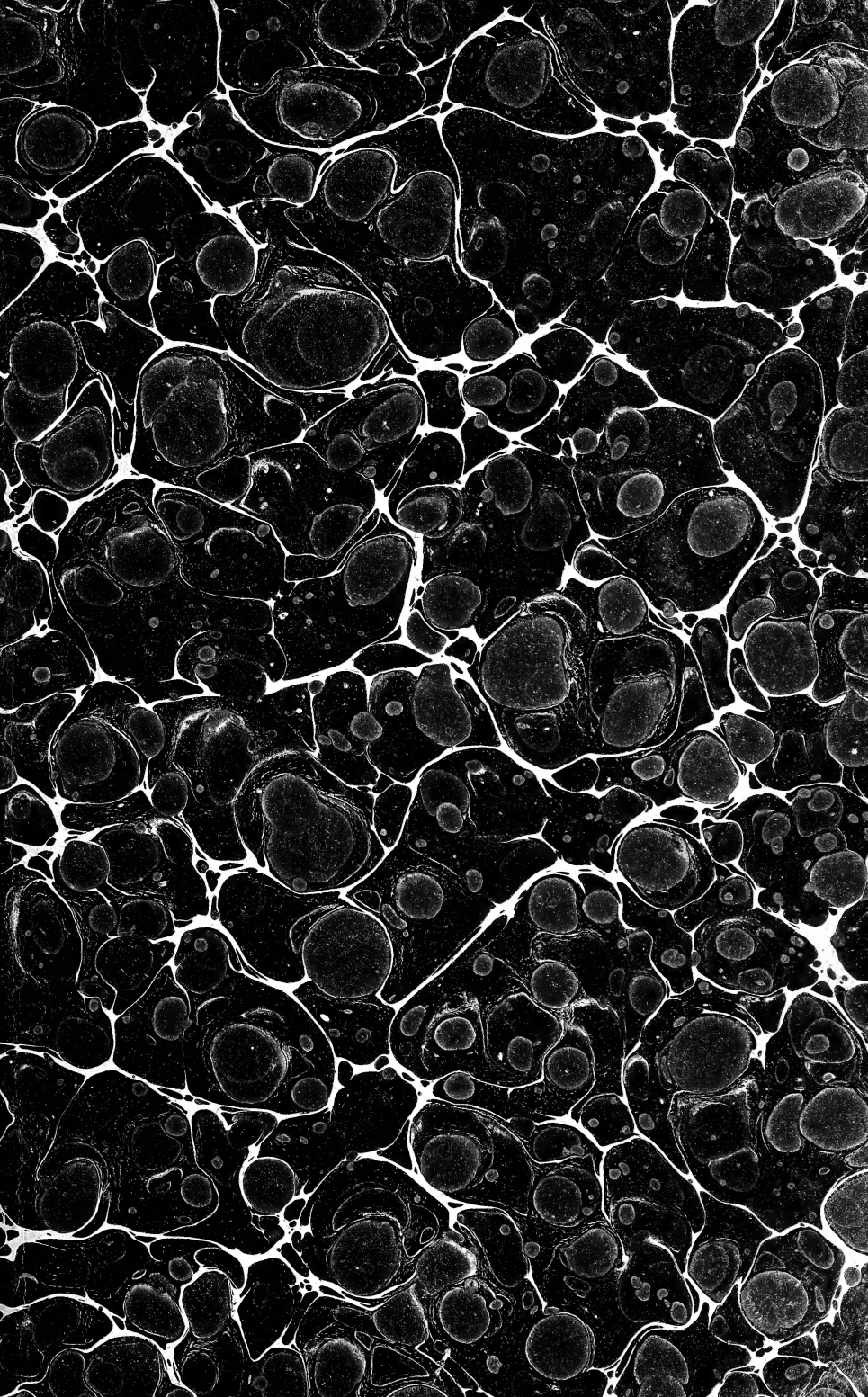
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United States Department of Agriculture,

BUREAU OF ENTOMOLOGY,

L. O. HOWARD, Entomologist and Chief of Bureau.

THE PERIODICAL CICADA IN 1906.

(Tibicen septendecim L.)

By C. L. MARLATT,

Entomologist and Acting Chief in Absence of Chief.

Two broods of the periodical cicada will reappear this year, one an important and widely distributed seventeen-year brood and the other an unimportant, small, and scattering thirteen-year brood.

