

THE PALIMPSEST

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Chinch Bugs Rampant

Will you come into my parlor?
Said the spider to the fly.
'Tis the prettiest little parlor
That ever you did spy.

Bugs seldom achieve renown in verse. As yet no maker of rhyme, no teller of tales, has arisen to describe in dramatic fashion the habits and peculiarities, the hiding places and modes of travel employed by that little but mighty creature so widely known as the chinch bug. Yet, in reality, chinch bugs are more destructive than spiders and more numerous than flies.

Chinch bugs are of relatively recent origin. They first appeared in the wheat fields of North Carolina a hundred and fifty years ago. Being thrifty pioneers, they came westward with the early settlers — always flourishing when food and climatic conditions were favorable. They came in destructive numbers to Missouri in 1839 and to Illinois in 1840. Their invasion of Iowa in 1846,

simultaneously with the coming of the Mormons, gave them the local appellation of "mormon lice".

The chinch bug is a voracious insect which feeds entirely upon the sap of green succulent plants belonging to the grass family. Barley, oats, wheat, rye, millet, corn, and sorghum cane are the principal crops attacked. The insect will also eat timothy, Kafir-corn, blue-grass, foxtail, and many forage and wild grasses. Alfalfa, clovers, soybeans, cowpeas, sweet clover, and other soil-building legumes, however, are immune. Flax, buckwheat, rape, beets, melons, and potatoes are also free from attacks.

These pestilent little insects are quick maturing creatures. Hatched during the spring or summer months, they are adults in a few weeks. When winter comes they seek secluded grassy places in which to hibernate. Clump-forming grasses are much preferred, as they offer the best protection from the winter's cold. In regions where such grasses are prevalent, the bugs congregate in masses between the stems and in the upper turf layer and soil about the crowns of these plants. A single plant stool sometimes conceals as many as 30,000 bugs — the original "grass roots convention". They become as crowded, it would seem, as was the old lady and her children in the shoe. Where bunch grasses are scarce, the insects

may winter in timothy stubble, blue-grass, or sedges. Frequently they take their long winter nap beneath the loose bark of dead trees, under leaves, sticks, or other debris in grassy areas along fence rows, hedges, ditches, and the borders of woodlands.

With the advent of warm weather the bugs begin to move from their hibernation quarters. They swarm out into the sun and start looking for food. Presently the innumerable host moves into the small grain and grass fields nearby. The rapidity of this movement is influenced by the prevailing weather. A few sunny days with the temperature above 70° will find many bugs in flight. About three weeks later the female insects begin to lay their eggs, and what prolific layers they are! Within a few weeks a single insect will deposit at least 200 eggs. Ten days after the egg deposition, tiny bright reddish nymphs emerge and begin to feed upon succulent cereal or other grass plants. Thus a regiment of a thousand chinch bugs may in a few weeks develop into an invading army a hundred thousand strong. Rapidly these insects pass through five stages of development each time casting off their old coat for a new and larger one of a darker hue. In the final stage they are equipped with wings, and then for the first time they are able to fly as the parent did.

But more. Chinch bugs produce two and sometimes three generations in a single year. One writer explains the rapid process of multiplication by saying that if two thousand insects are left in a field, "the females will at a low estimate produce a family of two hundred each; say half are males; the first product is two hundred thousand; the second product the same year is twenty millions; and the third two thousand millions".

Chinch bug infestations have been frequent in Iowa since 1846. While Union and Confederate armies were fighting at Bull Run in July, 1861, chinch bugs were devouring crops in southeastern Iowa. One farmer tried to protect his corn by "pouring boiling water over every hill in the first row just as the bugs entered the field". In 1871 twenty-one counties in southern Iowa reported that spring wheat was almost a failure because of chinch bugs. Many fields in Washington, Appanoose, Monroe, Montgomery, and Madison counties were plowed up and replanted to other crops. Indeed, none of the counties of southern Iowa entirely escaped the ravages of chinch bugs. In Appanoose County alone losses were estimated at \$50,000. Two years later and again in 1879 similar losses were reported in southern Iowa.

The greatest damages were incurred, however, in 1887 and 1934, in each of which years there

was an estimated loss of more than \$25,000,000. Both seasons were unusually dry and had been preceded by conditions most favorable for the propagation of the bugs. Only ten counties in northwest Iowa escaped the ravages of the pest in 1887, while in 1934, though not as wide-spread, the infestation was even more destructive. Farmers took heroic measures to protect their crops, but in each instance rainy weather in the following year was their most effective ally.

During the years between epidemics, chinch bugs have not been entirely absent, but natural enemies have kept them in control. Periodically, however, they devastate the fields and will continue to do so when conditions are favorable.

