DESTRUCTIVENESS OF THE CHINCH-BUG

HAS DONE \$100,000,000 WORTH OF DAMAGE IN A YEAR.

The Most Dangerous and Destructive of the Many Foes Against Which the Agriculturists of the

Glober Democrat's Washington Letter.

An Insect that is able to do \$100,000,009 be regarded as the most dangerous and which the agriculturists of this coun- and so perish by wholesale. try are obliged to fight for a living. Missouri, Kansas and other states of the middle west. Hence, it is not surprising that the government should be making a serious study of the creature in question, or that an elaborate publication on the subject should be now well-known entomologist, and will be published shortly by the Department

of Agriculture. Prof. Webster says that the chinchbug first made its presence known in this country by its ravages in the wheat fields of the North Carolina farmers in 1795. From 1845 to 1850 it attacked IIIInois and portions of Indiana and Wisconsin. The loss which it caused to the farmers in Illinois in 1850 was reckoned at \$4,000,000, or \$4.70 for every man, woman and child living in the state. The earlier outbreaks, though the occasion of small money loss, were even more disastrous; for the destruction of the grain crops in those pioneer days not only took away all cash profits, but also deprived the early settlers of their very living, and in some cases reduced them to starvation. From 1863 to 1865 the insect was again destructive, and it was estimated that three-fourths of the wheat and one-half of the corn crop were wiped out through almost the entire northwest. This meant a loss of 30,000,000 bushels of wheat and 138,000,000 bushels of corn, representing a total value of more than \$73,000,000.

THE WORST ATTACK.

There was a serious outbreak of the chinch-bug in the west in 1868, and ngain in 1871, but in 1874 the ravages were widespread and enormous. The ss in 1871 in seven states, viz.: Iowa, Missouri, Illinois, Kansas, Nebraska, Wisconsin and Indiana, was computed at \$20,000,000. Dr. C V. Riley computed the loss in Missouri alone in the year 1874 at \$19,000,000. The loss to the whole country for 1874 was not less than \$100.. The next gerat outbreak occurred in 1887. In this case the damage was estimated at \$60,000,000, the heaviest losses occurring in Illinois, lowa, Misouri and Kansas, This gives, as the estimated loss in the thirty-eight years—1850 to 1887—the enormous sum of \$267,000,000. Another chinch-bug plague reached its maximum severity in 1896. Careful estimates of the loss during the last seven years would in all probability swell the amount to fully \$330,000,000 for the period from 1850 to 1898. During the outbreak in Ohio at least two farmers became discouraged and sought relief in suicido.

should be taken into consideration that the financial losses above estimated have not fallen upon the entire nation, but upon the nine states named In fact, small as it is, the chinch-bug has cost the people of these nine states a sum of money sufficient to defray the entire expense of the national government for a whole year. Fire excepted, there is probably no other thing that has caused so great a financial loss within the same period over the same area of country,

A WIDESPREAD PEST.

No other insect, native to the western

hemisphere, has spread its devastating

hordes over a wider area of country with more fatal effects to the staple grains of North America than has this one. But for the extreme susceptibility of the very young to destruction by drenching rains, the practice of raising grain year after year on the same areas as followed in the United States, would be altogether unprofitable. It seems to be a fact that plentiful rain destroys the chinch-bugs, if it comes at the proper time. The years of greatest abundance of the pest are apt to be preceded by a series of years of drouth. Each female chinch-bug lays about 500 eggs, and the adult insect is not produced until sixty days later. The newly hatched young are very active. and the first to appear may be observed with their progenitors about the leases of wheat, corn, or grass plants, and later all stages are seen mingling together, having little appearance of belonging to the same species, so great ly do they vary in size and color in their several stages of development. On first emerging from the chrysalis the adult is generally of a dull pink color, In a short time these colors change to the normal ones of the species, which are black as to the body, with white

From attack by enemies the chinchbug seems to be protected in some degree by its vile odor, which is sing ilar to that the related bed-bug. However, in the middle west, the birds which are its natural foes, such as the quait, are being ruthlessly wiped out by the shotgun. This fact may account, in a measure, for its spread and ed later, only in a small degree. Varicus predacious insects feed on the chinch-bug, but they do not seem to be

