

HEDGES AFFORD PROTECTION TO INSECTS



Wheat Field Destroyed by Grasshoppers Originating in a Rocky, Neglected Ravine Lying Between Them.



Wheat Fields Destroyed by Grasshoppers Originating in a Bordering Uncultivated Field.

(By F. M. WEBSTER.)
Insects outnumber all other forms of animal life inhabiting the face of the earth. If the entire insect population of a single acre of arable farm land, in any part of the United States, could be brought together and carefully examined, hundreds of different kinds would be found, some of them doubtless new to the naturalist, the majority new to the farmer, but all either directly or indirectly affecting the financial interests of the latter. Comparatively few of these insects would be found actually to prey upon the grain or grasses over this limited area, the remainder being enemies either of the few destructive species or of each other. But the farmer himself would probably know little regarding the habits of any of them, despite the fact that he may have spent the most of his life in their midst, and sustained greater or less animal loss by reason of their ravages.

The business of farming has made immense strides within the last fifty years, but advancement in a knowledge of insects has not kept pace with this progress. Indeed, the modern farmer who plants his grain with a grain drill, harvests it with a self-blinder, and threshes it with a steam threshing machine, probably knows little if any more of these insects than did his grandfather, who a century ago sowed his grain broadcast, reaped it with a hand sickle, and threshed it with a flail. Inconspicuous as it may appear, not one farmer in ten has even a business acquaintance with those insects that may cost him anywhere from 5 per cent. to 95 per cent of his crop. This apathy in regard to insects is doubtless due in part to their generally minute forms and obscure habits of life. But much is due to the innate propensity of men in general to consider the ravages of insects as insurmountable and incomprehensible phenomena of nature, like storms, floods, or unseasonable frosts, that must be accepted without question and without recourse. Indeed, in the minds of some they are dictated by a Providence whose acts are final and above question. Precisely a similar opinion relative to smallpox was held by the old Arabian physicians and by medieval schools.

A better knowledge of some of the fundamental principles governing insect life and development than at present prevails would teach the farmer that insect depredations are not to be placed in the same category with floods, storms, and unseasonable frosts, all of which are natural phenomena, not influenced by the acts of man. Ravages of insects, though natural, are in many instances the direct results of man's efforts to bring large areas of country out of a state of nature into a high state of cultivation. To destroy hundreds of kinds of plants, growing over large areas of country, replacing these plants with a selected few and increasing the pro-



Poorly Kept Roadside, With Rail Fence Overgrown With Brambles—A Fine Hiding Place for Insect Pests.

ductiveness of these to the greatest extent possible is agriculture itself, and though it is practically feeding the civilized world, it is nevertheless contrary to the long-established natural order of things.

Probably not 5 per cent. of the different kinds of insects that inhabit a farm are injurious, while many times as many are the farmer's friends, because they are engaged in destroying the pestiferous ones. In fact, the two prime elements in restraining insects are their natural enemies and unfavorable weather. It must be remembered, however, that weather affects both friends and foes. Probably many outbreaks of insects are not due to weather conditions especially favorable to the pests, but rather to those conditions fatal to their natural enemies; relieved of the restraint exercised by their enemies, the species at once develop in myriads and destroy the crops of the farmer.

Farmers have aggravated the situation by leaving uncultivated fields. These areas may be the margins of such fields, along fences or roadsides,

or neglected patches, which, on account of their stony soil, or perhaps through other causes, remain uncultivated and neglected year after year. Neglected Osage orange hedges, with the usual equally neglected grass land along either side, form most attractive places for the chinch bug to pass the winter, and in the west destructive outbreaks of this pest have been traced directly to them. In the east outbreaks of the army worm are frequently to be traced directly to the densely grassy roadside, fence row or neglected orchard. The writer has seen whole fields of spring-sown oats destroyed by caterpillars of a small moth that hatched from eggs deposited in the neglected ground along a fence. In most studies of the outbreaks of insects pests, it has been found that these invariably originated in neglected patches in cultivated fields or else in the waste lands in the



A Well Kept Roadside Offering no Protection for Over-Wintering Insects.

vicinity of the borders of such fields, or neglected roadsides, where the young insects fed until they were able to make their way to the crops.