SEVENTEEN-YEAR BROOD XIV.

The localities where this brood may be expected are indicated on the map (fig. 2) on page 3. This brood has a peculiar interest, inasmuch as it is the one which was first noted, or recorded in literature at least, by the early European colonists on this continent. The earliest mention of this peculiar insect is that given in the work entitled "New England's Memorial," by Nathaniel Moreton, printed at Cambridge, Mass., in 1669.

The following transcription of this account, reproduced from Bulletin

No. 14, new series, of this Bureau; is taken from an editorial note to an article on the "Locust of North America" in the Barton Medical and Physical Journal of 1804 (Vol. I, pp. 52-59). Referring to Moreton, the editor says:

Speaking of a sickness which, in 1633, carried off many of the whites and Indians, in and near to Plymouth [Plymouth], in Massachusetts, he says, "It is to be observed, that the Spring before this Sickness, there was a numerous company of *Flies*, which, were like for bigness unto *Wasps* or *Bumble-Bees*, they came out of little holes in the ground, and did eat up the green things, and made such a constant yelling noise as made all the woods ring of them, and ready to deaf the hearers; they were not any of them heard or seen by the *English* in

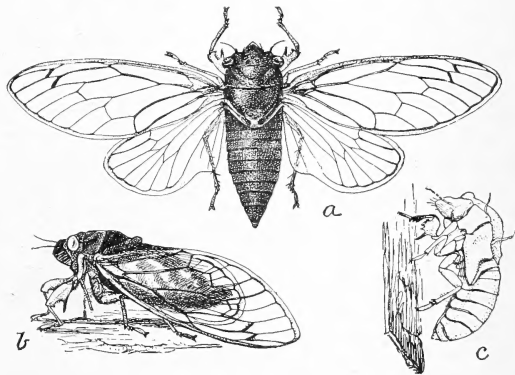


FIG. 1.—The periodical cicada (*Tibicen septendecim*): a, adult; b, same, side view; c, shed pupal skin. Natural size (original).

the Country before this time: But the *Indians* told them that sickness would follow, and so it did, very hot in the months of *June, July and August* of that Summer," viz. 1633. He says, "Toward Winter the sickness ceased;" and that it was "a kinde of a pestilent Feaver."—New England's Memoriall, &c., pp. 90 and 91.

The fact noted, that the native Indians associated the recurrences of this insect with pestilential diseases, is interesting as showing that the cicada had probably long been under observation by them and had exerted a vivid influence on their imaginations.

Doctor Riley, referring to this record in his account of the periodical cicada, written in 1868, indicates that the year here mentioned is probably an erroneous record, as shown by the subsequent reappearances in the same locality; in other words, the date assigned was doubtless 1634 instead of 1633. The first publication of this record thirty-five years after its occurrence would give ample leeway for an error of this nature. There is, of course, the possibility that the occurrence recorded by Moreton was a premature one, but a mistake of one year in the date is a more reasonable explanation. The subsequent recurrences of this brood for the years 1651, 1668, 1685, 1702, 1719, 1736, 1753, and 1770 appear not to have been recorded; but the later ones, namely, for 1787, 1804, 1821, 1838, 1855, 1872, and 1889 have been definitely reported. Our knowledge of the extent of this brood, up to 1889, is practically based upon Doctor Fitch's observations in 1885 in the account of his third brood, since its reappearance in 1872 did not, apparently, attract any attention. Doctor Fitch, however, confused this seventeen-year brood with the great *tredecim* brood which occurred in 1855, the year of his record, and the exact dividing line between the two broods is still open to question. In asking for reports on the occurrence of this brood in 1889 Riley and Howard gave its extent as follows:

The region commences in southeastern Massachusetts, extends south across Long Island and along the Atlantic coast of New Jersey, Delaware, and Maryland as far as Chesapeake Bay; then up the Susquehanna River in Pennsylvania to a point a little below Harrisburg; thence westward in Ohio, embracing the southwestern corner of the State and the northwestern portion of Kentucky, and then upward through southwestern Indiana, ending in central Illinois. It is possible also that there is an eastward extension of the region from Kentucky into southern West Virginia, as cicadas occurred in 1855 in the Kanawha Valley, and also in the counties of Buncombe and McDowell, in North Carolina; but as these appearances were not verified in 1872, it is probable that they belonged to Brood XVIII, which is of the thirteen-year race.