Grimy finger marks

seem to grow on the woodwork

about the house. They come easily and

hey stick, too-unless you get rid of them with

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great importance, Indeed, spread of the pest is accounted for argely by the absence of natural ene mies, within the limits of the United

FOES OF THE CHINCH-BUG. The most important natural foes of the chinch-bug are two species of parastic fungi, which, under favorable cirumstances, destroy them wholesa's literally eating them up. For some years past a distinguished Kansas entomologist, Prof. Snow, has been e gaged in propagating these humble but United States Have to Fight for destructive plants for the purpose of infecting healthy chinch-bugs with a Ravages and a Personal Descrip-bugs, for well ones, the latter, as fast as they arrive being infected with the deadly complaint by placing them together with insects already diseased. The sickened bugs are sent in tin boxes worth of damage to the farmers of the through the mail to farmers who scat-United States in a single year may well | for them in the infested fields. In this way the greedy insect hordes are so destructive of the many foes against inoculated with the horrible complaint

There has been devised recently an That is the highest record up to date important improvement on this plan of the famous chinch-bug, which has by which the disease-fungas is propaimportant improvement on this plan been such a sorrow in recent times in gated artificially in a mixture of corn meal and beef soup. The spores of the plant, being stirred up in the mixture aforesaid, quickly germinate, and the result is the production of infectionproducing material. This substance is very much more convenient to handle in course of preparation. The latter is than moribund insects, and it may be from the pen of Prof. Webster, the scatered over a field with far greater case and convenience.

The effectiveness of this plan for communicating plague to chinch-bugs artificially has been much questioned, but Prof. Webster and other scientists today pretty generally admit that to accomplishes wonderful results. In field of wheat that has been treated in the manner described, the track of the insects as they move in any direction is literally paved with their dead bodies, each little corpse enveloped in a white winding sheet of fungus. In places the ground is white with them, and, on stirring up the soil at the edge of : corn field, it is found to be full of dead chinch-bugs to a depth of two or three inches, the white fungus-covered bodies contrasting strongly with the black color of the rich loam. Nevertheless, it seems that the fungus has little effect except where the insects are very thick, so as to make contagion easy. Furthermore, it requires moist weather for its maximum efficiency.

METHODS OF RELIEF.

"There ought to be a central propagating station for the disease fungus from which farmers could obtain promptly an abundant supply," says Prof. Webster. "Farmers also should watch the seasons carefully, and when there are two dry summers in succession every preventive measure should be adopted-notably the burning of leaves, dead grass and other rubbish during winter or early spring, followed up by sowing small plats of early millet. Hungarian grass or spring wheat in low damp places in the fields, with a view of attracting the females and massing the bugs, and then freely applying the fungus in their midst."

One very effective method of fighting chinch-bugs is to lay a line of fresh coal tar as a barrier between a migrating horde and the field which they are advancing to attack. The line, poured from the nozzle of a watering pot with the sprinkler removed, needs to be only three-quarters of an inch wide, and at intervals of twenty feet in its length are dug holes, in which tin cans are sunk. The insects proceed along the tar line until they fall into the cans, where they are easily killed with a little

Chinch-bugs are essentially gregarious, gathering and feeding together in flocks. On reaching a suitable field of grain, they congregate upon the stalks until the latter are literally covered with the insects, varying in color from the black-and-white adults to the differently tinted larvae. Only the winged adults fly away, the main body of less developed bugs remaining and leaving in a body only when the plants on which they have congregated have been drained of their juices and have begun to wither. Then they simply crawl to the nearest healthy plants and begin work on them. A general migration by flight takes place in the autumn.

DIET OF THE DESTROYERS. Favorite articles of chinch-bug diet are broom corn, sorghum, Bermuda grass, blue grass, bottle grass and crab grass. Over the western country the major portion of the damage done is to fields of wheat, barley, rye and corn. Oats are rarely attacked. The female chinch-bug deposits her eggs about the roots of grasses and grain-plants. In early days the insect doubtless subsist ed on the native grasses, but it readily acquired a taste for exotic kinds. Lassummer Entomologist-in-chief Howard. of the Department of Agriculture, found chinch-bugs in the act of destroying the lawn in a Brooklyn park. In 1897 an assistant of Prof. Howard's collecte. chinch-bugs from coarse grass, incrust ed with a salty deposit, in the Colorado desert of California. This locality i considerably below the ocean level, an represents an ancient extension of the