The farmer should understand, that he can fight the enemies of his crops to greater advantage in these areas, by cutting old grass, weeds and shrubs and carefully burning them, than he can after they have become winged and widely spread in his fields.

WINTER PLOWING SAVES MUCH WORK

Freezing and Thawing Will Pulverize Soil to Bottom—Manure Is Also Essential.

Sod ground plowed any time when the weather permits will be well rotted and can be prepared for seeding as soon as the ground is in condition to work in the early spring. Oats and barley seeded early, the ground being thoroughly mellow and fine, will usually always yield a profitable crop of heavy grain and good straw. If there is a thin crust of frozen soil or even a light fall of snow on the ground when it is plowed it will work no injury, but will rather be a benefit. Sod land may be plowed when wet in the late fall and early winter months, the freezing and thawing during the winter will pulverize the ground clear to the bottom, giving a fine mellow soil for planting in the spring. Heavy sod should be plowed fully six inches in depth. It requires a stout, well-trained team and a good plowman to do good work. Most of the large farmers are using the three-horse sulky plow. These plows are easy to handle. More ground can be plowed in a day. The draught is easier on the horses and plowman. For potatoes and truck crops manure first from the stables and corn straw spread on top of the sod and then plowed under will make deep mellow and fairly rich land. This is the method followed by most of our large truck farmers and it is a good one. For fine seeds, such as onions, beets and most of the roots the ground must not only be deep, well filled with rotted manure, but there must be a generous dressing of fine, rich manure to spread on top of the ground and well mixed with the top soil with spring-tooth harrow and the ground made fine and level with the smoothing harrow. The smaller and choicer vegetables are mostly grown by gardeners. This method gives a mellow seed bed, one that will hold the light summer rains necessary for rapid growth and early maturity of the crop planted. Truckers nearly always have one-third of their land seeded to clover or rye and vetch to plow down to green manure. Gardeners, on the other hand, use large quantities of manure, follow close planting and all ground under crop both winter and summer. This is known as "full cropping."

Separate Sow With Litter. The sow and litter will fare better if they are kept separated from the herd until the pigs are at least a month old.

INTERNATIONAL SUNDAY SCHOOL LESSON

(By E. O. SELLERS, Director of Evening Department, the Moody Bible Institute, Chicago.)

LESSON FOR FEBRUARY 15.

CHRIST'S HATRED OF SHAMS.

LESSON TEXT—Luke 11:35-36. GOLDEN TEXT—"Be not deceived; God is not mocked."—Gal. 6:7.

This is a strange breakfast episode (to "dine" means literally, to breakfast). Jesus accepted three such invitations from the Pharisees and was accused of being a glutton and a wine bibber. Matt. 11:19; Luke 7:35, 36, 44. In this instance we are told plainly (v. 54) why he had been asked to this feast. At a later time, e. g., during the Passion week, Jesus delivered a special discourse against the Pharisees (Matt. 23) in which he repeated many of the things we study today.

Must Be Clean.
1. False vs. True cleansing (vv. 37-44). The orthodox Jew is very punctilious to avoid ceremonial uncleanness. In Christ's time this ceremonialism was at its highest development. To be defiled was far worse than to be morally unclean. This Pharisee "marveled" that Jesus was not likewise concerned with his outward acts (v. 39, see also Matt. 23:25, 26). To have a clean cup and platter was more important than to have a clean heart. In a fragment of Gospel found at Oxyrhynchus, Jesus is reputed to have said to a Pharisee: "Thou hast washed in waters wherein dogs and swine have been cast, and wiped the outside skin which also harlots anoint and beautify, but within they are full of scorpions and all wickedness. But I have been dipped in the waters of eternal life which come from the throne of God." Pious platters, presented in pride, must be inwardly purified.