The distribution of this brood, as given below, is reproduced from Bulletin No. 14, referred to above, and is based on the records given by Riley and Howard, with such additions and corrections as were gained from the records of 1889, Prof. J. B. Smith adding some records from New Jersey, Dr. William A. Buckout defining its limits in Pennsylvania, and Mr. E. A. Schwarz and others adding various localities.

The distribution, by States and counties, is as follows:

District of Columbia.—Throughout.

Georgia.—Gordon, Habersham, Rabun, Towns, Union, White.

Illinois.—Boone, Jo Daviess, Lake, McHenry, McLean, Putnam, Stephenson, Winnebago.

Indiana.—Clay, Crawford, Daviess, Gibson, Greene, Knox, Lake, Lawrence, Pike, Posey, Sullivan, Vanderburg, Vigo, Warrick.

Kentucky.—Adair, Allen, Bath, Bourbon, Boyd, Breckinridge, Carter, Casey, Clark, Clinton, Cumberland, Estill, Fayette, Fleming, Franklin, Greenup, Jackson, Jefferson, Laurel, Lewis, McLean, Madison, Mason, Metcalfe, Montgomery, Owsley, Powell, Pulaski, Rockcastle, Russell, Shelby, Trimble, Wayne.

Maryland.—Washington.

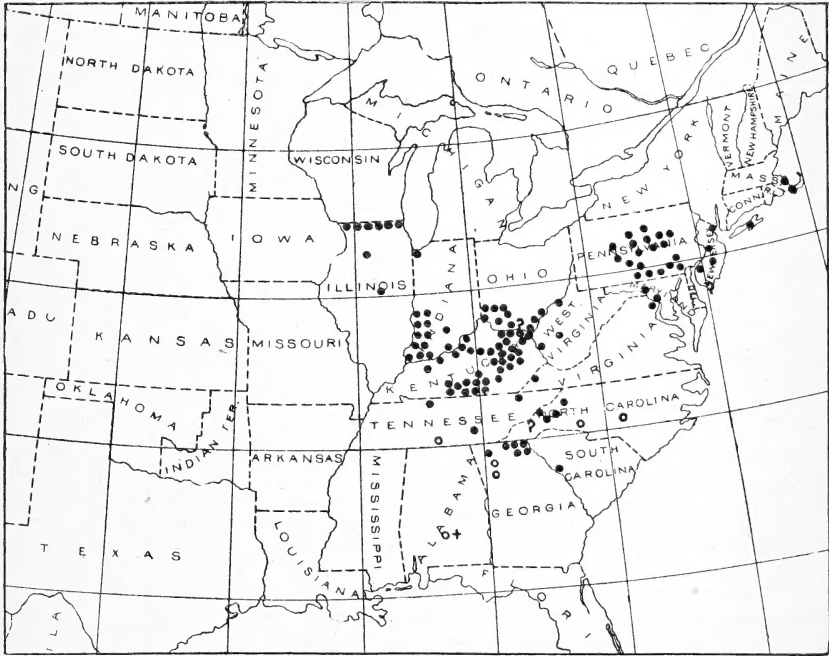


FIG. 2.—Map showing distribution of Broods XIV and XVIII, 1906. The black disks are the records of the Seventeen-year Brood XIV (Riley VIII), and the circles in the States of Alabama, Georgia, Tennessee, and North Carolina are of the small Thirteen-year Brood XVIII (Riley XVI).

Massachusetts.—Barnstable, Plymouth.

New Jersey.—Bergen, Burlington, Cape May, Gloucester, Mercer.

New York.—On Long Island.

North Carolina.—Buncombe, Caldwell, Haywood(?), McDowell, Madison.

Ohio.—Adams, Brown, Butler, Clinton, Gallia, Hamilton, Highland, Lawrence, Meigs, Scioto(?), Warren.

Pennsylvania.—Adams, Berks, Blair, Center, Chester, Clearfield, Clinton, Columbia, Cumberland, Franklin, Huntingdon, Lancaster, Lycoming, Mifflin, Montour, Northumberland, Snyder, Union, York.

South Carolina.—Edgefield.

Tennessee.—Bledsoe, Claiborne, Robertson.

Virginia.—Alexandria, Wise.

West Virginia.—Kanawha, Logan, Wood.

