

OBJECT LESSON IN SPRAYING FROM AN APPLE ORCHARD

Results of One Year's Tests in Six Apple Orchards—By Prof. R. A. Emerson, Nebraska.

In 1906 spraying demonstrations were conducted in six apple orchards, one in each of six counties of south-eastern Nebraska, in co-operation between the Nebraska agricultural experiment station, the United States department of agriculture, and the owners of the orchards. The objects were to demonstrate the value of spraying in controlling apple scab and codling-moth, to determine the cost of spraying, and to learn whether it pays to spray apples under the conditions existing in Nebraska.

In each of the orchards a part of the trees were sprayed and a part left unsprayed for comparison. One of the orchards was sprayed four times and the others five times. The spray material was Bordeaux mixture containing some poison, paris green, arsenate of lead, etc.

An accurate account was kept of the quantity and the cost of the spraying materials used and of the time and cost of applying the spray. Extensive observations were made as to the percentages of wormy and scabby fruits on sprayed and unsprayed trees. An exact record was made of the yield of fruit of a part of the trees of the sprayed and of the unsprayed blocks of each orchard. The selling price of the fruit was also determined as nearly as possible in every case.

The total quantity of material used per tree for the five sprayings varied from five to 15 gallons, averaging



Large unsprayed tree of Missouri pippin in the Tecumseh orchard with its entire crop of fruit. Sound fruit (two bushels) on the right, and scabby and wormy fruit (six bushels) on the left.

nearly 11 gallons, or a little over two gallons per tree for each application. The material cost from a trifle less than one cent to nearly 1 1/2 cents per gallon, averaging one cent per gallon. The cost of applying the spray was from six-tenths of a cent to eight-tenths of a cent per gallon where power sprayers were used, and about 1 1/2 cents per gallon where hand pumps were used, averaging a trifle over a cent a gallon. The total cost of both material and labor for spraying 2,175 trees five times was only a little over 21 cents per tree, the trees averaging about 18 years old. The cost varied from 12 cents to 33 cents per tree, depending upon the age of the trees, the conveniences for mixing materials, the kinds of pumps used, and the like. The average cost was a little over four cents per tree for each spraying.

Records made at the end of the season from the entire crops of 37 sprayed trees and 39 unsprayed ones in the different orchards, including observations on over 110,000 fruits, showed 22 per cent. of wormy apples



Large sprayed tree of Missouri pippin apple in the Tecumseh orchard with its entire crop of fruit. Sound fruit (7 1/2 bushels) on the right, scabby and wormy fruit (five bushels) on the left.

on sprayed trees and 40 per cent. on unsprayed ones. Of the sprayed fruits six per cent. and of the unsprayed fruits 38 per cent. were scabby.

During the fall the foliage of the sprayed trees was much healthier than that of the unsprayed ones. In many cases, from 50 per cent. to 75 per cent. of the foliage of the unsprayed trees was on the ground early in October and in some instances the trees were almost completely defoliated at that time. Moreover, the leaves that remained on the unsprayed trees were entirely killed by the frosts of early October. At the same time the leaves of the sprayed trees were bright green, comparatively free from fungus diseases, and almost perfectly

free from frost injury, and very few had fallen to the ground.

The entire crop of fruit from 205-sprayed trees and 71 unsprayed ones in the different orchards was gathered and classified into "merchantable fruit," "culls," and "windfalls." The merchantable fruit was such as the owners were able to market in the ordinary ways, and the culls and windfalls were such as were fit only for vinegar factories and the like. The average yield of the sprayed trees was 8.4 bushels per tree, and of the unsprayed trees 6.6 bushels per tree. The smaller yield of the unsprayed trees was due in part to the smaller size of the individual fruits and in part probably to the dropping of many fruits early in the season. The culls amounted to eight per cent of the total crop of sprayed fruit and to 23 per cent. in case of the unsprayed fruit. The windfalls, likewise, were 17 per cent. and 31 per cent. for sprayed and unsprayed fruit respectively. The total value of the unsprayed fruit averaged 80 cents per tree, while for the sprayed trees, the average value was \$1.87. Subtracting from the latter the average cost of spraying, 21 cents per tree, there remains a net value of \$1.66 per tree for the sprayed fruit against 80 cents per tree for unsprayed fruit, or a direct gain from spraying of 86 cents per tree. On land worth \$100 per acre, the unsprayed fruit produced an average return of about \$40 per acre above the cost of harvesting, and the sprayed fruit on the same land gave an average return of over \$80 per acre above the cost of harvesting and of spraying. If it pays to grow apples at all, it pays to spray them!