Jesus pronounces three "woes," griefs that like an avenging nemesis hang over men of such a character. (1) A "woe" against those who make a show of tithing the common garden mint and herbs and at the same time avoid the weightier matters of justice and their fellow men and love to God (v. 42). We are not to neglect our churchly duties at all, but these cannot be substituted for righteousness (see Micah 6:8). (2) A "woe" against those who love the places of pre-eminence (v. 43, cf. Matt. 23:6, 7). This spirit has not departed from the church after a lapse of centuries. It is unchristian, unchristlike. The great one must be the servant of all (Matt. 23:11, 20:28, John 13:14, 15, Phil. 2:5-8). (3) (v. 43). The third "woe" is directed against hypocrisy. To touch a grave was to become unclean, and hence they were white-washed to give men warning. Many Christians are without beautiful behavior, yet within full of dead men's bones and all manner of uncleanness.

The Three Woes.
II. Real vs. Sham Lives (vv. 45-54). The lawyers were the theologians, the expounders of the Mosaic law. Evidently the words of Jesus produced great conviction. The word "reproached" (v. 45) means "to entreat spitefully," and the probabilities are that he spoke to Jesus as if to rebuke him. Jesus at once pronounces three woes upon him and his class. (1) A "woe" because they laid burdens upon others which they themselves would not even touch with one of their fingers (Matt. 23:4). That is, they added to the law minute and troublesome details, which they declared to be more important than the law itself. (2) (v. 47) A "woe" is pronounced upon them for honoring the dead prophets and at the same time rejecting and persecuting those that were living. To honor dead teachers, to praise the prophets of the past, those whom we cannot endure while living, is a form of hypocrisy which costs but little. It implies that had they lived in the days of their fathers their conduct would have been indifferent, yet they are with the living prophets, following the example of their fathers. God foresaw this (v. 49) and the faithful minister of his word must expect a like treatment (Mk. 10:29, 30). (3) (v. 12) The third "woe" was pronounced against these religious teachers because, possessing the key to knowledge, they neither entered themselves nor would they allow others to enter; "ye enter not in yourselves, neither suffer ye them that are entering in to enter." (Matt. 23:13, Am. 9:1). These lawyers, theologians, were professing interpreters of the law, that law which was the foundation and bulwark of the Jewish nation. In fact, however, they had so obscured and "explained" that law as to leave men in darkness. Supposed to lead men into truth, they were shutting them out of the truth. What a terrible indictment of many of this present age.

We quote from the letter of a Wisconsin business man: "The average man is interested in the teachings of the Bible. If the Bible, cannot stand upon its own feet, it is foolish to bolster it up by any personal ideas. We make too many apologies for Scriptures and do not stand squarely by what it teaches." Not a few who occupy the position of teachers obscure the truth of God and they shut men out of a real knowledge of him. Jesus thus rebuffs to both Pharisees and the lawyer, that character is not a garment to wear, but it is the inward fur-fishing of the heart.

MARKET QUOTATIONS

Live Stock, Grain and General Farm Produce.

Live Stock.

DETROIT—Cattle: Receipts, 712; market steady; extra fat steers, \$8.25 @ \$8.50; good steers, 1.000 to 1,200, \$7.75 @ \$8; steers and heifers, 800 to 1,000 \$7 @ 7.50; steers and heifers that are fat, 700 to 800, \$6.75 @ 7; steers and heifers that are fat, 500 to 700, \$6 @ 6.75; choice fat cows, \$6 @ 6.25; good fat cows, \$5.50 @ 5.75; common cows, \$4.50 @ 5; canners, \$4 @ 4.25; choice heavy bulls, \$6.50 @ 7; fair to good hoganas bulls, \$6 @ 6.25; stock bulls, \$5 @ 5.75; choice feeding steers, 800 to 1,000, \$6.50 @ 7; fair feeding steers, 800 to 1,000, \$6.50 @ 6.75; choice stockers 500 to 700, \$6.50 @ 6.75; fair stockers, 500 to 700, \$6 @ 6.25; stock heifers, \$5.50 @ 6; milkers, large, young, medium age, \$6 @ 6.5; common milkers, \$4 @ 5.50. Veal calves: Receipts, 250; market steady; best, \$11 @ 11.50; others, \$7 @ 10.50. Sheep and lambs: Receipts, 3,539; market dull; best lambs, \$7.50; fair to good lambs, \$7 @ 7.35; light to common lambs, \$6 @ 7; yearlings, \$6.25 @ 6.75; fair to good sheep, \$4.50 @ 5; culls and common, \$3 @ 4. Hogs: Receipts, 1,981; pigs, \$8.40; others grades, \$8.45 @ 8.50.

