Wisconsin horticulture. Vol. X September 1919/August 1920

Madison, Wisconsin: Wisconsin State Horticultural Society, September 1919/August 1920

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, September, 1919 | Number 1

Cosmos: feathery foliage and soft colors.

"Masterly Inactivity" Best For the Peony

Reid Howell, New Jersey

In the Garden Magazine for August.

The time to order Peony roots is August; planting should be done in September. There is nothing difficult about their cultivation. As a matter of fact, you may stick your Peonies in the ground, never giving them another thought, and the probabilities are that year after year they will struggle through the weeds and grass and produce a very fair display of flowers. They are neither Orchids nor Roses and are literally easier to grow than a Geranium.

Peonies indeed will resent nursing and coddling; they don't like much stirring of the ground about their stems. Briefly, about the principal "culture" consists in letting them alone, except to keep them clear of grass and weeds.

Many of the disappointments experienced are due to some of the eyes having been destroyed, either by hasty or rough planting or a stirring of the ground directly over the plants in early spring. No weeding or raking should be done near the plants until the shoots are well up out of the ground.

Planting is a simple job. There is no need of "excavating to the depth of 2½ to 3 feet" for the planting of those roots, unless you want to do it for your health. It isn't necessary. Some hysterical horticulturist wrote this a hundred years or so ago, and every Peony man since has seemed to think it necessary to copy it. Imagine excavating to the depth of 2½ to 3 feet for a bed of 100 Peonies, or even 50! It brings visions of steam shovels, straining horses, shouting men. The duffer who first wrote that ought to have added, "and if you change your mind about the Peonies, and decide to have a house instead, you will have an excavation ready for the foundations." Simply dig a hole for each individual root. The hole need not be "as deep as a well," nor "as wide as a church door," but just large enough for the root to go in, with some little space to spare all around it.

The rest of the advice that experience has taught me can best be presented in the negative form of what NOT to do!

Don't Use Manure

Never use fresh manure in any way, shape, or form, unless as a mulch after planting, and even in this case, it must be kept away from directly over the crown of the plant. If your ground has been prepared with manure a year in advance of planting, it will be an excellent thing; otherwise, when you come to set your roots, don't use manure at all. Peonies can be, and frequently are, overfed. Assuming that you have just ordinarily good garden soil, I would advise against enriching it in any way except by the addition of pure raw bone-meal. And if where you are planting the soil is not good, I suggest replacing it to the depth of two feet or more with good garden soil.

Don't Plant Carelessly

Don't plant too deep. Too deep planting is responsible for many partial to complete failures. If roots are set with eyes much more than three inches below the level of the soil when planting is completed, the plants may fail to bloom for several years, or the blooms may be of indifferent quality year after year.

Don't plant too shallow. Plants with the topmost eyes less than two inches below the level of the soil are likely to be exposed in one way or another. From 2½ to 3 inches is about right, making due allowance for settling of ground after planting.

Don't set too close in permanent planting; that is, if you mean to let them remain as you plant them. Peonies should not be set closer than three feet apart each way. Four feet is far better.

Don't Worry About "Protection"

Peonies (all varieties) are literally as "hardy as the oak," and need no protection whatever, even in latitudes where the temperature goes down to any quantity of degrees below zero. Indeed, the best blooming seasons are invariably those which follow hard, "stay-frozen" winters. The first winter after planting, the roots are, of course, loose in the ground, and for this one season, a light cover of, say two inches of coarse litter —grass, or fine straw—is thought by some to be necessary to prevent heaving of roots.

"Once planted, all is done," is almost a literal truth about Peonies. Assuming that you follow the foregoing directions in planting, etc., the after-culture or fertilization consists only, in my opinion, of applying one pound of bone meal to every plant directly after the blooming season is past. This bone meal should be dug lightly with the hands or with a hand-trowel into the soil around the plants to the depth of only an inch or two, but not too close to the stem.

Don't use lime in preparing beds. A certain grower reports the death of several acres of plants due to excessive liming of the soil.

Don't fail to water plants plentifully during the blooming period; but don't use manure water at this time, or at any time, unless you are careful not to get it close to stems of plants.

Don't Worry About Diseases

There aren't any diseases that need give you any concern whatever, eminent horticultural professors to the contrary notwithstanding. True, there is a fungous disease, which attacks the leaves of the plants. This usually occurs only during very wet summers, and follows the blooming period. Purple blotches appear on the leaves and though a great ado has been made about it, it does not seem to render them especially unsightly. The trouble does not extend to, or affect the root in the slightest degree. There is another "disease" of a like character which attacks the stems and sometimes causes them to wilt rather suddenly; but this, except in rare cases, also follows the blooming season, but it does not affect the root in any way. The Peony root itself is subject to no disease that is either fatal or even of temporary seriousness. There are times when plants become "sulky" and refuse to bloom for a season, sometimes even two successive seasons. There are also times when the buds do not mature, and sometimes they turn brown or blast before opening but don't ask any one to explain it, for they can't and any grower who undertakes to do so is just groping in the dark. [It seems to be pretty well established that these are all forms of one, the botrytis, disease which is, in our experience, controllable by dusting on dry bordeaux.—*Ed.*

Some of the above difficulties may be due to the plant's method of taking a season off—a rest; the fruit trees in your orchard do no less. Or it may be caused by overfertilization or the use of strong manure.

Selecting the Place to Plant

Don't plant in low wet ground. Peonies require lots of moisture but they will not do well in low and constantly damp ground. A situation where there would be a constant supply of water around the roots they would not tolerate at all.

Don't plant under trees. Peonies will do admirably in partial shade—the shade cast by buildings or trees when the latter are located at a considerable distance. But in no case should roots be set, say for example, within 30 feet of a tree a foot in diameter, and they cannot do well when planted within 12 feet of a Privet hedge.

Don't plant Peonies along the foundation walls of a building, unless you see to it that the plants get their share of water during the growing season. Frequently plantings about the base of a house receive no water for many weeks in succession, the rains all coming from the wrong direction—for the plants! Moreover, the soil directly around a house frequently contains too too much miscellaneous refuse—often large quantities of lime—for plants to do well.

Don't worry about ants. At a certain stage in their development Peony buds exude a sticky substance which attracts ants by the thousands and they swarm all over the buds and plants. It is scarcely worth while to take any trouble to get rid of them, inasmuch as they don't do the slightest injury, and by the time the buds are ready to unfold, have entirely disappeared.

Don't Move Your Peonies

Some growers have voiced the opinion that roots ought to be taken up and divided every four or five years. But it is a mistake to do so. Roots should be left undisturbed indefinitely. If this is done the plants will increase in vigor and productiveness year after year, the blooms growing larger and more fragrant and nearer and nearer to absolute perfection in form. The Peonies I originally planted have remained undisturbed for 25 years, and each one produces every year from 25 to 100 magnificent blooms.

As to Attention After Blooming

A great many people thoughtlessly cut down the Peony stems after blooming, close to the ground, to make room for other flowering plants—perhaps annuals nearby. A Peony root has actually more lives than the proverbial cat, but this often kills it outright, and if it does not will at least, in every case, cripple the plant to the extent of its bearing the very poorest sort of flowers for several subsequent seasons. Foliage is necessary to the life of the plant; in other words, it breathes through, and lives, by reason of its leaves; and thus through the summer months the Peony is growing below ground, storing up energy and forming its eyes for the following season's bloom. It is plainly obvious, too, that even in cutting blooms, too much stem should not be taken with the flower. At least two leaves must be left growing on every stem from which you take blooms. This is as important as not cutting down the whole plant.

By the first of September the root has finished its work and has become dormant. After first heavy

(Concluded on page 7)

CRANBERRY CULTURE

Edited by Mrs. S. N. Whittlesey, Cranmoor, Secretary Wisconsin Cranberry Growers Association

Cranberry Growers Meet

The cranberry growers of the Wisconsin State Association held their thirty-second annual summer meeting as per schedule at the Grand Rapids street car pavilion near Nekoosa on Tuesday, August 12, 1919.

The weather conditions were fine, enabling those from a distance coming in autos to make the long drives in comparative comfort and ease. One realizes and appreciates the loyalty of members that will arise at 3 a. m. and drive from fifty to one hundred miles to be present. And when they drive from Billings, Mont., as did Maud Searls Deshler and her husband, it speaks volumes for the tie that endures in the hearts of cranberry families.

The great size of the assembly room made our gathering seem small, but by actual count there were more than one hundred in attendance.

The meeting differed somewhat from those of years before in that there were fewer written articles than usual and by a musical innovation that was a happy feature. The charming manner and sweet voice of the singer Mrs. F. R. Barber of Warrens, Wis., ably supported by her son as accompanist and the violin solo of the son accompanied by the mother at the piano were noteworthy attractions, added to these the unison of voices of all present in familiar songs of the day led by Mrs. Barber, made a pleasing respite in the afternoon's program.

Disappointment over the non-appearance of Prof. Whitson and Secy. Cranefield was very great. Prof. Whitson was detained by an unexpected visit from his aged father and Sec'y Cranefield by misinformation regarding trains, making continuance of his trip from Portage impossible for date set. Prof. Whitson's paper came later and that all may get its substance at once we are including it in this September issue of Horticulture. Another thought to be disappointment was turned into a pleasant surprise when our "Pat. the Ditcher" (Mr. Frank Patterson) appeared in person with his paper, coming to us from Floodwood, Minn.

Many topics came up for discussion in the available time. The meeting adjourned at 5 p. m. till the next annual which will be held at Madison.

Madison, Wisconsin.
August 11, 1919.

Mrs. S. N. Whittlesey,
Secretary Wis. State Cranberry Growers Association.

Dear Mrs. Whittlesey:

It is a great disappointment to me that I am unable to attend the meeting of The Cranberry Growers Association.

The work I did in cooperation with the Wisconsin Cranberry Growers a number of years ago was one of the most enjoyable pieces of work I have ever undertaken, and to me at least, was very profitable. Since I have not been engaged for a number of years in the work immediately related to cranberry culture, I can say little at this time which would be of practical value to cranberry men, and in place of taking a number of words to say that little, I am going to outline a suggestion which it seems to me might be of considerable help in the development of the cranberry business,—namely the holding of a short school for cranberry growers each year either at the College of Agriculture at Madison, or at some other suitable place.

In order to make the object and possibilities of such a school clear, will you permit me to outline very briefly the history of the work which the Agriculture College has attempted to do for the cranberry industry.

My attention was first called to the requests which cranberry growers had made for assistance by Professor Henry, formerly Dean of the College of Agriculture. At his request in 1902 we transferred a small fund which the federal government had set aside for experimental work in irrigation to a study of the uses of water in connection with the cranberry industry. The legislature of 1902 and 1903 made the state appropriation of $2500 a year for two years in addition to the federal fund, and work was begun in the summer of '03.

It was recognized at once that the problems involved would require assistance from the Department of Horticulture as well as of Soils, and Professor Sandsten, formerly Horticulturist of the Station was associated with me during the first few years of this work. Professor Sandsten undertook as his part of the work, a study of the varieties of cranberries, of the insect enemies and the

means for their control and the fungus diseases to which the cranberry plant is subject. Since that time the work then included in the Department of Horticulture at the College has been very much differentiated. A department of Entomology for the study of insects affecting agricultural production, and a department of Plant Pathology for the study of fungous diseases have been organized separately from the department of Horticulture. This department has been able to devote a larger portion of its time and energy to the study of varieties of agricultural crops, and methods for their propagation.

Every one who has had any experience with cranberries realizes that in each of these three fields there are very important problems remaining to be solved, the solution of which is possible only through the work of men who are able to specialize along these separate lines.

The problems undertaken by the Soils Department, then called the department of Agricultural Physics included a study of the effects of sanding and drainage, on the formation of frost, the possibility of making more accurate predictions of frosts, and on the use of fertilizers for increasing the crop yields.

It was soon learned that on a well sanded and drained marsh the temperature of the soil rises considerably higher during the day and is much less liable to frosts during the night than on an unsanded and wet marsh. The sand, being relatively dry, does not lose its heat through the evaporation of water as a wet marsh does, and it has a higher heat conductivity; so that the heat penetrates more deeply. Moreover it acts as a mulch lessening the upward capillary movement of water which would otherwise reach the surface and be evaporated causing the continual loss of heat.

A full understanding of these principles enables the grower to manage his marsh with much less water than is otherwise necessary to protect from frosts.

Through the cooperation of the state and federal weather bureaus a more efficient system of weather prediction was worked out. A considerable amount of information in regard to the relation between frosts on cranberry marshes and the general weather conditions prevailing was acquired.

One of the problems in which I was personally very much interested was the use of fertilizers for increasing the yield of cranberries. Some study was given the problem, but I believe there is still a large field for further investigation. It has been clearly shown that a cranberry plant requires but small amounts of lime, and in fact grows best on an acid soil in which its sap probably has a higher degree of acidity. In several cases it appeared that nitrogen fertilizers were beneficial. In most cases of our early work the nitrogen was added in the form of nitrate. Since nitrates do not develop readily in marsh soils, naturally most plants which in the process of their evolution have adapted themselves to marsh soils use their nitrogen in the form of ammonium salts. It is therefore quite probable that better results in the fertilization of cranberries would be secured through the use of nitrogen in the form of ammonium than in nitrates. It is practically always true that crops growing on marsh land, especially on acid marshes require both potassium and phosphorus to permit them to make the largest growth. It is highly probable that larger yields of cranberries than have usually been secured can be grown through the use of a fertilizer in which the right amounts of nitrogen, potassium, and phosphorus are properly balanced. To determine the correct formula for this fertilizer will, however, require considerable additional work, although investigations by the New Jersey Experiment Station have added very materially to our knowledge of this matter.

Not only will the use of fertilizers increase yields, but the more vigorous growth of the cranberry vine which it encourages will render it distinctly less liable to diseases, especially fungous diseases to which it is subject.

A. R. Whitson.

We have to chronicle the passing away of Mr. A. C. Bennett, one of the oldest and best known cranberry men of the state. Grandpa Bennett, as he was affectionately styled, has been in failing health for a long time, the end coming early in August, at the home of his son, A. E. Bennett in Cranmoor township. The funeral was at the home and attended by the entire Cranmoor community and other friends and relatives from away. Burial was at Forest Hill, Grand Rapids, Wis. Thus another break is made in the list of Wisconsin cranberry growers.

Cultivation is better for plants than irrigation, but on account of our sudden dry spells it is often necessary to water at times during the summers. The job should be thoroughly done so that water reaches to the roots of the plant.

AMONG WISCONSIN BEEKEEPERS

The Wisconsin BeeKeepers Page
Prof. H. F. Wilson Editor

Beekeepers' Chautauqua Big Success

University Extension Division Promises Beekeepers Chautauqua in 1920

Did You Register? Will You Register in 1920?

A beekeepers' meeting never before equalled in Wisconsin and one not likely to be forgotten by those in attendance was held on the University ground August 18 to 23. 160 beekeepers registered for the course from thirty different counties. A total of 6049 colonies were represented. Twenty beekeepers registered as having 100 or more colonies.

The instruction given by Dr. Phillips and Mr. Demuth was practical and easy to get and the value received by individual beekeepers cannot be estimated. Dr. C. C. Miller was to have been there but could not get away. Mr. E. R. Root was present and gave some new and unpublished information concerning new apparatus which he has devised. A stenographic report of the lectures was taken and if they can be satisfactorily arranged will be distributed among the beekeepers at cost.

The meetings were held under a tent with ideal weather conditions and the chautauqua plan was carried out in full. Many beekeepers pitched their tents on the camp ground provided while others were provided with rooms near by.

The social side of the meetings were very important, and numerous groups of beekeepers could be found at any time between meetings discussing various beekeeping topics and the H. C. L.

Immediately after each afternoon session a call was made for swimmers and a good swarm collected at the bathing beach; contrary to all scientific knowledge, several queens seemed to be acceptable to the colony at all times.

A Bunch of Busy Bees: Beekeepers Chautauqua, Madison, August 18–23

On Friday evening a boat picnic was held on Lake Waubesa and about sixty people enjoyed the lunch and program. One of the old time beekeepers present was Mr. F. M. Wilcox, of Mauston, who told of the early history of the Wisconsin State Beekeepers' Association.

A petition from the beekeepers to the University authorities was presented asking for another chautauqua in 1920.

Among other matters discussed was the price of honey. The general opinion was that extracted should retail at thirty cents a pound. The wholesale price to be twenty to twenty-five cents per pound depending upon the selling order.

Mr. H. L. McMurray has been engaged to devote all of his time to work in Wisconsin working in cooperation with the United States Department of Agriculture, the University Extension Department and the State Department of Agriculture. He will have charge of the apiary inspection work for the State Department and the extension work for the University. If you desire to have any meetings held in your county during the next year, please write to this office.

Mr. James I. Hambeleton, formerly in charge of the University apiary, has been away on leave of absence during the war but is back at work again and will have charge of the experimental woork in beekeeping.

If you will secure one new member for the state association by December 1, we can have that membership of 500 that we are working for. The membership of the Association is now 408.

Write to Dr. S. B. Fracker, State Entomologist, State Capitol, for a copy o fthe new bee law. It is of vital interest to you and your neighbor beekeepers.

Have you any bees or honey for sale? If so, advertise in this paper.

"MASTERLY INACTIVITY" BEST FOR THE PEONY

(Continued from page 3)

frosts, the tops may be cut off, but I would advise not cutting right down to the ground, but allowing a few inches of the stem to show, to the end that when the annual garden clean up comes the following spring, you will know just where the Peonies are, and therefore where to avoid raking.

Be Philosophical

Don't be too greatly peeved if your color scheme goes askew. Many people seem to plan their Peony plantings with a certain color effect in mind, or else for a definite succession of blooms. This is the one direction in which Peonies sometimes disappoint, for "early," mid-season," and "late," attached to the description of the varieties in the catalogues, are really very uncertain. Climate, soil, and the vagaries of the season, all have an enormous influence on the blooming period. For example, two certain varieties may bloom here in our soil and climate, at the same time; somewhere else, near by, they may bloom a week apart. Even here, on our own soil, we have had in certain seasons Couronne d'Or open very shortly after Festiva Maxima, although normally they are ten days or more apart.

I have always thought that the ideal Peony garden should consist of two plants of each of the varieties desired; one plant for cut flowers, the other for outside display. For while a bed or row of high-grade Peonies in blossom outdoors is a sight worth traveling some little distance to see, beyond question the only way the individual flower may be had at its best is to cut it *in the bud* and open it indoors. But it is quite an accomplishment to know just when to cut the many varieties, for scarcely any two sorts may be treated exactly alike in this respect. Roughly speaking, the bomb type may be cut much earlier in its stage of development than the rose type, although there are some exceptions to the latter sort, such as Edulis Superba and Festiva Maxima, which open easily and quickly.

The Yellows Disease of Asters

William Toole.

At the recent summer meeting of the Wisconsin State Horticultural Society at Fort Atkinson the visitors at the Gladiolus gardens of Mr. Bicknell noticed the diseased condition of a bed of Asters, and some of the ladies asked Prof. Vaughan to tell of a remedy. Prof. Vaughan answered that so far no remedy is known. He said that it is a bacterial disease in some respects of the nature of the yellows disease of the cabbage, and it seems possible that disease resistant strains might be bred by selection, as has been done with the cabbage. Prof. Jones has requested some of our flower growers to take up the work but so far I do not know of any one doing it. If some of us should succeed in producing disease resistant strains of this popular flower, they would confer a valuable benefit on their fellow flower lovers. Save seeds from the healthy plants which are almost sure to be found even in the most affected collections. After raising plants from these seeds report results to Prof. L. R. Jones, Plant Pathologist, College of Agriculture, Madison, Wisconsin.

Mr. A. Martiny of the Lake Geneva Gardeners club says that he accidently discovered this season that asters grown in partial shade escape the disease.

Wisconsin Horticulture

Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Membership fee, fifty cents, which includes twenty-five cents subscription price of Wisconsin Horticulture. Remit fifty cents to Frederic Cranefield, Editor, Madison, Wis.
Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card, and pays for two years. Personal checks accepted.

Postage stamps not accepted.

The Fort Atkinson Meeting

Our memories of the Fort Atkinson meeting will be pleasant ones. It was quiet, restful. The program on Tuesday forenoon proved of unusual interest and many are now thinking about rural parks or recreation centers as something very practical and very desirable.

A synopsis of all the informal talks on this subject will be given in a later issue.

The afternoon session, discussions on strawberries, raspberries, insect pests, etc., was no different from other and similar sessions; there seemed to be no place to stop and if President Rasmussen had not forcibly dispersed the crowd at six o'clock some of them would be there yet, arguing.

The second day was ideal. We visited the great Coe, Converse and Edwards nursery and wandered as we willed thru blocks of shade and fruit trees, miles and miles long, at least that was the impression but mostly we wandered over the acres of Superb strawberries in fruit.

After lunch we just took it easy awhile then were escorted thru the big James plant where all manner of appliances for the aid and comfort of dairy farmers are made and then off across country to visit the Edgewater and other model farms. Not much of horticulture in that but it was a change from our usual summer meeting sight seeing and it was mighty restful. There was no rush, no hurrying to get over a certain schedule, just a nice easy afternoon. Just before we reached town we called on Mr. Westerfield who has gardens, greenhouses and a sprinkling system of irrigation.

After we had brushed the hayseed from our hair and gotten rid of the cow smell acquired on our trip we sat down to a splendid dinner at the Black Hawk Tavern as guests of the Fort Atkinson people.

Fort Atkinson is a remarkable little city. There are several large manufacturing plants but these do not "show on the surface." The people are home owners, that is evident without asking questions, because we know that renters would not take the pride in their lawns and gardens that these people do. Every lawn in the city is neat and clean, every home has shrubs and flowers and every street magnificent old shade trees. It's a pretty, quiet, restful place and if the people are not happy they ought to be at least contented.

We shall always have pleasant memories of Fort Atkinson, of the kindness and courtesy of its people who so quietly and yet so splendidly cared for us.

Saving Garden Seed vs. Buying

Sometimes it pays to save your own seed. Mr. Rasmussen says that he has a strain of Stone tomato that ripens evenly and much earlier than Stone grown from commercial seed. While no particulars are available it is quite certain that he did not save his seed merely from the largest or prettiest fruits but no doubt went over his entire field carefully until he found a plant that ripened several fruits a little earlier than the others and saved seeds from fruits of this plant rather than from the first fruit that ripened in the field. A similar careful selection of plants grown from these seeds in following years will give the desired results. In this way it is profitable to save seeds.

Rural Planning

Professor Aust of the Agricultural College is an earnest advocate of rural planning and largely thru his efforts a law was passed at the recent session of the legislature creating in the department of agriculture, of which C. P. Norgard is head, a division of rural planning. For the information of our readers the law is given in full:

No. 532, A.] [Published Aug. 2, 1919.

CHAPTER 693, LAWS OF 1919.

AN ACT to create section 1458—11 of the statutes, relating to rural planning.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

Section 1. A new section is added to the statutes to read: Section 1458—11. 1. There is created in the department of agriculture a division of rural planning. Such division shall be in charge of the commissioner of agriculture.

2. "Rural planning" as used in this section means planning for the health, general welfare, and amenity of the settler; planning for the establishment of the best possible transportation facilities; planning for the creation and development of the most logical community centers where country people can come together for social and business relations; planning for the setting aside of country parks, recreation fields, county fair grounds, community woodlands, places of local and historic interest, and for the reservation of land for public uses along river fronts, lake shores, fine outlooks from hilltops, and for the preservation of our native landscape.

3. It shall be the duty of the commissioner: (a) To stimulate interest and disseminate information in the various counties along lines of rural planning; (b) To co-operate with county rural planning committees in carrying out their several duties as provided by subsection 5 of this section; (c) To co-operate with the director of immigration in planning land settlement and colonization projects.

4. In each county there shall be a county rural planning committee. Such committee shall consist of the chairman of the county board, the chairman of the county state road and bridge committee, and the county superintendent of schools, ex officio members, and two others, either men or women, to be appointed by such ex officio members. The chairman of the county board shall be chairman of such committee, and in counties having more than one superintendent of schools, the superintendent to serve on such committee shall be designated by the chairman of the county board.

5. Within sixty days after the passage and publication of this act, the ex officio members of such committee shall meet and appoint the balance of the committee, one for a term of two years, and one for a term of four years, and thereafter one shall be appointed every four years for a term of four years and until their successors are elected and qualified. All terms for appointed members shall expire on July first, and vacancies in the office of appointed members shall be filled for the unexpired term by such committee.

6. Elected members shall be freeholders of the county and have a general interest in and knowledge of rural planning. All members shall serve without compensation, but shall be reimbursed by the county for their actual and necessary expenses incurred while acting as members of such committee.

7. It shall be the duty of the rural county planning committee:

(a) To keep itself informed of the progress of rural planning in this and other countries.

(b) To report to the county, town or village boards upon the architectural design of any public building or bridge, the geographical location of community centers, the location or design of any statue or memorial, works of art and mural decorations in public buildings when such are proposed, to the end that such matters may be made in the highest degree effective, permanent, dignified and fitting through proper design, form and situation.

(c) To advise regarding the planting and protection of trees, shrubs and flowers along all highways within the county to the end that they shall be so located as not to interfere with the maintenance of said highway, and that only trees, shrubs and flowers native to Wisconsin be used for this purpose.

(d) To consider and provide for the establishment of community parks and woodlands, proportioned and situated so as to provide ample and equal facilities for the residents of the county.

(e) To propose to the county board the setting aside of places of historic interest and the protection and preservation of unique and picturesque scenery along rivers, lakes and streams, or other scenery or features remarkable, to the end that they may be continued and preserved.

8. No action by the county board involving the expenditure of funds, which action concerns rural planning shall be legal or binding until it has been referred to the county rural planning committee and the recommendations of such committee accepted or rejected by such board. The county board may call upon such committee to report with recommendations upon any matter relating to rural planning, and such committee shall make its report within thirty days after such request is made unless a longer or shorter period is specified. But such committee may at any time, on its own motion, make recommendations on any phase of rural planning to the county board.

9. Such committee with the consent of the county board may appoint as secretary a person of skill and experience in rural development and may with the consent of such board employ consulting rural planning experts for the making of plans or maps of the county or any portion thereof showing location, design or treatment of proposed projects referred to in this section, as occasion may require.

10. Any county in which there does not exist a county park commission acting through its rural planning committee may acquire by gift, grant, devise, donation, or purchase, condemnation or otherwise, with the consent of the county board, a sufficient tract or tracts of land for the reservation for public use of river fronts, lake shores, picnic groves, outlook points from hilltops, places of special historic interest, memorial grounds, parks, playgrounds, sites for public buildings, and reservations in and about and along and leading to any or all of the same, and to develop and maintain the same for public use.

11. Such committee shall work out plans to enforce the state law prohibiting dumping of tin cans and rubbish along highways.

12. The state department of agriculture, the state department of engineering, the state conservation commission and the agricultural extension division of the university of Wisconsin shall co-operate with the commissioner of rural planning and the several county rural planning committees in carrying out the provisions of this section.

13. Any county wherein there exists a county park board shall not create a county rural planning committee but in such county the county park board shall exercise and be possessed of all the powers and duties imposed upon the county rural planning committee by this section.

Section 2. This act shall take effect upon passage and publication.

Approved July 30, 1919.

COPY LAW.

Watch the late-sown lettuce, turnips, etc., for green aphis. This insect may be kept in check by spraying with some of the tobacco preparations. The treatment will have to be repeated several times to get all the insects.

Thin out the currant bushes now if it has not been done—cut out the oldest wood and thin some new growth so each branch has a chance to develop. This often increases the size of the fruit remaining.

Do not try to see how many flowers may be packed into a vase, but rather how few. Often one flower makes as attractive a vase as a dozen.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

The Syrphus Flies

These insects are very beneficial in that they feed almost entirely on plant lice. Plant lice although frail insects withstand heat and cold to a very high degree and this fact coupled with their wonderful ability to develop in great numbers enables them to increase upon their host plants in great numbers and if it were not for the several kinds of predaceous and parasitic insect enemies that feed upon them, and hold them in check, the losses would be enormous. Plant lice on fruit trees, truck and field crops and especially the pea aphis would destroy large areas of plants and do an enormous amount of damage if it were not for these beneficial insects.

One of the most important groups of plant lice feeders is a family of flies known as flower flies and scientifically as Syrphidae. They are also known to some people as sweet bees or more often hover flies because of their habit of hovering in mid-air about the flowers. They are not however, true bees and can neither sting nor bite. The young or larvae of the Syrphid flies are quite inconspicuous being grub-like maggots without legs or distinct heads. In fact they appear more like slugs crawling around among the aphids and devouring large quantities of them. Frequently they will destroy all the plant lice on individual plants.

The adult female flies lay their small white elongated bean-shaped eggs among the colonies upon which the larvae feed. Under the microscope they present a beautiful sculptored ornamentation. The eggs hatch in a few days and the larvae feeding upon the plant lice grow rapidly. In from one to three weeks depending upon the species, they become full grown, then seek a suitable place in a curled leaf, leaf axile or the soil and change into a form known as the resting stage or pupae. In this stage the outer covering becomes hard and contracted and they usually become elongated and club-like within this case. A change takes place in which the adult fly is developed and cutting its way out of the shell, it appears with the wings closely folded to the body but they soon inflate and dry. The Syrphid is then ready to take wing and search out colonies for depositing a new series of eggs.

The adult Syrphus fly is prettily marked with black and yellow spots or bands, especially on the abdomen. This bright coloration seems to suggest to the casual observer a bee or something associated with a sting.

These flower flies are some of the best friends the farmer has and should be protected and not killed under a misapprehension of their relation to mankind.

Charles L. Fluke.

Chrysanthemums, geraniums and other garden flowers may be taken up and put in pots for winter growing in the house.

Act Now to Prevent Next Year's Cutworm Losses

In late summer and early fall dull colored moths or millers lay eggs on weeds and grasses from which young cutworms hatch. Grass land that is to be planted to some cultivated crop next spring should if possible be plowed and harrowed before this time to remove the grass and weeds before the eggs are laid. If it cannot be plowed at that time it should be plowed as soon as possible afterward so as to destroy the eggs and also the food of the newly hatched cutworms. If earlier plowing is impractical, late fall or winter plowing will destroy many hibernating cutworms. Fields which were badly infested this season and permitted to grow up to weeds should receive the same treatment for they are likely to produce a big crop of cutworms for next season.

L. G. Gentner.

The Green Clover Worm on Beans

A great many bean plants are showing injury in the form of holes and irregular ragging in the foliage. In many instances the injury is quite uniform throughout the whole plot. Most of this is due to the green clover worm, so-called because it was first found on clover.

The caterpillar is a slender tapering green worm with a narrow white stripe and a second fainter white line on each side. It bears only four pairs of false legs instead of five like most caterpillars, which causes it to walk in a looping manner. It varies in length from an eighth of an inch to an inch and a quarter and is usually found on the under sides of the leaves.

The small circular green eggs are laid on the foliage by variegated dark brown to black moths or millers, which hide in the fields during the day time but become active at dusk. When the moth is at rest the wings are folded so as to resemble a triangle. It flies about in a zig zag manner.

This insect often becomes a serious pest of alfalfa and also attacks clover, soy beans, cowpeas, strawberry and blackberry. During this season it has caused a good deal of injury to beans not only in this state, but also in the East. The larvae are still working in numbers and may be found by careful search. If the bushes are disturbed, they wriggle quickly to the ground.

No control has as yet been worked out for this pest on beans, however, spraying the plants thoroughly with an arsenical before the pods have formed will undoubtedly kill the caterpillar. After the pods have formed, it may be dangerous to apply poisons. It is suggested that in small plots the larvae may be beaten from the plants on to some sort of screen and destroyed.

L. G. Gentner.

Insect Helps Control Other Insects

A European parasitic fly that may become of far-reaching importance in the control of the gipsy moth and brown-tail moth and certain other serious pests of similar character is being multiplied from importations of this new insect enemy. A report of the work with the parasite—known as Compsilura concinnata—has just been made by entomologists of the United States Department of Agriculture.

This report shows that this parasite has reduced the damage done by the gipsy moth and the brown-tail moth in the New England States, where they were so abundant and destructive that they ate the leaves off enormous areas of forest and shade trees every year. It has been found that Compsilura also aids in the control of other insect pests.

The white-marked tussock moth, a serious pest in the New England States a few years ago, has practically disappeared since Compsilura has become established. The cabbage worm, still a serious pest, has been lessened in some sections. Celery worms are not as common as formerly, and the fall webworm is scarcely noticed in the Northeastern States now.

The entomologists do not claim that this parasite is the sole cause of this reduction, but it has proved an important natural enemy to all of them. It is thought that Compsilura may become one of the most important economic parasites in this country. The results of the study of this parasite have been issued in Bulletin 766 of the United States Department of Agriculture.

About Raspberry Cane Borers

A member writes as follows: Many branches on my raspberries, loaded with fruit have died. Am wondering whether it is an insect killing them as on some of the canes there seems to be a sawdust and several holes bored in them. Other growers complain of the same trouble and also on gooseberry bushes. Will the whole plant be apt to be affected?

Dr. Fracker of the state department of agriculture to whom this question was referred replies as follows:

"Your raspberry bushes are apparently being attacked by one of several cane borers which occasionally cause a large amount of injury to this fruit. Currants and gooseberries are attacked more often than raspberries by insects of this kind. The only satisfactory control measures consist of cutting out the infected canes. As the picking season is now over, it would be best for you to destroy all the old canes at once and any of the younger ones which appear to be attacked.

One of the borers shows its presence by girdling the tip of the young canes in two places, causing the tip to wilt. In order to prevent it from multiplying and causing more and more damage, it is desirable to go over the bushes several times and cut off all the canes below the lower girdle. The egg of the borer is deposited between the two girdles but the young borer after hatching from the egg tunnels almost immediately into the stalk lower down."

Order tulips, daffodils, and hyacinths for spring flowering. They may be planted the last of September or first of October with good results.

Tip the branches of blackcap raspberries to the ground and throw a little earth over them. These tips soon root, growing good young plants for setting out next year.

Peony seed for planting must be picked as soon as it is brown. If allowed to dry it will take much longer to germinate if it will germinate at all. As soon as picked, put in sand or soil until time to plant—this prevents its drying.

The Home Vegetable Garden

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

In the Canadian Horticulturist

It is a mistake to think that as the crops mature the work for the year is finished. Good crops have been produced and it is now our duty to harvest them properly and to harvest every usable particle.

Do not dig your potatoes for winter storage until the haulms are entirely withered. As soon as this takes place remove them from the soil. There is nothing to be gained by leaving them in the ground. Their growth is finished, and if left they are very likely to rot. After digging, allow them to dry thoroughly. They may then be temporarily stored in a cool, dark shed. Save even the smallest; if you cannot use them give them to a neighbor who keeps pigs or chickens.

Onions

Upon the manner in which onions are ripened and harvested largely depends their keeping qualities. Allow your onions to make all the growth possible. Do not bend down the stems as long as most of them are erect and vigorous. Generally, the stems will fall of their own accord. If, however, a few still remain erect when the majority have fallen, they may be bent down to favor maturing with the rest. In some localities the idea is prevalent that bending down the stems favors the development of the bulbs. This may to some extent be true when the leaves have performed their functions, but not while the plants are still vigorous, for upon the amount of food sent down from the leaves to the bulbs will depend the ultimate size of the latter. The raw food materials are absorbed by the root hairs, in solution, and are sent upward to the leaves. These in conjunction with the carbon dioxide absorbed by the leaves are elaborated, and the food now in its proper form is sent downward to the bulbs. Onions do not feed directly from the soil, although the roots absorb the elements which are later converted into food.

When the leaves of the onions have lost their green color, and become dry and brown, remove the bulbs from the soil by means of a fork, and spread them out to dry for two or three days, turning them at intervals so that equal drying is favored. If the ground is wet or rain is imminent, the drying process had better been done on the floor or shelves of a dry and airy shed.

Leeks

Spring or summer leeks will, if proper cultivation has been afforded and is continued, develop into nice plants before winter, at which time they may be lifted and be stored in boxes of dry sand where they will keep for a few weeks, and may during this time be used for stewing, soups or for other purposes for which onions are required, and so save the latter less perishable subject. Leeks which are not required during during early winter may be allowed to remain in the soil, where with little or no protection they will survive the winter and be of service for early spring and summer use. Cultivate the leeks and promote the growth of good, succulent specimens.

Winter Radishes

During winter fresh salads are greatly appreciated. The winter radish is an excellent one. Cultivate these as long as possible, so that you will have large and toothsome specimens by November, when you will store them in boxes of sand for use as desired.

Beans

There are many ways of harvesting beans for winter use. On a small plot, however, the process is a very simple one. When thorough ripening occurs, as indicated by the yellow and dried stems, remove the plants bodily and spread them out on the floor of a shed or other suitable place. The beans may be removed from the pods and be stored away whenever convenient. This practice is a more cleanly one than removing the pods from the plants, leaving the latter as an eyesore in the garden.

Peas

Peas, like beans, should be thoroughly ripened whether for use as food during winter (except for canning green) or for seeds. Thoroughly ripened peas are of greater nutritive value, and of greater germinating power than those immaturely harvested. This advice about peas is perhaps a little late, but where late ones are successfully grown it may be timely.

Beets

When these notes are read it may be a little early to harvest the beet crop for winter use, as this is unnecessary until the first autumn frost. The suggestions, however, are timely. As much depends upon the proper lifting as upon the proper storage of the crop. Beets damaged when lifting "bleed," and do not keep well, nor are they of the best quality when cooked. For these reasons they should be carefully dug with

(Concluded on page 14)

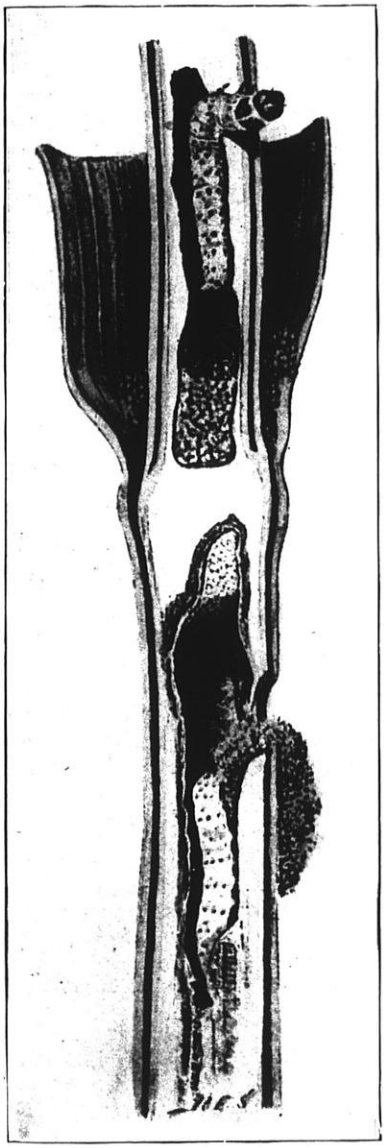


Fig. 7.—Longitudinal section of stalk showing tunnels of larvae of the European corn borer therein.

Watch for the European Corn Borer

This moth, one of the most destructive insect pests ever introduced into the United States was found in Massachusetts in 1917 and now covers 1200 square miles in the New England states and New York.

It may have entered Wisconsin in seed corn from the east.

Fig. 10.—Longitudinal section of ear of sweet corn damaged by European corn borer, showing entrance of larva, the stem and cob. Illustrations by courtesy of the U. S. Bureau of Entomology.

The borer destroys the stalk and reduces the ear to a rotting sticky mass. It also feeds on over 40 other vegetables, weeds and flowering plants.

Send suspected specimens to State entomologist, State Department of Agriculture, State Capitol, Madison, for identification.

THE HOME VEGETABLE GARDEN

(Continued from page 12)

a fork. Avoid breaking the leaves near the crown when digging. Remove the leaves by cutting two inches above the crown; to cut closer than this may induce harmful bleeding. The beet is a vegetable which on exposure to the air or when placed in a warm temperature quickly loses the moisture from its cells and becomes soft and useless. If, however, the roots are carefully packed in sand in boxes or in layers of sand in a cool, frost-proof cellar, they may keep all winter and be used as desired.

Carrots

Heavy frosts quickly injure carrots. Therefore at the approach of cold weather carefully dig the crop, and after removing the leaves store the roots in soil or sand in any frost-proof place, where, however, the temperature does not rise above 50 degrees Fahrenheit during the winter. Carrots and beets may be stored away under the same conditions.

Recent Investigations in Cucumber Diseases

Prof. R. E. Vaughn, at Summer Meeting.

During the past ten years the disease known as cucumber mosaic has been causing severe losses in many parts of the country. At the present time this disease is probably the most serious cucumber trouble in the Middle West and is of particular importance in districts where pickling cucumbers are grown.

The disease is at present being studied by the U. S. Department of Agriculture in co-operation with the University of Wisconsin, the work being a continuation of studies which have been in progress in Michigan and Wisconsin for the last four years.

The most serious losses from the disease occur on the cucumber but it also affects muskmelons seriously and is often found on squash, pumpkin, gourds and ornamental and wild cucurbits. The watermelon and citron, however, seem to be nearly immune to infection.

The most characteristic symptom of the disease and that from which it derivves its name of mosaic, is a mottling of green and yellow which affects the leaves and fruits. This mottling is most apparent on the fruits, which develop dark green wart-like swellings while the body of the fruit remains a light yellowish green. These warts may be small and very numerous or may be few in number and raised sharply above the surface, but in most cases the fruit is more or less distorted and of little commercial value.

The young leaves of diseased plants are also mottled with small, sharply defined spots of yellowish green, the remainder of the leaf being a darker green than normal. These darker portions of the leaf are usually somewhat thicker than the yellow areas and as a result the surface of the leaf appears to be wrinkled and tends to have a slight downward curl. The older leaves are seldom mottled but usually show a yellowing which extends in a v-shaped fashion along the larger veins. These older leaves gradually die and wither and the vines at the end of the season will consist of a bare stem ending in a small cluster of dark green, wrinkled and dwarfed leaves which lie close to the ground in a rosette-like group. The disease is also serious in the greenhouse and presents about the same symptoms with the exception that infected vines often wilt rapidly and die within a short time, while in the field they usually will live till frost.