July of California. The immunity of the chinch-bug from attacks by natural enemies is s striking that it has attracted the atention of all entomologists who have made a study of the species, and all accept this as indicating that it is an exotic, not originally belonging to our insect fauna, Professor Webster's theory is that the bug is of tropical seashore origin, and worked its way northward centuries ago by way of the east coast of Central America. Apparently the chinch-bug occupied the most of the country prior to its occupancy by the white man, and its first depredations were caused by its commultiplication, but, as will be explain- ing in contact with the advance of civ Ilization. Not until within the last fif teen years has the chinch-bug been

Sunday School Lesson for January 15.

Christ's First Miracle.

JOHN II. 1-11.

BY J. E. GILBERT, D. D., LL. D.,

Secretary of American Society of Religious Education.

disciple, named Nathanael, through the He was less credulous than the four who had previously accepted Christ, evidently determined to accept nothing for truth without the highest evidence. But his worth was recognized at sight by Jesus, who openly commended him and in return received a noble confession, (John I: 49.) Entering thus into the fullest confidence Nathanitl, (afterward called Bartholomew), had the high honor of giving ome direction to the proposed journey f his Master. The record is entirely silent concerning the route taken and he events by the way. With great ibruptness it locates Jesus with His followers in Cana, Nathanael's home own, (John xxxi:2) fully eighty miles rom the scenes of John's ministry,

GUESTS INVITED .- Soon after the arrival, so soon after that nothing is the mother of Jesus, was there, having come from Nazareth, a distance of nine miles. Her presence suggests that not a relative. And her son, so recently inducted by baptism into the prophetic office, was also called, and with Him the five disciples-John, Andrew, Peter, Philip and Nathaniel, the latter only eing a fellow townsman. A notable company was this-the entire Christian ministry, nearly one-half of the prospective college of apostles, the Saviour of the world, the most honored of woman, all gathered at a wedling, and this at the opening of the Galileean ministry, What does it all nean? What a strange beginning of a enterprise! Who could expect any advantage for this infant cause;

AID SOUGHT .- There is no evidence of any special design in the invitation of Jesus to this marriage. He appears o have assumed the place of an orlinary guest. But an unforeseen circumstance gave color to the occasion and brought Him into prominence. The wine gave out, (V, 3) and Mary went to Him with a statement of the fact. It is not probable that she fully understood His power, for He had never displayed it, and yet it is evilent that she expected His assistance to relieve the embarrassment. It is equally evident that He so understood er .His reply was in two parts. (v. 4.) He first declared that the matter was nothing to either of them, that they were not expected to meet such deficiencies. The form of words in English does not express this nicely, but that His time for ministerial service had not yet come, a second objection to her request, and an additional reason for the other statement. He did kerosene. In this way the bugs are not in other words consider this a duty caught literally by the bushel. to the host or an opportunity for Hi ministry.

> SERVANTS INSTRUCTED. - The had gone to urge a service. He had re-How many mothers injure a good cause had been wrought, and Jesus was the

INTRODUCTION .- In last lesson | by pleading to annoyance! It is vastly (worker (John iv. 46). There could have re learned that as Jesus was about to better to leave the naked statement of been no deception, for there was no depart from the region of the Jordan facts to make their own impression, and enter Galilee He gained a new She doubtless felt that, notwithstanding the answer, something would be Influence of Phillip, (John 1: 43-45.) done, for she immediately gave in-This man exhibited excellent qualifies. structions to the servants. It is a great on whose mother so confides in Him that she believes a reasonable request will not be rejected, who turns away and provides for the answer which she expects. Mary had turned this whole puestion of the wine over to Jesus, and eft Him to do what He pleased, (v. 5) with only this additional part that she old the servants to obey Him, All this procedure sheds light in various directions-upon the place and relation of Mary, upon her simplicity and confidence, upon the possible significance of the event, And Jesus is thus suddenly changed from the place of a mere guest, rejoicing with other guests, to be the custodian of authority,