It is very desirable to have the records for this brood confirmed with its occurrence this year, and accompanying this circular, therefore, a reply card is sent on which any information relating to this brood may be recorded as indicated on the card. *A negative record is often quite as valuable as one of actual occurrence.* Inasmuch as the periodical cicada does not appear, as a rule, until about the last week of May, it

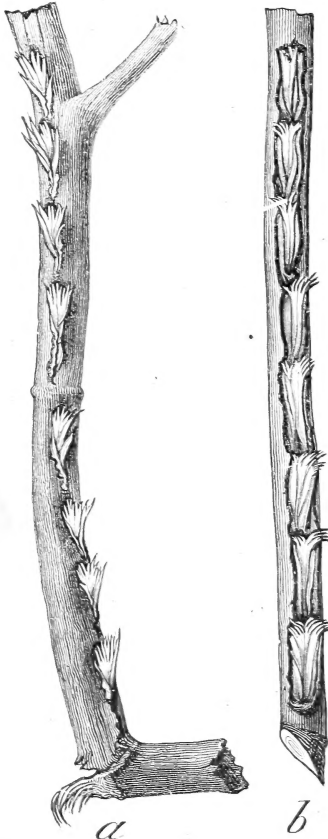


FIG. 3.—Egg punctures of the periodical cicada: *a*, twig showing recent punctures, from front and side, and illustrating manner of breaking; *b*, twig showing older punctures, with retraction of bark and more fully displaying the arrangement of fibers. Natural size (after Riley).

is well not to fill out the cards or return them before the middle of June. Later than the middle of June there is danger of confusion with the annual species of cicada, which will then begin to appear.

THIRTEEN-YEAR BROOD XVIII.

A very scattering brood of the thirteen-year race of the periodical cicada appears this year in conjunction with the much larger and more widely distributed seventeen-year brood. This thirteen-year brood is based on the testimony of Dr. G. B. Smith, who gives a record of its occurrence in Cherokee County, Ga., in 1828, 1841, and 1854. Dr. J. G. Morris recorded its appearance in the same locality also in 1867. This is Doctor Riley's Brood XVI, and some additional records were added by him, so that it is now known in four States, occurring, however, in scattered localities. The localities for this brood as listed by Doctor Riley are given below. None of them were verified in 1893, but an additional and very doubtful locality—Montgomery County, Ala.—was reported.

It is very desirable to have confirmation of all the localities mentioned for this brood, and persons receiving this circular throughout the region rep-

resented will confer a great favor by reporting any occurrences which may come to their notice. Any periodical cicadas appearing in the higher elevations in the mountain regions of the States referred to will probably be of the seventeen-year race, but emergences at low levels

will very likely belong to the thirteen-year brood. The distribution, by States and counties, is as follows:

Alabama.—Lowndes, Montgomery (?).

Georgia.—Cherokee, Cobb.

North Carolina.—Lincoln, Moore.

Tennessee.—Lincoln.

GENERAL CONSIDERATIONS.

The periodical cicada is so well known that a general account of it in this place is unnecessary. The illustration (fig. 1) will recall it to anyone who has ever observed it. When it appears in great numbers it naturally causes considerable alarm and arouses fears for the safety of shade trees and orchards. The actual damage, however, is usually slight, except in the case of newly planted orchards, and even here, by rigorous pruning back after the cicada has disappeared, much of the injury caused by the egg punctures (fig. 3) can be obviated. As a matter of precaution, however, it might be well not to locate new orchards this spring in recently cleared ground or in proximity to woods in any of the regions where the cicada is here recorded. In many cases, however, the clearing up and cultivation of the ground will have destroyed the larvæ of the cicada, and it may not appear.

The exact date of emergence of the adult cicadas from the ground will vary somewhat with the season. The experience of many years, however, indicates that most of the individuals will come out during the last week in May. Very frequently the holes through which the cicadas will emerge will appear in the soil some weeks before the insects actually come out. These holes are a little larger around than a lead pencil and are frequently so numerous as absolutely to cover the surface of the ground.

If there be any doubt as to the identity of the cicada, especially from records made about or at the middle of June, it would be well to send specimens for identification along with the record. It is hoped that everyone who receives this circular will keep a sharp lookout for swarms of this brood of cicada and assist the Bureau in fixing its range accurately by sending prompt and explicit information. Bulletin No. 14, new series, of this Bureau will be mailed to anyone desiring further information on the periodical cicada.

Approved:

JAMES WILSON,

Secretary of Agriculture.

WASHINGTON, D. C., *April 16, 1906.*