The mosaic disease, like all diseases of this type, has not yet been connected with any bacterium or fungus. There is an infective principle or virus present in the juices of diseased plants, however, which will produce the disease in healthy plants if the diseased plant juices are brought in contact with slight wounds. Such infection may take place very readily as shown by the fact that the mere brushing together of the leaf hairs of diseased and healthy plants has been known to produce the disease. In the field, infection takes place to a certain extent in picking and other field operations in which diseased and healthy plants are handled in succession. This is particularly true of pick-

ing, as in this case the hands are constantly coming in contact with the juices of the plant and the slight wounds occurring when the fruit is removed offer a ready means of infection.

The great source of infection in the field, however, comes from cucumber insects, particularly the melon aphis and the striped cucumber beetle. The aphis, which is a sucking insect, will nearly always produce the disease if it is transferred from a mosaic to a healthy plant, and severe attacks of aphids in fields where mosaic plants are present are usually followed by serious losses from mosaic.

The striped beetle carries the juice of the diseased plant on its mouthparts and these juices then come in contact with the wounds produced when the insect feeds on the healthy plant. While this insect does not always transmit the disease when transferred from mosaic to healthy plants, they do so in many cases and their numbers are usually large enough to result in the rapid spread of the disease when it once appears in the field.

While the means by which the disease passes from plant to plant has been worked out to quite an extent, the source from which the first infection comes each year has been a serious problem. Mosaic plants are found on soils of all types and the use of fertilizers, lime, etc., seems to have no relation to its appearance. The question of infection through the soil has been nearly eliminated by experiments in which seed was planted in fields where the disease had been severe for several years, cheesecloth cages being put down over certain parts of the plot as soon as the seed had been planted.

The plants were allowed to grow under these cages until the end of the season, the cage excluding insects but allowing normal growth. At the end of the season it has always been found that all the caged plants were healthy although practically all the uncaged plants in the field were mosaic diseased. As these trials have been in progress for several seasons it seems likely that the soil can be eliminated as a source of the disease.

It has been shown that the striped cucumber beetle may carry the bacteria causing the wilt of cucumbers and that this disease is also carried over the winter by the insect. Since cucumber mosaic is also spread by the striped beetle, it was thought possible that it might also be concerned in its overwintering but there is as yet no experimental evidence to support this theory.

In several cases the disease has appeared on new land in isolated localities where no mosaic has ever been known to occur and such outbreaks have at once suggested that the seed might be a source of infection. During the last three years seed has been saved from fruits of mosaic vines and planted the next season on new land in districts where the disease does not occur. Several

thousand plants have been grown from such seed but up to date only an extremely small number have shown the disease. There is evidence therefore that the disease may develop from the seed but if it does so it is only in rare cases and the widespread appearance of mosaic each year would seem to require some further source of early infection.

In studying the various cucurbits on which mosaic may occur, it was found that it was common on the wild cucumber, *Echinocystis lobata,* which is found growing wild in this section and is very commonly planted where a quick growing ornamental vine is desired. This plant usually comes up from self sown seed each year after it is planted and it was noted that diseased plants were found year after year in the same spots at several points in Michigan and Wisconsin. These observations were of considerable interest as the wild cucumber appears in the spring at approximately the same time that the first striped cucumber beetles emerge from hibernation. This is usually about May 15, and the insects feed on the wild plant until the cucumbers appear in the field, thus furnishing a means of carrying the disease from the wild host plant to the cultivated cucumber.

During the past year trials have been made with seed saved from mosaic diseased wild cucumber plants and it has been demonstrated that in this case the disease lives over in the seed, about ten per cent of the plants grown from such seed being mosaic diseased from the time they appear. We thus have a possible means of overwintering in the wild plant, the striped beetle acting as a means of introducing it in the cucumber fields and human and insect agencies then accounting for its further spread.

It is not yet possible to say, however, just how important this wild host may be, until a considerable amount of survey work has been done to determine how commonly the disease may occur on the wild plant and how frequently such mosaic plants are found in sections where the disease is present It at least offers a good possibility, however, of accounting for a certain amount of early infection each year.

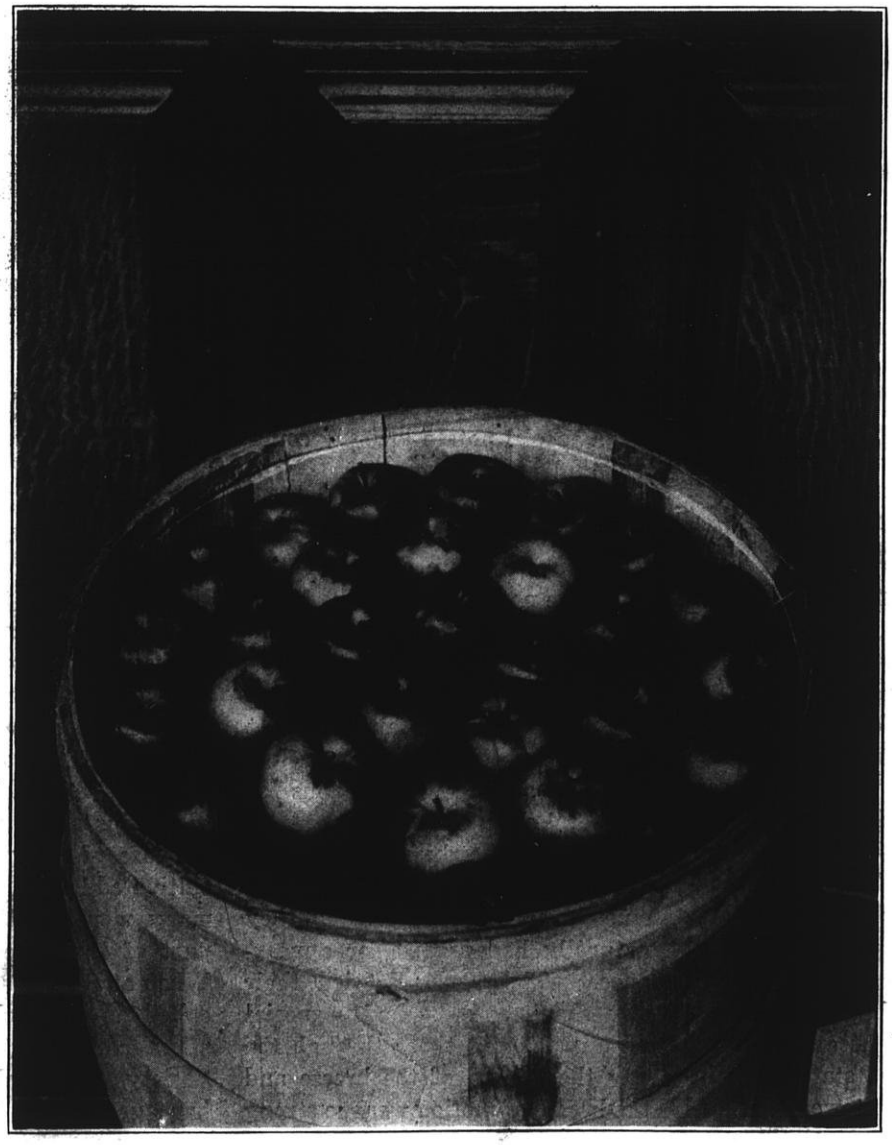
Until the overwhelming problem is further worked out, it is hardly possible to recommend satisfactory control measures for the disease, since ordinary spraying methods are of little use in diseases of the mosaic type. In the greenhouse, however, a removal of diseased plants as soon as they appear and thorough control of insects will help greatly in checking the disease.

Do not allow manure to come in contact with freshly set peonies or iris roots. It as a rule means disease and decay.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, October, 1919 | Number 2



WE SHOULD HAVE ENOUGH TREES IN WISCONSIN TO PRODUCE A MILLION BARRELS LIKE THIS EVERY YEAR.

An Auto Trip

When Secretary Cranefield wrote that President Rasmussen proposed to take the orchard committee on their annual inspection by auto the proposition seemed novel because of differing from previous custom. Remembering the oft times tedious waiting for the next train it seemed as if time might be saved by this new venture.

Monday evening, July 21st, **found our** party, consisting of **Nick, Fred,** Lou, Walter, and the writer at Hotel Maryland in Milwaukee, holding a conference to plan for the next day's trip. The majority agreed with Nick to make an early start, so six o'clock in the morning found us on the way for Port Washington and breakfast.

For several miles out of Milwaukee the most notable feature for observation was the great amount of vegetable gardening or truck farming carried on.

Port Washington supplied us with breakfast and gasoline, Sheboygan was soon reached and passed. We noticed the general backward appearance of corn along the route. Some was so very late we concluded that it must be a second crop following peas. Wild flowers along the roadside included Bouncing Bet and Chicory. These would indicate early settlement at least back to before the time of the civil war. A mixture of white flowered Chicory we noticed occasionally. Of native wild flowers Wild Bergamot—Monarda — and Willow herbs, Epilobium were conspicuous in various places. These two natives are well distributed over the state. There is not so much of a showing of home orchards as one might expect to see in this part of the state. We inspected the Manitowoc orchard about 10 a. m. and were well pleased with the evidence of careful management.

Appleton was an objective point for dinner. One feature of the farm gardens both south and west of Manitowoc excited our curiosity; we noticed many different patches of white Poppies, which were evidently not grown for ornament. Their location and surroundings seemed to indicate that they were grown for some economic purpose. They were a single flowered variety of the Somniferum species.

After dinner at Appleton we hastened for Stevens Point. Passing Freemont and Weyauwega reminded some of us of the Waupaca Co. seedling apples, of which all we have left of commercial value is the Wolf River variety. We passed at Waupaca the A. D. Barnes and other orchards. Too close planting, and other reasons gave the impression that apple growing there is declining. We supposed that beyond Waupaca was a special potato growing country, and some of our party said that the large buildings which we saw near the railroad were potato warehouses, but we did not notice any large potato fields. The farms have not the general thrifty appearance of the dairy sections.

We took supper at Stevens Point and then on for Marshfield. It was full bed time when we reached our hotel and all were anxious for a general clean up.

All of the members of our party except one were young men—none much over 50, I guess, and they naturally had regard for appearance. Those who carried their own shaving outfits had a special advantage. At times through the day the motion of the breeze and the breeze of motion were so strong that hats and caps were flighty, so sometimes we rode bareheaded. As there was not a baldheaded man in the party, our clothing did not hold all of the dust of travel. It seems as if baldheadedness might be of advantage in auto travel.

Sometimes numbered routes were blended and a study of the road map while traveling was necessary. At times the breeze made this impossible. I would suggest pasting the map to cloth or other tough flexible material and then dividing into convenient sections for outdoor use. With a travel of 250 miles to our credit for Tuesday we felt that we had earned the right to eat breakfast before starting from Marshfield. Leaving Marshfield by daylight we were able to see that here is a fine farming country with prosperity smiling on every side. Dairying and pea canning were in evidence. Home orchards are not plentiful. Corn made a fine showing as was the case generally over the state away from the lake shores. Some patches of grain were yellow with sow thistle in bloom. Wheat in straw or shock showed better color than in the southern part of the state. We were hoping that our route through Medford would take us past the former trial orchard but it was off to the right of our line of travel. Soil and contour of the country about Medford make it seem as if this should be a fairly good apple country. Advancing farther north to Philips and beyond there is an increase of the proportion of uncultivated land. There is room for many more good farmers in that part of the state and northward. When at Philips some of our party called on Mr. Tobey, an old time member of our State Horticultural Society. The real estate men here have great faith in the future of

this part of the state. Hastening on we reached Park Falls in time for dinner, which we enjoyed but we did not see any falls. We were much interested in our glimpses of the sylva and flora of this part of the state. For many miles hemlock, pine, spruce, and arbor vitae were prominent among Evergreens in places. The pearly everlasting Anephelis Margaritacea, is very conspicuous and plentiful in various places throughout the northern part of the state. It is so good and everlasting it seems as if it could be made of commercial value. A patch of red fruit in one place we decided must be the dwarf Cornel or bunch berry. There were numerous small bogs covered with the shrub Leather leaf, with the former botanical name — Casandre — now Chamaedaphne. The whimsical member of our party called them cranberry bogs. With a distant view they were very similar.

The country was rougher as we approached Ashland before reaching the level land which borders that city, which is too rough for agriculture. We reached Ashland early enough to visit our long time horticultural brother, Irving Smith, with his good wife and two sons. We learned that there had been no shortage of rain in this part of the state and hay is so abundant they don't know what to do with all of it. Our night's rest as Ashland after a short run of only about 175 miles sent us forth clean and refreshed on our way before breakfast. The route among, over and around the hills between Ashland and Iron River is novel, interesting, and tiresome. The road is tortuous both up and down and side ways. Along the way we noted slight attempts at farming which had been abandoned. The combination of sand, rock, ridges, gray pine and stunted oaks indicate that this large stretch of country can never be successfully farmed. We passed occasional blue berrying parties, so it seems there are homes somewhere in the vicinity. After breakfast at Iron River we passed through a more promising farming country with plenty of room for more settlers. Blueberry parties were in evidence clear to the trial orchard at Maple, and again going south from Poplar clear to Eau Claire. A hailstorm at Maple about ten days before our visit had stripped the fruit from

One Day We Had Our Picture Taken.

the trees and badly torn and bruised the bark on the branches. There was enough fruit on the ground to have made a fine crop. We were much pleased with the Poplar orchard. This orchard pays. More will be said of it in the report of the orchard committee. Judging from what we noticed it seems as if this orchard has given much encouragement to the planting of home orchards.

We turned southward from route ten to route eleven a few miles east of Superior. An auto trouble gave our party a chance to gather blueberries, Serviceberries and nearly ripe sand cherries, all near together. Dinner was had at Solon Springs. Here was one of Wisconsin's many summer resorts. The campers were numerous. Here some of our party made a bargain in blueberries. One member had secured his at Ashland. We had supper in good time at Rice Lake. We had seen many good fields of corn in our travels but it seemed as if the best ever was near Rice Lake. Chippewa Falls was reached after dark. We had traveled about 230 miles that day. Friday morning we went northward from Chippewa Falls and then we followed the Flambeau road to the Holcombe orchard. A heavy thunderstorm came up on the way and held by us until we inspected the orchard. We were well pleased with the care which had been given the orchard this season. Back to Chippewa Falls for dinner and then by way of Eau Claire and Menomonie to the Weston orchard. This orchard is very satisfactorily and well cared for. We wished to visit a commercial orchard in the vicinity but the weather was too threatening. Another shower caught us while going through Menomonie so we hurried on to Eau Claire and a late supper. We were off again Saturday morning before breakfast which we took at Whitehall. The care or lack of care given this orchard was very disappointing to the committee. Corn looked well in this valley as it usually does, but we saw none which would surpass that near Rice Lake.

Nearing La Crosse we passed through some very good farming country but very steep in places. We marveled to see where the reapers had cut the grain. After dinner we passed on through Vernon county, past Viroqua, through Mount Sterling and over the bluffs to the west side of the Kickapoo valley. There is an abundance of scenery over hills and through valleys on this route. At Gays Mills we found the people discus-

(Continued on page 23)

CRANBERRY CULTURE

Edited by Mrs. S. N. Whittlesey, Cranmoor, Secretary Wisconsin Cranberry Growers Association

A Favorable Season

Not in the memory of the oldest cranberry men has there been in Wisconsin such a favorable growing and harvesting season of cranberries as this of 1919.

It is true that in some sections there are very serious failures, due to hail, and to some unknown, early damaging cause, but generally the vines came out in fine shape, made steady growth and yielded unusually early.

With the absence of late August and early September killing frosts and only one and one half days lost time the first twenty-five days of September, it has been possible to get the crops in without trouble or loss and the size and quality of berries is all that need be desired.

The apple crop seems not to have been so fortunate. We hope people will remember that apples and cranberries are the two staple winter fruits. The keeping quality, economy and various methods of use of the berry are quite as good and numerous and much the same as the apple, so with abundance of cranberries in market one need not suffer for a winter fruit.

Grapes this year seem to be plentiful. An especially fine flavorded jelly can be made from the combination of grapes and cranberries, using equal quantities of grape and berry—proceeding as with other jellies—adding one cup of sugar to two cups of fruit juice.

Dr. H. F. Bergman of the U. S. Agricultural Dept. of Washington D. C., whose work and presence last year will be remembered, has been spending the past month in northern Wisconsin in investigations relative to cranberries. Dr. Bergman's connection with government service ends September 30 as he has accepted a position as professor of Botany in the college of Hawaiia and sails for Honolulu, October 5. We extend wishes for success and pleasure.

We Were at the State Fair

The cranberry booth and exhibit at the state fair this year is said to be the best ever. We must say again that cranberry people cannot provide the cranberry at its best at the early date of the fair, for our fruit is not at perfection at that time. This year we were fortunate in an earlier ripening and more than fortunate in the continued services of Miss Anna M. Bamberg, the lady in charge, who for three years has been faithful, devoted and efficient in her efforts to make the showing all it should be.

Washington Berries

Mr. Henry S. Gane, a long time member of our State Association and now sales manager of the Pacific Cranberry Exchange writes from Ilwaco, Wash.:

Growing cranberries in this state is somewhat of an experiment, but we believe that they will do well here from the fact that a few small bogs have done so. The surprising thing to me is the fact that some plantings seem to do so well early and other plantings are so slow.

A company of which I am the head, has seventeen acres and it has been very slow coming into bearing. On the other hand, I planted three acres for my wife and children and this fall when it is only two years old, we will get about 120 barrels of cranberries of the McFarlin variety.

The bogs in this state are all sanded and under a high degree of cultivation. The most troublesome feature that we have to contend is that of weeds. There seems to be 50 to 100 different varieties and they most certainly grow at a great rate. The only way they can be handled is by constant weeding when the bog is very young. If the weeds once get a good start, it is impossible to check them.

Our crop here is smaller than anticipated but we are pleased to learn that the crops in all the eastern states are very fine this year.

Henry S. Gane.

State Florists' Meet

The annual meeting of the State Florists' Association was held in Milwaukee Friday of state fair week. J. E. Mathewson of Sheboygan, was elected president for the ensuing year, Richard Haentze of Fond du Lac, vice-president, H. J. Seel of Milwaukee, secretary and Gus Rusch, Milwaukee, treasurer. The business meeting was followed by a banquet at the Hotel Blatz. The 1920 summer meeting will be held at Sheboygan.

Fact and Fiction About Robin Redbreast

We all love song birds and want them protected but sometimes over-zealous bird friends go to extremes in defense of birds and thus defeat their purpose. A correspondent in the Rural New Yorker goes so far as to claim that the robin destroys gypsy moth, cutworms and other similar pests and is corrected by C. O. Ormsbee in a succeeding issue as follows:

The Truth About the Robin

On page 1182 there is a short letter entitled "A Defense of the Robin," in which are contained more mis-statements than are contained in any other article that I have ever seen published in the columns of The R. N.-Y. I believe that all birds have more or less of both good and bad qualities, and the robin is no exception to this rule. Often local conditions have an influence in determining whether the balance falls on the good or evil side, and this may be true, in some instances, in the case of the robin.

It is true that the robin is one of our sweetest songsters, as well as one of the handsomest of our birds. To a certain extent it endears itself to us by its domestic and almost affectionate habits. We admire it for the love and affection that it bears to each member of its own family, and its agonized cries when disturbed excite our sympathy. There are a dozen more minor characteristics of which we approve, and it may be that these, combined, are sufficient to turn the balance in its favor. These are aesthetic or sentimental qualities of which I am not going to speak. But, economically the robin is an unmitigated nuisance with scarcely one single redeeming feature. In its food habits it may be called omnivorous, but it has very decided preferences. It arrives in the North very early in the spring, and at a time when food is very scarce, and, at this time, it may destroy seeds of certain noxious plants that have wintered upon the stalk. When other food is scarce, it may destroy a few harmful insects, but only to escape starvation and always under protest. Its favorite animal food is the angleworm, said by naturalists to be highly beneficial, and, when this is to be had, the robin will eat no other worm or insect. The writer alludes to the habit of the robin of hopping about the lawn in search of cutworms. This is all bosh. Cutworms do not inhabit lawns and, even if they were to be found there, the robin would not touch them. Find the nest of the robin in some barn or outbuilding. Place a box of earth near the nest. Put angleworms, cutworms, white grubs, or caterpillars and worms of a dozen different sorts on the earth, and watch results. I have done so many times. The robins will eat the angleworms, and will feed them to its young, but will go out and hunt for more of this sort rather than touch any other kind that I have ever offered. It may eat them rather than starve, but it will not do so voluntarily.

The writer speaks of chipmunks eating peas. The chipmunk cannot be starved into eating peas. I had some once in a cage, and tried them thoroughly. Neither will the English sparrow eat them. But the robin will break open a pod, eat one pea and allow the others to waste. He speaks of the habit of the mole of eating potatoes. Examine the mouth and teeth of a mole and see how ridiculous this story is. A mole could not eat a potato no matter how much it might wish to do so.

I do not know of a single edible berry that the robin will not eat, and as soon as the berries and small fruits begin to appear, it will leave its diet of worms and subsist wholly upon these foods. It will eat a few varieties that are of little or no economic importance, but its great favorite is the Early Richmond cherry. This it will attack before it is half ripe, and pick a little hole in it, thus spoiling it, or, just out of pure meanness, it will carry the fruits away and drop them upon the ground. It will do the same with raspberries and currants. Mulberries afford no protection, except, possibly, as a diversion. When the berries are gone, it will attack the small grains, more especially wheat, in much the same manner.

Summing it all up, the robin is a bird that, economically, should be banished from the face of the earth. Sentimentally and aesthetically, it should be protected and encouraged by every possible means. You can pay your money and take your choice.

C. O. Ormsbee.

Fall Planting

Do not plant fruit trees in the fall. If some designing or ignorant nursery agent has beguiled you into fall delivery, bury the trees rather than plant them. The safest plan is to shoo away anybody who insists on selling you trees for fall delivery.

Currants may be safely planted in October if plenty of straw or manure is packed about the roots. Black raspberries may also be set to advantage in the fall but reds are better spring planted.

On the whole there are few fruit or ornamental plants that may safely be exposed to five months of drying cold with no root system hitched up to a winter supply of water.. Whenever possible prepare the ground in the fall for spring setting by spading or plowing and be ready as soon as the soil can be handled in the spring.

Place squash on shelves in a dry room near the furnace or in a warm attic room. They must not be in a damp or frosty place. They will stand a great deal of heat and dry air, but little moisture. If you want squash or pumpkins to keep well, handle them carefully so they are not bruised.

AMONG WISCONSIN BEEKEEPERS

The Wisconsin BeeKeepers Page
Prof. H. F. Wilson Editor

Beekeepers Meet

Our next annual meeting will be held in the early part of December. We desire to have the program ready for publication in the next issue of this magazine. If you have something of importance to present to the Convention, please send in your name with a title of your paper. All papers should be written out before the convention so that they may be published at a later date in the Wisconsin Horticulture.

Every affiliated local of the State Association should elect their representative for the Board of Managers before December 1. This member should be in Madison a day before the meeting begins to talk over problems to be presented before the State Convention.

State Fair Exhibit

The State Fair Bee and Honey Exhibit was proclaimed by many to be the best exhibit which the apiculturists of Wisconsin have put on for many years. The thing which pleases us about as much as anything else is the attitude which the State Fair Directors and officials took. They all expressed their opinion and appreciation of how well the whole affair was managed.

This cooperation is necessary and we are glad to have the good will and backing of these men. Next year they have promised to add a 60-foot extension to our present building.

All beekeepers and exhibitors especially will welcome this improvement. We are badly in need of a good display room for this growing industry and it is much better to have our exhibits in a building by themselves than to have them scattered among ice cream sandwich stands, washing machine agents and fountain pen auctioneers.

The exhibitors are already making plans for getting their entries in early next year. All came through with a number of blue, red and white ribbons to their credit. The awards from these alone made the time spent in the journey and preparation of their exhibits well worth while not to speak of the large honey sales. One man sold out completely his stock on the first day.

The success of the fair was largely due to the efforts of the superintendent, Mr. Gus Dittmer. This is the first year he has acted in that capacity and he is already laying plans for the future. There are a number of schemes up his sleeve for improvement.

One of the things which Mr. Dittmer and Mr. Allen, who judged the exhibit, will do will be to revise the premium list. The need for revision in the premium list is apparent. Wrangling, disputes and discontent will largely be eliminated and all exhibitors will have a better understanding of how they are to prepare their entries. This matter of revision will probably be thoroughly discussed at the December meeting of the State Beekeepers' Association.

Now what we must do is to get every one interested for the coming year. Every county in the state **and every** local beekeepers' association **should be represented.** There is absolutely no reason for these organizations not being at the State Fair. Make your plans now and get in touch with Mr. Dittmer.

James I. Hambleton.

Preparation for Wintering Bees

Every thoughtful beekeeper is thinking about his winter problems. If he thinks "through" he will discover that he has three separate distinct factors.

1. **The Bees.** If he has neglected to requeen and feed if necessary to stimulate the production of at least 3 pounds of vigorous young bees, his hives will be empty of live bees in the spring. About 75% of the colonies in a certain section of Wisconsin were lost on that "rock" last winter.

2. **The Stores.** The second factor is plenty of good stores—that is FOOD that will be so free from indigesable matter that the bees may live 5 months in comfort and quietness. Clover and buckwheat honey and sugar syrup seem to be the safest. In most sections of the state there is a flush flow from golden rod and aster. Where this surrounds the brood nest at least 5 pounds of thick sugar syrup should be fed at one time after the aster flow. Often a few pounds of aster honey stored after the brood has practically all emerged in October proves fatal. If the weather continues warm during October, the beekeeper had better "remember the aster."

3. **Protection.** This is of vital importance in this northern latitude. I have failed to find a beekeeper in Wisconsin who gives adequate protection for out-door wintering. Quadruple packing cases as described in Farmers' Bulletin No. 1012 (U. S. Department of Agriculture) should be used—only the size of the case should be large enough to give 8 inches packing underneath, 10 inches at sides and ends and 12 inches on top. Dry sawdust, planer shavings, leaves or chaff should be used for packing.

If a cellar is used, it should be warm, about 50 degrees Fahrenheit. Cold cellars are usually damp. A cellar with a furnace is frequently the best. However, they sometimes get too dry. Ventilators are useful **only** to help keep the temperature uniform and in case it gets too dry, the air from outside is helpful. There is no need of "**guessing**" or "**hoping**" or "**trusting to luck.**" **We know that a sufficient number of young bees, plus sufficient good food plus adequate protection equals a strong colony next spring.**

H. L. McMurry.

AN AUTO TRIP

(Continued from page 19)

sing the heat, thermometers indicating 97 to 103 in the shade. There were many interesting things about our visit to the trial orchard and the hundreds of acres of commercial orchard, but I must not anticipate too much of the future report of the orchard committee. We took supper at Boscobel and lodging at Spring Green. Sunday morning after breakfast we made our way to the trial orchard in Sauk county on the Ski-Hi fruit farm owned by A. K. Bassett. The heaviest growth of grain as shown in shock was seen near Sauk Prairie. This orchard is looking well as is the fruit farm also. We made a short call at Pansy Heights and then away for Lake Geneva, taking our dinner at Madison.

Sunday afternoon was another hot one with the thermometer registering in the upper nineties. When we passed fields of grain stubble the wind passing over to us seemed like a blast from a furnace. Tires were cooked as we traveled and in addition to the hindrance of changing tires Nick had to buy some new ones. Along the roadside were plenty of others with tire troubles.

We were fortunate in reaching Lake Geneva in advance of a storm which swept over our back track to the grief of many less fortunate ones. The Lake Geneva orchard was inspected before dark and supper. Heavy blooming in the spring failed to produce a setting of apples so there did not seem to be any need of spraying after the buds had passed from the pink. As usual this orchard was well cared for. We found sleeping accommodations where we could and paid $2.50 each for the privilege. Early Monday morning we headed for the Pewaukee orchard and breakfasted at Elkhorn. We noticed many home orchards with little indications of fruit. Too close planting in home orchards is a fault prevalent here and all over the state. We found improved conditions in the Pewaukee orchard, with chance for still further improvement. We reached Milwaukee before noon time with a travel by auto of more than 1,400 miles to our credit, in addition to the railway travel to and fro between our homes and Milwaukee to complete the trip. We are proud of our road system in Wisconsin and appreciate the plan of distinctly marked routes. More has been done than we supposed for better routes and indications are that much more will be done in the near future. These improvements cause many detours in lines of travel and the connections with the regular routes are not always as plainly marked as should be. May public opinion sustain our good roads work in Wisconsin.

Plant Spring Flowering Bulbs Now

October is the season for planting the spring flowering bulbs. Of these the tulip is the most popular for outdoor growing and the least satisfactory for indoors.

For forcing indoors, plant in pots or boxes, in three to four inches of soil, bulbs of narcissus, hycinths and daffodils barely covering the bulbs. Water thoroughly and set them away in a cool, dark cellar for at least two months. By that time the bulbs should be well rooted and ready to respond to light and heat.

The commonest cause of failure in forcing bulbs is in bringing them into the light too soon. Just pack them away and forget them except for an occasional look to see that they are not drying out. Outdoor culture is simple; simply plant the bulbs, covering lightly. The character of the soil is of slight importance as tulip bulbs will blossom nicely if planted in coal ashes. There is one sure way to invite failure in outdoor culture and this in neglecting to cover beds before heavy freezing weather. Rarely or never will tulips bloom if left unprotected through the winter.

Wisconsin Horticulture

Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Membership fee, fifty cents, which includes twenty-five cents subscription price of Wisconsin Horticulture. Remit fifty cents to Frederic Cranefield, Editor, Madison, Wis.
Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card, and pays for two years. Personal checks accepted.
Postage stamps not accepted.

Where Credit Is Due

The excellent article on peony culture printed in the September number of the WISCONSIN HORTICULTURE was taken from the Garden Magazine which is copyrighted.

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The article in question was headed in the G. M. as follows: "Masterly Inactivity is the Best Thing for the Peony, Ried Howell, New Jersey.

"An enthusiastic amateur summarizes his experiences and observations in the successful cultivation of this flower. The information here conveyed is the digest of his own work and the recommendations of the most skilled specialists in the country. This article was the substance of an address before the Ridgewood, N. J. Garden Club."

In view of the following letter to the Garden Magazine we leave it to our readers to judge the standard of ethics of one "Reid Howell, New Jersey," to say nothing of the care exercised by the Garden Magazine in copyrighting this article. The letter is from William W. Kline, the Mohican Peony Gardens, Sinking Spring, Pa.

To the Editor of the Garden Magazine:

On picking up the August Garden Magazine I have been amazed beyond expression to find that the Peony article under the caption "Masterly Inactivity is the best thing for the Peony" is simply a copy, word for word, of a little booklet, the text of which I myself wrote, and which we send to every patron. I enclose a copy. With the exception of the first three lines of the article. as you print it, and a three line "interjection" by the editor, there is not a line or word that is not my very own. There is no word, thought, or suggestion from anv other specialist, nor—excepting three lines—from the "author." I am assuming that you are unaware of the facts and believe that you will do something in The Garden Magazine to mend this matter.—William W. Kline, The Mohican Peony Gardens, Sinking Spring, Pa.

—This article was not mailed to Garden Magazine by Mr. Howell, its author, but came from one of the audience that heard his lecture. Only the material published was received, and this was accepted by the editors as "the substance of" the address, whereas it was instead merely material to which Mr. Howell referred.—Ed.

We are really ashamed to impose this long story on our readers but the editor of the Garden Magazine intimates we lack an understanding of the ethics of journalism. If we admit it we must also crave his sympathy. Anyhow, it was corking good peony dope if Ried Howell didn't write it.

A Small Fruit Survey

What has happened to the bush and cane fruits that used to grow in almost every farm garden in our state? Why have raspberries and blackberries been abandoned so generally? To throw new light on this important horticultural question a survey of Wisconsin by sections has been completed by the state department of agriculture and the experiment station. R. H. Roberts, of Madison, spoke to horticulturists at Fort Atkinson on the results of the survey. He confined his remarks and conclusions to cane fruits, basing his discussion on findings at Eau Claire, Sparta, Kenosha, Racine, Oshkosh, Green Bay, Sturgeon Bay, Madison, Ft. Atkinson, Algoma, Chippewa, Richland Center, Ripon and Baraboo. Here are the main conclusions:

The largest decrease in cane fruit planting took place in the late nineties.

Cane fruits do not properly belong on the general farm, any way, in large amount over and above family needs.

Crown gall and anthracnose diseases are responsible to the greatest extent for the decline in the growing of black caps. Crown gall, and one or two economic factors are the reasons why red raspberries have fallen off in Wisconsin.

With sweet corn selling at 30 cents a dozen ears and good prices prevailing for strawberries, the average trucker is not inclined to feel that he can raise red raspberries profitably if he has to neglect his other crops to do so.

Fully 85 per cent of the growers cannot get dependable pickers at harvest.

From 1½ to 2 cents a pint is the average run of prices paid to pickers who are able to gather in from 55 to 60 pints a day. May it not be good policy to pay a slightly higher rate, as do a few growers? With reds at $4 and $5 a crate it would seem like good business to hire capable pickers at good wages.

The small truck man, and not the general farmer, must be looked to by consumers for an increase in the cane fruit crop. There is a decided demand for the cane fruits, however, and growers situated to handle the plantations with exacting care and attention, are the men who will find it profitable to invest right now in good, hardy, adaptable stock.

Those were the statements of Mr. Roberts, based on the survey. He said that surprising as it may seem, the question of adaptable varieties for the different sections of the state and suitable cultural methods involved are not as strong factors in the cane fruit decline as those things already mentioned. Economic conditions and not lack of knowledge and practice in handling cane fruits, are to blame for the slump. To this must also be added the final reason, namely, that the man who is successful with cane fruits must enjoy "fussing over them." The average farmer is not, and unless the women folks take hold and save the crop it will eventually mean more or less of a weedy failure.—*Wisconsin Farmer.*

The Pea Moth

The growing of peas for canning purposes and also for seed has been an important industry for Wisconsin for many years. The peas in certain sections of Wisconsin have for a number of years, especially more recently, been troubled with a worm which feeds within the pod on the ripening seed. This worm is the caterpillar of a moth, a dark-colored species about a quarter of an inch long; which has along the fore margins of the front wings 12 or 14 oblique black and white dashes; there are also a few rather inconspicuous dashes near the apex of the fore wings.

The larva or worm spends the winter in a cocoon in the soil. It is made up of small soil particles and neatly lined with silk. In the spring the pupa is formed, the perfect moth emerging the early part of July. Toward evening the females deposit their eggs on the pods, leaves or stems nearby. These hatch in six to nine days, the young larvae crawling to suitable places on the pods and eating their way in. The worms feed on the peas making irregular holes on most of the peas in each pod infested. Older infested pods when opened contain more or less coarse-grained excrement webbed together with most of the peas. The feeding period lasts from 14 to 25 or 30 days, thus many of the larvae do not emerge until after harvesting. As soon as they become full-grown the larvae eat their way out through small circular holes in the sides of the pods and then make their way into the soil or other suitable place where they remain until the following July.

Remedies

Since hatching begins about the middle of July varieties grown that mature before that time would escape infestation. Control measures are more difficult when the peas are grown for seed. Deep plowing after harvesting may help some, but as has already been shown a large number of the larvae do not emerge from the pods until after the peas are harvested.

Spraying is not practicable under the present system of cultivation unless the damage caused by the worms would exceed that caused by applying the spray. The vines also could not very well be used as forage in case of spray adhering to the foliage.

C. L. Fluke.

It is not worth while to force asparagus, but rhubarb, dug late, may be forced in the cellar with fine results.

Dahlias, cannas, gladioli, etc., should be dug and stored after the foliage has been killed by frost. The first part of October is usually the time.

Peonies should be divided and reset during September or October.

Watermelons buried deep in wheat or oats will sometimes keep until Thanksgiving or even Christmas.

Many perennials and shrubs may be divided this fall or early next spring, and reset to good advantage.

Do not forget to lift some of the geraniums, salvia, asters, or other plants in the yard or garden. They will bloom in the window this winter.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

Common Scale Insects Attacking Fruit Trees in Wisconsin

Numerous inquiries continue to come in regarding scales attacking fruit trees; the majority of them concerning the oyster shell scale, the orchardist mistaking this for the pernicious San Jose Scale. A careful study of the following comparisons and figures will easily identify the three most important scales attacking the fruit trees in Wisconsin.

Fig. 1.—San Jose Scale, Enlarged.

This is the most dreaded of all the scale insects. It spreads very quickly and will kill trees outright unless checked in time. The scales are quite small and inconspicuous, being about the size of an ordinary pinhead. The mature female scales are circular in outline and dark grayish in color. The most conspicuous part is a central elevated portion which is surrounded by a depressed ring which is again surrounded by a yellowish elevated ring. The insect passes the winter as partly grown scales on the bark of the branches or the limbs of the trees.

Fig. 2.—Oyster Shell Scale Showing Eggs from an Overturned Scale.

The oyster shell scale has a wider distribution in Wisconsin's orchards than any other scale; its ravages, however, are not so severe but many orchards are so retarded in their development by the insect that the trees are of little or no value to the farmer. The scales are shaped like tiny oyster shells, are brownish in color, and about one tenth to one eighth of an inch long. The winter is passed as eggs, which remain under the old female scales until late May.

Fig. 3.—Cottony Maple Scale Showing Egg Masses on Maple.

This insect has a large list of host plants and frequently attacks our common fruit trees and small fruits. Young scales which are thin and flattened may be found on the under side of the smaller branches during the winter. In the spring they soon become full grown and egg laying then begins. The eggs are laid in a large white cottony mass of waxen threads which are secreted by the body of the mother scale. The secretion of this flocculent mass causes the raising of the posterior end of the scale to an angle of about 45 degrees. (See picture).

Remedies

The control for the San Jose Scale and the Oyster Shell Scale is the same. It consists in a thorough application of lime sulphur used at the rate of one gallon of the liquid to twelve gallons of water and should be applied while the trees are dormant in the fall or spring. If the farmer feels as if he will be too busy in the spring then it should be done this fall after the leaves fall.

The cottony maple scale is more difficult to control. Its parasites usually keep it in check. Kerosene emulsion is effective against the overwintering stage while many of the young lice may be killed in summer by spraying with a strong solution of tobacco extract. A stiff stream of water will dislodge many of the scales with their egg masses.

Chas. L. Fluke.

Fall Practices Against Insect Pests

After the crops are harvested and disposed of they are out of the way of attacks from field insects. Next year, however, more crops are to be grown on the same or nearby land. Every insect pest which passes safely through the

winter will be ready to multiply and attack these crops. The thing for the grower to do then is to take such steps as he can this fall to prevent successful overwintering of pests.

Destroy crop remnants and refuse. Immature insects continue to feed and develop on crop remnants and in refuse until they reach such a stage in which they can overwinter safely, and then may find shelter under such material. Where possible this should be destroyed or plowed under as soon as the crops are harvested. Many insects pass the winter inside of infested stalks and stems. These should be burned. Many full grown insects must feed for a time before going into winter quarters. If they are deprived of food a great many will not live through the winter. Cucumbers or green melons left in the field after the frost has killed the vines should be heavily poisoned to kill the cucumber beetles which may feed on them. In the case of some pests all but a few plants of a crop may be destroyed, then the pests will gather on the remaining plants and may easily be killed.

Fall plowing and cultivating, where practical, is an aid in reducing next year's insect pests. Forms in the ground are crushed or exposed to the weather. Plants which give food and shelter are destroyed. Special attention should be given to land that has been badly infested this past season.

L. G. Gentner.

The Strawberry Crown Miner

In some of the older strawberry beds, during the latter part of August and September, the grower may find a good part of the leaves of plants turning brown and dying and in many cases the entire plant killed. This type of injury may be due to the strawberry crown miner, a slender reddish-pink larva less than a half inch in length when full grown.

The whitish eggs are laid on the plant by small grayish moths. From these eggs the larvae hatch and burrow in the crown and sometimes down into the root. An infested plant when closely examined may show a small heap of reddish-brown excrement and borings which the larva has pushed out of its burrow. If such plants are cut into, one may find an irregular blackish brown burrow in the crown or root, and usually the pinkish larva itself.

Little has been done by way of control, however, it has been suggested that badly infested fields should be plowed under as this pest does not attack young beds and causes greatest injury to old fields.

L. G. Gentner.

There is a good market for plum pits this year. Nurserymen want them to plant for budding and grafting next year.

A drain tile set over each plant is a good method of blanching celery. Celery for winter storage should not be blanched before putting in the cellar.

Plant tulips in the garden or border the last of September or early October. Tulips, narcissus, daffodils and hyacinths planted now in pots or boxes and put in a cool place will give good flowers next spring.

Commercial Fruit Growing in Wisconsin.

A. A. Ashbahr.

After having spent practically all of my life in the Pacific Coast states, where the commercial apple and pear industry has undoubtedly reached the highest stage of perfection in this country, and after visiting several middle-western states, and spending more than two months in the field for this Society in its Orchard Survey of Wisconsin, together with prior study and observation of the fruit industry of this state, it is my belief that fruit can be grown just as successfully here as in any other state. True it is that some sections in Wisconsin are unsuited to fruit growing, and that some sections are better than others, but so it is in the other states. The fruit industry of every state lies in a few concentrated districts. But the fact remains that there are thousands of acres of land in Wisconsin upon which commercial apples can be grown just as economically, and with the same color, size and quality, as those of the other states. A comparison with what has been, and is being done in properly managed Wisconsin orchards, with what has been accomplished in neighboring and distant states, is sufficient evidence of this fact.