EAST BUFFALO: Cattle—Receipts, 3,625; prime heavy grades 10 @ 15c higher; all other grades steady; market closed weak, with few cars late arrivals holding over; prime heavy steers \$8.75 @ 9.10; best 1,200 to 1,300-lb steers, \$8.25 @ 8.50; best 1,100 to 1,200-lb steers, \$8.10 @ 8.20; coarse and plain weighty steers, \$7.25 @ 7.50; fancy yearlings, \$8.25 @ 8.50; medium to good, \$7.50 @ 7.75; choice 1,000 to 1,100 lbs., \$7.25 @ 8.25; fair to good, \$7.50 @ 7.75; extra fat cows, \$6.50 @ 7; best cows, \$5.75 @ 6.25; butcher cows, \$4.50 @ 5; cutters, \$4.25 @ 4.50; trimmers, \$3.50 @ 3.75; best heifers, \$7.50 @ 8; medium butcher heifers, \$6.50 @ 7; light butcher heifers, \$6 @ 6.25; stock heifers, \$5.50 @ 6; best feeding steers, \$6.75 @ 7; fair to good, \$6.25 @ 6.50; fancy stock heifers, \$6.50 @ 6.75; best stock steers, \$6.25 @ 6.50; common light steers, \$5.50 @ 6; extra bulls, \$7.25 @ 7.50; hoganas bulls, \$6.50 @ 7; stock bulls, \$5 @ 6; milkers and springers, \$4.50 @ 5.

Hogs—Receipts, 120,000; market 10 @ 15c higher; heavy, mixed and yorkers, \$9 @ 9.50; pigs, \$8.50 @ 9. Sheep and lambs—Receipts, 11,000; market 10 @ 15c higher; top lambs, \$8.15 @ 8.25; yearling, \$6.50 @ 7; wethers, \$5.75 @ 6; ewes, \$5 @ 5.50.

Cattle—Receipts, 500; market strong; top calves, \$12 @ 12.25; fair to good, \$10 @ 11.50; grassers, \$4.50 @ 5.50.

Grains Etc.
DETROIT—Wheat—Cash, No. 2 red, 97 1/2c; May opened without change at \$1.02, declined to \$1.01 3/4 and advanced to \$1.02; July opened at 92c, declined to 91 3/4c and advanced to 92c; No. white, 97c.
Corn—Cash, No. 3, 82c; No. 2, yellow 2 cars at 85c; No. 4, yellow, 2 cars at 82 1/2c.
Oats—Standard, 1 car at 42c; No. 3 white, 41 1/2c; No. 4 white, 41c.
Rye—Cash, No. 2, 66c.

Beans—Immediate, prompt and February shipment, \$1.85; March, \$1.90.
Cloverseed—Prime spot, \$8.85; March, \$8.80; sample red, 37 bags at \$8.25, 20 at \$8.15 at \$7.75, 9 at \$7.50; prime alsike, \$10.75; sample alsike, 24 bags at \$9.
Timothy—Prime spot, \$2.25.
Alfalfa—Prime spot, \$7.25; sample, 9 bags at \$6.50.
Hay—Carlots, track Detroit: No. 1 timothy, \$14.50 @ 15; standard, \$13.50 @ 14; No. 2 timothy, \$12 @ 13; light mixed, \$12.50 @ 14; No. 1 mixed, \$12.50 @ 13; No. 1 clover, \$12 @ 12.50; rye straw, \$8 @ 8.50; wheat straw, \$7 @ 7.50; oat straw, \$7 @ 7.50 per ton.
Flour—In one-eighth paper sacks, per 196 pounds, jobbing lots: Best patent, \$5.30; second patent, \$4.80; straight, \$4.50; spring patent, \$5.10; rye, \$4.40 per bbl.
Feed—In 100-lb sacks, jobbing lots: Bran, \$25; coarse middlings, \$27; fine middlings, \$29; cracked corn, \$29; coarse cornmeal, \$28; corn and oat chop, \$25.60 per ton.