VESSELS SUPPLIED. - Nothing ould be more appropriate than Mary's last words. They left Jesus free to act according to His wisdom, but supplied mentioned before it, a marriage oc-curred in the village. The history doings might be witnessed and attestparties but calls special attention to the invited guests. (vs 1 and 2) Mary, the mother of Jesus, was the contracting to the deed, such as was actually a contracting to the mother of Jesus, was the contracting to the contraction to the contracting to the cont To facilitate matters still more there she must have been a close friend, if determined although the text says that for a wedding feast. The great fact each contained two or three firkins, (v. is here He manifested His glory (v. defilement, a custom handed down by tradition. (Luke xi: 39.) So here stood which might serve His purpose should He conclude to act,

ORDERS GIVEN.-The details are mitted from our narrative. Great sketched. How long time clapsed after Mary's words to the servants, what Jesus did and said, what the servants did, how the guests behaved, we are not informed. After a little there was change in the thought of the Master, He had said that He was under no obligation, and that His ministerial prerogative did not require anything of Him, but in a short time He was moved by a far different purpose, "Fill the waterpots," he said, and the servants filled them to the brim. (v. 7.) They knew that water and nothing else went into the stone jars. He did nothing but command. "Draw out and bear unto the governor of the feast." (v. 8) was His next order, And He was obeyed. His hand touched nothing. His word touched everything (Isa., ly: that was all their meaning, and it was entirely respectful, and decidedly oriental. (1 Sam. xvi: 10.) He also said those who were near. Does this master wine? Had there been temperance adthere was an intended rebuke upon the social customs of the

SURPRISE SHOWN.-Somewhere between the well where the water was nother said no more to her son. There drawn and the governor's lips-in the was no need to multiply words. She buckets of the servants, in the stone waterpots or in the silver gobletsfused the duty and the opportunity, that water became wine. A miracle

A Hard Pudding.

Some time ago, writes a volunteer, I

pent a week with a garrison battery in South Coast fort. On the last day the

rgeant sat down to an exceptionally

ine dinner, the crowning glory of which

appearance amid the welcome shouts of

fest a bit proud of it, for I hadn't been

"Seems mighty hard." remarked the

ship's cook for nothing.

brother warriors, and I naturally

was a large plum pudding. I had made the pudding two days before, had it

collusion. But was it really wine? An incident settled that point. The governor, whose duty it was to receive all articles first and then to pass them to other guests, who was chosen as an expert that all might be in proper form and suitable to the occasionthis governor was entirely ignorant of what had transpired. He did not know that the wine had failed, nor that any ne man's help had been solicited, no that water had been provided. The servants only knew the last point (v. But when the governor tasted this wine he was greatly surprised at its quality. Contrary to custom it was served last though really best, and he alled the bridegroom and congratulated him both upon the excellent bev erage and the good taste that had violated established usage (v. 10). Then it was wine and no counterfeit.

GLORY DISPLAYED .- What fol owed at that wedding no one knowsto one cares to know. The end has been reached for which the narrative was introduced into the Gospel story, It was not the marriage, but the miracle that concerned the inspired writer The central figure was not the bride, or bridegroom, or Mary, but Jesus were standing near at the time six Here in Cana He wrought His first stone waterpots. Their size cannot be miracle to supplement the provisions 6) but the measure is uncertain and 11). He possessed it before, even from unimportant. These vessels were a cus- eternity (John xvil, 5), but it was contomary part of the furniture for cealed under the drapery of His flesh, feast occasions, being used for purifying or washing purposes. The Jews, early manhood the Divine nature had and especially the Pharisees were scarcely been known. Some had incareful to perform frequent ablutions deed believed it as a deduction from while eating, (Mark vii: 3) to avoid certain facts that had come to them (John i. 49). But now it was displayed before this glad company. ready for use by the Saviour vessels transfigured. He had suddenly become to all what He was not before, more than a prophet. And the grandest result of it all was this, that the five disciples who had so recently joined themselves to Him believed in Him. turning points only in the history are To be sure it was a weak faith, destined to be tried, but then it was faith in its beginning, and would increase,