Now the question arises: why has Wisconsin then not ranked as one of the leading apple states? The answer is at least twofold. First, the great possibilities in dairying and kindred industries have claimed the attention of most of the people. Second, the apple business has not, in the past, been conducted as a specialized

and separate kind of farming as in some other states, but more as a side-line. I do not mean to suggest that the entire farm should be devoted to fruit growing without any diversity, but I do mean to say that unless the orchard is the principal commercial business of the farm, it cannot be successfully conducted today, in competition with specialized apple farming. This is the key that will throw open the doors of commercial apple growing in Wisconsin to complete development. This has already been realized and is being acted upon as is evinced by the many large commercial apple orchards that have been set out in recent years. The apple industry in this state is undergoing a complete change or metamorphosis, as it were. Wisconsin farm orchards have produced millions of barrels of apples in the past and great credit is due the pioneers and producers of these. But like many other institutions of long standing, the farm orchard is fast giving way to the larger, specialized, and scientifically managed commercial orchard. I visited farm after farm this summer where the owner had either abandoned his orchard, or had grubbed it out, or was contemplating doing so. I asked the reason for such action, and the answer was, "it doesn't pay." Investigation disclosed the fact that these orchards were unprofitable for various obvious reasons, chief among which were, that the trees are becoming too old for profitable production; that the trees have been planted so close together that pruning, spraying, and sometimes picking, is impossible, or at least ineffective, while the fruit remains small and uncolored; insects and diseases have materially increased and most farmers have not found time to investigate and study this increase, and the new pests, and the methods of applying modern combative measures; nearly every orchard contained a large number of varieties undesirable on the market, and therefore not salable at any profit; then, too, the many varieties made it impossible for the grower to ship in desirable car load lots so as to reduce freight rates and attract buyers; again the growers generally considered the orchard work of secondary importance, and when spraying or pruning or picking should be done, plowing, haying or harvest was on, and the orchard was neglected with an unprofitable crop as a result; there must also be mentioned the loss thru consignment and unscrupulous buyers and commission men, altho reciprocally there are many unscrupulous packing farmers who thus boomerang themselves. The whole thing in a nut-shell is, that the farm orchard is being crowded out by the competition of the larger commercial orchardist, and to stem the present tide of elimination the farm orchardists will be obliged to adopt the methods of the larger growers, if that be possible.

The fact has long been established and ought to be of common knowledge, that Wisconsin can grow, whether in home farm or larger orchard, apples as good as those produced anywhere. But in order to fully develop this possibility and successfully meet competition from the outside world, we must develop more farms with orcharding as the specialty; we must plant more large acreages containing only a few varieties that the consumer demands; we must adopt the modern methods of planting and pruning and more intimately and scientifically study insects and diseases and the application of sprays and other remedial measures; and we must learn the most economical means of production.

With fruit land twice as high, on the average, and with a freight rate to Chicago nearly equal to the cost of production, the far-western states have a gigantic handicap in competition with Wisconsin. Yet their apples are sold in great quantities all thru the middle-west, including Wisconsin, say nothing of the large sales on the Atlantic Coast and in foreign countries. How do they do it? Well, after producing a spotless, fully developed, and well colored apple by means of painstaking culture, their fruit industry first begins. In other words they have mastered the art and science of production, and raise only a few varieties that the consumer demands, or can be taught to like and buy. Next comes the marketing, in which the great cardinal principle, by which the gap between production and successful marketing is spanned, is "an honest and reliable pack"—not for one year but for years to come. The apples are usually packed in two grades of standard pack, and whether put up by individual or by association, the doctrine, "it is more profitable to cheat yourself than the buyer," is slavishly followed—and they win in the long run. When such fruit is sold it advertises itself and sells again, and this reliability of uniformness and genuineness creates a wide de-

mand, which, accelerated by association advertising and salesmanship, brings success to the apple grower of the far-west.

There is no mysterious secret in the apple industry of the Pacific Coast. It is simply a case of scientific production, honest common-sense packing, and efficient advertising and selling, all of which any community can learn and do.

There is no doubt in my mind that if Wisconsin growers study and adopt these principles and methods, they can, especially with the great initial advantage of low-priced land and proximity to market, do even more in the apple industry than has been accomplished by the Pacific States. But unless these methods of production and marketing are more universally employed, the far-west will continue to predominate in the apple markets.

If you would shoot as far as your neighbor, adopt a similar gun, or at least one of equal strength.

My Neighbor's Garden

My neighbor is an enthusiastic gardener. An acquaintance declares that he is "garden minded." In the late winter as I see him casually upon the street car I notice that he is absorbed in catalogs, the covers of which are ornamented with pictures of vegetables and flowers of impossible size, color and perfection. Later I see him bringing home misshapen packages which give forth a seedy rattle upon being jostled, or some garden appliance readily distinguishable through its scanty brown paper wrapping.

He has a business which takes him up town daily, and in which he is popularly supposed to be diligent, but when it comes to real diligence, the early-in-the-morning-and-late-at-night kind, his diligence in business is a very faint and desultory sort of diligence. I am half inclined to believe that he only regards his business as means of getting the where-with-all with which to get seeds, bulbs, plants and manure for his garden. If I am ever so unfortunate as to have to get up with the sun in order to make a train or for some other unavoidable necessity, I see him in his garden, clad in most disreputable old garments, digging away most persistently or pushing one of those toy cultivators with a big wheel in front, along his rows of plants with a spasmodic one-foot-back-and-two-feet-ahead sort of movement. In the twilight of summer evenings I see him bending over some plant or flower petting or doctoring it with one hand, waving the other frantically about his head to keep off the mosquitoes.

He is proud of his garden, his flowers,—I think his real passion is for flowers—and his vegetables. He fairly beams when any passer-by stops and speaks in praise of his garden or anything in it. He will stop, hoe or trowel in hand, and talk by the half-hour with anyone who will talk plants or garden with him, but if you talk business he keeps right on with his hoeing or transplanting. If anyone expresses an interest in any plant, flower or vegetable, he has hard work to get away without a plant, a cutting, a boquet or a basket of vegetables, which my neighbor fairly forces upon him. If I wanted to touch him for a loan I should not tell him how fiercely my creditors were pressing me, or that my wife was ill and my children shoeless or otherwise lacking in necessaries, but should ingratiate myself by praising his cabbages, his egg plant or his dahlias.

Just now he is getting his garden ready for the winter. It is really surprising how many things he finds to do. This morning I saw a big load of sand dumped at the curb near his garden, and he was making neat little mounds among his flowers, and spreading it over the ground in his flower garden, and among his vegetables. I joked him about a gardener's needing "sand," and was surprised to learn how useful it is. The neat mounds were to protect early bulbous plants from belated freezes in the spring. The sand scattered over the soil is to be dug in during cultivation so as to lighten the soil, to prevent it from baking, to make it easier to work, and so that water and air may penetrate to the roots of the plants. My neighbor tells me that hard coal ashes may also be used eiher sifted or unsifted, but that, if unsifted, the clinkers are a nuisance in cultivating. He tells me also that all bulbs, lillies especially, should have at least an inch of sand under them and should be covered with sand to keep decaying vegetable matter and soil fungi away from them, and to permit of drainage so that they shall not rot. He finds it indispensable in rooting slips and cuttings. They will root better in damp sand than in any other material. He says he uses it for packing his winter vegetables and his dahlia and canna roots and they come through the winter without withering. This year he will try packing his geranium

plants in it and see if they will come through alive. I noticed that he dumped a whole wheelbarrow full in one of his cold frames, and learned that he makes his cold frame soil one-fourth sand, one-fourth leaf-mold.

I was interested in his coldframes of which he has several. One of them he fertilizes heavily with sheep manure or bonemeal, and leaves empty, but covered with glass so that it shall thaw out early in the spring for his first planting of lettuce and radishes. In others he plants his tenderer perennials with ample space between them so that he can take them up in the spring without too greatly disturbing the roots. He says that such plants as English daisies and Canterbury bells come through beautifully, increasing in size, and I remember his showing me last spring a fine row of English daisies all in blossom which he had just taken out of a cold frame where they had lived snugly under glass all winter and had grown finely in the spring before the outside soil had thawed. He tells me that plants thus protected can be transplanted to their places outside when the weather becomes warmer without ever knowing that they have been disturbed.

The other day I noticed that he was going around putting tags on a row of fall asters which he called Michaelmas daisies and which were growing in a corner of the garden where he had raised them from seed. I asked him whether they were cost marks or price tags, and he then showed names and colors written upon them and explained that he would transplant the asters after they had been killed by the frost and his other plants when his annuals were out of the way, and that he would transplant only the best ones and in transplanting would put them where the colors would not "quarrel" with those of their neighbors. I noticed other tags on the dead stalks of other plants.

I noticed labeled stakes everywhere among his flowers and when I joked him mildly about it he told me that some of his plants were sleepy-heads and didn't get up early in the spring and that if he didn't mark their sleeping places in the fall he was likely to take their heads off in the spring when he was cultivating the others which got up in good time.

Neighbor.

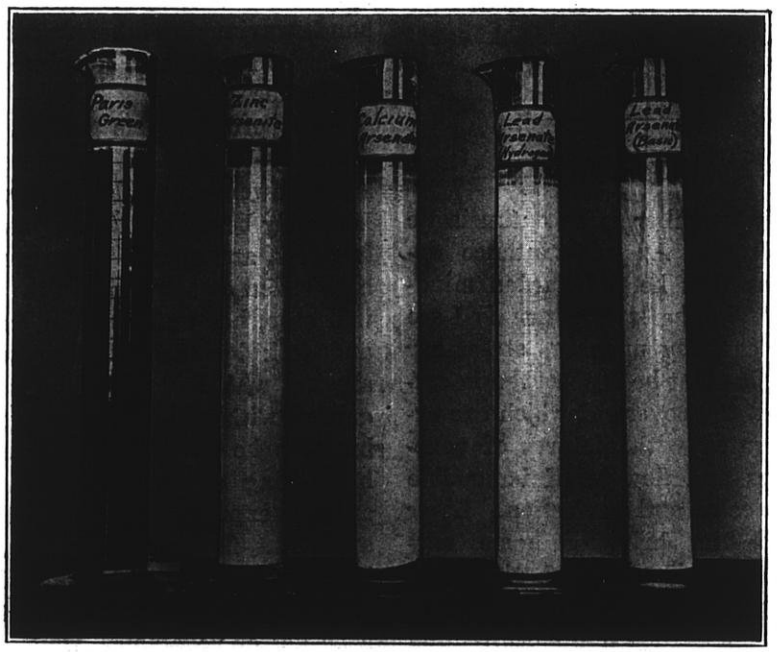
Head lettuce does best in cool weather. It must be well spaced so as to give each head a chance to grow to full size.

Suspensibility of Insecticides and the Value of Agitation

(The following should be read in connection with Prof. H. F. Wilson's article, The Practical Efficiency of Our Common Insecticides in the August number of Wisconsin Horticulture. This section was omitted on account of lack of room for the illustrations.)

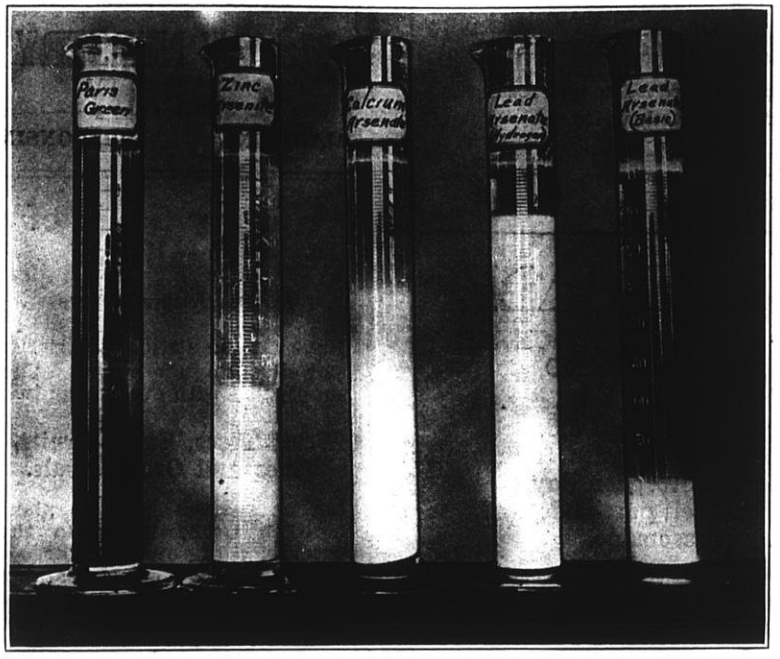
Each one of the insecticides here discussed has its own degree of suspensibility and this is an important factor in the application of the spray material. The rapidity with which any material settles is extremely important because one of the greatest difficulties met with by the average farmer in spraying is the settling of the poison in the tank. To show the rate of settling we have made three photographs which are here included.

Photograph #1 was taken immediately after shaking all of the insecticides. It should be noticed



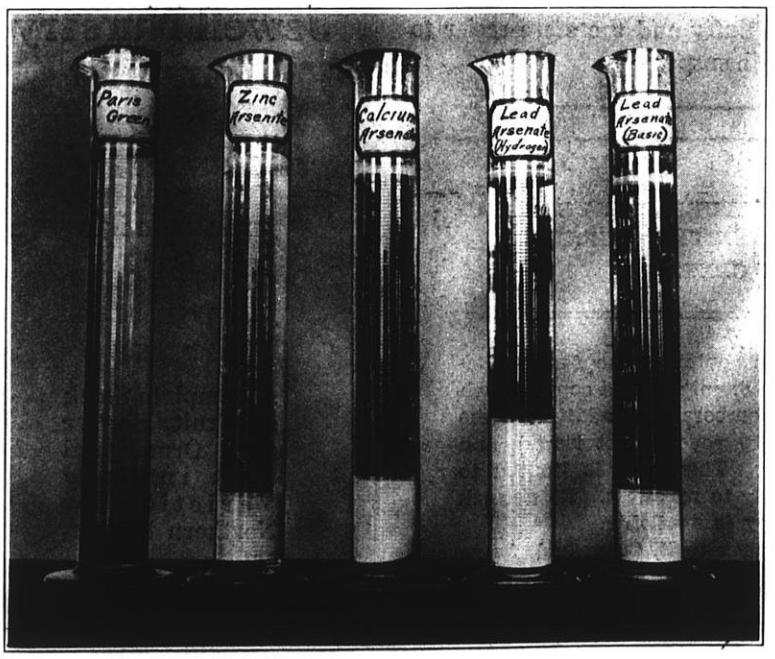
INSECTICIDES NEED THOROUGH AND CONTINUOUS AGITATION

Photograph taken immediately after shaking. Note that the materials have already begun to settle.



INSECTICIDES NEED THOROUGH AND CONTINUOUS AGITATION
Photograph taken two minutes after shaking. Note rapidity of settling of Paris Green and Basic Lead Arsenate.

that settling began immediately. Photograph #2 was taken 3 minutes later and shows not only the necessity of agitation in the spray tank but the comparative rapidity with which each one of these materials settle. Basic lead arsenate settles much more rapidly than any of the



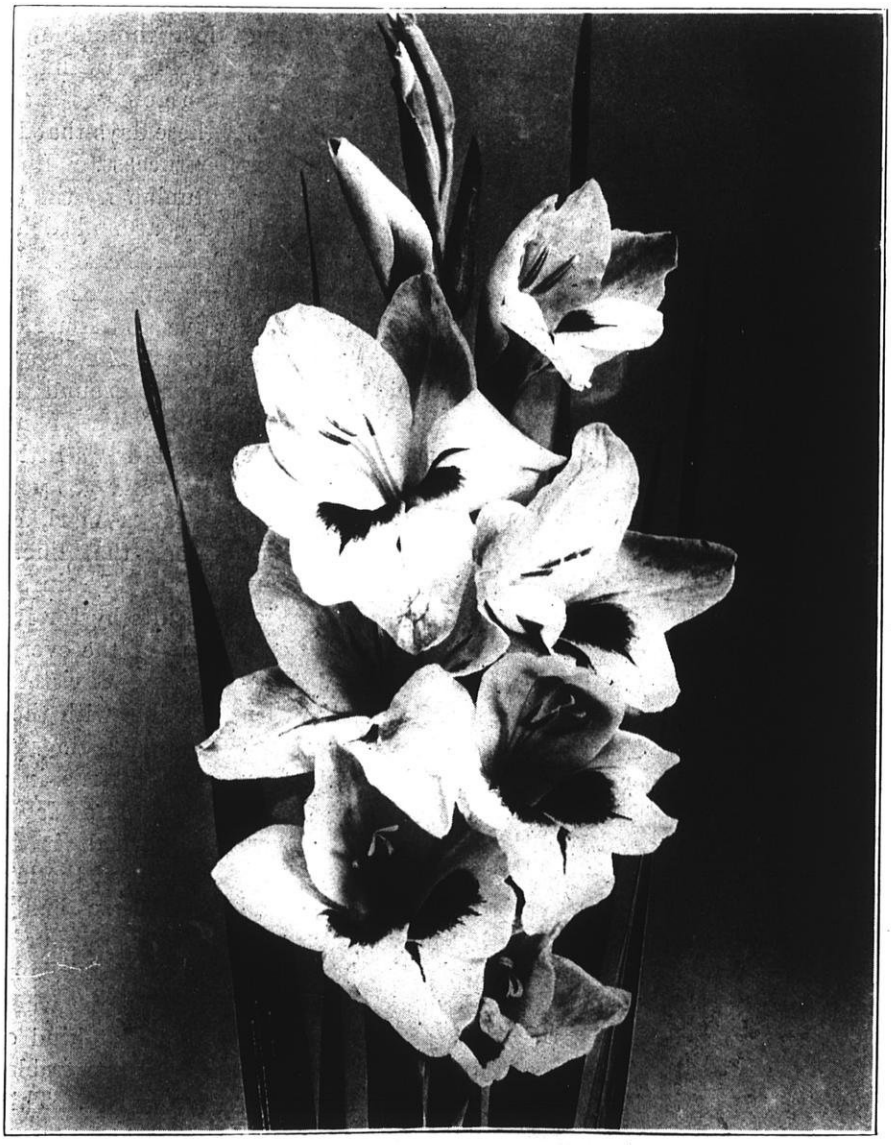
QUICK SETTLING MATERIALS ARE ALSO MOST COMPACT
Not only do these materials settle quickly but it is difficult to stir them up again if they are allowed to settle while spraying.

others although Paris green is a close second. Zinc arsenite, Calcium arsenate and lead hydrogen arsenate follow in succession. Photograph #3 was taken two days after the second and shows the volume and corresponding compactness of equal amounts by weight of each material. This is important from the standpoint of agitation because the more light and fluffy the material, the easier it will be to keep it agitated. In comparing lead hydrogen arsenate and Paris green the photograph shows that lead hydrogen arsenate is much more fluffy and therefore easier to keep in suspension.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, November, 1919 | Number 3



GLADIOLUS, MRS. FRANK PENDLETON

Strawberry Lore

The following strawberry talk from the reporter's transcript of the summer meeting proceedings is interesting and may easily prove of value to prospective planters.—Editor.

Mr. Herman Christensen: Strawberry conditions were very abnormal this year. The dry weather last year made the stands very poor and when the spring opened we thought we would have a very small crop. But the spring rains seemed to bring on the plants that we already had, and again our hopes were raised, but when it came to flowers we found a great many plants came blind in our locality. We could hardly account for it, because we had a very mild winter. But after the fruit was set we still had promise of a crop, when the dry weather struck us, so that we had almost the smallest crop in my experience. Here and there, there seemed to be exceptions.

As to varieties, it seems as though the Senator Dunlap still holds the first place this year. At first it seemed to blight badly in the blossom, and the crop was shortened by this blighting. The best crop in our locality was grown by Mr. Parsons, who you remember was associated with our late President, Dr. Loope in various fruit growing enterprises. He had a patch near Omro, about an acre and a quarter, most all Warfield. He had a magnificent crop of berries, very uniform in size and fine color. The peculiar thing was, that though Omro is only eight or nine miles west of Oshkosh, they had plenty of rain there and from an acre and a half he took in some $1200. You see that was a very good crop, and the men who reported on it said that the stand was nothing extra, so that he had a very good crop.

The variety that we depend on is the Dunlap. We still have a few of the Warfields, because I do not believe in quality the Warfield can be excelled as a canning berry. We have been trying the August Luther which has been called a new Dunlap, but I did not find it so. It has a tendency to blight in the blossom when weather conditions are not favorable, and I cannot see any improvement in the size of the berry, so I do not think it is an improvement on Dunlap.

Another berry that is growing in favor is the Gibson. It is a heavy bearer, not very large, but rather light colored, so that it is not in favor with the storekeeper or retailer, nor with the canner, but it is a very prolific berry, and very vigorous plant.

We still stick to some of the older varieties, like the Bubach, but they seem to be, as we have said before, somewhat playing out. One of the varieties that I like to grow a few of, because it stretches over so long a season, is the Glen Mary. I think under favorable conditions this berry will bear as big a crop as any variety we have, but it is rather uncertain. It is somewhat subject to rust but after all the summer varieties have left us the Glen Mary will often hang on a week or ten days and give some very fine berries.

We still grow some of the everbearing. I have cut them down to two varieties, Progressive and Americus. On sandy soil the progressive is surely the best everbearing, and I think most of us will agree that on heavier soil the Americus is the better berry, is larger, and therefore I consider it one of the very best berries that we have. It has a peculiar flavor all its own, similar to the old Brandywine that we used to grow so largely in Wisconsin. I have tried several of the other everbearing, but to my soil they are not very successful. I have not tried any of the still newer varieties, but of late years there does not seem to have been such a large number of new varieties introduced as we had eight or ten years ago.

Mr. Rasmussen spoke of my new variety of ever-bearing strawberry. I am sorry that I lost those plants, but I have a spring fruiting kind now that I am going to thrust on him one of these days that I feel will be quite a success. I think the Senator Dunlap is still the standard variety around Oshkosh.

Mr. M. S. Kellogg: Mr. Christensen spoke about the Progressive and Americus; I should like to ask if he ever tried the Superb on his grounds and with what results? As I understand, your ground is a little on the heavy order, and yet you would not class it as a marl, exactly, but it is along that line. When we have plenty of rainfall we get the best results by far from the Superb of any of the ever-bearing.

Mr. Christensen: The only trouble with the Superb is that it rusts. I do not know whether that is true in all localities, but with us, as far as the berry was concerned, it gave the largest yield and the largest berry, but it rusted so badly that we abandoned it. The Progressive is so small that it is hardly worth picking, except where it is grown on the right kind of soil; the size is double or treble what we get on heavy soil. This Minnesota No. 4

is almost entirely a failure; they rusted badly too, but the Americus with us is a fairly good plant maker, and very large in size and better in quality, in fact, in the making of plants.

Mr. Kellogg: Have you fruited the Dr. Burrill?

Mr. Christensen: Yes, for two years.

Mr. Kellogg: Does that compare with the Dunlap?

Mr. Christensen: I did not get half the stand last year that I did on the Dunlap; in fact, it does not seem to be as vigorous. The berry is almost identical with the Dunlap, in size, color and shape, but the plant looks more like a Warfield than like Dunlap.

The President: I have planted nothing but the Dunlap in the past ten or twelve years and I think they have yielded every time. For canning I think perhaps the Warfield is best, but all our customers want the Dunlap.

Mr. Kellogg: We are sometimes prone to let go those varieties that give us the best berries—particularly those of us who are in the nursery business—the ones that give us the most plants. I know that is a fault that can be charged up to the men that are in my line of business, but in years past we have had a variety that we had not previously planted for some time, and that is the Carson Beauty. It is a berry that is very dark red. There is one feature that growers do not like, it is a hard berry to look over for canning, the stem sticks to the berry. It is not two-thirds as rank a grower as the Dunlap, but under favorable conditions it will outyield the Dunlap. If a dry season catches it, it will suffer a little more than the Dunlap. It is a deep ruby variety and if any one has the true Carson Beauty, it will pay to hang on to it for your own use at least.

Mr. Moyle: I have been talking Kokomo and Gibson, and I have been told they are the same thing. They have been grown in different localities, in certain berry sections in Michigan and a certain man made a success of growing the old Carson's Beauty, and he renamed it Kokomo. Both of these varieties came from the original stock of Carson's Beauty, but I doubt, Mr. Kellogg, if you can beat the Old Dunlap.

I want to make a statement here in regard to 110 Minnesota ever-bearing. When I first began trying out new varieties I jumped at the conclusions, now I want from 3 to 5 years to test out a variety. That 110 beats anything else I have; in two years' fruiting it beats them all. It is simply for the reason that it is a cross between the Kokomo and the Superb. It has the green leaf of the Kokomo and it is a large size ever-bearing.

Mr. Christensen: Does it not have the same characteristic as the Superb, that it does not fruit on a new runner the first year?

Mr. Moyle: Oh yes, I can show you plants in the nursery which are fruiting now.

Mr. Christensen: I have had it two years and it did not fruit on the new runners.

Mr. Moyle: Did you get your plants direct from the experiment station?

Mr. Christensen: I did not, I got them from a nurseryman.

Mr. Moyle: I got these direct from St. Paul, where they originated.

Mr. Christensen: This variety has the foliage of the Gibson and resembles the Superb in the berry. I tried it for two years and discarded all of them. In a season like this it does not show the characteristics of the ever-bearing, because the runners are flowering this year to an exceptional degree, and that is particularly characteristic of the Progressive, that it does not fruit on any runner.

Mr. Kellogg: I should like to ask if any of the members have noticed anything in regard to lack of productiveness in their strawberry bed this past season on June fruiting varieties, and last year amongst the same varieties from plants that they have grown in their own propagating bed for several years as compared with plants they may have gotten outside that had new strain, new blood; if they have had any opportunity to make comparison in that regard?

The President: I have a row of Dunlap that I bought from a Minnesota man that he thought were different from what I had. I planted one row; it fruited this year and I could not see any difference from those that I had been fruiting for a good many years.

We Answer Questions

Or if we don't we get someone else to answer them. In any event you get the answer. It's free.

Grape vines may be pruned as soon as the leaves fall and laid on the ground preparatory to covering with earth before the ground freezes.

If you really want to be of service secure one new member.

Fine Opportunities for Fruit Raising

By J. G. Moore

Starting any business requires capital. To the man considering what line of business to enter, the amount of capital required to successfully operate that business is frequently a very important factor. There is probably no phase of agriculture which requires a smaller original capital to operate a successful business than does the growing of small fruits or vegetables.

These lines of agriculture are intensive. The acreage necessary to profitably employ the time of a man is relatively small and the returns per acre are relatively large. This combination makes the initial investment in land much less than for most other lines of agriculture. It is true the unit price of land desirable for growing these crops will be somewhat higher than that usually used for stock raising or grain growing, but the area needed for the latter much more than offsets this difference.

Berries Give Quick Returns

Another important consideration to the man with small capital is the quickness of returns. In the growing of vegetables the returns in many instances are almost immediate and in no case is there a long interval of time between the planting and marketing of the crop. While a somewhat greater interval is necessary for the profitable production of small fruits, it is not great, as strawberries give a full crop the second season, raspberries and blackberries the third, and currants and gooseberries produce good crops in about four years. In the meantime returns may be had from the small fruit plantation by intercropping with vegetables.

The possibility of marketing the crop after it is produced is a vital problem with the farmer. Market demands and the available supply largely control prices. The demand for small fruit has never been better, the supply seldom less than at present. The result is high prices. Practically none of the fairly large markets has been able to secure a sufficient supply of any of the small fruits during the present season, notwithstanding the fact that the yield per acre has seldom been larger. There is every reason to believe that the relative supply will not be greater for some years.

The War Trained Home Gardeners

The market demands for certain vegetables was not good during 1917 and 1918, due to the large number of war gardens. In spite of this large increase in home gardens, commercial gardeners who selected intelligently the crops which they grew in 1918 were able to secure fairly satisfactory returns. There will doubtless always be a larger number of families supplying their vegetable needs from home gardens than before the war but many who gardened during the war are no longer doing so.

The increased supply due to the increase in the number of home gardens is probably not a relative increase for the habit of using more vegetables in the diet because of our war-time training will offset to a large extent the increased production. The prospects of a ready market in the future for high grade vegetables is very promising. The market demands during the present season warrant this conclusion.

To the man interested in these lines of agriculture Wisconsin offers excellent opportunities. With ordinary care in selecting a location and soil and with the advantage of large markets close at hand the Wisconsin grower need not worry about markets or fear competition from other states. If he finds competition too strong in the eastern market he can direct his product to equally good markets west, north, northwest and southwest.

The desirable opportunities in Wisconsin along horticultural lines are not confined to small fruit or vegetable growing. The production of certain types of apples and sour cherries in many respects offers quite as great attractions for one contemplating entering agriculture as do the former. Somewhat greater care in selecting a location, a longer interval between investment and initial returns and a greater initial investment and return, however, is practical.

In order to make a success in fruit or vegetable growing it is necessary for one to devote to it the same type of intelligence and care necessary to make a success of any other business.

A disease resistant strain of asters would be a money maker for some one. So far no pathologist has been able to suggest a remedy for aster blight and hundreds of thousands of plants are a failure every year. It seems that the only sure way to grow asters is under glass.

The Cranberry Crop

The production of cranberries in 1919 for the United States is estimated at 560,000 barrels, based on October 1 conditions, according to a report by Joseph A. Becker of the Wisconsin Cooperative Crop Reporting Service. The forecast on September 1, was 637,000 barrels and production in 1918, 350,100 barrels.

Practically the entire cranberry crop of the country is produced in the three states of Massachusetts, New Jersey and Wisconsin. The Massachusetts crop is estimated at 78 per cent of a full crop, or 360,000 barrels compared to 200,000 barrels produced last year. Average price to growers October 1 was $7.70 per barrel (100 quarts). Harvesting will be completed by October 15th. Fruit is of good quality.

The New Jersey crop is estimated at 76 per cent of normal, or a total production of 155,000 barrels. The crop has suffered no frost damage and is 50 percent harvested. Cost of picking is the highest known, running up to $1.00 per bushel. Some rot in bogs reduced the estimate since September, but greater portion of the fruit is of good quality.

Wisconsin's crop will run 97 per cent of normal, with a total production of 45,000 barrels. Pickers are being paid from 50 to 55 cents per hour. The crop is of good quality.

Most ornamental shrubs are easily propagated either by seeds or hardwood cuttings.

Roses should be covered with earth just before the ground freezes.

Concerning Certain Shrubs

As a member of your society, I should appreciate your advice regarding the following points:

In the annual report (1919) the shrub Weigelia Eva Rathke is recommended. Has this shrub flowers of a good red color, and do you consider it better than some of the other Weigelias? Also does it grow much over 5 ft. tall? Is the growth upright or somewhat bushy?

The report puts Kerria Japonica on the blacklist. What could be recommended regarding the White Kerria (Rhodotypos Kerroides)? Is it hardier than the other Kerria, and is it suited to a place that gets only afternoon sun? Is Deutzia "Pride of Rochester" hardy in that locality (La Crosse)?

For planting near foundation of a house, what spacing would you recommend for the above mentioned plants?

T. C. O.

Weigela Eva Rathke is hardy in Wisconsin. It is a low growing shrub, rarely exceeding three feet and spreading in habit. The flowers are much darker than W. rosea.

Kerria Japonica is not hardy in this state, neither is Rhodotypos Kerroides able to withstand our winters even in the extreme southern part.

The Deutzia Pride of Rochester is only half hardy. This is true of all the Deutzias in this state, none but that will kill back more or less even in a mild winter and very low temperatures means blank spaces in the shrub border where the Deutzias stood.

Shrub planting is much like seed sowing, we must plant many more of both than we expect to retain in the final stand.

For immediate effect shrubs should be planted two to two and one-half feet apart and thinned later either by severe pruning or the removal of plants.

A New Horticulturist at Minnesota University Farm

"Horticultural education in Minnesota is to have a new leader. W. H. Alderman, director of the experiment station of West Virginia, has been elected by the Board of Regents of the University of Minnesota as head of the University's division of horticulture. He will assume the duties of his new position September 1.

"Mr. Alderman is a young man, being only 34. He was born and raised on a farm and was graduated from the course in horticulture in Cornell, N. Y., in 1908. He was first assistant and then associate horticulturist of the New York experiment station at Geneva from 1908 until 1911. In 1911 he became professor of horticulture and horticulturist at the West Virginia experiment station and one year ago he was made director of that station. He has also been acting dean of the Department of Agriculture of the University of West Virginia in the absence of Dean J. L. Coulter.

"Mr. Alderman is one of the leading teachers of horticulture in the United States and has shown remarkable administrative and organizing ability as well.

* * *

"Mr. Alderman is one of the joint authors of a large work describing the plums of New York."
—*Minnesota Horticulturist.*

AMONG WISCONSIN BEEKEEPERS

The Wisconsin BeeKeepers Page
Prof. H. F. Wilson Editor

Your state association now has nearly 480 members and the indications are that the membership will be even greater by the time of the convention. With a membership of this size, we ought to have at least 200 at the convention. Make up your mind to come and give of your knowledge that we may all improve. If you want to know about the latest in beekeeping, come and we will see that the information is given you.

Beekeepers are now making preparations for the season of 1920. Many looked forward to 1919 with a great deal of expectancy to learn whether or not beekeeping would revert to the old system of pre-war days when honey prices were low and winter losses and disease were making serious inroads on the industry in this state.

We are glad to note that the tendency for more and better beekeeping is still increasing and general conditions are better in all respects than at any previous time in our history. Better laws have been secured, a better system of inspection prevails and the spirit of cooperation among beekeepers is of the very best. Crop production and the total number of colonies of bees are being rapidly increased.

Wisconsin's Apiary Inspection Law

The new inspection law passed by the last legislature seems to be giving satisfaction both to the beekeeper and to the bee inspector. A number of inquiries have come to this office regarding the selling and moving of bees. For the benefit of our members, three sections of this law are here given.

Permit Required for Moving Bees or Supplies

8. No person shall sell, barter, offer for sale or barter, move, transport, deliver, ship, or offer for shipment any apiary, bees, comb, or used beekeeping appliances without a permit from the inspector of apiaries; or in lieu thereof, if shipped or transported from without the state, a certificate duly issued by an official state inspector showing that said apiary, bees, comb, or appliances have been inspected and found not infected with any contagious or infectious disease of bees. Such permit, or a copy of such certificate, shall be affixed to the outside of every package, box, crate, or bundle containing bees, comb, or used beekeeping appliances. The inspector may refuse such permit whenever such refusal is necessary, in his judgment, to prevent the dissemination of any contagious or infectious disease of bees or until after he finds by inspection that the said apiary, bees, comb, or appliances are not infected with any such disease.

(b) No person shall accept for shipment, ship, or transport any such bees, comb, or used beekeeping appliances unless such permit or certificate is affixed on the outside of the package, box, crate, or bundle containing the same; and the inspector or any of his deputies may forthwith seize and destroy any such shipment found at any time or place without such permit or certificate affixed as aforesaid.

(c) The use of an invalid or altered permit or certificate and the misuse of any valid permit or certificate are hereby prohibited.

Exposing Honey, Comb, Etc., Prohibited

9. No person shall expose in any place to which bees have access, any bee product, hive, or other apiary appliance in such manner that contagious or infectious diseases of bees could be disseminated therefrom.

Penalties

10. The words "person" and "owner" as used in this section include natural persons, firms, associations and corporations; and any person, who, himself or by his agent or employe, or as agent or employe for another, violates any provision of this section, or any regulation or order made in pursuance thereof, shall be punished by a fine of not less than five dollars nor more than one hundred dollars.

Complete information regarding this law and permits to ship bees can be secured from Dr. S. B. Fracker, State Entomologist, or Mr. H. L. McMurry, Chief Deputy, State Capitol Building, Madison, Wis.

Beekeepers can obtain sugar for feeding bees by writing direct to United States Sugar Company, Milwaukee, Wis.

H. L. McMurray.

WISCONSIN STATE BEEKEEPERS' ASSOCIATION

ANNUAL CONVENTION

Program

Thursday and Friday, December 4 and 5, 1919, at the Senate Chamber, State Capitol, Madison.

Meeting of Board of Managers, Wednesday Afternoon, December 3, 2 P. M., Senate Chamber.

Thursday, December 4

Morning Session

9:00—9:30 A. M.

Social Meeting, Paying Dues.
Call to Order. Singing of "My Country 'Tis of Thee," led by H. Lathrop.
Greetings to the Old Guard—Rev. J. E. Cooke, Reedsburg.
Reading of Minutes of the Last Convention.
Reading of Secretary's Report.
Reading of Treasurer's Report.
Reports of Standing Committees.
Report of Board of Managers.
Presentation of new business by members.
Appointment of Committees for Convention.

Afternoon Session

1:30 P. M.

President,s Address—Gus. Dittmer, Augusta, Wis.
The New Era in Beekeeping—Dean Russell, College of Agr.
The County Agricultural Agent and the Development of the Beekeeping Industry — H. J. Rahmlow, Phillips, Wis.
Preparation of Exhibits for State and County Fairs—A. C. Allen, Portage, Wis.
Standardizing and Organizing the Honey nIdustry — A. Swahn, Ellsworth.
Questions and Discussions.

Evening Session

5:30—7:30 P. M.

Beekeepers' Banquet.
The Foulbrood Situation in Wisconsin—S. B. Fracker, State Entomologist.
Report of the Deputy Inspector—H. L. McMurry.
Foulbrood fro mthe Standpoint of the Beekeeper—M. E. Eggers, Eau Claire.

Friday, December 5

Morning Session

9:00 A. M.

Management of Outyards—N. E. France, Platteville, Wis.
Relation of the State Department of Agriculture to the Beekeeping Industry—C. P. Norgord, State Commission of Agriculture.
Short Cuts in Wholesale Requeening—Edw. Hassinger, Greenville, Wis.
"Queen-Rearing at Home"—Kenneth Hawkins, Watertown.
The Need of Better Educational Work in Beekeeping—Miss Iona Fowls, Asst. Editor, Gleanings in Bee Culture, Medina, Ohio.
Modern Beekeeping Practice—H. L. McMurry, Special Field Agent, U. S. Bureau of Entomology.
The Use of Large Hives—C. P. Dadant

Afternoon Session

1:30 P. M.

Out Yard Advantages—Chas. L. Duax, Chippewa Falls, Wis.
Open Discussion on How to Make Our Association More Valuable to Its Members.
Business Session.
Report of Committee
Old Business
New business
Election of Officers
Appointment of Standing Committees.

Cane Fruits in Wisconsin

Leon K. Jones

In the previous number of Wisconsin Horticulture there appeared an article relating to statements made by Mr. Roberts, at the Summer convention of the State Horticultural Society. Mr. Roberts brought forward some of the reasons for the decline of the raspberry industry in Wisconsin, as were found in a survey of the State this summer. Has the raspberry industry declined?

The thirteenth United States census report shows Wisconsin as having nine hundred and sixty-four acres devoted to cane fruit culture. This leaves Wisconsin in 1909 with the smallest acreage of any of its neighboring States, as is shown by the following table:

Wisconsin	964	acres
Michigan	8,786	"
Illinois	1,945	"
Indiana	1,412	"
Minnesota	1,388	"

During the past ten years the industry has declined about eighty per cent, as is shown by the data collected this summer on the survey.

Raspberries (red)	126	acres
Raspberries (purple)	4	"
Raspberries (black)	24	"
Blackberries	42	"
Total	196	"

This data takes into consideration only commercial plantings of ¼ acre or more in extent. Although the state was covered quite thoroughly ample allowance has been made for plantings that may have been missed.

Wisconsin Horticulture

Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Membership fee, fifty cents, which includes twenty-five cents subscription price of Wisconsin Horticulture. Remit fifty cents to Frederic Cranefield, Editor, Madison, Wis.

Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card, and pays for two years. Personal checks accepted.

Postage stamps not accepted.

Annual Convention

The Annual Convention will be held in Madison Tuesday, Wednesday and Thursday, January 6th, 7th and 8th, 1920.

The program will be published in the December number.

The premium list will be exactly the same as last year. It is not too late to lay aside apples and vegetables for the exhibit.

A copy of the annual report containing proceedings of the 1918 summer meeting and the January 1919 annual convention was mailed to every member about October 1st. If your dues are paid and you have not received a copy notify the secretary.

Autumn Leaves

Leaves are, perhaps, worth saving. If you have an acre lot available, plenty of trees, are diligent and collect a ton, dry weight not saturated with rain, you will have garnered 15 lbs. of nitrogen, 3.2 lbs. phosphoric acid and 3.2 lbs. potash. A ton of rye straw yields 11.2 lbs. nitrogen, 5.1 lbs. phos. acid and 18.1 potash. Every good amateur gardener should build a compost heap adding to it every day from spring to autumn and to this the leaves that must be raked from the lawn for appearance sake may well be added but to spend much time in collecting leaves is doubtful economy.

Covering Roses

Remember that all but the very hardiest roses need winter protection; that early November is the time to cover them; that the bushes may be bent over without breaking if most of the pressure is applied at the roots. Remove a little soil from the side toward which the bush is to be laid and push a fork down on the opposite side close to the roots and crowd hard at the same time pulling on the stems. Peg the tops to the ground and cover with corn stalks, leaves, or heavy building paper. If you bend in the same direction each year after about three years the bushes will almost lie down when you touch them, like a trained dog. Try it.

Lessons From the State Fair

The horticultural exhibit at the State Fair reflects pretty accurately the progress and present status of fruit growing in the state.

Twenty years ago we had no commercial fruit growing in the state worth mentioning and we had no state fair exhibit worth mentioning. Those of our members of a philosophical turn of mind may give us an answer as to which was the cause and which the effect. In any event we now have both orchards and a fruit display.

Ten years ago we had only plates of apples and poor ones at that, not a single display of over four apples on a plate. After trying and discarding pecks and bushels heaped on the tables, bushel and barrel packages, the tray, holding nearly a peck and resembling the top layer of a bushel box, has been adopted as the commercial display package retaining the plates for display of varieties. This plan gives the fair visitor his money's worth and is satisfactory to the exhibitor.