General Markets.
Apples—Steele Red, \$5.50 @ 6; Spy, \$4.50 @ 5.50; Greening, \$4.50 @ 5, No. 2, \$3 @ 3.50 per bbl.
Rabbits—\$2 @ 2.25 per doz.
Cabbage—\$2.25 @ 2.50 per bbl.
New Potatoes—Bermuda, \$2.50 per bu and \$7 per bbl.
Sweet Potatoes—Jersey kiln-dried, \$1.35 @ 1.40 per crate.
Dressed Calves—Fancy, 15c; common, 11 @ 12c per lb.
Dressed Hogs—Light, \$10; heavy, \$5 @ 9 per cwt.
Onions—\$1.40 per bu, \$2.75 per sack of 100 lbs; Spanish, \$1.50 per crate.
Potatoes—In bulk, 60 @ 62c per bu; in sacks, 65c per bu for carlots.
Dressed Poultry—Chickens, 15 @ 16 1/2c; hens, 15 @ 16c; No. hens, 10 @ 11c; old roasters, 10 @ 11c; ducks, 17 @ 18c; geese, 14 @ 15c; turkeys, 20 @ 21c per lb.
Cheese—Wholesale lots: Michigan late made, 15 @ 16c; Michigan fall made 16 1/2c; New York flats, 17 3/4 @ 18c; brick, 16 @ 16 1/2c; Limburger, 14 1/2 @ 15 1/2c; imported Swiss, 24 @ 24 1/2c; domestic Swiss, 19 1/2 @ 20c; long horns, 18 @ 18 1/2c; daisies, 18 @ 18 1/2c per lb.

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"This is our most valuable fowl," and the amateur hen farmer. "A fine breed," remarked the visitor, trying to look wise. "Yes indeed. We have named her E Pluribus Unum."
"Why the name?" the visitor questioned. "She came from the only egg that hatched of fifty in the incubator."

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Willing to Learn.
Pauline motored to the station to meet her dearest friend, who was coming down for a week-end. "Oh, Belle," cried Pauline enthusiastically, "do you know, Mr. Barnum the young millionaire, is going to teach me to swim."
"To swim!" exclaimed the guest, wonderingly. "Why, Pauline, I thought you had been taught already."
"Yes, so I have, dear," said Pauline, "but not by him."

Important to Mothers
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East to Butte.
"The Boston man who, when asked if he had ever been west, replied: 'Yes, indeed, I've been to Albany; has a counterpart in a chap I met on my last trip to the Rockies, said a Boston copper operator at the Plaza. 'I was in Spokane, going from the hotel to the railroad station in the hotel bus. A lanky rancher from Walla Walla was beside me. 'I'm agoin' back to the ranch,' he remarked. 'Where are you agoin'?' 'Oh, I'm bound for Butte,' said I. 'Agoin' east all the way to Butte!' ejaculated the rancher. 'I'd like to go with you, for I've never been east.'"

Brood over your troubles, if you want to hatch out more.

Tree Strangely Marked.
A curious tree which though sound was never known to blossom has just been cut down by Mr. James Hayden Carrigan on his lands at Ponds-town, County Kildare, Ireland. On the freshly sawn butt of the tree there was found a blood-red imprint of what closely resembled a hand and part of an arm.

Putnam Fadeless Dyes are the easiest to use. Adv.

Amusing Truth.
The late Frank Simmons, the famous American sculptor who recently died in Rome, was an exponent of the frank, naturalistic method. "How much more amusing the true is than the ideal," he said one day in his studio to a correspondent. "Take the case of the little girl. 'My dear,' the little girl's mother said, 'don't you think you're getting too old to play with boys?' 'The little girl frowned in scornful astonishment. 'Why, no, mamma!' she cried impatiently. 'The older I get the better I like 'em.'"

Don't buy water for bluing. Liquid blue is almost all water. Buy Red Cross Ball Blue, the blue that's all blue. Adv.

Uncomplimentary.
"I've a half mind to tell you what I think of you!" snorted Mr. Blobbins. "Umph!" replied Mr. Swatley. "Half a mind is what you were born with."

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