How to stop an invasion by chinch bugs is a matter of much concern even in this age of scientific farming. But fifty years ago much less was known of methods to combat these evils. When the infestation of 1887 was at its height farmers were at a loss to know which way to turn or what to do. In July of that year a correspondent of the *Iowa State Register* said: "I see some correspondents and county papers are commenting upon the 'chintz' bug. I never expect to be over-burdened with 'chintz', but we have a surplus of chinch and would like some information about them and what we may expect from them in the future. They

have destroyed a good share of the wheat during the last week and now they are beginning on oats and corn. If there had been no wheat sown would there have been so many bugs? How do they live over winter, and how do they get into the wheat first of any thing? What would have been the effect of Paris green if it had been sprinkled on before the wheat headed? Would the rains have washed it off so that the straw would be safe for fodder?" The Agricultural Editor replied in a brief note saying that he had given out all the information that he had relative to chinch bugs, and invited other correspondents to answer the above questions.

Early in August, 1887, an extensive article appeared in the *Iowa State Press* which discussed the number and appearance of chinch bugs, the damages done by the insect, its natural enemies, the effect of weather upon it, and modes of artificial extermination. It was suggested even at that early time that much might be accomplished by the burning of rubbish, early plowing and rolling the fields, the use of coal tar and coal oil emulsion. The writer did not go so far, however, as to suggest the use of Paris green, and it was said that "in a favorable chinch bug season man is to a great extent powerless to stop the destructive ravages of the advancing millions of these diminu-

tive crop enemies". The weather, it was said, was one of the chief determining factors.

In more recent years much improvement has been made in the method of fighting chinch bugs. Yet the fact remains that the weather is the most significant factor. In a bulletin recently published by the Iowa State College, it is said: "The insect is very susceptible to weather conditions during the egg-laying and hatching periods. Dry, hot weather from the latter part of April to early June and the forepart of July to September is very favorable to the young stages; in contrast, heavy, driving rains during these periods destroy many eggs and newly hatched nymphs." Extremely cold weather or even an inundation of the plant on which the insect is hibernating will not, however, necessarily destroy the adult bug. Heavy rains in June, 1935, probably did more to alleviate the chinch-bug menace in Iowa than all human efforts.

Modern artificial barriers against the advance of chinch bugs are of various types. Dust furrows along corn fields have long been employed. Chemical barriers, however, are much more effective. In preparation for a chemical barrier, a furrow is plowed along the edge of the field, throwing the dirt toward the corn. The soil is then thoroughly pulverized, smoothed, and packed.

Crude creosote or oil is poured in a straight line about three-fourths of an inch wide on the smooth compact surface along the brow of the ridge. The barrier may be made more effective by building "paper fences" — strips of creosote-soaked paper being placed along the furrow. Post holes dug at frequent intervals along the furrow aid in trapping the bugs. But whatever plan may be used the task of eradication is an enormous one.

In the summer of 1934 chinch bugs infested southeastern Iowa in the greatest numbers ever known in the history of the State. Farmers seemed helpless in preventing the advance of bugs. Government aid was called for, and Civilian Conservation Corps units were sent into the infested area to combat the insects. On June 23rd two companies of CCC recruits were ordered "to open trench warfare immediately against the chinch bug army along the Keokuk county battle line". Two hundred carloads of creosote had been ordered to the front. "The battle", it was said, "will be waged furiously because in two or three weeks the pests will sprout wings making the fight more difficult". As in other warfare, tents were pitched, farm homes were converted into barracks, and enormous casualties were inflicted upon the enemy.

In other Iowa localities and in various parts of

the United States similar emergency measures were adopted to combat the insects. Indeed, it has been said that "thousands of men dug millions of rods of furrows, poured millions of gallons of oil in thousands of miles of barriers and even fired grain-fields in a desperate fight against the chinch bugs". But despite this, millions of dollars of damage was done to the crops.

The food supply for the insects is a matter of major importance. The bugs are apt to appear first in wheat or barley fields, from which they may migrate into fields of oats or corn. Thus it has frequently been suggested that if there were no wheat, the insects would be much less likely to develop, and the growing of wheat has sometimes been abandoned in accordance with this theory. If there is merit in this method of procedure, however, care should be taken to substitute, not oats or corn, but clover, alfalfa, or some other crop which is immune from attack. A correspondent some years ago noted that farmers frequently planted their crops in such a manner as to be most advantageous to bugs.

"It would be amusing if it were not so pathetic", he said, "to read the many letters I get, something in this wise: 'I planted wheat on sod land, the chinch bugs destroyed it so badly that in February I plowed it up and sowed oats, this, too went

the same way; I then planted corn, and when it was a foot high the little bugs came by the millions and destroyed that; I then planted the land to Kafir corn, and that will be ruined if you can not help me.' What could I do for such a man? Had the bugs laid out a programme for their daily sustenance, no better commissary-general could have been obtained for them."

Another writer a little more facetious than the rest offered directions for the propagation of chinch bugs. "The best way to raise chinch-bugs", he said, "is to take the improved stalk-cutter and cut your corn-stalks, sow the land to wheat; and the second best plan is to sow it to oats, and in both cases to simply plow in your grain with a cultivator. This plan leaves most of the corn-stalks partly exposed, with the butt of the old blades just in the right position to shelter the eggs and young bugs from the wet weather".

This writer is obviously suggesting that slothful and careless farming propagates chinch bugs, while careful management and diligence does much to retard them. Withal, however, bugs are bugs and when food is readily available and climatic conditions are favorable it is difficult indeed to exterminate them.

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