There have been other changes of even more importance.

The score card system of judging has completely changed the character of the exhibits and, may we say, the exhibitors. Most anything would get by with a premium in the old days but not now. Every plate or tray of apples is subjected to the impersonal, merciless exactions of a score card the percentages credited for form, color, size, uniformity, etc., and the record left on each exhibit for the exhibitor to ponder over. Exhibits falling below a fixed standard are disqualified. This means that only good fruit can win a premium and the grower who now wins at the Wisconsin State Fair has just cause for pride as well as a substantial money reward. No one doubts

that this higher standard will be reflected in the apples which the exhibitor sells.

The point has been raised that this method of judging, exact and impartial tho it is, will eliminate the small exhibitor, or in other words the farm orchard fruit leaving the field entirely to a few big growers which is not altogether desirable. That surely is the first reaction as shown by the lessening number of exhibitors each year. There is only one answer to this: the fair is an educational institution and its standards must be kept up. The smaller exhibitor will, must, learn that "quality" is essential either for fair or for market and will endeavor to reach up to the standards set.

Ready to Repeat

The account of the journeyings of the trial orchard committee in the October number was written by William Toole, Sr., and should have been so credited. We regret the error but not the trip.

While his was an excellent account of a remarkably long automobile trip wholly within state boundaries there were some things that he did not tell: the oldest, in years, of the party, a few odd milestones beyond the Biblical allotment, he was yet the youngest in spirit thruout the trip. If the roads were bad he was thankful they were no worse; if they were good he sang; if moderate he whistled and whatever the conditions cheerful. At the close of the seven day and night, fifteen hundred mile trip he expressed his willingness to immediately go around again if necessary.

My Neighbor's Garden II

I was much concerned the other day at the remarkable movements of my neighbor. It was just after the heavy rains of last week when the ground was soaked and everything was dripping wet. He was wandering aimlessly about his lawn and the grass plat between the sidewalk and the street. His head was bowed and every little while he would stoop down as if plucking something out of the grass and would put something in a dish which he held in his hand. He certainly wasn't digging dandelions for he moved about much too rapidly. My curiosity got the better of me and so I went over to see what he was doing.

I found that he was digging up a lot of toadstools that were beginning to show their gray rounded tops through the grass. After a casual remark I told him that I had never dug those things out of my lawn and told him that I couldn't see that they had ever done any harm.

"Harm!" he said, "I should say not! They are going to harm old H. C. L."

"What!" I said, "You don't mean that you are going to eat those toadstools!"

"You just watch me" was his retort.

I had, of course, eaten canned mushrooms, and had seen the nice clean white-topped ones at the grocers occasionally, but had always supposed that toadstools were a deadly poison, but my neighbor gave me most interesting glimpses into the abyss of my ignorance.

From him I learn that there is no botanical or gastronomical difference between toadstools and mushrooms. All cap fungi may be called by either name with equal propriety, the only difference being that the only variety that is cultivated is always called a mushroom. Of the many hundred of species of mushrooms or toadstools, the deadly poisonous ones are practically confined to one genus or family, and even of this genus only about one-half of the species are poisonous. But these are so deadly that they have given a bad name to all except the cultivated species. Worse than all is the fact that in early stages of growth the deadly varieties have forms which render them hardly distinguishable from the cultivated species. No one should have anything to do with a toadstool that there is or can be any question about. The risk is too great. "If he makes a mistake, he will be dead for a long time," as my neighbor puts it.

He then gave me a lesson in the structure of mushrooms.

It seems that the top or umbrella-shaped part is the cap, and that under it and radiating from the stem, are a series of thin plates, thinnest on the edge, which are called gills. The seeds of the mushrooms which are microspic are called spores, and these are formed on the sides of the gills. At first the gills are white, but as the spores form, the gills take the color of the spores which form upon them by the million, and are of various colors, generally white, rosy, brown, or black. The color of the spores is one of the most distinguishing characteristics of mature or even partially mature mushrooms.

Practically all of the dangerous mushrooms have white spores. Every mushroom which has white

(Continued on page 43)

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

An Interesting Moth

During the past two weeks many growers of Wisconsin were greatly alarmed about the sudden appearance of large numbers of moths or "millers," dull olive-gray to reddish in color with a dark spot in each forewing and dark markings. They have a wing expanse of about 1⅓ inches and could be found in plenty,

Moths of cotton worm feeding on ripe tomato.

feeding on ripe tomatoes and cracked melons and flying to lights and store windows at night.

On October 4th the writer while doing some investigation work happened to step into a tomato plot. Large numbers of these moths flew up and an examination showed that there were thousands of moths in this and adjoining tomato plots. As many as 8 to 10 moths were commonly found on a single cracked tomato feeding upon the juices.

These moths are the adults of the cotton worm and fortunately are not injurious in the northern states but finally die. In the southern states they often cause serious injury to cotton. Why these moths should fly so far north in such large numbers has never been satisfactorily explained. In some years, they have flown as far north as Canada.

The moths can overwinter only in southern Florida, South America and the West Indies. In spring the moths lay their eggs on volunteer cotton. The larvae develop rapidly and the moths which develop from these larvae fly northward for a distance and there start another generation on cotton, each generation developing farther north as the season advances. By the time several generations have matured, there are immense numbers of moths which occasionally fly far north.

L. G. Gentner.

The Raspberry Root-Borer

This insect is also known as the blackberry crown borer and is known to occur in our northern states and Canada. This station has never received information regarding its occurrence in Wisconsin until this fall when specimens were sent in from Superior. They were said to be killing off an entire raspberry patch.

The larva is whitish with a brown head and is 1 to 1½ inches long when full grown. They tunnel in the lower stems and roots of blackberry and raspberry. The adults are clear-winged moths and look very much like wasps with their black bodies and yellowish abdominal rings. They appear in late August and September. The females soon lay their brownish red eggs on the lower edge of the leaves. They hatch in September and crawl down the stems and bore in under the bark, sometimes spending the winter thus or they may go into the pith, providing they hatched early enough. The next spring they feed near the crown often causing the canes to wilt or show signs of weakness. The second summer the larva becomes full grown and bores a hole through the wood and bark just above the crown but leaving the

The Raspberry root borer. The larvae are nearly full grown. Notice exit hole in center cane.

skin of the cane over the hole. It then descends in its burrow and changes to the pupa which in time wriggles itself out of the tunnel until it projects part way out. The adult moth then emerges.

Control Measures

The only method known which will control this species is to pull up all infested canes, including the root, and burn. Wild berry bushes in the vicinity should also be destroyed as they will be a natural breeding ground for the borers.

Charles L. Fluke, Jr.

Preference of the Potato Flea Beetle for Certain Varieties of Potatoes

While carrying on experiments at Madison the past summer for control of the potato leafhopper, many interesting observations were made as to the preference of the potato flea beetle for certain varieties of potatoes and the resulting injury to the plants.

The potato flea beetle, a very small, round, black beetle which readily jumps when disturbed was extremely abundant this year in the southern part of Wisconsin.

Observations made from time to time showed the following interesting facts in regards to its attack.

On Early Ohio potatoes were found more beetles than on any other variety and the feeding injury was consequently worst. They were found all over the plant, on the highest leaves as well as on the lowest. Their attack lasted later into the fall than on other varieties, and new foliage coming on after late summer rains was badly eaten. It was observed throughout the summer that injury to Bordeaux sprayed plants was only a little less than to untreated plants.

Irish Cobbler potatoes suffered next in order. The number of beetles found on plants and the feeding injury was nearly as great as with Early Ohios. The insects were found all over the plants, although in greatest numbers on the lower leaves. New late summer foliage was badly eaten.

Improved Green Mountain potatoes, (an Eastern type) were not as heavily infested nor injured as the previous variety. Some beetles were on the top leaves, but the great majority remained near the ground. Late summer foliage was not eaten badly.

Green Mountain potatoes were infested and injured to practically the same extent as the improved type. Flea beetles were seldom found, howver, on the upper leaves.

Sir Walter Raleigh potatoes (another eastern type) had relatively few beetles on the foliage, and they were usually found on the lower leaves. Late summer foliage sustained little injury.

Relative likeness of potato flea beetle for Rural New Yorker (left) and Early Ohio (right) potatoes, growing side by side. Rurals practically uninjured; Early Ohios perforated with feeding holes. (Original).

Late Puritan potatoes were perhaps bothered less by the beetles than the previous variety. All injury occurred on lower leaves and new foliage was not noticeably eaten.

Rural New Yorker potatoes were attacked by fewer beetles than any other variety planted. A small amount of feeding could be found on the lower leaves, but new growth was never injured. The accompanying pictures show the extremes of injury.

John E. Dudley, Jr.

Keep gladiolus and dahlia bulbs at about the same temperature as potatoes.

MY NEIGHBOR'S GARDEN II

(Continued from page 41)

spores is therefore an object of suspicion. Most poisonous mushrooms grow in the ground especially in woods or open grounds under trees or where trees have recently grown. Another characteristic of poisonous mushrooms is the fact that in the early stages there is a membrane or veil on the under side of the cap which covers the gills until the cap is half or more open, when it ruptures, forming a more or less well defined ring about the stem. Another characteristic of the poisonous species is that there is, at the base of the stem, generally completely hidden in the earth, a more or less well defined cup out of which the stem rises. This is often very illy-defined in mature specimens, sometimes being mere scales. The color of the caps of most poisonous mushrooms is attractive, pure white with perhaps a steely luster, or shaded or dotted with red or orange.

If the mushroom grows in the woods, beware!

If it is white or shaded or dotted with red, brown or orange beware!

If it has white gills, beware!

If it has a ring or anything that looks like a ring on the stalk, beware!

If it has a cup or scales which separate readily from the lower end of the stem, beware!

It may be perfectly wholesome if it has all these signs, but only a fool would take a chance. One good bite of Destroying Angel or the Fly Amanita would make an undertaker a necessity in any civilized community. A doctor would be of little use because no sure antidote for the poison is known.

The cultivated mushroom called the meadow mushroom, has white gills only in the button stage, before the gills are formed. It has the veil, but by the time that ruptures and becomes a ring, the spores have commenced to form and the gills assume a rosy pink tinge, later, and by the time the cap is fully developed, becoming a purplish black. The caps are white or white with a gray center. There is no cup at the base of the stem. These grow in open fields or lawns and closely allied species grow in the woods.

The ink-caps are another very common and useful variety. They are so-called from the fact that as soon as the plant is fully grown the gills commence to dissolve into a black ink-like fluid. The three most common forms are the common Ink-Cap, the Giant Cap and the Shaggy Mane, the latter being one of the best and meatiest of all mushrooms.

The common Ink-Cap will be found growing in clusters under elm or maple trees, or more especially where these trees have been growing and have been cut down or grubbed out. The caps are oval conical in shape at first, an inch or more in diameter, the color being that of a well baked biscuit. In twenty-four hours they begin to turn to ink, so they must be gathered soon after they appear and before the gills have turned completely black. The Giant Ink-Cap is gray in color ridged up and down instead of smooth, and grows in lawns or in places where rubbish has been dumped. In warm weather it turns quickly to ink, and should be used before the center portion of the gills begins to be black.

Both these ink-caps are found from early spring to late fall.

The Shaggy Mane is found only in the late summer and fall, usually in places where rubbish, sandy earth or coal ashes have been dumped. It is white with long loose white or gray fibers extending from the center of the cap towards the edges, sometimes curling up at the lower ends. It is usually two or three times as long as thick, and it may be from an inch to six inches in length and from a quarter of an inch to two inches in diameter.

But my neighbor when he starts on mushrooms, is, as you see, not merely loquacious, but is fairly garrulous, and I had to tear myself away just here, or he would have filled me up with more information on this hobby of his than I could digest in a week. Speaking of digestion, my neighbor, perhaps by way of atonement, invited me over to his house that evening to sample the toadstools which I had seen him gathering and which had so aroused my curiosity. Like all true mushroom fiends he is the cook as well as the collector, but that is another story.

Neighbor.

DOOR COUNTY CHERRIES.

The following interesting account of the 1919 cherry harvest appeared in a Sturgeon Bay newspaper several weeks ago.

Conservative estimates of the 1919 crop made a month or so ago, placed the total output at 200,000 cases, but this figure is increased this week to 225,000 cases. This is about a 700 per cent increase over the crop of last year, and more than doubles the crop of 1917 which was the largest in the history of the industry in Door county.

While the present crop seems very large, it is really small compared to what may be expected in the future. With thousands of young trees just attaining a good growth; with thousands of other trees just beginning to bear, and with still other thousands planted but recently and more trees being set out there is no way to judge the extent to which the industry will eventually reach. The present crop has been so large and the prices so high that growers are encouraged and next spring there will be another great revival of planting.

There follows a resume of the cherry industry of the county, enumerating the various growers with attempts to describe the many phases of work.

"It's All In the Care"

Captain A. C. Templeton refused $3,000 an acre for his cherry orchard three years ago. It is more valuable now than it was then. Off his 7 acres he expects to get 2,500 crates this year. Mr. Templeton has trees which disprove the theory that the life of a cherry tree is comparatively short after starting to bear. Off a 15 year old tree he picked 12 cases of Early Richmonds. Off a 17 year old tree he picked 11 cases. A 10 year old tree produced 8 cases. He has one row of 19 year old trees and all are thriving and are big producers. They stand 18-feet high with great spreading branches. "It's all in the care," says Captain Templeton. He had 42 pickers principally from Milwaukee and Chicago. They have a camp of their own and do their own cooking. Their camp is in a

pretty spot on the shore of Sturgeon Bay.

While many other growers are complaining about their plum crop, claiming the blossoms were heavy but the fruit very light, Captain Templeton's plum trees are bearing heavily. "It's all in the care," he says.

There are several acres of apples in the Templeton orchard, and the fruit is already about right for "apple pie." Every apple is perfect and the trees are loaded. "It's all in the care," says the captain.

Picking Problem No Problem

H. S. Schnell, who has charge of the pickers at the orchard of the Sturgeon Bay Fruit company, is not one bit worried over the picking problem—which isn't a problem at all, he says. There are 100 pickers at this 160 acre orchard and Mr. Schnell says he could just as easily have a thousand. They are all boys from the schools of Milwaukee.

Mr. Schnell is principal of the 18th Avenue public school of Milwaukee, and also conducts a continuation school for adults evenings. He put the proposition of a cherry picking camp for boys up to the Milwaukee schools and received so many applications he didn't know what to do with them. He finally made a sort of selection taking a mixture of all extractions and all religions, just to try them out and find who's best, but he didn't pick any girls and he thinks that maybe he made a mistake. Not that the boys are not good pickers—indeed, not!—but he is beginning to realize he didn't give the girls a square deal. Next year he is going to start a girls' camp, too.

The long building in the picture is the pickers' quarters and is 20 by 192 feet. It is divided into 11 compartments. or moveable units, the partitions of which can be moved to make rooms of any size desired. One unit is a kitchen, two units are used for dining room purposes, and the other 7 are sleeping rooms, wash room and shower baths, with cots for 12 boys in each. There is a large cottage for pickers on the property, too. Next year a screened extension, with a 10 foot porch and extended roof, will be added, doubling the width of the long building. Next year there will be electric lights and separate showers and many other improvements on the place.

The orchard is the property of a number of Milwaukee men and D. W. Larkin of this city is manager and also a stockholder. The entire property consists of 657 acres of which 57 acres are on Green bay. There are 20 acres of 9 year old trees and 70 acres of the 160 acres in cherries being young trees with additional acres being planted each year. David Goldman of Milwaukee is president of the company. Between 4,000 and 5,000 cases of cherries will be harvested this year.

All Boys at Reynolds'

An 8-team baseball league gives the 200 Y. M. C. A. boys at the big Reynolds' orchard something to worry about evenings after the day's picking is over. There is a bunch of husky colored boys that at the present time are the best bet for the pennant. They also carried off more than their share of prizes at the recent track meet held at the orchard track. Financially, tho, the white boys are getting ahead of the game. They are up here for the coin, as well as sport, while the black youngsters are not worrying a-tall about next winter.

It is certainly taking some hustling to harvest the cherry crop on this 200 acre orchard. The half-mile rows with 166 trees in each row seem almost endless with each tree just loaded with cherries. Off of 40 acres 12,000 crates were picked and the company figures 25,000 crates will be their total crop this year. No

sooner are the trees free of cherries than the spraying machine comes along killing any life that might be detrimental to future crops. The company continues setting out more trees each year.

Cherries are not the only crop at the Reynolds big farm. There is between 400 and 500 acres in hay, peas, rye and other grain in a rotating crop. There are 100 beef cattle on the farm, kept for the fertilizing derived. The 100 beeves are to be sold at once and 100 steers of a better stock will be bought and carried ten months to be fattened up and sold.

Will Reynolds superintends the work in this big orchard, and it keeps him busy with his big family of pickers.

At the 800 Acre Orchard

Sixty-thousand cases of cherries will be picked at the Co-Operative orchard this year. About 600 pickers are engaged. There are 100 Indians in two camps on the premises; about 150 local pickers, who are brought to the orchard in the morning and back home in the evening by motor trucks; and more than 300 girls from all parts of the state. The care of this army of cherry pickers is a great task but Manager J. G. and Mrs. Martin have everything systematized, the work goes ahead rapidly without a hitch and every cherry in the 800 or more acres will be picked.

Masquerade dances, concerts of various kinds, sports, bathing and other amusements devised by the entertainment committee make the camp a regular summer resort.

Anna Monroe is matron of the camp and with several chaperones sees to it that the "young ones" don't "get by" to see some

"relative," according to the camp prospectus.

"If your cards are not correct kick to this bunch," meaning the office staff of which Miss Bessie Rounsevell and Miss Laura Kunkel are the heads. Leonrd Slattery and Raymond Lill, (not married, Mr. Martin explains), are also in the office. Joe Lavassor is orchard foreman. "Call him Dode when you want carriers and crates. If he don't keep you supplied call him "something else." Herbert W. Miller is power mechanician, and "if you can't take a ride because the trucks are on the bum tell the manager what you think of Herbert."

Mrs. L. C. Kellogg looks after overseers and packers, checks the picking cards "and makes you work."

Nearly All Girls

Dr. A. J. Gordon had a strictly girls' camp until a lady from Peshtigo brought over a half-dozen boys to help out the girls. The pickers live in pyramidal tents, just like soldiers in the training camps, and sleep in double-deck cots. There are more than 80 girls in the camp all working hard to pick 40 acres of cherries and it's a big job. The orchard property is owned by the Northern Land and Fruit Co. The trees are 8 years old and 4,500 crates will be harvested this year.

A new farm house is being built on the property and many other improvements are being made. Dr. Gordon has a tractor sprayer, the only one owned in the county.

Orphans Pick at Hahn's

About 60 orphans from St. Josephs orphanage, Green Bay, are picking at Henry Hahn's orchard and are greatly enjoying the work and outing. They are in charge of three Sisters from the orphanage, and are among the very best pickers in the county. Mr. Hahn has a very pretty orchard situated on the southern slope of a large hill a few miles north of the city. He has 10 acres of 13-year-old trees from which he will get about 3,000 cases this year. Many of his trees produce 8 cases. While he lost 15 of his very best trees in the storm of three weeks ago he will more than make up for the loss by planting 500 more trees next spring, being encouraged by the present big crop. Mr. Hahn also has 2,200 apple trees which look very good this year.

School Teachers Own This One

The Peninsula Fruit Farm is owned by a Milwaukee corporation composed principally of school teachers, T. W. Boyce, principal of the Cass Street School, Milwaukee, is in charge of the orchards. The pickers are principally college girls and teachers from Milwaukee and live in a camp on the premises. The orchard, in three tracts, consists of 110 acres of cherries, planted in 1912, and 100 acres of apples. This is the first "paying" year on the Peninsula Fruit Farm and the crop is a very good one.

The Old Orchards

W. I. Lawrence will get about 2,500 crates from his 11 acres of cherries. Some of the trees are 23 years old and all the trees were planted not later than 1909. His old trees are holding up fine. He has 12 acres in apples that look very good at the present time but he says that the trees need rain.

On the A. W. Lawrence property in the city is one of the orig-

inal orchards from which started the cherry industry in this county. It was the trees in this orchard that were among the first to attract the attention of horticulturists in the possibilities of cherries in Door county. Mr. Lawrence's old trees are still thriving altho he is cutting the tops from some of them which have grown too tall for convenient picking.

D. E. Bingham has about 12 acres of old trees that are still doing fine. Together he and A. W. Lawrence have several 40-acre tracts of cherries and have been employing more than 250 pickers continually since the start of the season. The gentlemen are also interested in a large cherry orchard at Ellison Bay where fully 12,000 crates will be harvested this year. Mr. Lawrence will also gather fully 3,000 baskets of plums this year.

H. W. Ullsperger, who has the "old Hatch orchard," has a new planting coming on this year besides the old trees which are still bearing good. Mr. Ullsperger has a large number of apple trees, also.

Miss Cleveland of Oshkosh has 40 acres in the Co-Operative tract and Thomas Ash has charge of the orchard. Miss Cleveland has a camp of 30 girls who will pick about 4,000 crates.

(Continued next month.)

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, December, 1919 | Number 4

The Resting Period of Plants

Henry J. Moore, Niagara Falls, Ont. In Canadian Horticulturist.

No matter how successfully summer flowering bulbous and tuberous-rooted plants may have been grown, or what their appearance during summer may be, this is no criterion of the grower's ability to grow them to perfection, unless he is capable of doing this every year. It is a more difficult matter to successfully store away the bulbs and tubers and to care for them over winter than to grow them. This may be proven by the large numbers that die during the winter resting period. Therefore to successfully bring them through the winter is really the criterion of ability in the culture of these subjects.

Many people forget that bulbs and tubers live during the resting period as during summer. The difference is that they are not visibly growing, though actually they are. Even in dormancy certain essential changes take place, the only difference being that vitality is reduced. This resting may be likened to the sleep of a person. Surely by no stretch of the imagination can we regard a person in this state as dead. Once the grower of bulbous and tuberous rooted plants becomes impressed with the idea that he is not handling dead; worthless things, he will give them proper living conditions even during winter, when it is necessary for them to rest or "sleep."

Another important thing we are apt to forget is that the summer flowering bulbous and tuberous rooted plants we store away during winter are all or nearly all tender exotics, and, therefore, not being hardy they cannot stand the low winter temperatures, as do our native plants. We might, therefore, liken the exotic subjects to natives of the tropics, who, were they forced to spend a winter among the Eskimos, would quickly succumb to the cold.

REMEMBER TWO THINGS

The two important things then to bear in mind are, one, that bulbs and tubers during their winter's rest are alive, though dormant, and two, that the reason we store them away is that they are too tender to withstand low temperatures, or that other outside conditions are unfavorable for their preservation over winter.

Bulbous and tuberous rooted plants vary greatly in their requirements even during their "sleeping" period. They must have a certain temperature, a certain condition of atmospheric humidity, and in some cases a certain condition of the soil or other medium in which of necessity they must be stored. It is not sufficient merely to throw the subjects into a box in the corner of a cellar or shed. This is too often done, and in the majority of cases little or no attention is paid to their condition during winter, in other words, they are forgotten. We should remember that in our cellar are bulbs and tubers that live, and they require living conditions peculiar to the resting period. When we forget these things the subjects may die. This, then, is the reason of so many failures.

Why are the aforementioned conditions necessary? Let us deal separately with them, so that we may without confusion understand their importance. We will start with (a) Temperature; a certain temperature is necessary for all plants to live. Tropical or subtropical plants require a greater degree of heat during their growing and resting periods than do temperate plants at these respective times. As the temperature falls below normal during the resting period vitality is correspondingly reduced, and if in the case of tender subjects the temperature falls very low (even if it does not freeze) and remains so for a considerable time death may ensue. Perhaps you have known of tubers of cannas, dahlias and elephant's ears (Caladiums), tuberous begonias, gloxinias and a host of others which in spring on removal from storage were found to be dead, although the temperature did not fall to the freezing mark. All other conditions being right, the tubers died because the temperature was too low over a prolonged period to allow the plants to live. The metabolic process, that, briefly, being the chemical change necessary to the life of the plant, could not take place at the low temperature.

Just as the temperature may be too low, so it may be too high for bulbous and tuberous rooted plants during the winter resting period. A person cannot sleep or rest in a temperature which approaches the heat of his blood. This unnatural condition excites and produces a state of restlessness which cannot be overcome until the temperature is lowered; so it is with the cannas and other bulbous and tuberous plants. A high temperature will excite the metabolism and growth will commence at an unnatural time, with consequent injury to the subjects. From these remarks, it will be seen that somewhere between the extremes of heat and cold there is a temperature just right for the welfare of our subjects when they are in a

state of rest. This temperature for the purpose of this article we will call the "Optimum." The Optimum temperature of storage place in the case of the canna, dahlia, and the elephant's ears, should be between 50 and 60° F. For the gladiolus between 45 and 55° F. For the tuberous begonia and gloxinia 55 to 65° F.

We now come to (b) Atmospheric humidity: Some bulbous and tuberous rooted plants require a dry atmosphere in their storage place, others a normal one. Bulbs or tubers of a firm texture like the gladioli and tuberous begonia require the former, while tubers of a succulent nature like the dahlia, canna, elephant's ear, and gloxinia require the latter. Were the last mentioned subjects stored away in a room with a very dry atmosphere, their cells would quickly lose their moisture, the cell walls would collapse, and the tubers would shrivel and become useless. Has any reader ever seen shrivelled, worthless tubers removed from the winter storage? Such is a very common occurrence, though easy to obviate.

NECESSARY STORAGE FACILITIES

The last condition, that of (c) the medium in which it is necessary to store certain kinds of bulbous and tuberous rooted plants for their winter's rest, should not be overlooked. Were it possible to have the atmosphere just right, and just sufficient moisture therein, it would not be necessary to store many subjects in soil, sand, or other material. In all cases, however, where the atmosphere is very dry, it is the safest practice to cover the bulbs or tubers with some material to prevent the excessive escape of moisture from their cells. Generally sand will be found excellent for the purpose, but in no case should the crowns of the tubers be buried, or bulbs be covered to a great depth. It should not be forgotten that it may be necessary to occasionally water cannas, caladiums and dahlias in a dry position, even when covered with sand, and if the crowns are below the surface water will penetrate and cause the tubers to rot. Watering should not be done in any case as long as the tubers are plump and hard, but as soon as the first signs of shrivelling occur, delay in this respect will be dangerous.

Choice bulbs as tuberous begonias and gloxinias should not be stored in a cellar, although a cellar with a furnace is an ideal place for the larger, coarser subjects mentioned herein. It is better to store them away in boxes of sand, and to place them on shelves or in a cupboard of a cool and normally dry room, in which position they may periodically be examined, as should bulbs and tubers of all descriptions during their period of winter rest. Corms of gladioli keep well if stored in paper bags and placed on dry shelves in a cool room, with a temperature of 45 to 50°. If, however, this is not available, and the storage place has a somewhat higher temperature, it is best to place the corms in boxes of sand to prevent the loss of moisture from their tissues.

A light covering of straw on the strawberry bed will protect the foliage; more can be put on later. As a rule but one covering is put on and that when the ground is frozen hard enough to hold up a team.

A Good Word for Deutzia Gracilis

In the November issue of "Wisconsin Horticulture," at page 37, in answer to some questions put, there is the following statement:

"The Deutzia Pride of Rochester is only half hardy. This is true of all the Deutzias in this state, none but that will kill back more or less even in a mild winter and very low temperatures means blank spaces in the shrub border where the Deutzias stood."

According to my experience, this statement needs to be somewhat modified. Many years ago I planted some Deutzia Gracilis on my then grounds on the lake shore (Madison) in rather an exposed situation, and the result was as indicated in the above statement. Later and some six or seven years ago, I planted some of the same shrub on the south side of my new home in a sunny exposure. Thus far, this shrub in this location has proved perfectly hardy. There has been not the least killing back by frost during this time. I am very sure that on most home grounds there can be found a place where this shrub will prove hardy. It is such a fine shrub that the general statement that it cannot be relied upon in this climate is calculated to do harm, I think.

John M. Olin,
Madison.

Mulch well any plants that may have been set this fall. Spring is the best time to set out plants, but sometimes we have to move plants in autumn if we are to have them.

Don't be in a hurry to bring in the bulbs. A good root system is essential first, then top growth.

CRANBERRY CULTURE

Edited by Mrs. S. N. Whittlesey, Cranmoor, Secretary Wisconsin Cranberry Growers Association

Cranberry Growers Meet

Madison, January 6th, 7th, 8th.

It is impossible to present our program for January meeting in this issue of Horticulture as replies from speakers are not yet received. Space has been reserved for Dr C. L. Shear or some representative from the U. S. Dept. of Agriculture of Washington, D. C. Professor E. R. Jones of the University of Wisconsin, a report from the Atlantic and also Pacific coast exchanges and a number of our own cranberry growers.

The convention will be a joint affair with the State Horticultural Society at Madison, January 6–8, and will afford an opportunity for acquaintance and mutual benefit.

Celebrated Recipe for Cranberry Sauce

Into granite or porcelain lined kettle put 1 quart of cranberries, 1 pint granulated sugar, 1 pint boiling water; cover and place immediately over hot fire. Soon as berries begin to swell and "pop" remove cover and mash with spoon, keeping sauce boiling during this time. Remove from fire and turn into china or earthenware dish. Ten minutes should do the work. This gives tender skins, fine flavor and rich color, with all the virtue of the berry retained.

Mrs. S. N. Whittlesey.

Here are three sugar-saving recipes for Cranberry Sauce:—

No. 1—1 quart cranberries, 2 cups boiling water, 1½ cups sugar. Boil the sugar and water for five minutes, skim if necessary. Add the berries and cook without stirring until all the skins break—or about five minutes over a hot fire.

No. 2—The same ingredients as No. 1 with a pinch of salt added. Cook the cranberries in the salt water until tender, remove from the fire and stir in the sugar as the sauce cools.

No. 3—1 quart cranberries, 2 cups boiling water, ¾ of a cup of syrup (white preferred) and ¾ of a cup of sugar. Boil the syrup, sugar and water for five minutes, skim if necessary. Add the berries and cook without stirring until all the skins break—or about five minutes over a hot fire.

Fruit lovers and some fruit growers have this year been confronted with conditions not all to their taste. The small crop and high prices of many of the earlier fruits caused meager supplies to the consumers. The car shortage in the cities fruit districts meant high prices for the small amounts obtainable and ruinous loss to the growers, as theirs was a more or less perishable crop. Nature made up for losses in other fruits by yielding a large crop of exceptionally fine sound cranberries. After these cranberries were harvested the Tocsin sounded a scarcity of sugar and for a time jobbers feared to buy and the situation was dubious both for the grower and consumer. As the sugar situation was bettered by the Government's territorial distribution and by the release of 3,000,000 pounds held by the naval department every one took heart, and orders poured in—and then what? Cars were not to be had and are not yet available in sufficient numbers to fill orders. This trouble seems not to arise so much from scarcity of cars as unequal distribution for there are empty refrigerators standing idle on some side tracks while there are crying needs for these cars at other points on other roads. While our growers may not suffer loss as the citrus growers did because of deterioration of fruit, they face the danger of chilled berries in the warehouses unless berries can be moved before cold weather sets in. However we trust the cars in abundance will be forthcoming and one great comforting feature to all concerned is the splendid keeping quality of the cranberry. They will endure low temperature and in fact want to be kept in a cool dry place. With as good care as we give the apple the berry will keep quite as well, and like the apple can be used as needed, so sugar restrictions need not be a bugaboo to their purchase for with the weekly amounts allowed any family will have sufficient sweetening supply to indulge in the free use of the cranberry. Pure white Karo syrup is obtainable this year and can be successfully used with the berry. While entire substitution of the syrup for sugar does not give quite as fine flavor it can be used proportionately with very good results.

At this writing Oct. 25th, all the cranberry growers in the Cranmoor district have completed the harvesting of their berries,

the Arpin company being the last to get in their crop, finishing the work last week. The crop this year is the best ever gathered, being in excess in quantity, and of an unusually good quality. We believe this is the only time on record when there was no frost during the entire season and never were we more favored with weather conditions. The Wisconsin crop will probably clean up 40,000 barrels which is 10,000 more than were raised in 1918. Of this output the larger half will be furnished from Cranmoor Township—heading the list as estimated at this time is the Arpin Cranberry Co. with 4000 barrels; Gaynor-Blackston Co., 2500; Potter & Son, 2500; Bennett & Son, 2500; A. Searls & Son, 1800; Jacob Searls Cranberry Co., 1800; S. N. Whittlesey, 1500; Robert Regin, 900; J. J. Emmerick Cranberry Co., 900; Elm Lake Cranberry Co., 800; Lesher Cranberry Co., 800; Ed Kruger, 500; Mrs. Pauline Smith, 400; H. F. Whittlesey, 300; Robert Skeel, 300; Thomas Regin, 150; Lloyd Regin, 150; T. J. Foley, 70; Frank Patterson, 60; Bissig Brothers of City Point, 600.

Apples in Rusk County

I am interested in fruit growing in this part of the state, having lived here nineteen years. In that time I have set out 110 trees of different kinds. The first I set was in the spring of 1901 and some of these are still alive and fruiting, but not many. Three Transcendent crabs left from eight; two Sweet Russet still bearing, not quite dead; three trees of Minor or Excelsior crab still fruiting, set seventeen years; Wolf River all dead; Yellow Transparent, all dead; out of twelve Duchess one old snag still gives nice apples; of the twelve Wealthy one still gives some nice fruit. The nine Hibernals are all alive, doing well, never lost a tree, set fourteen years, bore thirty bushels this year. It is a good pie apple, too sour for any other purpose, rather bitter or crab taste.

Of course I had all the apples I needed for family use when there were any, but late spring frost, in June, has killed all the fruit some years. So you see I have tried hard to raise apples. I've tried N. W. Greening three different times, always dies before fruiting. The Patten always lived until they came into bearing, then died, kind of slow but all dead now. I have one tree in bearing now for three years and wish I had more, and so does everyone else here that likes apples.

Now I set out one row, twelve trees, of varieties similar to the Wealthy. One of these trees broke off below ground in the fall of the year, and in spring I noticed a sprout come up from the root, as I thought, so I dug down and found it came from below the enlargement or graft. This was fifteen years ago and I have taken great care of this tree. The fruit is very uniform in size, light red on yellow or blushed where the sun strikes. This year it was loaded with bloom and set full. I picked almost six bushels from it this year. I tried keeping the quality for two years and they kept until March. It is a good eating apple and a splendid cooker.

My orchard is on north slope, soil clay loam, two to three feet deep, then hard pan with alternate layers of sand and hard pan down to sand rock. I never got through it. I use windbreak to north and northwest of orchard of white spruce, balsam and white pine set in double rows, the trees sixteen feet apart each way and alternate or break-joint fashion. This windbreak should be six to eight rods back of orchard. I also have evergreens for protection on south and southwest 16 to 20 feet from orchard and believe this has saved my trees more than anything else, this south protection. All trees shaded on south live and bear better than others. If I ever lay out another orchard I shall put a double row of evergreens 16 to 20 feet south and southwest.

I am now seventy-five years of age, and I have had but very little fruit since my boyhood in southern Illinois. I lived in Minnesota from 1857 to 1900 where we could hardly raise a crab apple on the prairie, so you see I was pretty fruit hungry. So I'll sign,

Yours for success in fruit raising which makes contented homes or goes a long ways towards the same.

John Gutheridge,
Rusk Co., Wisconsin.

Keep grass and weeds away from the apple and plum trees if you expect them to have a whole hide next spring. Mice like to nest in weeds or rubbish near soft bark trees, because they furnish them easy meals during the winter.

Clean and oil all machinery and tools before putting them away for the winter. Rust never did improve the working qualities of a tool.

AMONG WISCONSIN BEEKEEPERS

The Wisconsin BeeKeepers Page
Prof. H. F. Wilson Editor

Beekeepers Bee Schools

During the past month a series of three day bee schools have been conducted by the University Beekeeping Department in cooperation with the U. S. Bureau of Entomology.

The first school was held at Fond du Lac on November 10–12, with an average attendance of 25 beekeepers. A second school was held at Chippewa Falls, November 17–19, with an average attendance of 30 beekeepers. A third school was held at Monroe with an average attendance of 15 beekeepers. More schools are to follow during the winter.

* * *

The cooperation and interest of the beekeepers is increasing rapidly and the industry is becoming organized. What we need now is something from the beekeepers for our beekeeping section. Beginning with the January number the space devoted to beekeeping will be increased to four pages, one of which will be given over to local news items if sent in by our beekeepers. All papers presented in writing at the convention will be printed if our contract with Wisconsin Horticulture is continued.

Watch the Bee Cellar

Bee diseases cause the greatest losses among beekeepers in Wisconsin, but poor wintering takes a heavy toll which can easily be prevented.

The essentials for successful wintering are:

Plenty of young bees.

Plenty of stores.

Plenty of protection.

Whether or not bees winter best in the cellar or out of doors makes little difference at this time. The main question concerns the bee cellar. A poor cellar is almost as bad as none at all, and in some cases worse. A cold cellar is always a damp one. Bees are easily affected by changes in temperature and, as the temperature outside the cluster falls, the temperature rises. The ideal temperature for best wintering is 57° or a little above surrounding the cluster. In order to get this temperature, the bee cellar should be kept at a constant temperature of about 50° F. Any temperature below 40° F is too low and if the cellar is cold enough to permit frost on the walls the winter loss will be greatly increased. In cellars where the temperature is as low as freezing the bees must produce more heat, use up more stores, and consequently more moisture is given off. If the stores are bad, the bees will have to hold more refuse matter in the intestines and this is liable to cause dysentary. The cold damp air causes moisture to collect in the hives which not only makes life miserable for the bees but develops mold on the combs and creates a general bad condition in the hive.

Every beekeeper should keep a thermometer in his bee cellar and provide conditions so that the temperature will remain near 50° F.

VENTILATION IN THE BEE CELLAR

It is now a well established fact that ventilation in the bee cellar is unnecessary except to keep the temperature down. Bees seldom suffer from lack of air and usually winter best in cellars where no provision for ventilation is made. A means of ventilation should be provided for every cellar but it should be closed tight during cold weather and opened only when the temperature rises above 55° F. If bees are coming out and flying about in the cellar when the temperature is lower than 55° F, it is likely to be due to dysentery or openings letting in light and certainly not from lack of ventilation.

Save the Young Apple Trees

Mice and rabbits annually destroy thousands of apple trees in Wisconsin every one of which could be saved by a little attention at this time of the year.

For protection against rabbits wrap the trunks with building paper, tarred paper is best, and for additional protection against mice clear away all weeds and grass from base of tree and with spade or hoe make a conical mound of earth around the trunk. This little mound seems to deflect the mice in their pilgrimages and they go on to other feeding grounds. Snow tramped firmly around the tree will serve as well but the tramping must be done more than once during the winter. The paper should be removed in the spring.

Old canes should be cut out of the raspberry bed and burned. They often furnish a home to insects over winter. It is a good plan not to let raspberries grow very thick. Cultivation helps to keep the insects in check as well as encourages the growth of the plant.

The Gullible Public

People in general, including newspaper reporters, are a gullible lot when it comes to matters horticultural. You can tell them anything and they will believe it, sell them anything if it is represented as wonderful or unusual. This was proved during the past season by the sale of a wonderful "bean" that was guaranteed to grow to a length of three feet and a weight of several pounds.

The gullible public swallowed the bait and planted the "beans." In September the gullible newspaper reporters, especially in Milwaukee, added polish to the job. Here is a sample from a Milwaukee paper:

"Ten healthy Milwaukeeans sit down to one bean. They eat to satisfaction. When they arise there is some left. Some bean!

Thomas Braver, 987 Eleventh-av, sent to California for seed which the catalog said would grow unusually large beans.

"The beans were planted," said Thomas' mother. "They have grown very nearly one inch a day. I have used them in many ways. Some of them I pickled and some I fried like egg-plant. They are very good, as good as anything that I have ever eaten. They don't taste much like beans."

The largest bean has grown to thirty-four inches. The smaller one is thirty inches long. Both are approximately six inches in diameter. The larger weighs twelve pounds and the smaller about eleven.

According to Mrs. Braver, the beans also have the record here for the fastest growing beans on the market.

"On Thursday," said Mrs. Braver, "the larger bean was twenty-nine and one-half inches long, four days later it was thirty-four."

Here is another from Racine:

Racine, Wis.—Thirty-five persons, members of eight families, enjoyed goodly portions of a New Guinea butter bean, raised in the garden of George Chaussee, West Racine. The bean weighed seven pounds and seven ounces and was thirty inches long, but Mr. Chaussee has a bean grown on the same vine that weighs 14 pounds and is 36 inches long. It is to be divided among 12 families in the neighborhood. The beans, largest ever grown in Racine county, are from seeds planted in May. Five beans were cut from the vine, the smallest weighing five pounds.

The writer has not had the privilege of seeing the wonderful "bean" but is informed on good authority that it is the Hercules Club Gourd, seed of which may be had of any seedsman for five cents a package. This gourd is a rank growing climber bearing club shaped fruits or gourds which often grow to three feet in length but unlike many other gourds rarely mature in this climate. Only one mystery remains and that is how any one can eat a gourd! No wonder the Racine specimen served for thirty-five persons.

Wisconsin Pea Crop

Wisconsin supplies 49.7 per cent of the commercial pea pack of the United States. Of the 8,658,000 cases of peas canned in the United States this year, 4,375,000 cases were packed in this state, according to the figures of the national pea packers' association. This state is easily first in the industry, with New York as the nearest competitor.