The following recommendations for spraying next year are based upon the results obtained:

1. Spray with Bordeaux mixture after the cluster buds open, but before the individual flower buds open.
2. Spray with Bordeaux and some poison, such as arsenate of lead, paris green, etc., as soon as possible after the blossoms fall, and at any rate before the calyx lobes of the apple close.
3. Spray with Bordeaux and poison three or four weeks after the flowers fall.
4. Spray with arsenate of lead about July 20.
5. Spray with arsenate of lead about August 10.

Use paris green at the rate of one-fourth to one-third pound per barrel of Bordeaux. Use arsenate of lead at the rate of two pounds per barrel of Bordeaux or water.

Make Bordeaux as follows:
Blue-stone 4 pounds
Quicklime 6 pounds
Water 50 gallons

Slake the lime, dissolve the blue-stone, dilute each with half the required quantity of water, and mix thoroughly.

Use good nozzles and maintain a high pressure as uniformly as possible in order to distribute the liquid in a mist-like spray. Take care to reach all parts of the trees and to avoid drenching any part. Careless spraying should not be tolerated.

PROPER CARE OF DAIRY UTENSILS

By Prof. R. A. Pearson, Cornell University.

The kind of utensils used and their care are factors having much to do with the quality of milk. The chief trouble is in the lack of cleaning and sterilization.

All utensils should be thoroughly cleaned and exposed to live steam or boiling hot water until practically sterile, and then cared for in a way to prevent further contamination.

Many persons merely rinse with warm water which does little good, or they may sterilize the utensils carefully, then expose them to dust. Such defects are due more often to ignorance than willful negligence.

Frequently it is found that with the same amount, or less work better directed, much better results can be had.

It is very important to avoid the use of contaminated water for any dairy work. Disease germs have sometimes been transmitted to milk by impure water used for cleaning.

I must not omit mention of one utensil that is coming into use in the interest of ideal milk. It is the small-top milking pail.

Most of the stable contamination finds its way into milk when the pail is under the udder. This can be largely excluded by reducing the size of the opening through which it falls.

The common milking pail measures 12 or 14 inches across the top, the larger size having an opening of 154 square inches. A ten-inch pail has an opening of 80 square inches and a six-inch pail only 28 square inches.

Many figures could be quoted to show the smaller number of bacteria when the small-top is used instead of the ordinary.

Fall Best Time to Buy.—If you wish to buy any new stock, you can do so cheaper in fall than in spring, because you run the risks of wintering, but new birds become thus thoroughly wanted and tame before the breeding season.

LONDONERS HIT THE PIPE



THE ASSOCIATION ROOM AT WONG'S

Chinatown of New York, and of San Francisco, and even of Chicago, is known throughout America as one of the sights worth seeing on a visit to any one of the cities named. And foreign visitors to this country always feel a special curiosity to go through the queer section of the cities, and think perhaps that no city of Europe can in any way duplicate the sights, the people and the customs. And yet London it seems has its Chinatown, as much as either New York or San Francisco, though perhaps not so extensive a scale.