REFLECTIONS.-There have been nany interesting attempts to find attractive and instructive features in this narrative. It has been used to show that Jesus was no gloomy ascetle, out of sympathy with men, retiring from the ordinary and festive cenes of every day life. It has been invoked to prove that His social standing and the social standing of His famly was not among the extremely poor, as some have supposed. It has been microscopically examined to maintain various fancies and vagaries, having no value whatever, except to amuse their inventors. It is chiefly valuable in indicating the manner of beginning the gospel ministry. Jesus was not ostentatious but humble. He made no loud propose to give cold water instead of professions or ambitious claims. With a selected few He entered quietly into vocates present they would have re- a small community and there acceptjoiced and they would have thought ed courtesy as any man might do. An occasion having arisen, quite out of He gently used His power, at the time hesitating on the score of propriety. But in so doing He became known. That method won His disciples. The truly great need no great event to show their greatness. Jesus would shine anywhere (John I, 4). The light always shines.

************* injury east of the Allegheny Mounthe blind man cannot do, and during tains, north of Virginia: and west of idle times he builds and repairs fences. these mountains they have done He can lay the "worm" for a rail fence scarcely any damage north and cost as well as any man, and prides himself of a line drawn from Chicago southon the rapid manner in which he gets east to Cincinnati. Thousands of faralong with the work. He built a plank mers in Ohio never saw a chinch-bug fence along the gravel road in front of until within the last four years, and the Walther house. The line is perthere are thousands more in North- feetly straight, while the workmanship western Ohio, Southern Michigan and on the fence and gates is not excelled Northern Indiana that, even yet, would by many men who can see and who not be able to recognize one were they profess to be carpenters. to see it among their growing grain,

NOT HAMPERED BY BLINDNESS

Remarkable Things Done by a Sightless Man in Indiana. From the Indianapotis News.

John Walther, who lives within two miles of Clinton, Ind., has been blind boiled, and now, reheated, it made its from birth. Until he reached manhood John lived on the farm with his father, and it was not uncommon to see him driving to the city with a load of corn wheat or other farm produce. A piece of ground was given to him, and each year he would plant and cultivate a big garden, which he would market in Clinton and place the proceeds to his credit in the bank. He would buy horses cattle and hogs. Even when a boy he was regarded as a good trader. It is now a common occurrence for John to stop in the middle of the road and trade horses with some jockey, and it is said that he is never worsted. He will go to any part of his father's large farm. unattended, in search of a truant horse or cow, and his searches are usually successful. How he manages to distinguish the stock for which he is searching is a question which puzzles everybody, and a mystery which the blind man himself cannot or does not explain.

When he decides to come to town he roes to the woods, and, with apparently as little difficulty as a man blessed with two good eyes, selects his favorite horse from perhaps a dozen grazing in the pasture. He has each season for years made a hand in the harvest field, and the farmers regard him as one of the fastest and most reliable wheat "shockers" in the neighborhood. It was threyears ago during harvest that the blind man's brother became entangled in the machinery of a harvester and suffered broken arm. As soon as the accident securred John started on a run from the field to the barn and began hitch ing a team to a spring wagon.

He worked rapidly, and when the men bore the injured man to the house the blind boy had the team hitched up, driven out in the road and ready to start with his brother to a doctor in this city. He drove almost at breakneck speed, made the turns of the streets after reaching the city and brought his horses to a standstill in front of a doctor's office. After assisting the wounded brother up the stairway into the office he drew out his watch, slid his index finger quickly around the dial, and, with a sigh, re marked, "Just half-past 16-I was only twelve minutes driving to town." There is no work on the farm that

******* sergeant major, as he vainly tried to stick his fork into it, "Have you boiled us a cannon ball, Browney? "Or the regimental foot-ball?" asked another. "Where did you get the flour from?" uestioned Sergeant Smith.

"Where from?" I retorted, "From stor No. 5, of course. "The deuce you did!" roared the quar-ermaster sergeant "Then, hang you, ou've made the pudding with Portland

And so it proved. The pudding is now reserved in the battery museum.-Lonon Weekly Telegraph.

The Ailment.

"What appears to be the matter with our father?" inquired the doctor, as he astily put his clothes on." got the plumbago," replied the "I think that's what may says it

"Pain in the small of the back, I prosaid the doctor. "No, sir, he hatn't got no small of the back. My paw weighs 284 pounds."-

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to its wonderful curative properties.

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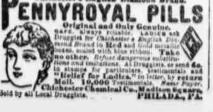
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