Followed Good Advice

Why don't my plum tree bear? It blossoms full every year but never sets any fruit. This question is of such regular occurrence that we who are the targets for questions, keep the answer canned in quantities for instant use. Sometimes, not often, the advice is followed and sometimes, more rarely yet, does the advisee see fit to speak about it. Such a case follows:

"Fifteen years ago I planted two Surprise plum trees, they grew up to be fine large trees, loaded with blossoms every spring but set no fruit. I tried to find out why and asked nurserymen but got no satisfaction. I then wrote our Agricultural Experiment Station and was advised to plant other varieties with the Surprise, some Americana or Hansen hybrids.

I sent for two Waneta, Hansen hybrid, the next spring, 1916, and also to the Minnesota Breeding Farm for cions of the Haralson plum which I grafted on the Surprise. Last spring the blossoms on the Surprise all set and we had plenty of fruit. The Waneta also fruited, the most wonderful plums ever seen in this locality, a most delicious flavor. I am now trying seven kinds of the Hansen hybrids and four of the Minnesota seedlings, 8, 12, 21 and 91."

S. J. S. Appleton.

Hard wood cuttings about 12 inches long of mature grape wood may be set in the ground now and mulched with strawy manure. A good percentage of them should root next season. The cuttings may also be put in bundles and buried in sand until next spring and then set out.

Cabbage keep well wrapped in newspaper and turned bottom side up on shelves in a cool cellar.

Wisconsin Horticulture
Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society
Membership fee, fifty cents, which includes twenty-five cents subscription price of Wisconsin Horticulture. Remit fifty cents to Frederic Cranefield, Editor, Madison, Wis.
Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card, and pays for two years. Personal checks accepted.
Postage stamps not accepted.

The Annual Convention

The annual meeting is attracting more members each year. Many come for one day and many more stay until the end. It is a splendid opportunity both for amateurs and professionals to acquire information at first hand. Only those who have attended our meetings appreciate how much the personal contact means. You not only have the opportunity of listening to the men and women who are leaders in their special fields of work but you can engage them in conversation between sessions. It has often been said that the hotel headquarters is the real convention hall but that is only partly true. We cannot have one without the other. Come and get the benefit of both.

PROGRAM

Annual Convention, State Horticultural Society, State Capitol, Madison, Wisconsin, Tuesday, Wednesday and Thursday, January 6th, 7th, and 8th, 1920.

(Subject to change)

Capital Hotel Headquarters for officers and delegates.

Tuesday Forenoon 11 o'clock

(1) Opening Address, Hon. J. J. Blaine, Attorney General.

(2) Introduction of delegates from Minnesota, Illinois, Iowa, Indiana and Northern Illinois Societies.

(3) Getting acquainted: Everybody shake hands with everybody else.

Tuesday Afternoon 2 o'clock

(1) The Arrangement of Cut Flowers in Vases, Bowls, Etc. A Practical Demonstration—A. Martini, Lake Geneva.

(2) Strawberries Every Year—J. E. Leverich, Sparta.

(3) Cane Fruits, Diseases and Insects of—Leon K. Jones, College of Agriculture.

(4) The Business Man In Horticulture—G. A. Buckstaff, Oshkosh.

(5) "Hoosier Horticulture"—L. V. Doud, Denver, Indiana.

Tuesday Evening 8 o'clock

(1) My Experience With Bees—Mrs. Wm. Nelson, Oshkosh.

(2) ----------

(3) Fruit Growing in the Appalachian Region An illustrated talk.—Prof. W. H Alderman, University of Minnesota.

Wednesday Forenoon 9 o'clock

(1) Business Session 9 o'clock to 10 o'clock. President's Address, Reports of Secretary, Trial Orchard Committee, Delegates, etc, and Election of Officers.

(2) How a Young Man with Small Capital Ought to Start in Fruit Growing—Theo. Haack, Madison.

(3) Spraying the Farm Orchard—Peter E. Swartz, Waukesha.

The Women's Auxiliary will meet Wednesday forenoon for program session.

Wednesday Afternoon 2 o'clock

Topic: Rural Planning:—A Full Discussion of this Important Subject.

The Rural Planning Law as an Aid in Preserving Places of Historical and Scenic Interest—Prof. F. A. Aust.

Making Highways Ornamental as Well as Useful—J. A. Hazelwood.

Looking Both Ways, Backward and Forward—Wm. Toole, Sr.

How the County Agent Can Help. General Discussion.

Wednesday Evening 7 o'clock

Informal dinner, Capitol House. No invitations are issued, every member expected to attend.

Thursday Forenoon 9 o'clock

(1) Fruit Growing in Dunn County, Present and Prospective—Prof. D. P. Hughes, Principal Dunn Co. School of Agriculture.

(2) Fruit Growers Co-Operative Associations—Prof. R. S. Herrick, Ames, Iowa.

(3) Nitrate of Soda as a Fertilizer for Cherry Orchards—Geo. F. Potter, Agr. College.

(4) Some Notes on Apple Spur Growth—R. H. Roberts, Agr. College.

Thursday Afternoon 2 o'clock

(1) The Tractor in Orchard Cultivation—D. E. Bingham, Sturgeon Bay.

(2) Orchard Cultivation—R. E. Marken, Gays Mills.

(3) How About Gooseberries? —Dr. S. B. Fracker.

(4) Some Phases of the Apple Scab Situation—Dr. G. W. Keitt, Agr. College.

(4) Insect Pests in 1919—Prof. H. F. Wilson, Agr. College.

Premium List

The following cash premiums are offered for exhibits at the annual convention Madison, Jan. 6, 7, 8, 1920:

Best collection of apples, not less than 15 varieties, 1st, $10.00; 2nd, $6.00; 3rd, $4.00; 4th, $2.00.

Best 5 plates (5 varieties) commercial apples for Wisconsin, 1st, $5.00; 2nd, $3.00; 3rd, $2.00; 4th, $1.00.

For best plate each of the following varieties, 1st, $1.00; 2nd, 75c; 3rd, 50c; 4th, 25c:

Ben Davis, Dudley, Fameuse, Gano, Gem, Gideon, Golden Russett, Grimes Golden, Jonathan, King, Maiden Blush, Malinda, McIntosh, McMahan, Newell, Northern Spy, Northwestern Greening, Patten, Pewaukee, Plumb Cider, Salome, Seek-no-further, Scott Winter, Tolman, Twenty Ounce, Utter, Wagener, Wealthy, Windsor, Wolf River, York Imperial.

Best tray of each of the above named varieties, 1st, $3.00; 2nd, $2.00; 3d, $1.00; 4th, 75c.

Best 5 trays of any of the following varieties: McIntosh, Northwestern, Wealthy, Tolman, Wolf River, Fameuse, Gano, Salome, McMahan, Seek-no-further, Windsor, 1st, $10.00; 2nd, $6.00; 3rd, $4.00; 4th, $2.00.

Separate samples must be furnished for each entry.

Best exhibit Pears, 1st, $1.00; 2nd, 75c; 3d, 50c.

Best exhibit Crabs, 1st, $1.00; 2nd, 75c; 3d, 50c.

VEGETABLES

Best collection, not less than 10 entries, 1st, $5.00; 2nd, $3.00; 3d, $2.00.

For each of the following, 1st, $1.00; 2nd, 75c; 3d, 50c:

6 Blood Turnip Beets, 3 White Turnips, 3 Yellow Turnips, 3 Rutabagas, 6 Chantenay Carrots, 6 Short-Horn Carrots, 3 Winter Cabbage, 3 Red Cabbage, 6 Chicory, 6 Ears Pop Corn, 6 Red Onions, 6 Yellow Danvers Onions, 6 White Onions, 6 Onions, Large Type, 6 Winter Radishes, 6 Parsnips, 6 Peppers, Hubbard Squash, 6 Heads Celery, 3 Chinese Cabbage.

Sweepstakes awarded pro rata, $20.00.

CRANBERRIES

Premiums will be awarded for exhibits of Cranberries as follows: Premium list by the Cranberry Growers' Association. First premium, $1.00, 2nd, 75c; 3d, 50c:

Bennett Jumbo, Searls Jumbo, Bell and Bugle, McFarlin, Metallic Bell, Bell and Cherry, Prolific.

One pint is sufficient for an entry. Send all entries to Frederic Cranefield, Secretary, Madison, Wis., charges prepaid.

RULES OF ENTRY

1. Exhibits must be arranged ready for judges by 1:00 P. M. Tuesday, January 6th. This will be strictly enforced.

2. Four apples constitute a plate, no more, no less.

3. Competition open to all residents of Wisconsin, but premiums paid only to members. Successful exhibitors, if not members, must forward fee for membership before receiving check for premium; fee for annual membership, fifty cents.

Members or others unable to attend the meeting may send fruit to the secretary, who will make entries and place fruit on exhibition. Transportation charges must be prepaid.

All entries must be made on regular entry blanks which will be furnished by the secretary on application.

F. Cranefield, Secretary W. S. H. S., Madison, Wisconsin.

Kokomopoko or Pokomokoko? Kokemoke or Pokomo?

Kokomo is a city in Indiana, Pokomoke is a strawberry. W. J. Moyle is a nurseryman. He talked about strawberries at the summer meeting and the reporter credits him with saying the "Kokomo" and Carson's Beauty are identical and it was so printed in our November issue, p. 35. Now even this might have been all right, with most readers, if Prof. Moore had kept still. He didn't. He laughed. He laughed until speech failed him and after a short rest laughed more. Surprising how little it takes to make some people laugh. Moyle spoke of the Pokomoke strawberry, not Kokomo.

Stratify gladiolus cormels in sand if you want them to germinate well next year.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

The Horse-Radish Flea-Beetle

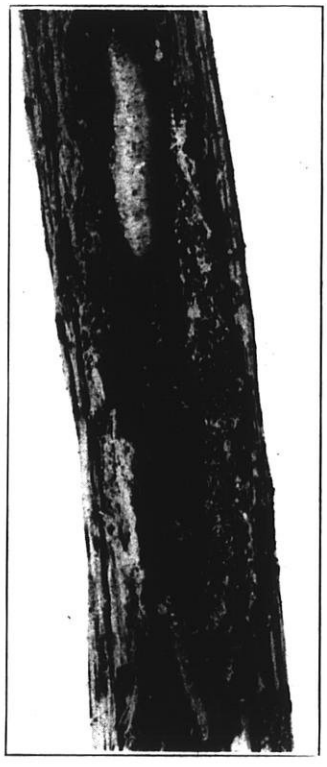
A type of flea-beetle easily recognized and injuring, so far as known, but one economic plant, is found in the horse-radish flea-beetle. The adult of this insect, is nearly one eighth of an inch long, oblong in shape, with a small black head and pale yellow wing covers, marked in the center by a narrow black band.

The adults live over winter in rubbish piles and crop remnants. In the spring tiny orange colored eggs are laid on the horse-radish plant. The young upon hatching, burrow into the stems and crown, where they feed until ready to transform into beetles.

It is evident from the internal feeding habits of the larvae, that control measures to be effective, must be used against the adult beetles.

A series of tests carried on at Madison the past summer, in which beetles were placed on separate, sprayed plants, showed that arsenicals used at the rate of 2 lbs. to 50 gal. of water appeared to give the best control. Of these, arsenate of lime killed a higher per cent (90%) of beetles than any other arsenical used.. In tests, using arsenicals combined with Bordeaux mixture, the per cent of killing, was about one half of that when arsenicals were used alone. In tests using Bordeaux mixture alone, practically no beetles were killed, and the beetles fed only on new shoots and spots on the leaves where no spray was deposited. It thus appears that Bordeaux repels the insects from the immediate vicinity at least, while foliage covered with arsenicals is eaten more or less readily.

It is interesting to note the results of field tests in which both killing and repelling action of any material could be exerted. Three medium sized plots were used in



Larvae of horse-radish flea-beetle tunneling in horse-radish stem. Enlarged 49 times.

the tests; one sprayed with lead arsenate, 3 lbs. to 50 gals.; one with Bordeaux mixture, 4 lbs. to 50 gals. and one left untreated as a check. Six other species of flea-beetles were found in these plots in greater or less numbers throughout the summer. The results of treatment upon all flea-beetles were as follows: In the plot treated with lead arsenate, there was a *slight* decrease in the number of horse-radish flea-beetles and a *decided* decrease in the number of all other flea-beetles, at each observation. In the plot treated with Bordeaux mixture, there was a slight *increase* in the number of horse-radish, but a decided decrease in the number of all other flea-beetles, at each observation. In the untreated plot, there was at first a decrease, but later an increase in the number of horse-radish flea-beetles, but a constant increase of other flea-beetles. The two treated plots showed little feeding injury, despite the relatively large number of beetles present, while plants in the untreated plot were badly shot-holed. A few beetles were found dead in the treated plots, and none in the untreated plot.

It appears then, from the above tests, that Bordeaux mixture, while recommended as the best control of most flea-beetles, is no better than lead arsenate, if as good, against the horse-radish flea-beetle.

John E. Dudley, Jr.

The Buffalo Tree-Hopper

The adults of the Buffalo Treehopper are small, greenish hoppers about one-fourth inch long and have a horn like projection on each side of the body near the head. The young are lighter in color, flatter, and quite spiny, especially along the back. The young hop quickly but the adults fly readily.

The full grown individuals begin to appear in late summer and are numerous until frost overtakes them. During this time the females deposit their long, cylindrical, transparently white eggs into incisions cut in the upper surface of the bark of small branches. The eggs are laid in groups of 6 to 12 and are inserted obliquely into the incisions made by the strong ovipositor of the female. The damage is done by the female in making these egg punctures and not by any feeding as the young feed

entirely upon grasses and succulent vegetation. The egg punctures are made in limbs of various trees but especially apple and cherry. Young growth is selected and as several hundred incisions may be made by a single female, young trees are often severely injured and sometimes even killed. The punctures do not heal readily and after a year or two the limbs take on a much scarred appearance, these scars making excellent places for entrance of diseases.

CONTROL MEASURES

Since the adults do not feed upon the trees, any sprays applied would have no effect upon them but as the young feed upon the vegetation allowed to grow in or around the orchard clean culture become important where this insect is a pest. The grasses and weeds along fence rows should also be destroyed. Pruning out the most severely injured branches will help to reduce the number.

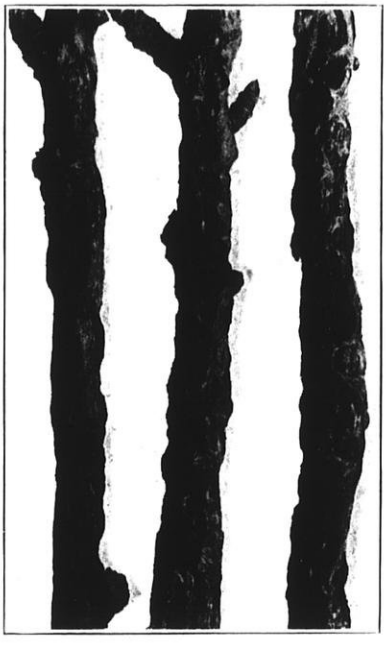
Chas. L. Fluke, Jr.

The Northwestern Greening Apple

It is always interesting to know what others think of us and our children. It is also of interest to know the opinion of fruit growers about the apples which we claim as our own, how our children have behaved when away from home.

The following from the Rural New Yorker gives our Northwestern a pretty fair record:

"I notice in the recent discussions upon varieties of fruit for commercial planting, by various correspondents, that considerable attention is given to the Northwestern Greening apple. With us the Northwestern Greening is a very attractive fruit, being particularly large and green upon young trees, which are just coming into bearing. There is considerable variability in the size of the fruit, and the smaller specimens are usually more yellow in color, often being faintly blushed. It is generally considered to be a good baking apple, perhaps because the flesh is rather corky, and causes the fruit to hold its shape well through the baking process. Frequently there are specimens of "water-cored" fruit, similar to that which some times occurs in the King, and this of course is an objection. The quality, flavor, and juiciness is certainly much inferior to that of Rhode Island Greening. The fruit ripens a few days later than Rhode Island Greening. Evaporator men have told me that a good quality of yellow dried stock can be made from this variety. The trees bear well, but not at an earlier date or more abundantly than Rhode Island trees of the same age. During the winter of 1917–18 the trees appeared to be a little less hardy than Rhode Island, and patches of frozen and killed bark, especially at crotches, are quite frequent. Upon the New York market the "A" grade fruit usually sells at about 50c per barrel under "A" grade Rhode Island, but the "B" grade usually sells for slightly more than "B" grade Rhode Island.



Scars made by the egg-laying habit of the adult female hopper.

Perhaps the greatest objection to the Northwestern from the grower's standpoint is the trouble from splitting of the tree and limbs. The wood is very straight-grained, and in spite of propping up, crosswiring of limbs, etc., the results from this cause are very disastrous to the tree. Even where the trees have no fruit an ordinary wind here on the lake shore will blow large limbs out of them. In this respect they split down about as badly as the old Smock peach tree, and this is the worst variety of apples that we have from this standpoint. This one objection is sufficient reason for me, at least, to discontinue planting this variety commercially.

Chas. Wm. Wilbor,
Wayne Co., N. Y.

Pass It Along

If you don't like this paper stop your subscription. If you think it's worth reading and with the privileges of membership and the annual report worth fifty cents a year, Pass it Along. If you do not keep your papers for filing Pass them Along to a neighbor with the suggestion that he too can invest fifty cents to good advantage.

This particular issue contains, in addition to the convention announcements, a statement intended for non members—Pass it Along and if you need additional copies ask for them.

My Neighbor's Garden

My neighbor is a confirmed gardener. A real gardener is like a real toper, the habit soon confirmed. Even when he can't work the ground he fusses around in the garden aimlessly so far as I can see, scattering a few leaves here and there, putting some rubbish in this place which he takes away from that. If you ask him about it he tells you that this plant needs some covering, that he is putting a dead tomoto vine over that plant so that it will catch the leaves and hold them as a covering for a group of tender perennials.

When I talked with him the other day he gave me quite a different idea about winter covering from what I had had. His idea is that a winter covering for plants is not to keep them from freezing but to keep them from thawing. Plants that are not exceptionally hardy, if covered during the winter, unless the weather is continuously and uniformly cold, are apt to smother and rot if covered very deeply. During warm spells the moisture in the crown seems to tend to rotting and the death of the plant. If covered enough to keep it from thawing it is much more likely to live through the winter than under a deeper covering wheer it might thaw from below rather than from above.

My neighbor's theory is that early covering of plants is not usually necessary. In fact last winter in March when his strawberry bed was covered with snow and snowdrifts, I saw him spreading straw and chaff on top of the snow. But the result seemed to justify this practice for his strawberries were the finest in the neighborhood. Another reason for delay in covering, so he tells me, is that if he waits until everything is frozen up, the field mice have located for the winter and are not nesting in his garden or devouring the roots near the surface in the unfrozen ground as they very likely would be doing if he fixed up nice snug quarters for them early in the fall.

Of course this does not apply to bulbs, especially lilies planted in the fall. These he covers with a layer of leaves thick enough to keep the ground from freezing so that the bulbs may make a good root growth in the fall. They are deep enough in the ground so that mice do not disturb them.

If a gardener is shrewd he can make the wind do lots of covering for him if there are trees, especially oak trees in the vicinity. A dead plant, if a bushy one, thrown on the ground will stop a lot of leaves, and a row of them over a row of plants will stop leaves enough to make a first class cover. These will stop the snow from blowing away and save the gardener a lot of trouble in the way of raking and covering.

I noticed in my neighbor's garden where his early potatoes and other early crops had been, that he had apparently sowed something that had come up and covered the ground with a growth which remained green all winter. I asked him what sort of a crop it was and he told me he was raising nitrogen for next year's crop. He pulled up a plant which had a great quantity of roots and all along the roots little green nodules like a multitude of tiny embryonic potatoes. The plant was the Hairy or Winter Vetch, a plant of the pea family, upon the roots of which nitrogen fixing bacteria live, and cause these nodules in which nitrogen is stored in such shape that becomes available as plant food. When this is spaded into the soil in the spring it serves two purposes, to make the soil lighter and more favorable by the addition of the vegetable fiber, and to add to the soil the nitrogen stored in the nodules upon the roots of the plant. It produces the same result that the farmer secures by plowing under a growth of clover.

Neighbor.

Minnesota State Horticultural Society Stands for These Ideals

The Minnesota State Horticultural Society believes in and is working toward the following ideals:

1. For every home—
   a. A vegetable garden to supply the family.
   b. A small fruit garden.
   c. A small apple and plum orchard.
   d. Plantings of trees, shrubs and flowers to make it attractive.
2. For every farm—
   A shelter belt of deciduous and evergreen trees to protect the farmstead.
3. For every school —
   Grounds adorned with trees, shrubs and flowers.
4. The study of gardening in the public schools for all boys and girls.
5. The suitable planting of trees and shrubs on all highways.
6. Public parks and playgrounds for every village and city.
7. The commercial production of vegetables, fruits, nursery stock, seeds and flowers.
8. The origination of better varieties of fruits by the planting of seeds.
9. The extermination of injurious insects and plant diseases.

This declaration of principles with the possible exception of No. 2 might well be adopted by our own society.

DOOR COUNTY CHERRIES

(Continued from November)

The Cove cherries this year are an exceptionally fine lot of fruit. M. E. Lawrence has about 15 acres in cherries and apples and this is his best season. His trees are principally on ridge land and slopes. He will have a big crop.

Other orchards in the vicinity of The Cove are those owned by W. O. Brown, who has about 10 acres; Ellis Stokdyke, 15 acres; Lucius T. Gould, 15 acres. Ed. DeSmith also has an orchard in that vicinity. Stanton Minor has 7 acres in cherries.

Better Than Ever

Robert Cornish's 12 acres are producing better than ever this year. S. T. Learned's crop is larger and better than ever. F. N. Graass has 15 acres that are producing the very best of cherries.

M. B. Goff has 50 girls, principally from Green Bay, picking in his 35 acre orchard and will get a big yield this year, having given his orchard particular care. The young ladies have a camp in the woods and have their own cooks and leaders.

Will Marshall and son Ray, Job Tong, Ben Otis, Lester Birmingham, each have orchards that show the owners are men experienced in horticulture and are doing better than ever this year.

Good As Any

While John Hanson, down the bay shore, has not a very large orchard his cherries are the equal of any grown in the county. He has 500 pretty 7 and 8 year old trees on his 5 acres and expects to pick at least 1,200 cases. He has between 30 and 40 pickers engaged, many of them being local people.

Coming Orchards

Among the "coming" orchards is that of Henry Overbeck. Situated in the fruit belt Mr. Overbeck has about ten acres of young cherry trees, which this year proved to be good producers. Having several buildings suitable for sleeping and feeding pickers, Mr. Overbeck was among those who took care of his own crew. He contemplates extensive improvements in his pickers' quarters next season, installing shower baths and other modern improvements. It is possible that Mr. Overbeck's place will be used as a community center for pickers for several small orchards in that immediate vicinity.

Harry Walker, conductor on the A. & W. Ry., takes about a two weeks vacation every year to oversee the cherry crop on his eight acres. It is also one of the rapid developing young orchards.

Other Orchards

Cedric Dreutzer is another fruit grower on the bay shore that has a large acreage of young fruit trees, cherries and plums, that are commencing to bring good returns. Mr. Dreutzer's plum orchard is one of the largest in this district.

Other bay shore fruit growers are John Pallister, who also grows grapes, A. S. Brooks, Harry Dankoehler and others in the Little Harbor district.

The old Anton Long 80-acre farm is now known as the "B" Orchard company, named from the Brills of Green Bay. F. N.

Kohn is one of the head men of this property which is owned by Green Bay people. They have a large orchard and a fine crop of fruit.

Frank Borchert's 20 acres are being picked by the girls from the Boyce camp. Mr. Borchert will get about 2,500 crates.

Michael Hahn has a 10 acre orchard of young trees which are just starting to bear and will get about a thousand crates.

R. Fellner has 18 acres and will average better than a crate each on his young trees. B. Sackett also has a young orchard just starting to bear. He has 10 acres.

Richard Gilbert will get a thousand cases from his 5 acres.

Harry Evans, owner of Cherry Height orchard, has one of the prettiest locations in the county, at the crest of the hill overlooking the city.

Other orchards in the fruit belt, consisting of five and ten acre tracts are Louis Nebel, Ed. Squier, E. Bartlett, Mrs. A. Greaves, John Kostka, Elbert Kubis, Peter Simon and T. A. and H. J. Sanderson. All of these orchards are just commencing to become profitable and there will be a large increase in production during the next few years.

The fruit belt extending across the peninsula east of Sturgeon Bay is about fifteen miles long, and contains many orchards not mentioned in the above writeup, also orchards on the west side of the bay and up the peninsula.

Biggest Camp In County

Out at the fair grounds are 400 boys in one great camp. They are Y. M. C. A. youngsters from all over Wisconsin and work subject to call from growers belonging to

the Union. They are assigned in working parties to the different orchards and are taken to and from work each day in trucks. The camp has a director who has his hands full most of the time. The boys live in the buildings on the grounds and besides have a number of army tents. They have their own cooks, and, take it from the cooks, those 400 live like the Four-Hundred and can eat up more grub than all the summer resorters in the county put together. town nights!—they start at Poulos' candy kitchen and make the rounds of every candy shop and bakery in town, causing the confectioners and bakers to start right in again and get another stock ready for the next night.

Picking Records Broken

William Staab, of Milwaukee, one of the Y. M. C. A. boys camped at the fair grounds, broke all picking records last week while working in the Stokdyke orchard. In 12 hours' picking, in one day, his card was punched for 232 quarts. He was picking Early Richmonds and picked with stems on.

Julius Dubois, of this city, previously held the picking record, which he established in 1915, of 221 quarts in one day's picking in the W. I. Lawrence orchard. Julie has an orchard of his own now and picks the greater part of the crop himself.

Last year one of the boys in the "Y" camp averaged 131 quarts a day for the entire picking season.

At The Cove this year one picker averaged a quart of gooseberries every three minutes for the day.

It is claimed that an Indian picker in the county got 260 quarts in one day but this report is not verified.

Just As Many On Sawyer Side

Over on the Sawyer side of the bay cherries are just as plentiful and just as nice. Old Veteran George Walker has six and a half acres of as pretty cherry land as one can find in the county. He employs 25 pickers, all home people, and will get 1,000 crates. His trees were planted in 1910, 1911 and 1912.

Theodore Abrahamson has five and a half acres good for 1,600 crates and has 40 local pickers. He has 500 8-year old trees and 100 6-year old.

His Avocation

Just as good as any, and better than many, is the orchard owned by John Boler who brought up his young trees for 7 years by working on them in his spare time when he was not working at the Door County State Bank. He has worked hard on his orchard and is reaping the fruits of his labor. Besides 9 acres in cherries he has a 6-acre apple orchard and has also been taking care of the 9-year-old cherry orchard of his brother-in-law, Walter Larson. Among Mr. Boler's employes is an aviator, a Mr. Wood of Fond du Lac, but Mr. Wood's professional services are not required. Mr. Boler has

thick, squatty trees that can be picked even without the use of a ladder.

Forty Tons of Cherries

Cherry Ridge Fruit Farm, owned by Melvin Haines, proves that ridgeland is the very best for cherries. Some of the trees are 8-years old and others are from 10 to 14 years. The old trees are holding up fine, with 6 and 8 cases to a tree. The 70 pickers, all from the neighborhood, picked 5 tons of cherries in one day. Over 20 tons of earlies were harvested and at least 40 tons are expected from the 5,000 trees. The 40 tons are net weight, most of the cherries being "milked," or picked stripped without stems.

Too Nice To Pick

Mrs. Fanny Jones owns the Ridge View Orchard. She ardently objects to her 20 acres being called a farm, because she hasn't a pig or a cow or a chicken on the place—just fruit, that's all. Her cherries look so nice it is a shame to pick them from the trees, and she positively won't strip them for the canning factory. Those cherries must be picked on the stem and shipped in neatly packed crates. Mrs. Jones has about 10 acres in cherries, with some young trees, and employs only local pickers to gather 1,500 cases. She has a lovely crop of pears and many acres of plums, too, which are looking very nice.

Has Algoma Pickers

About 175 pickers are employed in the orchards owned by Nic Jacobs and Ed. Jacobs. The pickers are principally Algoma young people who are having an enjoyable outing besides making lots of money. Nic Jacobs has 25 acres in cherries and will get between 4,000 and 5,000 crates. His trees are 12 and 13 years old. Ed. Jacobs has about 8 acres in cherries and will get an exceptionally heavy yield.

The Waupee Fruit Co., of which John Hull is the head, has 18 acres in cherries and will harvest 36,000 pounds of fruit this year. Mr. Hull's son-in-law, D. W. Warren, has ten acres and will have a big crop also.

Root crops and cabbage require a cool cellar with some moisture in the air. Squash and pumpkins require a dry warm cellar. Onions should be placed on shelves or in bins not over eight or ten inches deep with a good circulation of air about them.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, December, 1919 | Number 4

SUPPLEMENT TO REGULAR EDITION

HELPFUL HINTS

FOR

THE BEGINNER

IN

FRUIT GROWING

Supplement to No. 4, Vol. 10, December, 1919

Wisconsin Horticulture

SUPPLEMENT
Wisconsin Horticulture

Volume X | Madison, Wisconsin, December, 1919 | Number 4

Raspberry Culture

Hints for Beginners

Frederic Cranefield and N. A. Rasmussen

Two kinds (species) of raspberries are commonly cultivated for home use and for market, the red and the black—the latter known as blackcaps or simply "caps."

These kinds, aside from their color, differ in the manner in which they are propagated.

Red raspberries are propagated by "suckers" from the roots of the parent plant. In the black-caps plants grow from the tips of the branches when these are covered with soil or are held in place by a lump of earth or other means.

Soil: Raspberries thrive best on deep well drained soil, clay loam with clay subsoil or on gravely clay loam; in other words, well drained "cool" soils. Don't plant raspberries on thin, gravelly, or light sandy soil and expect to be successful.

For paying crops apply plenty of stable manure.

Red Raspberries

The culture of the red raspberry is influenced at every step by its habit of producing suckers or shoots from the roots. The first year of its growth a number of suckers will develop from the parent plant but not more than needed. The following year, however, and each succeeding year, innumerable suckers will spring up, not only close to the plants but between them and in fact wherever the roots extend. It is plain that this surplus growth of plants must be restricted or the field will soon become merely a brush patch, yielding little or no fruit.

Hills vs. Matted Row

Two methods of culture are in common use by growers, the hill and the matted row. Good paying crops may be grown by either method.

In the case of the hill system the plants are set 2 to 2½ feet apart and the rows 6 feet apart. After the first season the suckers are confined to hills, 8 to 10 shoots or "canes" allowed to grow and all others removed.

In the matted row the plants are set 12 inches apart in the row and the suckers allowed to form a matted row 12 to 15 inches wide and the canes 6 to 8 inches apart. The matted row usually yields more fruit than the hill system.

Setting the Plants

One method of planting is to plow shallow furrows for the rows, after the field has been plowed and harrowed, then set the plants the required distance and cover the roots, using a hoe or spade and tramping firmly about the roots. If the ground is mellow three to four inches of soil over the roots is enough and not too much.

If a large field is to be planted and a number of planters work systematically no doubt the furrow method will save time but the average planter will set by hand using a spade.

Cut back the tops at planting time leaving only short stubs. Where available a plant-setting machine commonly used for setting tobacco and cabbage plants, can be used successfully if a special, larger and deeper cutting hoe is used.

As the season advances a number of shoots or suckers will appear. These develop into plants which may produce a little fruit the following year.

Pinching

Some growers advise pinching the growing shoots the first season when about eighteen inches in height to encourage branching but this is not an important matter. Something may be gained by pinching but certainly no harm will result if it is not done. Cutting back the matured canes the following spring is a matter of the highest importance as will be shown later.

Cultivation and Intercropping

The ground should be kept clean and mellow all the season by frequent cultivation and hoeing. Vegetables may be grown between the rows the first season but don't

plant strawberries between raspberry rows, as the strawberry plants will interfere with cultivation or mulching of the raspberries the following season when it is most needed. Number of plants required: Three thousand six hundred and thirty plants are required for an acre when planted 2 x 6 ft.

Black Caps

Black caps require rather more room than the reds. The reds are upright growers while the blacks are more spreading in habit. Three feet is close enough in the row and strong growing varieties ought to have even more room. The rows may be 7 feet apart. An acre planted 3 x 6 ft. requires 2,420 plants.

In contrast to this one successful grower plants black-caps eighteen inches apart in the rows and renews the plantation at the end of three years, taking only one full crop.

Planting

The "tip" plant of the black raspberry as received from the nursery is a flattened, compact bunch of fine roots with a single stem arising from the center. Around this stem are numerous buds that develop into other stems or "canes." If this bud cluster is covered too deep with heavy soil the buds will not push through. We are therefore confronted with the problem of covering the roots deep enough so they will not dry out and shallow enough to avoid smothering the buds. It can be done and the least difficulty will be experienced in soil that has been well prepared before planting.

Cultivation the first season is much the same as for the reds except that the black caps do not form suckers from the roots. The only canes or stems that grow will be from the bud cluster mentioned above. Usually there are not too many of these the first year, five or six, and are all retained.

As in the case of reds there is no objection to growing an annual crop between the rows the first season. Two rows of beans, one row of potatoes or other root crops, may be grown between each two rows of raspberries without serious detriment to the berry plant.

No fruit will be borne the year the plants are set out, either on reds or blacks but every effort should be made to secure a strong healthy growth of plants. Deep, rich soil and thoro cultivation will produce such plants. But little fruit will be borne the year following planting, the second growth year, but thoro cultivation must not be neglected for starved plants will never bear profitable crops. The second year after planting, third growth year, one-half a normal or full crop may be expected and a full crop the next and succeeding years.

A raspberry plantation should yield profitable crops for four to six years. Many plantations are fruited for a longer period, eight to ten years or even longer, but in the opinion of many successful growers, the expense of cultivation in these older fields, the difficulty of securing a vigorous growth and the accumulation of insect and disease pests render it unprofitable to fruit raspberries longer than five or six years.

Trellis

It has been the universal practice in the past to build a trellis or support for raspberry plants both red and black but this is now rarely done. Growers have now learned that properly pruned plants require no trellis or other support. This subject of pruning will be discussed later but mention is made of it here as a matter of encouragement to beginners.

Varieties: As in the case of other fruits opinions of growers differ widely when it comes to selecting varieties. The following kinds are popular with Wisconsin growers:

Red: Marlboro, King, Cuthbert, in the order named.

Black: Plum Farmer, Cumberland, Gregg, as named.

Other Kinds

Purple Raspberries: The Columbian, Shaffers Colossal and perhaps other varieties, strong growing kinds sometimes producing canes twelve to fifteen feet in height and an inch or more in diameter, bearing purplish fruit, are hybrids produced by crossing the red and the black raspberry.

The purple or purple-cane raspberries are better adapted to the home garden than to growing for market. They are not more productive than the red or the black, the rank growth interferes with proper cultivation and involves greater expense in picking. Also the very unattractive color of the fruit lessens its market value.

Everbearing Raspberries: The so-called everbearing raspberries are to be classified with the everbearing strawberries, interesting and attractive to the amateur but of little value to the commercial grower. The St. Regis is the best known of the everbearing type.

After the First Year

The suggestions so far given include only planting and care the first season.

Reds: During the first season the reds should make a growth of 18 inches to 2 feet. The following spring these young canes should be topped or cut back to a uniform height of about 18 inches. In the spring of the next and following years the canes should grow to a height of three to five feet and these should be cut back,

in the spring, to a height of thirty inches. Weak and diseased canes should be removed.

Pruning improves the quality of the fruit. If all the buds are left more fruit will set than the plant can properly mature. If the plants are not pruned the fruit will be borne so high as to suffer from wind and will also increase the difficulty of picking it. It is also probable that the quantity of the fruit is increased by pruning.

As stated above the number of canes retained for fruiting should not be more than 8 to 10 if in hills or closer than 6 to 8 inches if in a matted row and the row 12 to 15 inches wide. This caution to cut out surplus plants of the red raspberry confining the growth for fruitage to a comparatively few canes and these severely cut back every spring cannot be too often repeated.

Black Caps: The black caps at the end of the first season should have two to five stout canes to each hill, more or less branched, two to three feet in height. After the first year the canes may attain a height of five feet, much branched and curving to the ground. These stems or canes should be pruned as in the case of the reds. The cutting should consist in shortening the branches which spring from the main stems one-half or more, or if not branched in cutting the canes back to a height of 24 to 30 inches.

Cultivation: Cultivation for the second and succeeding seasons should be the same as for the first season, clean, thoro cultivation to keep the soil stirred and to keep down weeds and grass.

Mulching: If stable manure in sufficient quantity is available or other coarse material it will pay to apply it heavily around the plants every year. This mulch will serve to keep down weeds, conserve moisture and add fertility.

CAUTION

The raising of raspberries for market in Wisconsin at the present time promises to be a profitable business and it is very unlikely that it will be overdone in the near future. At the present time the acreage has so far decreased as to be almost negligible.

While the policy of the Horticultural Society at the present time is to encourage the planting of berries, both to benefit growers and in order that there may be a plentiful supply of this delicious fruit, those who intend to plant are invited to carefully consider the following points:

Only those who have a natural aptitude for this kind of work or in lieu of this recognize the fact that gardening and fruit growing require vastly more work per acre and closer attention to details than farm crops and firmly determine on close application to these details, should engage in it. Given this aptitude or its equivalent in determination to succeed there are other essentials: suitable soil, proximity to market and available pickers.

The question of market should be considered relatively. If the ultimate market is one hundred miles distant and the berry field one-half mile from a shipping point it may be a nearer market than one requiring a haul of ten miles by team to a point where the berries go on sale.

Fifteen to twenty good pickers will be required for each acre of red raspberries in full bearing and it is a matter of first importance that these be available every day during the fruit picking season.

Now if these requirements seem formidable none are incapable of accomplishment and should be considered in connection with the fact that Wisconsin raspberry fields in 1919 yielded an average of 150 cases, of 24 pints, per acre.

Strawberry Culture

Frederic Cranefield and N. A. Rasmussen

The purpose of this article is to help the beginner; it is not meant to be a treatise on strawberry growing and no attempt has been made to distinguish between growing for home use and for market as the methods are the same in both cases.

Soils:—Any soil that will produce a good crop of corn will produce a good crop of strawberries. Strawberries are grown for market in Wisconsin on light sandy, gravely loam, black prairie and light clay soils and successfully in all cases. The physical properties of the soil are of less importance than drainage and fertility.

Site:—Level ground is best for strawberries or any other fruit crop. A few days in earliness may be gained by planting on a south slope or ripening may be retarded somewhat if the plantation is on a north slope but the difference is so slight that it rarely offsets the added expense and inconvenience of cultivation on sloping ground and the necessity of planting so as to avoid erosion. The mid-season crop is the most profitable one for Wisconsin growers. No matter how much we struggle for earliness, Illinois can beat us by three weeks.

The so-called early varieties are shy bearers and as a rule lack vigor. These varieties may yield a few early berries but rapidly fall off and cannot be depended on for the main crop.

Preparation of Soils:—Don't plant strawberries on sod land, that is land on which grass has

been grown for two or more seasons as such soils are quite sure to be infested by the white grub which will feed on the roots of the strawberry plants.

Land intended for strawberries should be plowed in the fall and only lightly dicked or harrowed in the spring just before planting as strawberry plants do not grow well in soil that is very loose and mellow.

The choicest selection for a strawberry field is land that was heavily manured the previous season and planted to corn, potatoes or other cultivated crop and fall plowed. Under these conditions the manure is thoroly incorporated into the soil and weeds are subdued to a large extent.

Manure:—Strawberries require a soil rich in plant food in order to produce **paying** crops. It will be a waste of time to plant for market on thin, worn out soil without first manuring. If stable manure can be had apply 10 to 25 loads per acre.

It should not be inferred from this that **all** land **must** be heavily fertilized with stable manure before planting as average farm or garden land that has been fairly treated as to fertilizers in former years will produce a good crop of plants the first year, if thoroly cultivated.

Plants and Planting:—Runner plants of the preceding year's growth are the only ones that should be used. Plants that have once borne fruit are not suitable, scarcely worth planting. Nurserymen furnish only runner plants. If plants are received from the nursery packed tightly in bundles, open the bundles at once, separate the plants and either pack in boxes or baskets with damp moss, chaff or sawdust, separating the roots or else "heel-in" outdoors.

"Heeling-in" in briefest terms is temporary planting. Dig a trench just deep enough to admit the roots; lay the plants in side by side and cover the roots with earth leaving the crowns exposed.

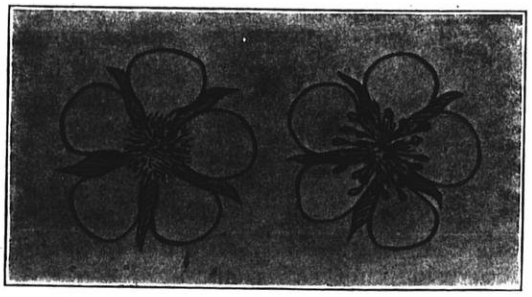
Trimming. For convenience in planting the roots may be trimmed. In case of heavy root growth the roots may be shortened to four inches in length. Close trimming, to two inches or less, is to be avoided as these short roots will not reach moist soil. Remove all leaves but one or two before planting.

Strawberry plants may be set as close as 18 inches in the row and the rows four feet apart but for the most varieties 24 inches in the row is better. At 2 by 4 feet 5,445 plants are required for an acre.

Plants are usually set by the spade method, two persons working in company.

The plant setting machine commonly used for setting tobacco and cabbage plants is also successfully employed in setting strawberry plants.

One thing is highly important, viz., the proper depth of setting. If the plants are set too deep the "crown" or growing point is covered; if set too high the roots are exposed. In either case the plant may fail to grow. With a little practice the right way may be found.



Perfect Imperfect

Cultivation:—Keep the soil loose, mellow and free from weeds throughout the season by frequent cultivation. An adjustable fine-tooth cultivator is a good tool to use. Run close to the plants at first and as the runners stretch out into the space between the rows, close up the cultivator allowing the plants to set thickly in matted rows two feet wide, thus leaving a two-foot path between the rows. In case of too vigorous growth attach a rolling coulter to the cultivator to remove surplus runners. Care should be taken to keep the rows full of plants by training runners so as to fill vacant places. This is what is known as the "matted row" system, the most practical way for the average grower. Where there is a demand for very large berries, uniform in size, the single or double "hedge row" or hill system may be adopted.