There are four opium dens of "Hop Joints" in London which cater for the public. Three of these are controlled by a syndicate of Chinamen, members of a "Tong" or society. The other "joint," perhaps the most luxuriously appointed place of its kind in existence, is owned by a notorious Chinaman of great wealth, Ah Wong, who, until the great feud in San Francisco three years ago between two powerful "Tongs," which led to wholesale murder, was known there as the mayor of Chinatown. This man's establishment was furnished by a well-known west end firm at a cost of \$10,000. Whereas the cost of a "layout," or use of one, ranges from ten cents to \$1.25, according to the amount of opium used, in the "syndicate joints," Wong's charge is \$5.00. All these places are within a stone's throw of each other. The Oriental sailor has less than a hundred yards to walk from the docks to reach the cheaper "joints," while Wong's place in Limehouse is just round the corner in an old-fashioned three-story brick building, formerly used as the freight offices of a world-famed shipping company. The day trade is composed mostly of sailors or Chinamen residing in the neighborhood, for the latter are barred at night, much as the residents of Monaco are denied the privilege of gambling at Monte Carlo. By three o'clock the places have been cleaned and put right for the coming night trade, and a little later the sallow-faced, hollow-eyed habitués are returning—for they have a "yen yen," which means that the terrible craving has come on them, and there is no denying it.

The visitor to "Chick's" establishment—one of the "joints" controlled by the Chinese syndicate—pays 60 cents and is given half a walnut-shell filled with opium. He then enters a large room, the floor of which is covered with rows of mattresses, and chooses his favorite bunk; and "Kip," a well-known personality in Chinatown, who acts as a sort of servant, approaches with the "lay-out." This consists of a small square Japanese tray, containing an oil lamp, a "stem," or pipe and bowl, two needles about five inches long, much like a woman's hat-pin, known as a "yen lok," and "shying needle," and a glass of water. The smoker now lights a cigarette, and proceeds to "cook a pill" by turning the needle with a small ball of opium rapidly about in the flame of the lamp. Every few moments the needle is withdrawn, and the small ball of opium it contains is rolled on the edge of the bowl for the purpose of removing a certain amount of poison and also to give the pill conformity. When properly cooked, and emitting the peculiarly pungent smell so sickening to the uninitiated, the pill is placed directly over the small hole in the bowl and the needle is pushed through; then the smoker, placing the bowl over the flame of the lamp, inhales the fumes into his lungs. A beginner usually takes short, quick pulls; but the habitue takes what is known as the "long draw," never stopping to take a breath until the pill is consumed. The bowl is then rubbed over with a small damp sponge, and the performance repeated until the smoker has had enough.

The second of these "joints" is presided over by a person known as "Kid Lee," a half bred Chinaman, who was at one time valet to a famous Yankee jockey. Under his management this place has become the rendezvous of foreign "crooks" and "graffers," pick-pockets, touts and confidence men. This place is known to the fraternity as the "Dream Shop," and is run on a slightly better plan than "Chick's," the charge being \$1.25. Partitions divide the smokers, the surroundings also are somewhat better, the "alls clean-

er, and the paraphernalia of a better kind, and there are two exits for use in case of emergency, unknown as yet even to the habitués. A fair estimate would show Lee to do a daily or nightly business of some three hundred "shells," or \$375, for many of his customers call for a second and third "shell of hop." Fifty per cent of this is profit, and many of the "regulars" purchase opium for home consumption.

The third of the cheaper "joints" is found six doors further 'down, and this time, instead of descending to the basement, one ascends the stairs of a comparatively new house, the ground floor being occupied by a fried fish shop. This place, known as "Hop Harbour," is exclusively used by Orientals, and a white man finds it exceedingly difficult to gain an entrance. Each of these places has a manager, the Chinese syndicate which owns them remaining in the background. A certain amount of opium is carefully weighed out each day to the managers by the representatives of the owners, who collect a money equivalent. The manager receives his commission daily, and the assistants their wages at the same time. This is the Chinese method—no books, no accounts, just business. John is far from being a fool.

At Wong's there is no secret password, no special knock is necessary, for almost the moment you approach the door it opens, two Chinamen in ordinary clothes look you over, and, being satisfied, bow you to a second door, which opens silently. The hall is lighted by four large lamps bearing red shades; the walls are covered with Chinese hanging screens and ornaments, while a red sign with black lettering reads: "Chinese Restaurant." On the first floor to the right of the entrance hall is a dining room containing eight tables. Chinese lanterns hang from the ceiling; the decorations are in red and black, and even the floor is painted black with a border of red around the room. Here come any number of respectable people to dine a la Chinoise. They have not the remotest idea of what goes on above the dining room floor, though others use the restaurant only for a blind, and, later on, smoke a pill or two upstairs. The food is excellent: "Chopped chicken and rice," "Yokio May," and Chinese tea being served; but the great dish is "chop suey," a most palatable mixture. To this place come many prominent persons; army officers who have been in China, society people, popular jockeys and sometimes politicians.

You pay your bill, then ascend the heavily carpeted stairway to the rooms above. At the top of the first flight, in a small recess, sits a Chinaman spotlessly dressed in white. He gives you a keen glance and awaits your pleasure. "I wish to rest awhile, Loo; let me have a room." Loo bows, and an attendant comes forward and leads the way into a small but luxuriously furnished apartment fitted up as a sleeping-room, the bed, however, being a divan raised some six inches from the floor, with a silk-covered mattress and silk cushions, or a pillow. The attendant waits for further orders. "Bring me a lay-out." With a bow the man departs, to return with the paraphernalia. The tray is a work of art, the stem is inlaid with ivory, and the "shell" is a mollusc's. "Shall I 'cook' for you, sir?" inquires the servant; but the visitor has been there before, and requires no assistance. Should the attendant be called upon to do the necessary "work," and added fee of \$1.25 is necessary. The man then says: "One guinea (\$5.00) please," and, taking the money, leaves the visitor to himself. There are some six private rooms at Wong's, the second floor being a sort of "association" smoking-room, used by parties who come only for the fun of the thing. This room has some ten couches beautifully upholstered, the floor is heavily carpeted, and the walls are arranged in a circle, the pillow-end to the wall, and each couch is sufficiently large to hold two persons, as often a servant is called into requisition to "cock."

MAURICE VERNON.

Elasticity of conscience has been one handicap to our financial system.

IN THE LIMELIGHT

NEW SENATOR A FIGHTER



William James Bryan of Jacksonville, Fla., appointed United States senator to succeed the late Stephen R. Mallory until a successor is regularly elected, declares that despite the fact that he was born on the border of Kissimmee county, he shall overcome that handicap and make that section a spot with a halo above it.

Bryan's early life was spent on the farm of his father, John M. Bryan, who subsequently was a state railroad commissioner for six years. The son's earliest schooling was gained at the Osceola high school at Kissimmee. This work, supplemented by the additional study at home during the evenings, fitted him for Emory college, which he entered at an early age.

After graduation came a year of teaching and study at Monticello, Ga., and then followed a year of farming. While teaching and while on the farm the younger Bryan applied himself during spare moments to reading law, and thus fitted himself for Washington and Lee university.

In October, 1899, Bryan came to Jacksonville and went in with the law firm of Barrs & Bryan. He remained here until December, 1900, and then struck out for himself. He kept at his law practice until the primaries of 1902, when he entered the political arena, and became a candidate for county solicitor. He was overwhelmingly elected after a vigorous and whirlwind campaign.

He was sworn in as solicitor in May, 1903, and it was the 1903 legislature that passed the stringent law against open saloons on Sunday. Bryan notified the liquor interests that the law would be enforced, and then, a little later, instituted prosecutions. The law was declared to be unconstitutional by the courts here, but later, when another judge ascended the bench, Bryan prosecuted again, won out and closed the saloons on Sunday.

Then came the gambling prosecutions, all keepers of gaming houses being convicted in two terms.

Without doubt Bryan will be the youngest member of the United States senate. In fact, he is only one year and two months and fifteen days above 30 years, the minimum age fixed by the United States congress for eligibility as a member of the United States senate.

TAWNEY'S RIGHT BOWER



James C. Courts, clerk of the appropriations committee of the house of representatives, has been reappointed by Chairman Tawney of that committee for the Sixtieth congress. This is just as intelligent and necessary a statement as would be a mention of the fact that the sun rose at approximately the usual hour this morning, for Mr. Courts is the right bower of the appropriations committee, and every member of the house, from Chairman Tawney—who has every minute demonstrations of the fact—to the representative who drops in once a year to ask about a river and harbor improvement at Jiggs Creek, Ark., is happy to admit the fact.