If the ground is rich and the season favorable too many plants may set. In this case as the season advances remove the surplus until the plants in the row stand about four inches apart.

Remove all blossoms the first season as soon as they appear. All of the energies of the parent plants must be directed to plant making the first season and not wasted in the production of flowers and fruit.

Considerable hoeing and weeding will be needed the first season for the beds must be kept clean. Grass and weeds rob the strawberry plants of food and moisture. We should endeavor to secure a good stand of strong, vigorous, deeply rooted plants the first sea-

son; lacking this we cannot expect a profitable crop of fruit next year.

Perfect and Imperfect Flowers: —Some varieties of strawberries produce only imperfect flowers. These flowers have no stamens and are therefore incapable of self-pollination. It is important to keep this fact in mind when selecting varieties, for if only imperfect-flowered varieties are selected no fruit will be borne. A part of the plantation at least must be of kinds bearing perfect flowers. Nurserymen indicate in their catalogues the imperfect varieties by the abbreviation "Imp."

Kinds to Plant:—The amateur as well as the professional soon learns that in the selection of varieties he must be largely guided by local conditions of soil, climate, etc. and that no list can be given that will be satisfactory over the whole state. However, two varieties, Warfield and Dunlap, seem to give satisfaction over a wider range of soils and climate in Wisconsin than any other standard varieties. Some growers advocate planting only Dunlap.

Fall Bearing or So-Called Everbearing Strawberries

Within a few years a new group of strawberries has appeared, the so-called "everbearers." These kinds do not, as the name indicates, bear throughout the whole season but produce a crop at the same season as the standard varieties and, after a short rest period, a second and often a third and a fourth crop, frequently fruiting from June to November.

Enough berries, a straggling few, are borne between crops to partly justify the name "everbearing."

These kinds are most excellent for the home garden but the beginner who is growing for market should not plant heavily of the everbearers but stick to the standard sorts. The experienced grower, especially if he has an irrigation plant, can usually grow them profitably. The most popular kinds are Americus, Progressive and Superb. Progressive seem to be the most prolific; Superb large fruit, and Americus more nearly an all season or everbearer.

Mr. M. S. Kellogg of Janesville who has grown the "everbearers" since the first commercial varieties appeared, sixteen years ago, has this to say of them:

"This class of fruit has passed the experimental stage and has become a necessity for the home garden and for the commercial grower when conditions of soil and market are favorable. In growing the Everbearers the following is the most approved method of culture. Plant as early in spring as the conditions of soil and weather will permit, keep all bloom removed from the plants until about one month before you wish the fruit to begin to ripen. Allow the plants set to produce from four to eight runners and when these are rooted keep all other runners cut off as soon as they appear. You will then have a hedge row or half matted row system and if clean culture is given and with good fertile soil you will get lots of berries. If you wish fruit do not let them make too many plants. A bed of Everbearers after having fruited the year of planting should be well covered and can be carried over to fruit the following June if desired or the fruit stem can be kept off the second season until July 15th and they will bear again in the fall. Right varieties, rich soil and good culture will win the Everbearers but the greatest of these of GOOD culture."

Winter Protection: Strawberry plants must be given winter protection, a light covering, not so much to prevent freezing as to prevent alternate freezing and thawing. Marsh hay is the ideal material for this purpose. Clean straw is also used but as it usually contains weed seeds hay is preferable. About two tons of hay will be required for an acre which is equivalent to a heavy crop of growing hay.

This covering should be left on until growth starts in the spring when about two-thirds of it should be raked into the spaces between the rows where it will serve to keep down weeds, retain moisture, keep the fruit clean and furnish a "carpet" for the pickers.

The balance of the mulching should be left on the plant row and the plants allowed to push thru it. The more mulching left on the row the better so long as the plants are able to work thru it as it serves the double purpose of keeping down weeds and retaining moisture.

It is not well to remove any part of the mulch too early in the spring as it serves to retard the growth of the plants and thus furnish security against late frosts. In fact care should be taken to leave the mulch on until the new leaves under the cover show white.

After the First Year

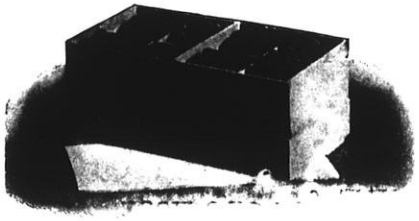
It is the practice of many growers to harvest but one crop of berries and at the end of the picking season plow under the plants and use the land for a crop of rutabaga, turnip or buckwheat. In favorable seasons late cabbages or the early maturing varieties of sweet corn may be planted.

If it is desired to carry the field over another year, after picking cut the plants close to the ground with a mower and after they have dried burn them.

In order to avoid injury to the roots by fire the mowed plants and mulching should be thoroly dried so as to burn quickly.

No cultivation is given the second season but any strong growing weeds which appear such as dock, thistle, etc., may be readily cut out by the use of a broad chisel attached to a fork handle. The plants are mulched in the fall the same as for the first year.

Strawberries when grown as here advised, by the matted row system, cannot be profitably cropped more than two years.



A FEW WORDS ABOUT FLOWERS

Hardy Perennials

H. C. Christensen, Oshkosh.

Of late years the herbaceous perennials have been growing more and more in favor both as border plants and also for cut flower purposes. There are good reasons for the popularity of this type of plant. The fact that they do not need replanting every year; their sturdiness of growth, thus requiring less care than annuals or tender bedding plants; the long period of bloom that may be had by a careful selection of varieties, and the varied forms and colors of flower are some of the points that recommend them to the grower. While most of them are easily grown, they quickly respond to good cultivation, and although they ordinarily survive our winter, they are greatly benefitted by the protection of a mulching of coarse litter. Soil and location have much to do with hardiness. Some varieties will be perfectly hardy when grown on a well drained soil and in a sheltered location and will almost invariably winter-kill when the soil is heavy and poorly drained.

The list of perennials is so long that only a few of the more desirable varieties can be mentioned.

Queen of all hardy flowers is the peony, and as it has a place on the program you will be fully informed as to its merits.

A close second to the peony of late years is the iris, or fleur-de-lis. Its tall, stately flower, in wonderful combinations of blue, violet and white, delicately veined with gold bronze and purple, make it a regal flower, and its sword shaped foliage of silvery green makes it ornamental when not in flower. The German varieties are most suitable for this part of the country. They like a dry and rather heavy soil. Fall or late summer is the best time to plant the bulbs or rhizomes. Florentina Alba, a pale lavender, fading to pure white, is the earliest to bloom and may be had in flower by Memorial Day. Celeste, pale blue; Pallida Dalmatica, deep blue; Madam Chereau, white, lilac edged; Queen of May, rose; Iris King, yellow and brown, are some of the best of the older varieties. A great many hybrids have been introduced of late years, some of them superior to but most of them no better than the varieties I have named. If you have a moist, well sheltered location you can grow the Japanese iris. These are the most gorgeous of all the iris family.

The phlox is one of the most showy of our perennials. The size of the florets and brilliant colors speak well for the skill of the hybridizer. It is a plant that succeeds well both in the sun and partial shade. Of late years the red spider has troubled it a great deal. Transplanting it to an entirely new location early in the spring before growth starts seems to help somewhat.

The columbine is a great favorite with many and it is perfectly hardy. It comes in all shades of red, blue and white. There are singles and doubles and all lengths of spurs to none at all. The long-spurred hybrids have upright flowers placed on slender stems, which make them especially desirable for cutting.

A plant that has recently come into favor again is the delphinium, or larkspur. Its stately spikes of bloom in all shades of blue are very striking. The Belladonna hybrids in shades of lavender and the Chinese larkspur in white and blue are best for cutting. The Formosum hybrids are tall and are good for the border.

One of the earliest flowers to bloom in the spring is the Iceland poppy. It is different from most poppies in that its flowers will last a week or more when cut and placed in water. Its fragrance is pleasing and it comes in shades of yellow and red. Its giant relative, the Oriental poppy, is probably the most showy of garden flowers.

The pyrethrum is the first of the daisy-like flowers to bloom, often in time for Memorial Day. In color it shades from red to white. The singles are easily raised from seed, but if fine doubles are wanted it is best to secure plants of named varieties. Pyrethrum uliginosum is one of the latest fall daisies, and its white flowers with yellow discs are good for cutting. Shasta daisies and chrysanthemum maximum and latifolium fill in between.

The gaillardia, or blanket flower, is exceedingly showy and attractive and comes in shades of yellow and maroon.

The Wisconsin State Horticultural Society

The officers of the Society extend to every reader of this Supplement an invitation to become a member. The fee for a year is FIFTY CENTS.

THREE REASONS

1. Subscription to WISCONSIN HORTICULTURE for one year.

2. A copy of the ANNUAL REPORT which contains lists of recommended fruits, shrubs and flowers; directions for spraying and nearly two hundred pages of papers and discussions by well informed growers, amateur and professional, on practical subjects.

3. The Privilege of Membership. The State Horticultural Society of Wisconsin enjoys a reputation which is not excelled by any similar organization in the world. It is recognized as the chief exponent of practical horticulture in Wisconsin.

The principal expense of the Society work is borne by the State thru an annual appropriation but the prestige, the standing of the Society and scope of its influence depends on a large membership evenly distributed over the whole state. Without members we would become merely a bureau, an insignificant cog in a wheel of the State government. With a big interested and satisfied membership we constitute a whole wheel. You are invited to join.

Send fifty Cents to Secretary State Horticultural Society, 702 Gay Building, Madison, Wisconsin.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, January, 1920 | Number 5

A beautiful snow scene is being held for the June number.

What Birds Shall We Protect?

By F. L. Washburn, University of Minnesota.

At annual convention Minn. Hort. Society, Dec. 1919.

I have always been an enthusiast on the subject of protecting birds and have neglected no opportunity to speak or write in their behalf, particularly championing the orders of hawks and owls, since against them appears to be the most deep seated prejudice. In this connection may I say that I criticize the campaign which was carried on against the crow this last summer by sportsmen in Minnesota. While I advocate shooting the crow and the black bird when working actual injury to the horticulturist and farmer, I am nevertheless conscious and appreciative of the good the crow does in connection with killing grasshoppers, white grubs, mice and other injurious forms of animals. However, the comparatively small number of crows killed and eggs destroyed would hardly have an appreciative effect upon benefits derived from this species. It must be borne in mind in considering what birds to protect and what birds to regard as injurious, that men whose interests are widely divergent are going to have opinions on birds decidedly at variance; for example, sportsmen are aware that hawks, owls and crows do lessen the number of game birds to a greater or less extent, and this class of men is perhaps nearly unanimously against these birds, as evidenced by the crow campaign, while well informed farmers and horticulturists, for the most part, realizing that hawks and owls destroy field mice, rabbits, gophers and many insects, and that the crow at times is useful, may entertain views entirely opposite to those of the first named class.

All of us, whatever be our interests, or vocations, entertain the highest feelings towards the familiar birds of our door-yard, birds whose songs delight us and whose appearance pleases the eye. For many years sentiment has played a prominent part in our attitude towards birds: the robin for instance is very dear to us all, yet I was informed this summer by the State Horticulturist of New York, that orchardists and berry raisers were so convinced that the robin's depredations were not equalled by his good qualities and felt so keenly the need of protecting their fruit (their chief or only means of livelihood) that robins were shot wherever possible, without compunction, and so far no jury has been found which will convict a berry raiser for this act, altho technically the robin is protected by law in New York State. Many of us raising grapes know to our cost, of the bad habit the robin has of injuring the ripe fruit. This condition with regard to the robin in the Eastern states is mentioned to illustrate the necessity of setting aside all sentiment, if one wishes to judge impartially.

The situation is practically as follows: For many years there has been a strong effort along the lines of bird protection. The Federal government and many states have made stringent laws covering this point: bird refuges have been established in many places over the country; Audubon societies and bird clubs innumerable have been organized in cities, towns, and villages: school children have been mobilized to promulgate the cause and the press in general has taken upon itself the duty of encouraging bird protection. This is as it should be for there has been great need for such a movement; but mark the result. Under this intensive protection, the numbers of many common birds have increased enormously, and the birds which were at one time useful, or at least neutral in their economic attitude toward the berry raiser, are now really injurious, forced to work injury through their increasing numbers and the constant lessening of their food. New and efficient methods of combating insects have lessened their supply of insect food and the diminishing quantity of wild fruits and berries through increased cultivation, obliges them more than formerly, to turn to berry patches to obtain that portion of their diet, which ten years ago perhaps, they could get in large part from the wild thickets.

From fifteen to twenty years ago so much work was done on the food habits of birds, that our opinions were crystallized, as it were, in this regard, and they have stayed crystallized ever since.

As a member of the staff of the U. S. Biological Survey remarked in my office not long since, changed conditions are calling for new work on the food habits of birds. Under this continuous and rigorous protection and in consequence of increased tillage, what was true ten or twenty years ago in this connection is not true now. The case of the robin was cited as an example.

I do not want this audience to misunderstand me. I am not urging the destruction of any bird or

group of birds, far from it. I enjoy watching the robin on the lawn and listening to its song as much today as I did fifteen years ago and I delight in the music given us by the cat bird, rose-breasted grosbeak, and the scarlet tanager. The melody in the song of the wood thrush is just as fascinating to me now as formerly. Yet I am a gardener and horticulturist in an experimental way and am painfully aware of the fact that the grosbeak and oriole make it practically impossible to raise green peas in certain sections, without expensive protection, and cat birds are so fond of my black capped raspberries that I have had to resort to costly measures to save any for family use.

The bright coloring of the oriole, so closely associated with spring and summer still delights me, yet in addition to its depredation on peas, I observed it last spring cutting off plum blossoms literally by the quart. Those of us who delight in tramping the woods and following streams may take great pleasure in the rattling note of the king fisher, yet this bird, because of its depredations on fish, is one of the most destructive we have with us.

The Federal government has taken cognizance of the state of affairs to which I refer and the Secretary of Agriculture has permitted the killing of meadow larks in South Carolina between November 1, 1919 and April 30, 1920, under certain restrictions, because of complaint of its injury to sprouting corn and oats. The same official has issued an order effective October 24, 1919, permitting the shooting or trapping of grebes, loons, gulls, terns, fish ducks or mergansers, blue herons, green herons and night herons by owners and employes of private fish hatcheries where these birds are injurious. All of these birds are protected under the migratory bird act of 1918, but have become so destructive in connection with fish that the above official action appeared necessary.

Do not, I beg of you, leave this meeting feeling that the speaker has gone into the enemies camp, turned traitor to a good cause, as it were, for I am as much a lover of the birds today as I was ten years ago, but a scientist of today must shut his eyes and ears to everything but actual facts as they are presented today, and it does appear that as farmers, gardeners and orchardists, we must use discrimination in judging birds and adjust our views to present day conditions. A study of the present food habits of birds under modern conditions appears necessary if we desire the truth in this connection.

What has been said in my talk upon this subject is intended merely as a suggestion for thought and observations along somewhat new lines. I should be very glad to hear or receive thru the mails observations made by members of the Society not only in connection with food habits of birds, but also in connection with four footed animals, red and gray squirrels, the various "gophers," field mice and rabbits.

Methods of protecting garden crops from the attacks of birds and rodents will be given upon request.

Much may be learned about picking and packing apples from Bulletin 1080 U. S. Dept. of Agriculture, entitled Preparation of Barreled Apples For Market.

Trim Apple Trees on Mild Fall Days

According to the old adage, the time to prune is when "the knife is sharp." In other words, prune whenever occasion arises. If the trees are properly looked after each year it is seldom necessary to do any heavy pruning which demands the use of a saw. Late winter and early spring is the time when most persons prune. On mild days in the fall the trees should be looked over and pruned. Make all cuts close to the limb or trunk. Do not leave stubs or "hat racks." Examine each tree and follow this plan:

1. Remove all dead and diseased limbs and branches.
2. Remove all "sucker" growths and branches that cross or interfere with others.
3. Open center of tree by removing some of the weaker branches.
4. Shorten tops if trees are too tall.

Do not prune too severely trees that are of bearing age. In trees that have never been pruned there is danger of causing excessive wood growth if too many limbs are cut off at one time. It is better to distribute the pruning over a period of three years.

Several years ago two trees in the orchards at University Farm were pruned in this manner: the first was pruned severely and the other lightly; the next crop year the first yielded 1¾ bushels of apples and the latter 6 bushels. Too severe pruning lessened the crop. Pruning is done to make the remaining parts better serve our purpose.—R. S. Mackintosh, horticultural specialist of the extension staff, University Farm, Minnesota.

Bulbs May Be Grown Over Very Wide Area

The United States uses every year, in normal times, about $2,000,000 worth of bulbs and has produced hardly $25,000 worth of Dutch bulbs in any one year—this despite the fact that few plants are more widely adapted and few crops more easily grown than bulbs.

The reason for this situation, says the United States Department of Agriculture, is that it has always been thought that the bulbs could be bought cheaper than they could be grown. In the future, however, conditions are going to be different, and the department has published Bulletin No. 797, "Commercial Dutch-Bulb Culture in the United States." This 50-page discussion of the subject is available for limited distribution to interested persons.

Thus far, says the bulletin, commercial production of Dutch bulbs in this country has been confined to the Atlantic and Pacific seaboards, north of Norfolk and San Francisco, respectively. Good bulbs have been produced in both regions. The western area is confined to a rather narrow strip which receives suitable rainfall and is sufficiently affected by seacoast conditions to prevent rapid transition from winter to summer. Heat and moisture conditions are not so sharply defined in the East, and the bulb area is much more indefinite as to width.

SUCCEED UNDER MANY CONDITIONS

In the interior, in the Ohio and Mississippi Valleys, small quantities of tulip and narcissus bulbs have been grown sufficiently long to show the possibility of the successful production of many varieties.

Some of the hardier and more robust of the narcissus varieties thrive well and naturalize even in the Gulf States, but this region is best adapted to the so-called South France stocks. The growing of tulips and Dutch hyacinths probably should not be attempted there.

Contrary to what would be generally supposed, it is not too cold for tulips and narcissi to succeed as far north as Sitka, Alaska. They thrive well along the entire northern border of the United States wherever the moisture conditions are suitable.

Thus it will be seen that these stocks succeed under a geat diversity of conditions. Indeed, they seem to be as adaptable as ordinary cultivated crops.

The successes with the three main groups of these bulbs on the northern Pacific coast; the large production of a long list of narcissus varieties in southern Illinois and Virginia; the culture of Darwin and other tulips in Michigan, northern New York, Ontario, and Virginia, and the admirable hyacinth bulbs often produced in private gardens throughout the region south of New York, under conditions of comparative neglect and a large measure of ignorance of their life history, would seem to prove sufficiently that we have an abundant territory adapted to growing these stocks.

NOT CONFINED TO SANDY SOIL

"The culture of bulbs," continues the bulletin, "is associated in the public mind with sandy soil, and the preponderance of advice as to their handling specifies sandy soils as preferable to any other. Periodical literature especially is full of reference to the so-called 'sand-dune bulb fields' of the Netherlands. Abundant evidence is at hand to show that purchasers of bulbs have good success in flowering them on almost any soil which is available, and though this is a very different matter from producing the bulbs with flowers in them it is nevertheless a proof of the wide adaptability of these stocks.

"In the experiments at Bellingham, Wash., thus far, better tulips and better narcissus bulbs have been produced on silty soil than upon the lighter sandy soils. The trials with hyacinths are not decisive; indeed, other factors may account for the results. Proper fertility has not always been maintained, and the heavier soils are less exhausted by long cropping. While this may be true, the fact stands out prominently that the production of tulip, narcissus, and even hyacinth bulbs of good quality can be accomplished on silt-loam soils underlain by clay at a depth of 16 inches. On the other hand, it should be realized that the ability to produce bulbs at a profit will be the controlling factor, and the expense is much less on light than

"When all is said, few plants are more widely adaptable and few crops more easily grown than bulbs. The regions in this country are few and small, indeed, where some varieties of each of the three groups are not successful when grown for ornamentation, and the possibility of the production of bulb crops is promising. The flowering of the bulbs, as we know, is accomplished in a great variety of media, almost anything, from water to ordinary loam soils, answering the purpose

provided the atmospheric conditions are suitable.

"Mechanics probably has more to do with the suitability of sandy soil than any inherent preference of the bulbs for sand rather than for heavier loam. It is possible that it will be cheaper to add heavy applications of fertilizer than to handle the bulbs in heavy soils. On the other hand, many varieties will coat up better on light than on heavy soils. The character of the bulbs grown on heavy and on light soils will vary somewhat, as it will with shallow and deep planting. The indications are, however, that success can be attained in bulb production on a friable loam soil, whether it has a preponderance of sand in its composition or not."

OTHER PHASES DISCUSSED

Other phases of the subject discussed in the bulletin include temperature, soil and fertility requirements, number of bulbs grown per acre, planting, depth of planting, treatment after flowering, roguing, harvesting the flowers, cultivation, harvesting the bulbs, storing and curing, cleaning, sizing and advantages to be gained by it, culling, propagation, determination of flowering quality, packing, shipping, bulb growing for pleasure, out-of-door culture, indoor culture, miscellaneous bulbs, insect pests, fire disease of the tulip, diseases of hyacinths, the mosaic disease, best varieties of hyacinth to plant, varieties of narcissi, varieties of tulips, and varieties of hyacinths.

The sources from which interested persons may obtain bulb literature are given, and the bulletin ends with several pages of definitions of terms, strange to the uninitiated, that are likely to be found in bulb literature and catalogues.

Cranberry Growers' Convention

As has been noted in the December 1919 issue of this magazine the cranberry growers voted to hold their annual meeting this year with the Horticultural Society in Madison, Wis., Jan. 6 to 8. It has since been decided to hold our own individual sessions Jan. 9 that we might have the valuable services of Miss Jacobson of Chicago who so efficiently reports for the Horticultural Society. Our cranberry members should plan to reach Madison not later than the 7th. This gives opportunity for the social, informal, 7 o'clock dinner at the Capital House, and at least one full day of the Horticultural meeting. Those that can be present Jan. 6 to 9 inclusive will receive that much greater benefit.

We are giving the program as it stands at this writing Dec. 17. It would be quite easy to have an evening session if others called on report favorably later on.

PROGRAM

Thirty-third annual convention of the Wisconsin State Cranberry Growers Association, Madison, Wis., Friday, January 9, 1920.

Friday 9:00 A. M.

1. Opening Address—Governor Emanuel L. Philipp.
2. Annual Address — President Andrew Searls.
3. Minutes of last meeting.
4. Financial statement—Mrs. S. N. Whittlesy, Secretary.
5. The Business Man in Cranberry Culture. Achievements of the Cran. Lake Devel. Co.—Albert Hedler, Minneapolis.
6. Warehouses: Convenient arrangement and facilities—Chas. L. Lewis, Jr., Beaver Brook.
7. Address—Dr. C. L. Shear, Washington, D. C.

Friday 1:30 P. M.

1. Word of Greeting—Hon. Merlin Hull.
2. Tip Worm: Habits and treatment—O. G. Malde, Tomah.
3. Pumps: Efficiency of different kinds and availability of water in different soils—Prof. E. R. Jones, U. of W.
4. Work needed to complete Pump Experiment—B. R. Mitchell, Mather.
5. Precautions on Harvesting, Packing and Shipping Cranberries—C. D. Searls, Grand Rapids.
6. Marketing Problems — Geo. N. Arpin, Chicago.
7. Advertising—A. C. Chaney, New York City.
8. General Discussions on various topics.
9. Election of Officers.

About 13,000,000 pounds of maple sugar were made in the United States in 1918 and about 4,000,000 gallons of sirup. Vermont, New York, and Pennsylvania are the largest producers of sugar.

The value of the 1918 apple crop of the United States was about $230,000,000. It ranked ninth in farm crops.

Make firewood now of dead trees on the lawn, in the orchard or windbreak. They only harbor disease and insects.

Beekeepers' Annual Convention Madison, Dec. 5th, 1919.

Proceedings of the 41st Convention of the Wisconsin State Beekeepers' Association,

State Capitol, Madison, December 3, 4 and 5, 1919.

The first meeting of the Board of Managers under the new plan of organization was called to order at 2 o'clock Wednesday afternoon, December 3. The following delegates were present:

1. Chippewa Valley Bee. Assn.—A. C. Bartz.
2. N. E. Wis. Bee. Assn.—F. F. Stelling.
3. Fox River Valley Bee. Assn.—Edw. Hassinger, Jr.
4. Fond du Lac Co. Bee. Assn.—Henry Tavs.
5. Price Co. Bee. Assn.—H. J. Rahmlow.
6. Dane Co. Bee. Assn.—Sam Post.
7. Clark Co. Bee. Assn.—J. S. Sloniker.
8. Grant Co. Bee. Assn.—J. G. McKerlie.
9. Milwaukee Co. Bee. Assn.—C. D. Adams.

Regular representatives from Sauk and Langlade Counties were not present but the Rev. J. E. Cooke and Mr. C. S. Leykom were allowed to act for these counties in place of the regular delegates. Mr. Hassinger was appointed by the president to act as secretary of the meeting. The secretary of the state association then presented the business which was to come up before the association. The following recommendations were passed and presented to the Association for consideration Thursday morning.

1. Be it recommended that every delegate be required to present satisfactory credentials before being permitted to act with the Board of Managers.

2. Be it recommended that in order to complete the original intention of the constitution it be amended as follows:

Article 2, Sec. 2. Change 2nd paragraph to read:

"The Board of Managers shall consist of not less than five members, of whom three shall be elected by the Board of Managers to serve with the President and Secretary as an Executive Committee of the State Association."

Article 2, Sec. 3. Insert between the first and second paragraph here:

"The Secretary of the State Association shall be ex officio a member and secretary of the Board of Managers."

Article 2, Sec. 4. Drop lines 5 and 6.

Omit sections 5 and 6, Article 2.

Article 2, Sec. 9. Omit in lines 1 and 2: "to pay the annual fee or neglects or refuses."

Drop Sec. 10, Article 2.

Drop Sec. 12.

Article 8. Substitute in place of "who shall constitute an executive committee"—special meetings may be called by a majority of the Executive Committee after the entire Executive Committee has been notified.

Article 11. Executive Committee.—The President and Secretary of the State Association with three members of the Board of Managers shall compose an Executive Committee. The Executive Committee shall discharge such duties as are regulated to it by the constitution and by-laws or by act of any convention. No money shall be paid out of the treasury of this association without the approval of the Executive Committee.

Article 12. Nominating Committee. The Board of Managers, exclusive of the President and Secretary, shall constitute a Nominating Committee for the nomination of officers, provided that further nominations may be made from the floor.

3. Be it recommended that the suggestions of the secretary of the association regarding a marketing committee be submitted to the State Association with a recommendation favoring the appointment of a standing committee for the association.

4. Be it recommended that the Secretary be instructed to contract with the editor of Wisconsin Horticulture for four pages of space in that magazne as per the agreement.

5. Be it recommended that this association do not send a delegate to the convention of delegates to be held at Kansas City on January 6 to consider a new plan of organization for the National Organization.

6. Be it recommended that the constitution as corrected with a directory of members be again printed as last year.

7. Be it recommended that each affiliated local association designate one person to send in local news items for each month's issue of Wisconsin Horticulture to the Secretary.

Board of Managers adjourned at 5:30 P. M.

Thursday

At 9:55 Thursday morning the regular convention was opened by singing "My Country 'Tis of Thee."

Ths was followed by a very fine address to the older members of the association by Rev. J. E. Cooke.

The customary reading of the minutes and appointment of committees followed with reports from standing committees.

Mr. N. E. France, chairman of the Legislative Committee reported in detail the steps undertaken in securing the new bee law and the appropriation.

The chairman of the Extension Committee reported that the membership of the Association was 530 (now increased to 543); that there were 30 local associations in the state, 17 of which were affiliated with the state association. During the past year the university has held 49 meetings in behalf of the beekeepers at which there was an attendance of 1453 people. Remarks on the benefits derived from attending the summer school by Mr. Lathrop, Mr. Hanley, Mr. Parman and Mr. Adams.

This was followed by the report of the Board of Managers given by Edw. Hassinger and containing the recommendations before indicated. It was then voted to consider a crop reporting committee and Dr. Fracker, acting State Entomologist, explained to the meeting the purpose of the state marketing commission and the possible help to be gained through cooperation, between the state association, the crop reporting office, marketing commission and office of state entomologist. The president appointed a marketing committee to cooperate with the different offices mentioned consisting of Dr. Fracker, Chairman, A. L. Kleeber and N. E. France.

The president then appointed the following committees:

Auditing Committee—A. C. Bartz, Mr. Lappley, C. S. Leykom.

Resolution Committee—C. D. Adams, N. E. France, Mr. Otto.

The meeting adjourned at 12 o'clock.

The afternoon session was called to order at 1:50 P. M. The president gave his address in which he told of the work accomplished in building up the bee and honey exhibits at the state fair. The old building is to be enlarged by an addition of a forty foot annex and the amount of prizes to be awarded has been increased from $461 to $1066.

Dean Russell of the College of Agriculture then addressed the convention on "The New Era in Beekeeping" and congratulated the beekeepers on the work that had been accomplished and expressed an appreciation of the cooperation given by the beekeepers in helping the university.

Mr. Rahmlow, County Agricultural Agent for Price County, gave a very interesting and enlightening talk on the manner in which county agents might help the beekeepers. He expressed his belief that the beekeepers were not taking entire advantage of the opportunity to secure help from their county agents and suggested that where county agents exist, they should be encouraged to help with the beekeeping meeting.

Mr. A. C. Allen explained the preparation of exhibits for state and county fairs. He also explained the judging rules and the necessary requirements for a presentable exhibit. (Every beekeeper who is interested in exhibiting at the state fair should immediately write to Mr. Allen or President Dittmer about the premiums and exhibits for next year. $1066 in premiums are to be distributed and every beekeeper ought to win a sufficient amount to pay his expenses. In addition he has abundant opportunity not only to advertise honey but to dispose of his crop.)

Mr. Swahn's paper "Standardizing and Organizing the Honey Industry" was read by the secretary and created a great deal of interest. This topic is a very important one and Mr. Swahn has presented an idea which will undoubtedly be in practice in this state in the not distant future. (This paper will later be published in Wisconsin Horticulture and every beekeeper should read it.)

At the request of Mr. B. A. Scott, Loss and Damage Inspector for the American Railway Express Company, a committee of three consisting of Mr. H. L. McMurry, Mr. Duax and Mr. Kleeber were appointed to confer with Mr. Scott regarding the large number of claims submitted to the express company for honey shipped by express. Mr. Scott stated that it was necessary to consider this matter very carefully and develop a packing case whereby comb honey could be shipped with fewer losses than at present. The committee reported the following resolution:

"It is the sense of this committee that when comb honey is to be shipped by express the case containing the honey should be placed in a box containing 3 inches of packing between the case and the sides of the box."

Mr. Warren, Sales Manager, A. I. Root Company, discussed this matter and explained that the National Traffic Commission had almost decided to refuse to accept comb honey for shipment because of the poor manner in which beekeepers of certain sections put up their honey for shipment.

Several beekeepers inquired if there would be any possibility of getting sugar in the spring for feeding their bees. The secretary explained that since the sugar commission was not now in existence, the beekeepers had no recourse except to secure if possible, sugar through local dealers and in case this could not be done, it might become necessary for the beekeepers to try substitutes. Americos, a corn sugar, was suggested as a possible feed after the bees had begun to fly in the spring.

The meeting was adjourned at 5:30 P. M. to meet again at 7:30 that evening.

The Thursday evening session was taken up with the discussion of the foulbrood situation in Wisconsin by Dr. Fracker and the report of the Deputy Inspector, Mr. McMurry. Dr. Fracker presented charts showing the results of area clean-up campaigns in Dane, Jefferson and Manitowoc Counties. These charts show very clearly the possibility of eradicating American foulbrood and it should not be many years until American foulbrood has almost disappeared from our state. (It is possible for every beekeeper to get rid of American foulbrood if he will only take the time to treat his bees in a thorough manner. Full directions can be secured by writing to the Apiary Inspector at the State Capitol, Madison.)

Mr. McMurry spoke on cooperation and the value of the beekeepers working together in the extermination of foulbrood.

Meeting adjourned at 9:50 P. M.

Friday

Friday morning meeting called to order at 9:10. Mr. B. A. Scott of the American Railway Express Company addressed the beekeepers and offer to answer questions.

Mr. N. E. France presented a paper on the "Management of Out-Yards." (Mr. France's paper will be published in Wisconsin Horticulture.)

Mr. C. P. Norgord, State Commissioner of Agriculture, spoke on "The Relation of the State Department of Agriculture to the Beekeeping Industry." Mr. Norgord explained the difference between the work done in his department and that carried on by the College of Agriculture; how the State Department has charge of regulatory and administrative work while the college of agriculture is in charge of research, educational and extension work. He explained that the State Department of Agriculture was for the sole purpose of aiding the agricultural workers of the state and stated that he hoped the beekeepers would call on his department for assistance whenever needed.

Kenneth Hawkins, representative of the G. B. Lewis Company, discussed "Queen-Rearing for the Farmer Beekeeper." This paper and one by Edw. Hassinger, "Short-Cuts in Wholesale Requeening" were received with much interest by the beekeepers and led to considerable discussion. (Both of these papers are to be printed in Wisconsin Horticulture.)

Miss Iona Fowls, Assistant Editor, Gleanings in Bee Culture, not being

(Continued on page 78)

Wisconsin Horticulture

Published Monthly by the Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

PROGRAM

Annual Convention, State Horticultural Society, State Capitol, Madison, Wisconsin, Tuesday, Wednesday and Thursday, January 6th, 7th, and 8th, 1920.

Capital Hotel Headquarters for officers and delegates.

Tuesday Forenoon 11:00 o'clock

(1) Opening Address, Hon. J. J. Blaine, Attorney General.

(2) Introduction of delegates from Minnesota, Illinois, Iowa, Indiana and Northern Illinois Societies.

(3) Getting acquainted: Everybody shake hands with everybody else.

Tuesday Afternoon 2:00 o'clock

Practice Work in Judging Apples: A daily, two hour exercise conducted by Prof. J. G. Moore. The class will meet at 1:45 o'clock.

(1) The Arrangement of Cut Flowers in Vases, Bowls, Etc. A Practical Demonstration—A. Martini, Lake Geneva.

(2) Strawberries Every Year—J. E. Leverich, Sparta.

(3) Cane Fruits, Diseases and Insects of—Leon K. Jones, College of Agriculture.

(4) The Business Man In Horticulture—G. A. Buckstaff, Oshkosh.

(5) "Hoosier Horticulture"—L. V. Doud, Denver, Indiana.

(6) Garden Tractors—A. J. Piper, Racine.

Tuesday Evening 8:00 o'clock

(1) My Experience With Bees—Mrs. Wm. Nelson, Oshkosh.

(2) Horticulture a Woman's Business—Mrs. D. E. Bingham, Sturgeon Bay.

(3) Fruit Growing in the Appalachian Region. An illustrated talk—Prof. W. H. Alderman, University of Minnesota.

Wednesday Forenoon 9:30 o'clock

(1) Business Session 9:30 o'clock to 10:30 o'clock. President's Address, Reports of Secretary, Trial Orchard Committee, Delegates, etc., and Election of Officers.

(2) How a Young Man with Small Capital Ought to Start in Fruit Growing.—Theo. Haack, Madison.

(3) Spraying the Farm Orchard—Peter E. Swartz, Waukesha.

The Women's Auxiliary will meet Wednesday forenoon for program session.

Wednesday Afternoon 2:00 o'clock

1:45. Practice Work in Judging Apples.

Topic: Rural Planning:—A Full Discussion of this Important Subject.

(1) The Administration of the Rural Planning Law.—B. G. Packer, Com. of Immigration.

(2) The Rural Planning Law as an Aid in Preserving Places of Historical and Scenic Interest.—Prof. F. A. Aust.

(3) Making Highways Ornamental as Well as Useful.—J. A. Hazelwood.

(4) Looking Both Ways, Backward and Forward.—Wm. Toole, Sr.

(5) How the County Agent Can Help—Merton Moore, County Agent, Shawano.

(6) Is the Small Orchard An Asset or a Liability.—Prof. R. S. Herrick, Ames, Iowa.

(7) The Farm Orchard Situation in Illinois.—L. R. Bryant, Princeton, Ill.

Wednesday Evening 7:00 o'clock

Informal dinner, Capital House.

No invitations are issued, every member expected to attend.

Thursday Forenoon 9:30 o'clock

(1) Our Native Shrubs.—William Toole, Sr.

(2) Fruit Growing in Dunn County, Present and Prospective.—Prof. D. P. Hughes, Principal Dunn Co. School of Agriculture.

(3) Fruit Growers Co-Operative Associations.—Prof. R. S. Herrick, Ames, Iowa.

(4) Nitrate of Soda as a Fertilizer for Cherry Orchards.—Geo. F. Potter, Agr. College.

(5) Some Notes on Apple Spur Growth—R. H. Roberts, Agr. College.

Thursday Afternoon 2:00 o'clock

1:45. Practice Work in Judging Apples.

(1) Orchard Cultivation on a Large Scale.—R. E. Marken, Gays Mills.

Some Orchard Methods in Northern Illinois, L. R. Bryant.

(2) The Tractor in Orchard Cultivation—D. E. Bingham, Sturgeon Bay.

(3) How About Gooseberries? —Dr. S. B. Fracker.

(4) Some Phases of the Apple Scab Situation.—Dr. G. W. Keitt, Agr. College.

(5) Insect Pests in 1919.—Prof. H. F. Wilson, Agr. College.

Premium List

The following cash premiums are offered for exhibits at the annual convention Madison, Jan. 6, 7, 8, 1920:

Best collection of apples, not less than 15 varieties, 1st, $10.00; 2nd, $6.00; 3rd, $4.00; 4th, $2.00.

Best 5 plates (5 varieties) commercial apples for Wisconsin, 1st, $5.00; 2nd, $3.00; 3rd, $2.00; 4th, $1.00.

For best plate each of the following varieties, 1st, $1.00; 2nd, 75c; 3rd, 50c; 4th, 25c:

Ben Davis, Dudley, Fameuse, Gano, Gem, Gideon, Golden Russett, Grimes Golden, Jonathan, King, Maiden Blush, Malinda, McIntosh, McMahan, Newell, Northern Spy, Northwestern Greening, Patten, Pewaukee, Plumb Cider, Salome, Seek-no-further, Scott Winter, Tolman, Twenty Ounce, Utter, Wagener, Wealthy, Windsor, Wolf River, York Imperial.

Best tray of each of the above named varieties, 1st, $3.00; 2nd, $2.00; 3d, $1.00; 4th, 75c.

Best 5 trays of any of the following varieties: McIntosh, Northwestern, Wealthy, Tolman, Wolf River, Fameuse, Gano, Salome, McMahan, Seek-no-further, Windsor, 1st, $10.00; 2nd, $6.00; 3rd, $4.00; 4th, $2.00.

Separate samples must be furnished for each entry.

Best exhibit Pears, 1st, $1.00; 2nd, 75c; 3d, 50c.

Best exhibit Crabs, 1st, $1.00; 2nd, 75c; 3d, 50c.

VEGETABLES

Best collection, not less than 10 entries, 1st, $5.00; 2nd, $3.00; 3d, $2.00.

For each of the following, 1st, $1.00; 2nd, 75c; 3d, 50c:

6 Blood Turnip Beets, 3 White Turnips, 3 Yellow Turnips, 3 Rutabagas, 6 Chantenay Carrots, 6 Short-Horn Carrots, 3 Winter Cabbage, 3 Red Cabbage, 6 Chicory, 6 Ears Pop Corn, 6 Red Onions, 6 Yellow Danvers Onions, 6 White Onions, 6 Onions, Large Type, 6 Winter Radishes, 6 Parsnips, 6 Peppers, Hubbard Squash, 6 Heads Celery, 3 Chinese Cabbage.

Sweepstakes awarded pro rata, $20.00.

RULES OF ENTRY

1. Exhibits must be arranged ready for judges by 1:00 P. M. Tuesday, January 6th. This will be strictly enforced.

2. Four apples constitute a plate, no more, no less.

3. Competition open to all residents of Wisconsin, but premiums paid only to members. Successful exhibitors, if not members, must forward fee for membership before receiving check for premium; fee for annual membership, fifty cents.

Members or others unable to attend the meeting may send fruit to the secretary, who will make entries and place fruit on exhibition. Transportation charges must be prepaid.

All entries must be made on regular entry blanks which will be furnished by the secretary on application.

F. Cranefield, Secretary W. S. H. S., Madison, Wisconsin.

Convention Month

A desperate effort has been made to get this issue into the hands of members a few days in advance of the convention in the hopes that a careful reading of the program would convince any who might be in doubt that they could not afford to miss it. There are so many good things offered that it would be unfair to particularize. The sure way to win is to come early Tuesday and stay late Thursday.

Perfect and Imperfect

There is, of course, a heaven and a hell; there must however be a third place, for printers. The writer is sure they, or some of them, will never be welcome or safe, in either of the first two places. They will meet there, in which ever place they may go, some editor who will kill them.

Are printers, or rather "make-up" men careful? They are not. Witness the cut of strawberry blossoms in the December supplement. The perfect or staminate blossom is labeled "imperfect" and vice versa. The final proofs were correct and then,—the make-up man reversed the cut! Will someone say a short prayer?

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

Prepare to Fight Insect Pests

During the winter months the out-of-door work is at a minimum. This gives the grower an opportunity to prepare for the fight against insect pests of the coming season.

In insect control, as well as in warfare, preparedness is a big step toward preventing losses. In a great many cases insects appear suddenly and work so quickly that before the grower realizes it or has time to buy spray materials a good part of a crop may be destroyed.

The grower usually plans in advance what crops he will plant. He then should find out what common pests attack the crops in his locality and what control measures to use should such pests appear. Information may be obtained either from the Experiment Station at Madison or from the Secretary of Agriculture at Washington, D. C.

Some type of reliable spray machine should be purchased. This may range from a small hand sprayer to a power machine, depending upon the needs. Old spray machinery should be overhauled and put into good working conditions. It is much easier to obtain parts during the winter than during the spraying season when delay may mean serious loss to crops.

After a sprayer has been provided one should also obtain a supply of good standard insecticides. The grower can usually tell from year to year what common pests are quite certain to make their appearance and should be governed accordingly.

There are several directions which are of great importance in insect control. These are as follows:

Hundreds of potato plant lice sucking sap from the growing tip of a potato plant. (After Patch)

1. Be prepared.
2. Buy an efficient spray outfit.
3. Use standard spray materials.
4. Follow directions carefully.
5. Act quickly.

L. G. Gentner.

The Pink and Green Aphid of Potato

The potato aphid or plant louse has in past years done much damage to potatoes in certain sections of Wisconsin. Such damage has been due almost entirely to the loss of plant juices when untold thousands of aphides concentrated and fed on the growing tips of the plants. (See illustration.) This severe feeding injury has often forced growers to spray that the crop might be saved.

Important as the pest has been in the past however, a new and greater danger now threatens the crop. It has been shown that this louse, aside from its feeding injury, transmits a disease to the plant, known as **potato mosaic**. The disease is already established in the state and bids fair to spread unless energetic measures to control it are made. The disease decreases the yield to a considerable extent, and no efficient control measures against the disease itself has yet been found.

CONTROL LOUSE TO CONTROL DISEASE.

It is therefore of the greatest importance that the potato aphid be kept down, at least in areas where mosaic is present.

As the average grower is already using two materials—arsenicals and Bordeaux mixture—on his potato fields, the thought of having to spray with another material may not be welcome.

This louse is a sucking insect. Neither arsenicals nor Bordeaux will kill it. Nicotine preparations, soaps or oil emulsions must be used. It is the object of this article to suggest certain safe spray combinations which may save an extra application just for the louse.

Nicotine sulfate is without doubt the most efficient and convenient material to use. It should

be combined with soap at the following dilution:

Nicotine sulfate (40%)---½ pint
Soap (fish oil or laundry)--2 lbs.
Water ----------50 gallons

Arsenicals may be added to this spray if the Colorado potato beetle needs attention. Arsenical soap solutions are however liable to cause foliage injury and should be used with care.

A spray consisting of 8 pounds of soap dissolved in 50 gallons of water will be found effective against the louse.

When necessary to use Bordeaux mixture for the potato leafhopper, flea beetle or certain potato diseases, nicotine sulfate may safely be added for the louse (½ pint nicotine to 50 gals. Bordeaux), but the soap must be omitted. Do **not** use **soap** with **Bordeaux.**

It is often profitable once or twice in a season to combine Bordeaux, an arsenical and nicotine when a combination of insects and disease exists.

As with many insect borne diseases the best cure is prevention.

John E. Dudley Jr.

The Apple Leaf Crumpler

The peculiar horn-like cases and leaf crumples often found on the new growth of apple trees, (especially on young trees) are caused by reddish brown caterpillars which live within the trumpet-shaped cocoons. During the winter months, these cases are easily seen hanging by tough silken threads or fastened securely to the twigs as is shown in the accompanying picture. The caterpillars at this time are only partly grown, but as soon as the first buds open up in the spring the young larvae crawl from the larger ends of their cases and seek the closest growing buds. They spin silken threads wherever they go and quickly back up into their cocoons on the least disturbance. They feed only at night or early morning on cloudy days.

As soon as they become full grown, the caterpillars spin a thin sheen of silk over the openings and then change to pupae which

The Apple Leaf-crumpler, showing the peculiar horn-like cases in which the insect spends the winter.

is the resting stage of the insect. In a short time, the adults appear as light-brownish, prettily marked moths about one half inch in length. They soon lay eggs from which young larvae hatch. The small hatching caterpillars begin feeding at once and very soon form their peculiar trumpet-like cases. When about one-half grown they attach themselves firmly to the bark, often fastening one or more leaves to their nests, and are then ready to pass the winter.

This insect is common in southern Wisconsin. Older trees which are not regularly sprayed will often be attacked but the real injury comes when very young trees are infested.

Control Measures consist in picking off the winter nests. This is easily done on young trees but is inadvisable when trees begin to bear or are heavily infested; the best remedy then is to spray with the best lead arsenate, one pound to fifty gallons of water. Apply in the spring after the first leaves appear. Older orchards that are regularly sprayed for the codling moth are never troubled by this insect.

C. L. Fluke.

Rats, the Most Destructive Animals Known

According to the year book of the United States Department of Agriculture for 1917 there are two kinds of rats found in America, all of which are causing tremendous losses both in the cities and in the country. None of these are native, but all have been introduced from foreign countries. The brown rat, also known as the barn rat, is the worst of all, although the black rat is a close second. On the farm the rat finds an abundance of both shelter and food. Grains, fruits, vegetables, eggs, young poultry, wastage from feeding troughs, etc. are to be had for the taking. Holes made in grain sacks, and feed bins, young poultry destroyed, eggs taken and other depredations too numerous to mention, makes the rat a criminal of the worst degree.

USE TRAPS, DOGS, CATS, AND POISON

Never miss an opportunity to kill a rat and do not permit

breeding places on your farm. Rat proof the buildings, keep all food products in rat tight bins and do not throw waste products out where rats have free access to them.

EVERY FARMER BOY A TRAPPER

Encourage the boys on the farm to engage in a war against rats. You will be doing yourself a service and the boys may learn something of animal life and have some sport besides. Give each boy a half dozen traps and pay him a quarter for each rat he catches. The more he destroys the more profitable the investment. A recent investigation in some of our Eastern cities show that rats destroy $1,350,000 worth of products each year in Boston and over $1,000,000 per year in Pittsburgh, Pa.

POISON RATS WITH BARIUM CARBONATE

Barium Carbonate for rats or mice may be fed in a dough composed of four parts of meal or flour to one part of the mineral. A more convenient bait is ordinary oatmeal (rolled oats) with about one-eighth of its bulk of barium carbonate mixed with water enough to make a stiff dough. This may be exposed in bulk in a pan, or put out, about a teaspoonful at a place, in rat runs. Eaten in sufficient quantities, this mineral is dangerous to all animals, and caution is needed in its use. H. F. W.

Cut flowers, except those with milky juice, like poinsettias or poppies, keep best if a small portion of the lower end of the stem is cut off each day and the stem set in clean water.

My Neighbor's Garden

I have wondered these bitter winter days what my neighbor the gardener would find to do with his leisure during the long evenings on which I used to see a light in his basement work shop where I knew he kept some of his plants and did what I would call a lot of "pottering around." That expression always seems expecially applicable to gardeners, I suppose because their work always has more or less to do with pots.

My curiosity took me over to my neighbors one evening, and instead of calling him from his work I went down to his work room. Here I found in a cool unheated basement room lighted only by a couple of windows, quite a few growing things and quite a few things simply sleeping. Here were tender hydrangeas not quite dried up but kept just moist enough so that the buds should not shrivel, veranda pots of geraniums, wandering Jew and periwinkle, not growing but with just enough light and water to keep most of their leaves; pots of parsley looking fine and green, as well as dishes of paper white narcissus making roots and waiting their turn to be brought up stairs. In dark cool corners the cut stems of cannas and "red hot pokers" projected from heaps of sand. Other boxes and barrels held dahlias and caladiums, and in a cool, dark closet adjoining he showed me paper bags of gladiolus bulbs and on a high shelf a row of hyacinth glasses in which the long white roots had reached the bottom of the glasses and the greenish yellow sheaths of the flower stalks were showing well above the bulbs. In a couple of weeks they will be ready to be brought into the light. Here also he had his pans of Dutch-Roman hyacinths making root-growth, but beginning to show flower spikes. The temperature was between 40 and 50.

I found my neighbor busy with his jackknife whittling away at long slender stakes of which he seemed to have an enormous number. These he explained to me were mostly for gladiolus, for he makes a practice of training his plants in the way they should grow while they are still young and susceptible. His gladiolus stakes are from two and a half to four feet tall and about 3/8 to 1/2 an inch in diameter. Shorter stakes are for asters, zinnias, marigolds, calendulas, pyrethrum, snapdragon, stronger ones for Canterbury bells, foxglove, columbine and cannas. These he splits by hand out of heavy red cedar lath when he can get them and when he cannot he buys a straight-grained seven foot cedar post and out of it by axe, hatchet and jackknife he will split a bundle of fine straight stakes, and when in the midst of his work he looks not unlike the ancient arrow-maker of the Hiawatha legend.

For hollyhocks, dahlia, cosmos and other tall heavy plants he gets 3/4 x 3/4 sawed cypress stakes at the planing mill. They are made of edgings and are not expensive. For tomatoes he gets 2 x 2 cypress. All stakes are stored in the basement in the winter time and except for breakage will last eight or ten years if sap wood is excluded.

But not only does he make stakes but labels. He has a real gardener's passion for having the names of his pets before him. With a dozen varieties of iris,

twenty varieties of asters and peonies, fifty of tulips and many more of gladiolus it is quite impossible to keep them all in mind. Besides it is a great pleasure to any gardener-minded visitor to know the name of any variety which he may see in another's garden, so my neighbor makes labels for nearly all his plants, especially of those of which he has named varieties. These he can buy of the seedsmen and florists and they look neat and pleasing, but are gone at the end of the first season. So he buys red cedar lath, if he can get them, cuts them into one foot lengths, planes one end smooth for about 4 inches, gives the smoothed part two coats of flat white paint, leaving the rest unpainted, sharpens the other end, and has a stake that is good for four or five years of constant exposure, and of twice that length of time, if taken in winters as the gladiolus labels are. These labels are marked with a black carpenter's pencil, or a marking crayon, or even a soft lead pencil. If red cedar lath cannot be had he goes to the planing mill and gets quarter inch strips sawed from inch or inch and a quarter stuff which he cuts into ten or twelve inch lengths.

I. P. Ketchum

Isaac P. Ketchum, a life member of this Society, died Nov. 22, 1919. He would have been 72 years of age on January 1st next. He frequently attended our meetings and was always keenly interested in our work. Of his love of the beautiful his friend Col. W. J. Anderson says:

"Mr. Ketchum's love of trees and flowers was a passion. In his beautiful grounds at Ethelwyn Park, across Lake Monona, he had not failed for years to plant annually many trees and shrubs. A fine altruism manifested itself in his tree planting. He was planting always that those who came after him should find enjoyment in the results of his work. He spoke often of what he called the kindness manifested by the early owners of his home acres who planted so many beautiful trees."

There was found among his papers the following verse by Whittier:

THE TREE PLANTER

Give fools their gold and knaves their power;
Let fortune's bubbles raise and fall;
Who sows a field or trains a flower
Or plants a tree is more than all.

Mr. Ketchum was also a firm believer in Wisconsin as a fruit state. His faith in this respect never wavered and within a few years planted a cherry orchard of considerable size near Madison.

About Storing Gladiolus Bulbs

A member asks the following questions: "What is the best method of storing gladiolus bulbs? Should they be covered or left open to the air? Should the tops be cut off when stored? What should be done with the little bulblets to preserve them for spring planting?"

The article by Henry J. Moore in the December number of this paper discussed at length the storage of bulbs and gives not only directions but reasons. He says: "Bulbs and tubers during their winter's rest are alive, tho dormant, and they require living conditions peculiar to the resting period."

While gladiolus bulbs are of firm texture they will not withstand freezing or extremely dry air for a long period.

Dig and store in a dry place for a few days until the tops are thoroly dry. Remove the tops and store the bulbs in paper sacks or pasteboard cartons in a cool dry place, preferably at a temperature of 45° to 50°. The bulblets will not stand as much drying as the bulbs and should be stored in damp, not wet, sand.

Transplanting Wild Blackberries

A member who lives where wild blackberries are plentiful and of good quality asks if it would be practical to transplant these wild plants for commercial purposes. It would not. In the first place it would be impractical if not impossible to secure sufficient plants uniform in size of the proper age for transplanting and secondly there is rarely any uniformity in size, productiveness or quality in the wild berries. If one were to mark a choice bush at fruiting time move it and propagate from this by means of sucker plants or root cuttings it would be possible to build up a stock of plants of one variety but it would not be worth the trouble. Better buy plants.

Protect beans and peas from the weevil ravages by putting in an airtight receptacle and putting carbon bisulphide in a saucer. This quickly evaporates and the fumes settle among the peas or beans, destroying any weevils present.

Beekeepers' Convention

(Continued from page 71)

present, Mr. Warren of the A. I. Root Company, was called upon to speak in her place. Mr. Warren's address was not only interesting but threw a great deal of light upon the shipping of honey. From the statements he made, it is very evident that our beekeepers have not sufficiently studied the matter of shipping packages for either extracted or comb honey; and he pointed out the need of standard tested shipping packages. He also impressed the beekeeper with the necessity of recognizing a retail, wholesale and jobbing market, and stated that the beekeepers must sooner or later make a study of such markets.

Mr. H. L. McMurry then addressed the beekeepers on "Modern Beekeeping Practices." Mr. McMurry has a very pleasing and interesting way of presenting his subjects and brought out the important points necessary for good beekeeping practices in Wisconsin. Meeting adjourned at 12:15 and picture taken on the steps of the State Capitol.

The afternoon meeting was called to order at 1:55.

Mr. Chas. L. Daux talked on "Out-Yard Advantages." This subject is of much interest to our beekeepers at the present time and this paper will later be printed in Wisconsin Horticulture.

Reports of committees were then presented and the changes in constitution recommended by the Board of Managers were taken up separately and passed upon as they will appear in our new constitution and directory to be printed sometime in January or February.

The Marketing Committee then reported and the following resolutions were unanimously adopted:

The Marketing Committee of the State Beekeepers' Association has taken up with the various divisions of the Department of Agriculture the beekeepers marketing problems and has received suggestions from the officers of the department. The committee for the convenience of the association, has placed their report in the form of a series of resolutions which are recommended to the association for adoption.

RESOLUTIONS

Be it resolved by the State Beekeepers' Association, that the crop reporting service of the State and U. S. Departments of Agriculture, cooperating, be requested to furnish to the beekeepers through the newspapers, the State Entomologist, and the Marketing Commission the following information:

1. On or about July 1 of each year the conditions of the honey-producing plants and the prospects for a crop as determined by information received from the beekeepers.

2. On or about August 1 the beekeepers' estimates on the total honey crop for the state, the yield per colony and the probable price.

3. On or about September 1, November 1 and January 1 revised information on the total crop, the yield per colony of comb and extracted honey, and the price.

Be it further resolved, that the members of the Beekeepers' Association pledge themselves to give all possible assistance to the crop reporting division in securing this information.

Be it resolved, that the State Beekeepers' Association accept the offer of space in the market news letter for price and marketing information as made by the Marketing Division, and,

Be it resolved, that the association request the Division of Markets to send this news letter to all its members, and

Be it further resolved, that the Marketing Division be requested to secure from the Division of Entomology, including the apiary inspection service, the following information:

1. All crop and price estimates secured by the crop reporting service.

2. General market news condensed from the published statements of the U. S. Bureau of Markets, from correspondents, from reports of local beekeepers' associations, and from reports of the associations of other states.

3. Offerings of honey with description of the grade, amount, and price at which it may be secured.

Be it resolved, by the State Beekeepers' Association, that we cooperate with the Department of Agriculture as represented in the crop reporting service, the division of markets, and the state entomologist's office, and offer the service of our officers and those of every affiliated beekeepers' association in making the reports and information accurate.

Be it resolved, that the State Beekeepers' Association, ask the Division of Markets to establish legal standards for the grading of comb and extracted honey; that in the opinion of the members of this association such grades should conform as nearly as possible to those now used by the principal honey buyers; that such grades should be as simple as possible and that the requirements of marking such grades on the container should apply to extracted honey in any quantity, and to comb honey in case lots."

S. B. Fracker,
N. E. France,
A. L. Kleeber,
Committee.

The Nominating Committee comprised of the delegates of the Board of Managers reported the following nominees.

President—Gus Dittmer, E. A. Duax.

Vice-President—J. E. Cooke, Harry Lathrop.

Treasurer—A. C. Allen, Wm. Otto.

Secretary—H. F. Wilson, John Kneser.

The following officers were elected to serve for the coming year:

President—Gus Dittmer.

Vice-President—J. E. Cooke.

Treasurer—A. C. Allen.

Secretary—H. F. Wilson.

A rising vote of thanks was extended to Dr. Fracker for the inspection work accomplished during the past year.

A rising vote of thanks was extended to Mrs. O. W. Hildreth for her work as assistant to the secretary. (Mrs. Hildreth has helped a great deal during the past year in keeping up the records.)

Moton was then made and passed to have the constitution printed with a directory as was done last year.

A motion was passed that the secretary be authorized to contract with the editor of Wisconsin Horticulture for four pages to be used for the State Beekeepers' Association.

Report of the Resolutions Committee accepted and adopted as follows:

"Whereas, the Department of Agriculture through its division of Entomology is conducting area clean-up work for the control of bee diseases and is using every possible resource of the department to reduce the ravages of American and European foulbrood,

Therefore be it resolved that the Wisconsin State Beekeepers' Association express its approval of the work being carried on and promise the support of the organization and the cooperation of all its members in the campaign.

Whereas, the State University through its Department of Economic Entomology and its Extension Service is assisting in the development of beekeeping; first, in organizing local associations; second, in holding a beekeepers' chautauqua on the University Campus during the summer; and third, in supporting the apiary industry in other ways,

Therefore be it resolved that the thanks of the association be tendered to the university and particularly to the members of the staff who are in charge of this work, and that we express appreciation of the help of Dr. Phillips and Mr. Demuth of the U. S. Department of Agriculture in making the beekeepers' school a marked success.

Whereas, the beekeepers of the state have been greatly benefited by the county agents in helping to form local associations and assisting the apiary inspectors in carrying out their work,

Therefore, be it resolved that the association go on record in support of the policy of maintaining a county agent in every county of the state; and be it further resolved that we recommend to the local societies affiliated with us that they cooperate with him in their localities in his other work in every possible way."

The meeting adjourned at 4:35 P. M.

H. F. Wilson, Secretary.

HONEY RECIPE

By Mrs. R. E. Vaughan.

I. *Cake.*

Place one and a half cups of honey and one-half cup of butter in large sauce pan over the fire and let slowly come to the boiling point, beating all the while with an egg beater. Remove from fire and cool ten minutes, then add yolks of five eggs, beating mixture vigorously after adding each yolk. Add a half teaspoonful of soda dissolved in a little cold water and slowly sift in three cups of flour. When well mixed, add three tablespoonsful of milk and one more cup of flour. Fill about half full small buttered muffin tins and bake for about twenty-five minutes.

II. *Cookies.*

To the above recipe add another cup of flour and a teaspoonful of cinnamon. Take a small piece of dough and roll out on a floured board and cut into fancy forms. The tops may be sprinkled with granulated sugar, chopped nuts, shredded cocoanut or citron, and various seeds for flavors. Bake in a moderate oven twenty minutes.

Soot as a Fertilizer

We have a good many questions from market gardeners who ask about the value of soot as a fertilizer. Some of our people live near manufacturing towns, and the factory chimneys, when cleaned out, yield quantities of this black material. The soot is deposited on the chimney from the smoke arising from the coal or wood. It contains small particles of unburned fuel, and in these are found small quantities of nitrogen, potash and phosphoric acid. There is no standard composition of soot, although some samples run high in nitrogen. English

gardeners make heavy use of this material. It is good to use on cold, heavy land, as it darkens the color of the soil and thus increases its power to hold the heat. In England soot is considered a stimulant, somewhat the same as nitrate of soda, although of course with very much less nitrogen. The English gardeners use it early in the season, scattered between the hills or drills, and well worked in with hoe or cultivator. Such crops as onions, cabbage, and root crops generally, respond quickly to an application of soot, and it has some value for keeping down certain insects, such as cutworms, wireworms and grubs. It is not a good plan to use lime with the soot, as the effect of this mixing would be to drive off part of the ammonia. After the soot has been worked into the ground, however, the lime can then be added with good results, and this combination is said to be useful for fighting insects. Some gardeners make great use of soot as a liquid manure. In preparing this liquid, a peck of soot is put in a weighted bag and suspended in a barrel of water, where it is permitted to soak for a week. The black liquid produced in this way makes a good application for the garden. In England soot is bought and sold by measure, and not by weight. It is said that the heavier samples are the poorest, as they are mixed with brick and mortar.—Rural New Yorker.

Rabbits, Whitewash and Delicious Apples.

1. Rabbits have ruined a number of my young low headed apple trees, set out last spring, by biting off all the season's growth of branches this winter. I have the trunks of the trees protected with veneer wrappers.

Will such damaged trees make satisfactory growth again, or would it be better if they were replaced by new trees next spring?

2. My apple trees, 1 and 2 years old, are being damaged by an insect which is depositing its eggs in the trees in large numbers, from the trunk upwards into the small twigs. There are small holes in the bark, these holes later enlarge and cause the bark to look rough and cracked, as if the tree was studded with small bird eyes. I have opened one of the punctures in the bark and found a quite deep seated tiny larva. What kind of insect is this, and what can be done against it?

3. Should young trees be whitewashed, and at what time of the year?

4. How is the Delicious apple doing here in Wisconsin?

5. Several young trees set out last spring have made very unsatisfactory growth. Should these be replaced with new trees from the nursery next spring?

(1) Sometime fruit growers in Wisconsin will demand, and obtain, an amendment to the game laws striking out the word "rabbit" or "rabbits" wherever they appear.

So far as these particular trees are concerned they are no doubt injured, but not necessarily ruined. A little careful pruning for a year or two will put them in shape again. There are plenty of buds on the two year old wood "submerged" or "adventitious" buds, provided by nature for exactly such an emergency as this, that will push out next spring and form a new head. By all means leave these trees rather than go

to the expense of setting new ones.

(2) The punctured twigs referred to were sent to the Dept. of Entomology. Dr. Fracker discourses on the situation as follows:

"The apple branch contains scars from which eggs of the Buffalo Tree Hopper *(Ceresa bubalus* or *C. taurinus)* have hatched. The eggs are usually laid in the tender twigs and pass the winter there. In the spring they hatch out and the punctures in the wood continue to swell and by fall the bark is in the condition shown in your sample. As the tree grows older these swellings increase considerably in size and in bad cases occasionally kill branches or even trees.

There is no remedy for the condition after the eggs have been deposited but as these tree hoppers lay eggs only in trees which are surrounded by grass or weeds, the evident method of preventing the injury is to clean cultivate the trees or keep the grass cut short."

(3) Any time of the year is suitable for whitewashing apple trees, whenever the whitewash is ready. As to the value of such work that is another story. Some feel that a coat of whitewash improves the appearance of the trees and to any who feel that way about it whitewashing is certainly a good thing. It does no harm.

(4) The Delicious apple is being thoroly tested by this Society and in due time a report will be given. One hundred trees have been planted, about twenty in each of the trial orchards at Gays Mills, Pewaukee, Baraboo and the Weston orchard twelve miles from Menomonie.

The trees were planted in 1913, 1914 and 1915 and so far have borne no fruit worth mentioning, only an apple here and there, the trees have made a wonderful growth and losses of trees have not been greater than in other varieties planted alongside. It will require at least five years more before a report can be made as to the value of the Delicious for Wisconsin orchards.

(5) The data here is too incomplete. The mere fact that the trees made only slight growth the first year is not a good reason for replacing them. It is better to ask why they did not grow more and then set out to correct the conditions. If soil or site is uncongenial it might be better to remove these trees to a new place rather than to replace with other trees.

A POPULAR COURSE IN HORTICULTURE

It is surprising what a vast amount of misinformation one may acquire by a careful reading of the daily papers. The following items picked at random have a decided Burbankian flavor.

Poplar Bluff, Me.—According to W. T. Romine, recorder of Dunklin county, Luther Burbank has been outdone on the farm of F. M. McNeil, where a wild grape vine growing around a hickory tree has produced hickory nuts in place of grapes for two consecutive years. It is not alleged that the vine grows the nuts in clusters like grapes, but many persons in the neighborhood testify to the authenticity of the story.

Findlay, O.—This city boasts of a local Burbank who hypnotized

an apple tree into bearing 29 differen varieties of apples and 7 varieites of pears. And he accomplished it all on one tree which a few years ago seemed ready to keel over from age, neglect and disgust.

The wizard is Henry Flatter. Practically all the apple grafts are bearing regularly, while the pear grafts were reported doing well, with two of them producing fruit of exceptional quality.

Flatter now proposes to make the tree produce an apple half sweet and half sour. He has grafted two slit buds of sour and sweet apples on the tree and he is convinced the graft will produce the the fifty-fifty apple.

Apples and pears ripen on the tree from early spring until late in the fall. All are reported healthy and edible.

Horticultural students from surrounding states come often to sit at the roots of this tree of varied apples and pears. Flatter holds there is no particular wizardy attached to his achievement.

"Get to know your trees, that's all," is his recipe.

STATE FLOWERS

The Wisconsin Farmer has compiled the following list:

Arizona—Sahuaro or giant cactus.
Arkansas—Apple blossom.
California—Golden poppy.
Colorado—Blue columbine.
Connecticut—Mountain laurel.
Delaware—Peach blossom.
Florida—Orange.
Georgia—Cherokee rose.
Idaho—Syringa.
Illinois—Violet.
Indiana—Carnation.
Iowa—Wild rose.
Kansas—Sunflower.
Kentucky—Trumpet vine.
Louisiana—Carnation.
Maine—Pine cone and tassel.
Michigan—Apple blossoms.
Minnesota—Moccasin flower.
Mississippi—Magnolia.
Nevada—Sagebrush.
New Mexico—Cactus.
New York—Rose.
Nebraska—Goldenrod.
North Carolina—Daisies.
North Dakota—Wild prairie rose.
Ohio—Scarlet carnation.
Oklahoma—Mistletoe.
Oregon—Oregon grape.
South Dakota—Pasque flower.
Rhode Island—Violet.
Texas—Blue Bonnet.
Utah—Sego lily.
Vermont—Red clover.
Washington—Rhododendron.
West Virginia—Rhododendron.
Wisconsin—Violet.
Wyoming—Indian paint brush.

1919 U. S. Apple Crop

The commercial apple crop for the United States is estimated at 23,177,000 barrels, compared with a production of 24,724,000 barrels in 1918, according to the October report of the Bureau of Crop Estimates, United States Department of Agriculture. Prices paid for this fruit, from ciders to A grade, are the highest since apple growing became a commercial industry.

The Administration of the Apple Grading Law

The inspection of the apple packing in 188 orchards containing 50,400 trees, and the examination of a large number of barrels and boxes of apples, is outlined in the report for this season's apple administration filed by Dr. S. B. Fracker, Acting State Entomologist, with Commissioner of Agriculture, C. P. Norgord.

Three full time inspectors were employed by the Department of Agriculture in apple grading work throughout the packing season. Practically the entire commercial crop of 129,000 barrels was sent out properly labeled under the apple grading law. The remaining 2,516,000 bushels consisted of apples which were absorbed locally, sent out in bulk, or wasted.

Of the various grades, which are "Wisconsin Standard Fancy," "Standard A," "Standard B," "Unclassified," and "Culls," by far the most popular grade this season was "Standard B," although a very large number of "Standard A" were packed in the best orchard districts. Very few "Fancy" apples were shipped from this state this season, owing to the unusual amount of injury from scab, curculio, and worms.

A number of violations of the law were discovered and prosecutions have been begun, both for unlabeled barrels and for those which did not come up to the grade marked. These are the first prosecutions which have been started since the passing of the law and are somewhat in the nature of test cases.

"The season was a remarkable demonstration of the profits of Wisconsin orchards when carefully managed and of the losses resulting from neglect," according to the report. "The fact that the carefully sprayed orchards produced high grade fruit for which the orchard owner received from six to eight dollars per barrel, while two and one-half million bushels were either sold locally at low prices or rotted under the trees is a convincing argument in favor of careful handling of fruit. Individual orchards in Sauk, Richland, Crawford, and Door counties paid handsome returns while many of those in the east central portion of the state which were less well cared for hardly paid the interest on the value of the land.

"The state contains in the neighborhood of 800 orchards of 200 trees or more which could be made highly profitable investments by the adoption of a simple spraying program. The season's work shows that summer strength lime-sulphur is much more satisfactory for this purpose than the well known Bordeaux mixture. One of the orchard districts in particular suffered severe injury from spraying with Bordeaux while the trees in the same neighborhoods to which the lime-sulphur and arsenate of lead mixture were applied were protected as effectively from insects and disease and were not injured by the spray. This is in accordance with the recommendations made by the department at the beginning of the season."

Rural Planning

One of the bright spots in the legislative session of 1918–1919 was the enactment of the Rural Planning Law.

Section (2) of the Act defines Rural Planning as follows:

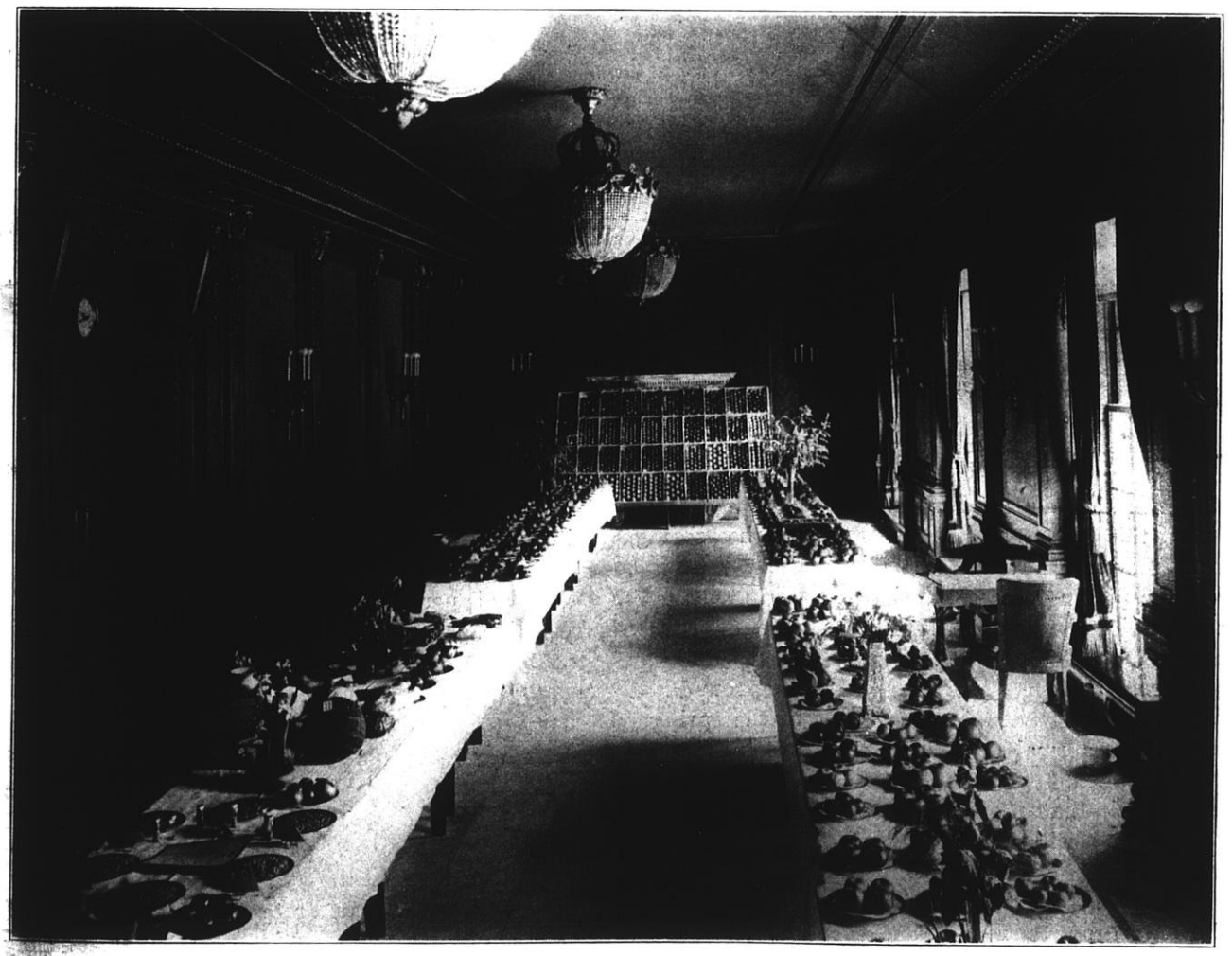
2. "Rural planning" as used in this section means planning for the health, general welfare, and amenity of the settler; planning for the establishment of the best possible transportation facilities; planning for the creation and development of the most logical community centers where country people can come together for social and business relations; planning for the setting aside of country parks, recreation fields, county fair grounds, community woodlands, places of local and historic interest, and for the reservation of land for public uses along river fronts, lake shores, fine outlooks from hilltops, and for the preservation of our native landscape.

Surely this is a subject fit for the most earnest consideration of every horticulturist in the state. We will, therefore, spend an entire session at the Convention discussing this topic in an endeavor to learn how we may best serve the people of the state in carrying out the objects set forth in the preamble. The Rural planning law was printed in the September number of this paper. We discussed only one phase of this subject at the summer meeting, country parks; we will go further into it at the January meeting.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, February, 1920 | Number 6



A BEAUTIFUL ROOM WELL FURNISHED. ANNUAL CONVENTION, JANUARY 6th TO 9th, 1920

"Strawberries Every Year"

J. E. Leverich, Sparta.

I appear before you today at the request of our Secretary, Mr. Cranefield, to explain how we grow strawberries "Every Year." I might say with much truth that, I have partially, at least, grown up in the strawberry field. I cannot remember when we have not had at least five acres to pick each year, and for the coming season we have about fifteen acres. We are "farmer strawberry growers," but, understand we look out for, and plan to make a success of the berries,—both strawberries and bush berries; just the same as we do of our herd of Holstein cattle, and our fields of Golden Glow and Silver King seed corn.

However, I am well aware, that we have broken many old rules and methods brought along from the past in relation to the growing of a strawberry crop for profit, and I do not doubt but that some of the methods we follow, which, before I am through I will explain, may be a severe shock to the sensitive strawberry nerve of some strawberry growers in my audience. But as a tonic for that distressed person, I have this suggestion,—come to the "Leverich Fruit Farm" during the picking season next June and eat of the fruit, and if this and the sight of one hundred pickers, picking the luscious "King of all Berries," does not restore to normal conditions, the nerves which I may have upset, I shall feel, that nothing but the "old plan" will do for that person.

In giving you information on how we grow them, not one year but every year, and produce nearly 20% of all the berries grown in the Sparta district, and a crop the past season, of nearly thirty-five hundred, 16 quart cases from nine acres, with sales of nearly seven thousand dollars for the same. And yet, we hear some people say that strawberries are run out at Sparta. There certainly is an opportunity for a difference of opinion on the question.

First—Location.

We select a suitable location, which, in our particular case is a sandy loam soil with a clay subsoil just rolling enough to afford good natural drainage. We grow in a three year rotation, oats, corn or potatoes, and strawberries. We always grow a cultivated crop the year preceding the planting of strawberries, which helps to eradicate the weeds to a large extent, the following year.

Preparation of Soil.

We fall plow all land to be planted to strawberries, at least eight inches deep. We disc all land before plowing, which cuts up the stubble and leaves the top of the ground in a loose condition. As soon as the snow melts in the spring, and before the ground thaws, we top dress, using from ten to fifteen loads per acre of barn yard manure, applied with a spreader. As soon as the ground is dry enough to work in the spring, we harrow it to break the top and thoroughly pulverize the manure. It is next double disced as deep as the disc will run, so as to thoroughly cut up the manure and loosen up the ground. By doing this the small particles of manure are evenly spread through the soil, thus supplying all humus necessary for the proper nourishment of the plants, and also preventing the soil from getting too hard later on, which is one of the greatest causes of failure to get a perfect stand of plants. After a good harrowing, to level and break all humps, a spring tooth harrow is used, being regulated to run nearly as deep as the land was plowed in the fall. After this is completed, the soil is usually in a very loose condition, and we immediately harrow to level, break lumps and conserve moisture. We repeat this spring toothing once each week until we are ready to plant, so that no weeds are permitted to get a start. For, we firmly believe the time to kill weeds is before the plants are set. Before planting, we harrow three or four times to thoroughly pulverize and level, and if the season is inclined to be dry at this time, we roll, and harrow after the roller with a light harrow. However, if we are having plenty of rain, during planting time, we do not follow this course. When we have the field in shape to plant, it resembles a garden plot.

Time of Planting.

We aim to plant the week following May 1st, so that the young plants will get the benefit of the spring rains. However, we have had good results one or two years when we have planted a week or two later.

We use a two-horse strawberry planter to set all our plants, and plant about twenty-one inches apart in rows four feet wide. I have personally dropped every plant we have set for the past eight or ten years, and have lost comparatively few plants during that time.

We use about 2 barrels of water for every thousand plants set, and also soak all roots before planting, and as artesian wells and water are very plentiful up in the Sparta district, we do not discriminate in the use of water; be the season wet or dry, the water goes in with the plants just the same. We have found, that plants set with the planter, and where plenty of water has been used, can stand a dry season as well, if not better, than those set by hand, and as a consequence, my my services at strawberry planting time are in demand, as the neighbors are beginning to become convinced by seeing, that the planter is the surest means of getting a good stand of strawberry plants.

We grow our plants on new land and set the best possible to obtain. We cannot afford to take chances and tempt fate, and set any other kind. Good plants are the foundation and are cheap at any price. We sell many plants, but we advise growers to grow their own, when possible to do so, as we think the plan has many advantages. All plants are set immediately after they are dug and sorted.

If, at the time of planting, the ground is very dry (and that is when a planter will work the best) and we do not get rain in a day or two, we again roll the ground with a light roller after the plants are set. This process presses down the ridge in the plant rows and presses the dirt more firmly around the plants. We have found that this rolling does not injure them in the least, as one would naturally suppose it would, but is a great help in keeping the roots from drying out at this time. It is our aim to have the soil mellow but firm.

CULTIVATION.

As soon as the weeds begin to start, or after the first rain, we take a light wooden frame spike tooth harrow, and harrow the field lengthwise, if the top of the ground is very hard, we also harrow it crosswise. This, we find, breaks up the crust that is bound to form, and kills a large number of the early weeds, and loosens the dirt around the plants; thus saving much hoeing. It also scratches the dirt from the top of the crowns of the plants, that have been planted a little too deep, or have been covered slightly by rolling. When doing this, great care must be exercised to keep the harrow teeth free from straw, etc. However, one must be on the alert every minute during this harrowing and you will be surprised at the very small number of plants that are injured.

We cultivate our strawberries every week after the first two weeks, until September 1st, or later if necessary, and keep the ground in a loose mellow condition. As soon as the blossoms are out on the new plants, they are all picked off, and no berries are permitted to grow the first season, and thus weaken the mother plants. We cultivate as close as possible to the plants without injuring them, and permit no weeds to grow, whatever. We use a sulky cultivator and Planet Junior for this purpose.

After the plants have a good start we hoe them for the first time about June 1st, using great care not to disturb the roots and to uncover all crowns. As soon as the runners start to shoot out, they are trained by cultivating and hoeing to form a matted row, and as the number of runners and new plants increase, the cultivator is narrowed a few inches each time. Care and judgment must be exercised at this time, as the row must be kept intact and not allowed to spread too rapidly.

At the second hoeing the runners are placed and trained to fill all vacant spaces in the row, so that by following this method of gradually allowing the row to grow wider; by the 1st of September, we are able to have a good wide row, with a space of from ten to sixteen inches between each row. From this time until it becomes too cold for plants to multiply, we cultivate to prevent them from growing together, using for this purpose a spike tooth cultivator, set as narrow as possible.

(To be continued in March)

Home Fruit Growing

Well-ripened sound fruit is healthful. It is also a valuable food. It should form a part of every meal, fresh when possible, or dried, canned, or otherwise preserved.

Home-grown fruit is desirable—

Because it reaches the family fresh and in the best possible condition.

Because the family has fruit of which it would often be deprived if it had to be purchased.

Because, if the proper varieties be selected, a continuous supply of fruit of superior quality may be secured, regardless of market prices.

Because any surplus may be sold without difficulty, or may be canned, evaporated, or otherwise conserved for use when fresh fruit is not available.

How to Grow Asters and Gladiolus

James Livingstone.

A great mistake is often made in growing asters by sowing the seed too early. There is nothing gained by sowing the seed early and allowing the plants to stand around in flats till planting-out time, in fact the plants are often greatly injured that way. Some of the early flowering sorts like Queen of the Market can be sown the latter part of March or first of April but for the main crop of cut flowers, from April tenth to fifteenth is early enough to sow the seed. The plants can then be grown right along till planting out time without check or allowing them to become drawn and stunted.

Seed sown at the time stated and the plants grown right along under the proper conditions make splendid plants for planting out around Decoration day.

The seed should be sown in pans or flats of fairly rich light sand loam, and covered with sandy soil and leaf mold that has been sifted through a sieve made of wire mosquito netting. When the young plants are large enough to handle they should be pricked off into flats. The flats I use are 12 x 22 inches and three inches deep. These flats hold fifty plants. These flats are very handy, and it is always easy to figure up how many plants one has, by the number of flats, no odd numbers to count.

When the weather is mild the plants should be given plenty of air to harden them, and keep them from becoming weak and drawn, and if they are in cold frames, which is really the best place for them, the sash should be removed altogether on mild days.

In this locality, Milwaukee, it is usually around Decoration day before the plants can be planted out.

I usually plant in rows eighteen inches apart and twelve inches between the plants in the row, this gives plenty of room to cultivate with a wheel cultivator, and gives the plants room to develop.