There are simply oceans of nice things that might be said about Mr. Courts—about his work and life, and the gentle, generous chivalry that is a part of him—but he does not care for floral tributes, either spoken or written, and this publication of his picture with these few inefficient and incoherent attempts to be complimentary and congratulatory, instead of pleasing him, will probably have just the opposite effect. But here are some plain, unadorned facts concerning his long and valuable career in the government service, to which he simply cannot take exception.

Mr. Courts is now serving his thirtieth year in the service of the house appropriations committee, having been first appointed by Representative Atkins of Tennessee in 1877. Prior to that time Mr. Courts served two years as secretary to the committee on revision of the laws, and before that, at the age of 19, he was enrolling clerk in the Tennessee legislature. He was a democrat, but has not voted for a quarter of a century, and has been speedily and joyously reappointed by every succeeding chairman of the committee, whether democrat or republican. It is very doubtful whether an appropriations committee chairman would care if Mr. Courts should announce himself as a populist. Efficient and comprehensively competent populists are just as much in demand for responsible positions as other folks.

PRINCE SEEKS RICH BRIDE



Another prince has entered the marriage market and is on the lookout for a bride with a dowry of millions. This is his highness, Alexander of Battenberg. The prince recently came of age and a big dinner and reception were given at Kensington palace to celebrate the event. Among the kings and queens and other royal guests were many Americans, Miss Phipps of Pittsburg being one of them.

The importance of the prince is much enhanced by the fact that his sister is queen of Spain and the public's interest is great because he is the particular chum and "side-partner" of the former Princess Ena. She was much of a tomboy and though a year younger than Prince "Allie," was the leader in all manner of mischievous pranks in their boy and girl days. He spends his vacations with the queen at one of her Spanish palaces.

There is no reason why an American girl should not become bride to Prince Alexander: He is the son of a German father and his title was conferred on him by Queen Victoria. While he is an officer, like his uncle Louis, in the British navy, King Edward has no jurisdiction over his matrimonial affairs.

Prince Alexander is a tall, clean-cut young man, with the good looks of all the Battenbergs of his particular branch. He has the sturdy build and disposition of his Teutonic ancestry. By no means a brilliant young man, he is a smart officer, a clever musician, excellent singer, splendid dancer, accomplished linguist, fair artist and a general all around good fellow, popular with all whom he meets.

MUCH ABUSED BRITON



George Alexander Redford, examiner of plays for King Edward, is since his interdiction of Edward Garnett's play, "The Breaking Point," the most abused man in England. Thousands of columns about him have appeared in the press of late, yet he must take it all, if not smilingly at least with an air of unconcern, for he is a member of the king's household, and he has no more right to defend himself than would his royal master if the newspapers chose to denounce him. Praise or blame must be absolutely ignored, and the subject of it must pretend that he never saw a line of it.

There are three ways in which playwrights may offend against the English laws of play licensing. In the first place, playwrights must not attempt to stage Biblical plays; in the second place, there must be no makeup or dialogue to suggest living persons, and finally, there must be nothing indecent in the plays. According to these laws Mr. Redford judges every play before it is put on the English stage. According to these laws "The Breaking Point" was judged and condemned.

Mr. Redford was appointed examiner of plays 15 years ago and gets \$2,000 a year and a fee of \$10.50 for each play submitted to him. A fine of \$250 may be levied on any person who produces a play which has been condemned, and the license of the theater would be taken away. During the reign of Queen Victoria there was more liberality with regard to the production of plays than ever before, and the examiner of plays held a sinecure. Now and then, however, he would bob up to condemn a play or eliminate a political and topical song for diplomatic reasons. Mr. Redford only occasionally uses his ax, and then the playwrights howl and wonder why he doesn't continue to make his job a sinecure instead of disturbing the men who think they have dramatic gems which may prove money-makers.