Asters should not be planted two years in succession on the same ground. They make much better plants and keep freer from disease if given a new location every year. Rotation of crops is always a good practice and no greater proof of this can be found than in the growing of asters.

GLADIOLUS.

Gladiolus are amongst our easiest plants to grow, and rival in beauty any of our garden flowers. Their cultivation is so easy that it almost seems like a waste of time and space to describe any method of growing them. They can be grown from seed easily, and some seedlings that I raised flowered the second season from seeding. There is a variety that is claimed to be an annual and flowers the first season, but I have never tried it.

My own method of growing gladiolus is to commence planting about the latter part of April, and plant every two weeks till about the middle of June. This gives a good succession of cut flowers, which continues well along into September. We usually open a drill five or six inches deep in good rich soil, plant the bulbs three or four inches apart according to the size of the bulb, and the vigor of growth of the variety. This gives the bulbs a good covering and when the plants push their way through they have a good firm hold of the soil, and are not easily blown over. When the bulbs are planted deep there is not so much need of stalking; of course in some of the stronger growing varieties it is a good practice to stake the flower spikes, because if they are allowed to become crooked they lose value, and a great deal of their beauty as a cut flower.

The bulbs should be left as long as possible in the ground, but should be harvested before there is danger of the ground freezing. Some growers cut the tops off within a few inches of the bulb, but I prefer to leave almost all of the tops on, and tie them in bundles of convenient size and hang them on nails along the rafters in a cool basement. This saves room and the air gets through amongst the bulbs freely, and they do not start to grow so quickly as they do when they are piled together in boxes.

Hardy Plants for Home Grounds

"I guess I will buy some 'prennyuls' this year, I want something that don't take so much fussing and that will not have to be planted every year. They're so nice don't you think?" Of course I think so, it pays to agree with somebody who is going to part with some of that elusive evil known as money, but I know I am not dealing with a real flower lover. A real lover of flowers grows them not only for the result of beautiful flowers, but to satisfy that instinct we have to create something beautiful through our own efforts, through study and care and watchfulness. Of course I try to sell this person some kind of plant that will give of its beauty with the least possible expenditure of brain energy, but really, the dandelion and the Canada thistle are about the only ornamentals that fill these requirements, and I have not found any buyers for them as yet.

There is wondrous fascination in studying the likes and dislikes

of all the different kinds of plants that we may term as hardy here in Wisconsin. The kind of soil they like, and fertility, and drainage and moisture and when they bloom and how high they grow and how they fit in with other flowers and how often they should be divided and how to grow young ones and how much covering to give in winter and the thousand and one little things that make plants intimate personal friends rather than just something that grows.

Of course it is a very nice thing to have your grounds all laid out by a landscape gardener so you are sure that everything harmonizes with everything else and that it is all done properly even if you don't just quite like it, but someway I have a sympathy for the old fashioned garden even if things are a bit jumbled. There is more of joy in carrying out your own ideas and plans, even if they do lack in perfection, than in following out some other person's plans who may not be just in sympathy with your likes and dislikes.

And do not feel, either, that your whole garden must be planted in one year. Let it grow naturally, as friendships grow, adding as desire and opportunity permit.

About half the fun of gardening is in looking over the catalogs during the winter and wondering what this or that new kind is like, and dreaming about them, and it would spoil a whole lot of fun if you planted the whole garden in one year and had no incentive to grow your dream gardens during the winter time.

Well, I started out to write about "Hardy Plants for Home Grounds" and haven't said anything yet and my time has run out so we will quit for this time and try and really say something next month.

Bill Toole,
Garry nee Dule.

The First Hundred

A drive is on for one hundred members for the American Pomological Society from Wisconsin in 1920. Nine of our members head the list. How many more will there be for the March number? It has always been worth $2.00 to be a member of the A. P. S., it will be worth many times that in the new organization. Send $2.00 to this office for a receipt, 1917 volume of proceedings and all the good things coming. "The American Pomologist" is in the making and will appear as soon as funds are in sight. We can see the shadow already.

The early birds are:

R. J. Coe,
Wm. Longland,
G. A. Buckstaff,
J. A. Hays,
Irving Smith,
Wm. Toole, Sr.,
A. Martini,
N. A. Rasmussen,
H. C. Christensen.

Only 91 more needed; fifty in February will help.

Growing Asters and Gladiolus For Market

"Would you please give me the name and address of some person or firm who make a specialty of the cultivation of asters and gladiolus, where I could get the best seed and bulbs? I would also be very grateful for the address of some reliable firms in Chicago who would buy cut flowers."

"I have raised asters and gladiolus for two years on a small scale and am very fond of the work and would like to go into it on a bigger scale. I would be very glad if you had any leaflets you could send me on the care of asters and gladiolus that you think would help."

L. M. J.

Any reliable seed firm, or florist in any of our large cities can supply aster seed and gladiolus bulbs, that will give just as good results as if they were purchased from a specialist in those lines. The varieties of asters and gladioli suitable for growing for cut flowers are so numerous that it is a matter of experience to choose the best varieties to grow for the market.

As a rule, at the season of the year when asters and gladiolus are in bloom the market is so glutted with them that in the opinion of the writer it would be hard for an amateur to find a market for them in Chicago and it would not pay to ship them there unless they were exceptionally well grown. Well grown stuff can always find an opening and can command a fair price, but it takes a good deal of experience to grow flowers suitable for the Chicago market and make it pay.

Unless the grower intends to go into it on a very large scale, it would be better to find a local market, and work up a business gradually, rather than ship to Chicago. When the cost of packing and shipping to Chicago is taken into consideration, the prices obtained in the local markets would probably compare very favorably with those of Chicago. I would suggest that the grower obtain a copy of The American Florist or The Florist Review, Chicago, the addresses of a number of wholesale florists in Chicago will be found there; also the addresses of seed firms that can supply aster seed and gladiolus bulbs.

Jas. Livingstone.

The American Pomological Society, Its Rejuvenation and What it Means

The A. P. S. is the oldest horticultural organization on this continent having continuous existence.

In the summer of 1848 A. J. Downing, Marshall P. Wilder, S. B. Parsons and a few others met in the city of New York to consider the expediency of establishing an American society thru which the then chaotic condition of pomology could be improved: for the purpose of correcting confused nomenclature, to preserve the fruits that were valuable and discard those which were worthless.

As a result of this conference the National Pomological Society was formed which was later extended to include Canada and rechristened the American Pomological Society. Thru nearly three-quarters of a century this society has held annual or biennial meetings attended by the foremost pomologists of the two countries. The society has never had any other source of income than the membership fees except the income from a fund of five thousand dollars contributed by Marshall P. Wilder for medals.

During this period the A. P. S. has rendered a service invaluable to pomology. Long before the department of agriculture was thought of the various committees of the A. P. S. were hard at work describing and classifying our fruits and correcting the nomenclature of pomology. Very early in its history the society came to be recognized as the court of final appeal so far as the names of fruits were concerned and holds that place today.

Thru the bestowal of the Wilder medals all new meritorious fruits are given a start in the world, a standing in the community of pomology such as could be had in no other way. Nor are these the only ways in which the A. P. S. has aided in the development of fruit growing. A glance thru the early reports show that those giants of early days were looking forward to the time when fruit growing would pass from the amateur stage then existing and hold its rightful place as one of the leading branches of agriculture and by careful study and more careful experiments with varieties, soils, cultivation, etc. laid the foundation of our present day pomology. Verily we owe much to these pioneers.

With the growth of commercial fruit growing during the past quarter of a century, the consequent falling off of the true amateur spirit and the love of fruit, as fruit, rather than as something which might be converted into dollars the A. P. S. declined in membership if not in influence.

At the biennial meetings of 1915 and 1917 there was much discussion as to ways and means of regaining lost ground and of placing the A. P. S. again in its proper place. One faction, including the writer urged that the A. P. S. with its splendid heritage and traditions be kept wholly an amateur organization and the commercial interests regarded as secondary; that the commercial interests organize a national association for themselves to be known as the National Congress of Horticulture (this Congress was born at Washington in November 1917 but died soon after); that there was enough of the old amateur spirit still alive to warrant this attitude.

Wiser counsels however prevailed and at the St. Louis meeting Dec. 31st, 1919 a reorganization was perfected with the object of bringing together the commercial and amateur interests.

After three days hard work the delegates led by President L. H. Bailey and assisted by nearly one hundred horticultural scientists in session at that time, the constitution was revised and steps taken to raise a permanent fund of $25,000 and an annual budget of $10,000, a part of which is to be derived from membership fees; to publish a monthly magazine, The American Pomologist; to collect and disseminate new fruits of merit which are now too often lost thru inability of the originator to place the trees or plants on the market; to establish for amateurs and others an exchange for cions, buds and plants; to shape legislation, state and national; investigate markets and marketing mainly thru correlating existing agencies; in brief to serve as a clearance house for American pomological interests.

This is going to be worth while to every fruit grower either amateur or professional and every nurseryman in the United States and Canada.

The best part is that it will go thru. Professor, better known as "Dean" Bailey who is an organizer of high ability, has his heart in this work and will make success a certainty. There is also something to build on, a stable organization with a record of 72 years of **results.** The reorganization does not in any way restrict or abridge the former valuable activities of the A. P. S., only enlarges its field of work. The

A. P. S. will still retain its function of classifying fruits and passing on names of new fruits; it will be in the future as in the past the Supreme Court of Pomology.

It will be an honor and a privilege to be a member of the A. P. S. The affairs of the new organization will be administered thru a Council consisting of a vice president from each state elected by the state horticultural society. This Council will elect an executive committee of five members.

The writer, your secretary, is intensely interested in this movement believing it to be the biggest even in the fruit world for a quarter of a century and that it has come at an opportune time. Two things are at present essential to the success of fruit growing, the revival of the amateur interest and the coordination of all the commercial fruit growing interests. The new A. P. S. will do these things. Its officers invite your cooperation thru membership. Your secretary, acting as Wisconsin delegate at the St. Louis meeting, rushing in where angels feared to tread, agreed to secure **one hundred members from Wisconsin in 1920.** Will you help make this offer good? It is a matter of state pride for Wisconsin to head the list. Other states followed, after Wisconsin led, and they **may** make good but Wisconsin **must.** Eight W. S. H. S. members headed the list at the recent convention in Madison. Ninety-two more are needed. Send the two dollar membership fee to this office and a receipt will be sent you. It's going to be worth two dollars. Try it.

Frederic Cranefield,
Secretary.

My Neighbor's Garden

Mindful of my neighbor's promise to give me some advice about my garden, I went over to see him last night. It's a curious thing, but a fact nevertheless, that a true gardener, like almost any sort of an enthusiast, is generous of his time when it comes to his hobby. A gardener is always ready to talk garden—he'll even stop gardening to talk gardening—which is saying a great deal.

My neighbor knows I have a lot 66 by 132 of which the house and front lawn occupy about a half, leaving about 4 rods square for a garden, and as he is a great lover of flowers I wondered if he wouldn't advise me to put half or more into flowers.

"If I were you," he said, "I would lay out my garden so that there should be a row of flowers, perhaps eight or ten feet wide between the lawn and the regular garden, and then I would lay out a border of flowers along the fence between you and Mr. Jones on the south and on the north where your lawn joins Mr. Smith I would just have my grass join right on to his and would put some shade loving plants along the side of my house and between it and the sidewalk leading to the kitchen."

"How would you lay out the vegetable garden?" I asked.

"In the first place I would plan for a good-sized asparagus bed, and this I would put either in the back corner or in the front corner along the lot line where it will never need to be moved. This will begin to bear the third year and if cared for will be better each year thereafter all your life.

"I would put in a few red currants and one gooseberry bush along one side or at the end. Six or eight currant bushes will be all you will need when they come to bearing, and if you have more than one gooseberry bush, you'll have gooseberries to give away. You should plant one hill of pieplant at the end of the row. Then you'll want a strawberry patch. If you put your currants across the end of the lot the strawberry bed can come next. Make it about a rod square—this will take about 4 dozen plants. You can dig them out of my bed. Good strong plants put in early in the spring will try desperately to give you berries. If half of them are everbearing you will get a good taste of berries in the fall if you keep the blossoms picked off till August 1. Put them in rows 4 feet apart and about 16 inches apart in the row. You can plant something between the rows the first year. The second year add two rows and each year two rows rooting up two of the oldest rows. Plant the kinds of vegetables that you are fond of but remember that your space is very limited and choose. Potatoes take too much room. Melons and squashes take lots of room and the former are an awful strain on the morals of the neighboring small boys. Corn will not do well unless you have at least twenty hills, and those in a reasonably compact mass. Beans, peas, beets, cabbage, kohl rabi, cauliflower if you are a good gardener, lettuce, raddishes, onions, parsnips, parsley cabbage, peppers, carrots and turnips you will certainly want. But let me caution you. Be moderate. Don't plant more than a third or a quarter of what you are tempted to. If you do it will go

(Continued on page 102)

Wisconsin Horticulture

Published Monthly by the Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Annual membership fee, fifty cents until April 1st, 1920, which includes twenty-five cents subscription price to Wisconsin Horticulture. Remit fifty cents to Frederic Cranefield, Editor, Madison, Wis.

Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card, and pays for two years. Personal checks accepted.

Postage stamps not accepted.

Convention Notes

The executive committee voted unanimously, or nearly so, for a return to the dollar basis for annual membership and ten dollars for life membership.

These fees, reasonable and dignified, were the ones fixed by the Society upon its organization in 1865 and maintained until 1907 when the first cut was made. Two years later the original fees were adopted only to be cut again in 1912.

This juggling with fees has not benefited the society nor aided in increasing the membership and there is now a well defined feeling that the restored rates will remain for a long time.

Important Notice

On and after April 1st, 1920 the fees for membership in this Society will be as follows: Life membership, Ten Dollars, Annual membership. One Dollar, local and auxiliary society membership, Fifty Cents.

Memberships will be accepted at the former rates, one-half the above, until April 1st.

Applicants for life membership must be nominated by a member, annual or life, in good standing. Members "in good standing" are those whose fees are paid in advance.

No application or nomination is required for annual membership merely the payment of the fee.

The membership fee in each case covers subscription to Wisconsin Horticulture.

Forward all fees to the Secretary.

Frederic Cranefield,
Sec'y. W. S. H. S.
Madison, Wis.

After five years faithful and loyal services as president, contributing in the aggregate weeks if not months of valuable time to the affairs of the society, Mr. N. A. Rasmussen declined reelection and Mr. A. Martini of Lake Geneva was elected. Mr. J. A. Hays was reelected vice president.

Mr. Paul E. Grant of Menomonie, a new member of the executive committee, is a young man and has charge of one of the largest orchard enterprises in the state.

Mr. E. J. Frautschi representing the third district is a Madison business man who is keenly interested in horticulture.

Mr. J. E. Leverich of Sparta while not so well known to the older members as his father will soon be better known.

Mr. H. E. Christensen of Oshkosh who succeeds J. W. Roe is too well known to need introduction. The balance of the committee are "hold overs."

The fruit exhibit altho only one half as large as that of one year ago was of high quality and compactly staged in the long and narrow Assembly parlor was very striking.

The usual extensive "Kickapoo" exhibit was lacking but Baraboo sent more than usual.

Interest in the program was never keener. One apple grower stated that he considered the Thursday afternoon program worth more than one hundred dollars direct gain and indirectly thru inspiration a gain beyond measure. Now that we have each year a symposium by the college men and the practical experience of growers combined during a three day meeting the commercial grower who does not attend is bound to fall just a little behind in the game.

California outdoor grown chrysanthemums and violets are coming on to our markets in larger numbers every year.

We Take Pleasure in Introducing President Martini

A. Martini born 1868 in Zurich, Switzerland, served his apprentice years in floriculture in the then Grand Duchy Gardens Belvedere near Weimar, Germany, from 1883 to 1886. Spent 2 years in the well known nurseries near Trier on the Moselle. Emigrated to America 1888, became naturalized 1896. Worked in commercial greenhouses as grower of cut flowers and plants in different parts of the country serving 15 years with one of Chicago's leading florist establishments. Since 1910 in charge of the extensive estate of F. D. Countiss, one of Lake Geneva, Wis., best known private residence grounds where fruit growing under glass is one of the specialties and where visitors are always welcome.

To the Members of Wisconsin Horticultural Society Greetings—

In having been elected as your president for the coming year I appreciate most highly the honor you have bestowed upon me and I thank you most cordially for your confidence. During the years that I have had the pleasure of becoming acquainted with you I have been deeply interested in the work that this society has undertaken, what it has accomplished and in the manner that its policy is being carried out with the able guidance of its esteemed secretary Mr. Frederic Cranefield. Among the trial orchards established in different parts of the state better results have been shown in some localities than in others—having thus proven by persistent efforts and practical demonstration the hidden economical value of some of our lands. In having established this one industry we as members of The Wisconsin State Horticultural Society have every reason to feel proud of the success achieved thus far and it is our duty to boost to our utmost this enterprise which with the assistance of our most highly esteemed co-workers of the university of Madison is bound to bring this state into its proper place as a fruit producer of the nation.

Our field of action is a large one and as a horticultural society we are interested in anything that tends to advance horticultural knowledge among our members not the least of which—as in the apple—is the furthering of other industrial enterprises. I wish to ask all members to be as enthusiastic as possible and to lend their loyal support for the welfare of our society by keeping alive the interest in the different local societies and by encouraging the forming of new ones. All amateurs have here a chance to get the best possible information and give their own experience pertaining to the raising of flowers, fruits and vegetables.

In closing I wish to say a word of praise for the splendid monthly magazine Wisconsin Horticulture whose pages are so full of interest to the professional and amateur alike that we ought to make occasional application for special copies for distribution among our neighbors and otherwise lend our support for an increasing membership.

A. Martini.

Hope for the Hibernal

Apple wood is extensively used for tool handles and brings $40 a cord.

Free Exchange Department

For the months of March and April we will publish exchange notices free of charge. For instance if you have a surplus of plants or seeds that you would like to exchange send in your exchange list in substance as follows:

"Gladiolus bulbs, named varieties, for aster seeds or plants."

Mrs. —— ——

——— Wis.

Write name and address plainly. Notices limited to 25 words, one time: no for sale notices, only exchanges. There may be no response to this offer or there may be a flood anyway we are willing to try it.

Now Is the Time

Annual membership fees will be accepted for two years in advance at the old rate until April first, and for two years only. So now is the time for a rain of dollar bills. Old members, renewals and new members, one and all dig up a dollar and do it before April 1st. You will never get another chance!

Do you read "neighbor's" notes on "My Neighbor's Garden?" Your editor prizes these practical talks very highly. "Neighbor," who asks that his name be withheld, is a professional man with a deep and abiding love for plants and is an exceedingly skillful amateur gardener. That's why he is successful—he loves his plants. The notes will continue thru the year.

AMONG WISCONSIN BEEKEEPERS

The Wisconsin BeeKeepers Page
Prof. H. F. Wilson Editor

SECOND ANNUAL BEEKEEPERS' SCHOOL AND CHAUTAUQUA, MADISON, WISCONSIN, AUGUST 15–21, 1920.

MAKE AN EXHIBIT OF HONEY AND BEES AT THE STATE FAIR, AUG. 30 TO SEPT. 4.

Better Keeps For Beekeepers.

Keep bees better, Keep better bees.
Keep cooperating, Keep organizing.
Keep educating, Keep improving.

Every Beekeeper A Booster.

If you don't like this issue, write the editor, tell us what you do want.

We have 594 members in the State Association. Next month we are going to print the numbers of state members in every local. Do a little hustling before hand and double the number on your list.

Every beekeeper in the state should be a member of your local and the State Association.

LET'S MAKE IT 1000 BY DECEMBER 1, 1920.

Sugar For Spring Feeding.

The Secretary has been trying to buy a carload of sugar for the beekeepers but we are assured that there will be plenty of sugar on the market by April 1. So nothing more seems necessary.

A State Wide Clean Up Campaign in 1920.

The eradication of American foul brood and the keeping of strong colonies to keep down European Foul Brood will increase the honey crop of Wisconsin 1000%. Why not arrange with our Apiary Inspection Department to set a definite date in every county where American Foul Brood exists to have a clean up week? Have your local association decide the best time (at the beginning of the honey flow) get your supplies ready before hand and treat every diseased colony in every county. For every month or season that you delay, you are losing money.

President's Address.

State Convention Dec. 4, 1919.

Brother and Sister Beekeepers, and Members of the Wisconsin State Beekeepers Association:

As I was not in attendance at our last annual convention, it is with some surprise that I find myself called upon at this time to face you as your presiding officer. However, it is with excusable pride that on this our 41st annual convention, I am privileged to greet you as your president, and assure you that the honor of serving you as such this one year counts with me for more than the consecutive service of 20 years as your secretary, and I trust you will pardon me the conceit, that your placing me in this position, was in the nature of an appreciation of my services as such to say nothing of choosing me as a successor of the old faithful standby, who has so efficiently served you as president for so many years. As I face this meeting, it is but too evident, as it has been for some years past, that a new and younger generation of beekeepers has taken the place of the older. This is but natural and could not be otherwise. Our best authorities today are younger men, take for instance Dr. Phillips and his helpers. In time they in their turn will go to the rear, and the rising generation of beekeepers take their places at the front. Quinby, Langstroth and Dadant are names we revere, as pioneers in modern beeculture, but could they be with us today, they would be astonished and hardly recognize their books, revised as they have been to keep up with the times.

Of the old members I met at the first convention, I attended 23 years ago, very few are here with me today. Most of those still living are too feeble to be with us. In those days 20 or less met in some small room in the old Capitol, and sometimes the crowd would be seated around a large table, not very formal, but very social. Today this would be a very small attendance, if not a failure. Then we had less than 100 members, today 500 or more, and most of these, beekeepers who have developed from the younger men and women during recent years. Today we have 17 or more Local Associations, all affiliated with the State Association, and some of them with more members than we had 25 years ago. All of which has been brought about by the younger beekeepers and the extension work of the Agricultural College. Then we were practically not noticed by either the University or Department of Agriculture, and with the Legislature the needs of even the existence of a beekeeping industry in Wisconsin was a joke.

Today we are a recognized factor with all of them, and we have permanently taken our place in the ranks of the leading Agricultural Societies of the state, in fact we are part and parcel of the State Department of Agriculture as well as of the Department of Agriculture at Washington. We have today under the auspices of the College of Agriculture a State Apiary, which after having experienced the ravages of American foul brood, and the consequent neglect of wartime conditions in the personnel of the College, was for a time not as promising as could have been wished. However, conditions at the College are again at normal and the Apiary is again under good personal supervision. In fact, we have a good nucleus, out of which to build a department of beeculture at the college. But what shall we do about it? Shall we let good enough alone and simply call it giving the University another job, or shall we take an active interest in the matter? Most decidedly the latter. Not, however, in the spirit of demoralizing criticism, but in the spirit of appreciation, that will result in betterment and improvement to the end, that this department be as important and as well equipped, as other departments in the Agricultural College. There is no doubt whatever but that war conditions have created for us a honey market such as we never had before, especially the demand for extracted honey, but for all that we do not have an absolute market. We have a better demand and ready sale, and much better prices, and it is now up to us, not only to keep this market, but to make it an absolute market. How can we do this? By an absolute market I mean the keeping in stock in every grocery store of honey the same as sugar and syrup, as a staple article. This may be done locally by the honey producers, and I think with little effort. One of our merchants, a young man, came to me this fall after previously talking with him, to look it over. I had a lot of 10, 5, 2½ and 1 lb. packages enough for 1750 lbs. and nothing but amber at the time. I offered him the whole lot, if he would retail it all over his counter, and sell it at not less than 30c per lb. for 23c. He took the whole lot and now thinks he will not have enough as it is selling every day. Arrangements like this in every community would mean an absolute demand for it. This is the only condition to make it a staple and no

amount of soliciting and peddling will accomplish the same result. Fifty years ago, farmers in my county used to peddle and dicker to dispose of their butter and eggs, because there was no regular market. Honey producers doing the same thing today are no doubt retarding the establishment of an absolute market to say nothing of demoralizing prices for the honey producer.

With the exception of honey, there is today no product of any Agricultural pursuit, but what has a regular demand and is handled wholly through the market, and prices to the producer are arranged likewise. There is today despite ready sale and good prices, no condition to govern and regulate prices. Instead of a market price on honey, as on butter and eggs, the producer sells for what he can get. I have it on reliable information that car loads of white honey can and have been bought in 60 lb. cans at 20c per lb. this same honey is sold after repacking in smaller assorted packages for 35 to 40c per lb. This, however, is for white honey only, amber they will not buy at all and are not interested in. Why, I do not know, but I do know that amber honey can be sold if put side by side with the white, or better if nothing else can be had, as was the case last year.

After having succeeded in supplying your local merchant, it is up to you to help him sell it, and this can be most effectually done, through the medium of your County and State Fair.

I am convinced, that for the purpose of bringing before the general public the importance of the beekeeping industry in Wisconsin, and to create a demand for honey, nothing equals a well planned exhibit at your county fair. This should be in charge of some beekeeper who is competent and willing to give information. It should be the business of all interested beekeepers to prepare for the next fair in your county by seeing to it that your premium list is revised to date and preferably conform to the State Fair list and by getting a sufficient number of beekeepers interested and securing ample space. Then put up somthing that will attract attention and watch results. If your merchant who sells your honey will put up an exhibit, furnish him a good attractive honey exhibit, with your labels.

The State Fair, however, should be kept in mind above all else, for here it is where we show up not only to the people at large, but directly to the State authorities who have their eyes on us, to estimate our standing and progress if any, and if proper efforts on our part are in evidence, will on their part encourage and recognize us with the same aid so abundantly and freely given to other Agricultural Associations. In fact, the State Fair Board has already anticipated us in a way to make it incumbent on us to put forth our very best efforts in making good. They have assured us of an extension to the Bee & Honey building, giving us about three times the space at present provided, and have more than doubled the amount of premium offers. In doing this they not only show their good will toward us, but that they fully realize the importance of our industry. The Department of Agriculture is anxious that we make a showing, proportionate to our importance, that every dollar of premium offered be taken up, and all space in the enlarged building be occupied. I am convinced from my limited acquaintance with the officials that they would welcome a condition, making necessary the expenditure of $10,000 to furnish adequate quarters for the Bee and Honey exhibit.

Is it possible to create such a condition?

If ten local associations and 50 individual beekeepers would make entries, we would be swamped in our new enlarged building.

If all local and county associations and 150 individual beekeepers would make entries, we could fill the Horticultural building, and have the most attractive exhibit on the ground.

This estimate is no fancy imagination, and I am sure that any exhibitor in this department in recent years will agree with me. But I do not anticipate such a rush for the 1920 fair, and would consider it a decided progress if all space in the new building will be occupied.

This we can and must do and the best time to begin thinking and planning for county and state fairs, is right now, and let us do our planning in the spirit of advertising honey and making it a staple product. Financially it is the very cheapest advertising and in fact we are offered a bonus for availing ourselves of the opportunities offered by both county and state. At worst, you will be out nothing but a little time and trouble. Don't be afraid of spending your time and money benefiting the other fellow, because he cannot do anything along this line without benefit to you, and so you are even. In conclusion, let me impress on you the importance of creating a condition that will make your honey as staple as butter and eggs. Keep it before the public, by having it on the counters of the grocery stores, in an attractive way at all times. By having large and attractive displays at all of our county fairs and at our state fair.

You cannot realize the full benefit to our industry when the beekeepers at large, help to make these exhibits the center of attraction. Only those of you who have seen the people crowding through our small building can have any conception of what it is like. Think of a conservative estimate of twenty thousand persons crowding through our small building in fourteen consecutive hours each day. This happened on Children's and Milwaukee days. And during the week buying from the exhibitors over $2000 worth of honey in retail containers, to say nothing of orders for larger amounts placed for delivery Think it over and remember. Make your next county fair and the 1920 State Fair the best ever, so far as we as beekeepers are concerned.

Gus Dittmer.

The A, B, C of Beekeeping.

The manipulation of bees is based upon their response to (stimuli) occurrences which tend to increase or decrease their activities. In other words, when certain conditions exist bees follow a certain instinct to do things.

These reactions are known as bee behavior. Study your bees, learn what they do when certain things are done, apply only the good things and you will succeed.

Learn how to provide the (stimuli) conditions which bees require for building up and gathering nectar and you will profit accordingly.

Provide plenty of stores, plenty of protection in cold weather, good ventilation in summer, provide abundance of room while bees are building up in the spring and during the honey flow, keep young queens and you can't fail.

Temperature is an important condition which causes certain definite responses.

Bees cluster at 57° F. Below that temperature, the cluster becomes more compact and as the temperature goes down on the outside it goes up on the inside of the cluster. Bees produce warmth in the hive by fanning the wings and muscular action. The harder they have to work, the quicker their energy is used up and a greater amount of stores are required. In the spring and fall when the temperature falls below 50° F. bees should be in double walled hives or else they should be protected by outside packing. In winter they should be placed in a cellar or packed in winter cases.

Above 57° F. bees break the cluster and at 69° F. they fly freely from the hive. The queen begins laying eggs and brood rearing starts when a temperature of 94° F. is developed inside the hive.

Three pounds, or 15,000 bees is a good colony of bees in early spring; fifteen to twenty pounds or 75,000 to

100,000 bees is a good colony at the beginning of the honey flow. About five pounds of honey are required to produce one pound of bees.

An Invitation.

To Edward Hassinger Jr., and his young wife.

Now, my dear Ed, just come along,
Present your mate, your bride,
And we will sing a jolly song
In joyous mood and pride.

All kinds of fun we will select,
Your jealousy, Ed, hide,
For we don't care if you object:
We'll even . . . kiss the bride.
We want to see—and briefly greet
The sweetest little wife,
And then you, Ed, can just retreat
And have her . . . all your life.
—Hugo Schubel.

Friend Allen, our treasurer, was a recent visitor to Madison. He came to help audit the accounts of his church society, so you see he knows how to take care of our money.

If you have any honey to sell, list it with the state marketing commission. They can help you.

If you have any bees to sell, let the secretary know as he knows of several people who want to buy bees.

Correction.

In the secretary's report (see January issue) Shawano County Beekeepers' Association was omitted from among the list of locals having delegates at the annual meeting of the Board of Directors. Mr. E. S. Hildemann, a worthy gentleman and a friend of the secretary was their representative. So this did not happen on purpose. "Beg pardon."

How To Secure Honey News' Market Reports.

Every member of the association can secure these monthly reports from the Bureau of Markets by sending in your name and address, clearly written to the U. S. Bureau of Markets at Washington, D. C.

The University Beekeeping Department is trying to establish a museum of beekeeping apparatus and hives and we will pay freight or express charges on anything that the beekeepers will send in. Old extractors, foundation rolls, hives, etc., are desired.

Every Beekeeper His Own Inspector.
Learn what foulbrood looks like and treat your colonies before the inspector comes around.

Honey Recipes

(Mrs. R. E. Vaughan)

Pop Corn Balls

Boil one pint of honey till it will form a "hard crack" in cold water. Stir in freshly popped corn and when cool enough to handle, form into balls or cones or other fancy shapes.

Rice Pudding

Soak one-half cup of well washed rice over night. In the morning mix the rice with one-third cup of honey, a half teaspoonful of salt, two tablespoonsful of butter, a pint of milk and cook for at least an hour in a double boiler. Carefully fold in a well beaten egg and pour in a baking dish and dust top with cinnamon and bake in moderate oven for half an hour. Serve with fruit preserves or raisin sauce.

Raisin Sauce.—Boil a half cup of chopped raisins and a half cup of honey and 3 tablespoonsful of water together and cool to serve with the rice pudding.

Nougat (Candy)

1 cup honey
½ cup sugar
½ lb. almonds (chopped)
3 egg whites
2 tablespoons butter

Boil honey and sugar together till it forms a "hard crack" when dropped into cold water. Add one spoonful at a time of syrup to the stiffly beaten egg whites. Mix thoroughly each time before adding another spoonful. When the syrup has been added, pour mixture into saucepan and return to the stove. Cook very slowly, beating continuously till the mixture forms a hard ball in cold water. Add chopped nuts, pour into buttered tins and cool till it can be cut into squares and wrapped in waxed paper. Keep in warm place in an air-tight tin can.

Honey Taffy

Boil together two cups of honey, a half cup of sugar, a fourth teaspoonful of soda and two tablespoonsful of vinegar till it forms a "hard crack" in cold water. Remove from fire and cool till it can be handled. Pull same as any other taffy. Cut and wrap in waxed paper. Keep in tight tin box in a warm dry place.

Report of the Treasurer of the Wisconsin State Beekeeping Association From Dec. 5, 1918 to Dec. 4, 1919.

			Dr.	Cr.
1918				
Dec	5	To balance on hand	$368.93	
Dec.	6	By Edw. Hassinger		$64.37
Dec.	6	By John C. Bull Sec. C. & N. W. B. D. Assn.		15.00
Dec.	6	By A. L. Kleeber		5.00
Dec.	16	By Edw. Hassinger		.63
Dec.	16	To Edw. Hassinger	38.00	
Dec.	30	By H. F. Wilson		8.25
1919				
Mar.	13	To H. F. Wilson	$116.50	
Mar.	14	By H. F. Wilson		$25.00
Mar.	14	By Frederick Cranefield		57.50
Apr.	22	Wisconsin State Journal		36.00
June	17	By Frederick Cranefield		11.00
Aug.	4	To H. F Wilson	77.00	
Aug.	5	By H. F. Wilson		25.00
Oct.	1	By Wis. State Hort'l.		43.00
Dec.	3	To H. F. Wilson	112.00	
Dec.	3	By Frederick Cranefield		20.25
Dec.	3	By Bal. on hand		401.43
			$712.43	$712.43

A. C. ALLEN, Treasurer,
Portage, Wisconsin.

FINANCIAL REPORT OF SECRETARY FOR 1919.

Received dues from	
420 members at 50c each	$210.00
34 members at $1 each	34.00
1 member at $1.50	1.50
12 Assns. affiliated at $5 each	60.00
	$305.50
Paid to A. C. Allen, Treasurer	
March 12	$116.50
August 1	77.00
Dec. 1 X	112.00
	$305.50
Total number of members	528
Total number affiliated associations	17
Total number of paid up members for 1918	179
Received from A. C. Allen for miscellaneous expenses	$50.00
Expenditures	44.25
	$5.75

126 members paid up to July 1, 1920
125 members paid up to Jan. 1, 1921
3 members paid up to July 1, 1921
3 members paid up to Jan. 1, 1922
2 honorary life members: C. P. Dadant, N. E. France
271 members not paid for 1920

Expenditures	
1000 receipts	$5.00
500 cards	4.50
Postage	5.50
F. Huss (clerk)	8.75
M. Hildreth (clerk)	10.00
Tags	10.50
	$44.25

H. F. Wilson, Sec., Dec. 1, 1919.

Reports From Locals.

The Clark County Beekeepers' Association met at Neillsville, December 30. Professor Wilson, Secretary of the State Association was with us and gave some good pointers on the care of bees, winter problems and the need of foulbrood eradication. Mr. R. V. Brown, County Agricultural Agent, also met with us and is showing much interest in beekeeping. He has met with us several times. We are planning more meetings for the coming year. Three members of the association were elected to take the examination for deputy county inspectors and we plan to get a good start on cleaning up foulbrood this season,

J. S. Sloniker,
News Reporter for Clark Co. Bee Association.

Market Reports.

Market quotations from Minneapolis and Chicago, our nearest markets, will be included if desired by the association.

Chicago, Dec. 31: 1 Calif. arrived. L. c. l. receipts moderate. Demand and movement moderate, market steady. Sales to jobbers—per lb. Extracted, various state, Alfalfa and Clover White 19–21c, Light Amber 17–19c, New York Buckwheat 15–17c. **Beeswax:** l. c. l. receipts moderate. Supplies moderate. Demand and movement moderate, market steady. Various states unrefined 42–45c per lb.

Minneapolis, Dec. 30: Supplies liberal. Demand and movement moderate, market steady. Sales direct to retailers. **Comb:** Western, Fancy light, 24-section cases $7.50. **Extracted:** in 60-lb. can mostly 20–21c per lb.

COMING EVENTS

BEE SHORT COURSE

February 11 to March 18.

A five weeks' short course in beekeeping will be given at the University of Wisconsin from February 11 to March 18 in connection with the regular Farmers' Short Course. Courses in Agronomy, Soils, Agricultural Engineering, Dairy Husbandry and Horticulture will be given with the course during the morning periods. Afternoon sessions will be given over to beekeeping and Poultry Husbandry combined or to beekeeping alone as may be desired. Elementary and advanced principles of beekeeping will be given according to the requirements of the beekeepers.

The following bee schools will be held during February.

February 2, 3 and 4—Reedsburg, City Library, Sauk County.

February 5—Juneau; February 6—Mayville; February 7—Beaver Dam, Dodge County.

Where To Buy Queens In Wholesale Lots.

The Secretary has been corresponding with Mr. John M. Davis, Springhill, Tennessee, and has received the following quotation for members of our association where not less than 100 queens are purchased:

May 10th to June 1st—$115.00 per 100
June 1st to July 1st—$110.00 per 100
July 1st to Nov. 1st—$105.00 per 100

If any of the local associations are planning to restock, they should take advantage of this opportunity and either write to Mr. Davis direct or to the Secretary.

Bees seem to be wintering fairly well from reports. My own bees are not wintering so well especially those that were fed very late and had no flight after being fed, some of them were fed on damaged sugar and some of this "sugar was salt"—one lot of feed had so much in it that the bees would not take it, but I have reason to believe there may have been just a little salt in some of the other feed and as a result those colonies are restless and showing signs of dysentery.

There is plenty of snow to protect the clovers. There is just one beekeeper in Outagamie County that has any honey left to sell. Honey has moved slowly during the holiday season, but the demand is improving now.

Edw. Hassinger, Jr.,
News Reporter for Fox River Valley Bee Association.

County Apiary Inspectors To Be Examined.

Examinations will be held for county apiary inspectors on February 7. Many county associations have recommended two or three of their members for appointment and these men will all be examined. The duties will consist of keeping track of the moving of bees in the county, making inspections on request, and working with state inspectors when an area clean-up survey is made. Applications from experienced beekeepers in counties without associations will gladly be considered.

It is expected that a second examination will be given additional men later in the spring. All interested associations and beekeepers are asked to write S. B. Fracker, acting State Entomologist, at the STATE CAPITOL.

Local Notes.

The Northeastern Wisconsin Beekeepers' Association held their annual meeting December 16 at Reedsville and elected the following officers:

President, F. F. Stelling, Reedsville.

Vice-President, Wm. Rusch, R. F. D. 2, Reedsville.

Secretary, Martin Krueger, Reedsville.

Treasurer, L. H. Krueger, Reedsville.

State Association Director, F. F. Stelling, Reedsville.

This association now has 77 members.

A three day bee school was held at Oshkosh, January 8, 9 and 10 with the result that the Winnebago County Association voted to affiliate with the State Association.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

Cooperation Will Help To Control The Onion Maggot

The onion maggot, a close relative to the maggots attacking cabbage, radish and bean, has caused such depredations in certain parts of the State that commercial onion growing in these parts has been given up.

After years of work on this insect it was found out that a poisoned sweetened liquid sprayed on the onion leaves would often attract and kill the parent flies before any eggs had been laid. The success of this means of control depends almost entirely upon lack of rain during the short period in the spring in which flies feed before laying eggs. Onion growers need not be told that there is seldom a lack of rain during this period. In some sections it rains every day when flies might be killed. Therefore, this method of control is not dependable in this state.

After a thorough study of the problem in all its phases by men trained in scientific research, it now appears that this pest may be controlled along biological lines, that is, by learning and taking advantage of the insect's peculiarities; its favorite places of feeding and laying, its liking for certain types of soils, and so on. Although this method is quite intricate to work out, it is, nevertheless, the only method by which some insects—notably the Hessian fly—can be controlled.

Two fields of onions near Green Bay were visited last summer and what was found there is clearly told in the accompanying pictures. When such extreme conditions exist there is hope of finding in just what locations the insect will appear and then planting some other crop there or, to state the matter another way, to find in just what locations the insect never appears and use those fields for onions.

ONION FIELD RUINED BY ONION MAGGOTS

This field is ¼ mile from field shown below. Both fields were planted about the same time, and both pictures were taken the same day.

It will be a great help to the men working upon this problem if all farmers of the state who grow an acre of onions or more will send the following data to the writer in care of the Dept. of Economic Entomology at Madison:

ONION FIELD PRACTICALLY UNINJURED BY ONION MAGGOTS

Compare with field above.

What part of your crop of onions was lost through attack of the onion maggot for each of the past three years?

To what extent did the maggot attack different onion fields or different parts of the same field?

Under what conditions of soil and nearness to woodland or waste places do you consider the worst injury occurs?

All letters will be gratefully rereceived and answered.

John E. Dudley, Jr.

The Red-Humped Apple Caterpillar

In the northern counties of Wisconsin the past summer this interesting caterpillar was rather conspicuous on apple trees, especially in the younger orchards. The larvae, when full grown, are an inch or a little more in length; the head is red and the body is beautifully striped with yellow and black. Near the front end of the body there is a prominent reddish hump which has protruding from it large blunt black tubercles. Smaller similar tubercles appear on other parts of the body but they are not as large as those on the hump.

The adults of this apple pest are moths about 1½ inches across when the wings are spread. They are greyish brown in color and make their appearance in June or July.

The eggs which are laid on the underside of the leaves in masses of 40 to 100 are white and nearly round in shape. The young caterpillars at first feed on the underside of the leaves only but as they develop they eat the edges of the leaves. As they always feed together in colonies, it doesn't take them long to strip a branch of its foliage. A character that quite easily identifies them is the habit of the larvae

when at rest to hold the tip end of their bodies in nearly a vertical position.

The caterpillars become full grown in August or September and then they seek suitable hiding quarters under trash on the ground to make their cocoons and spend the winter. They do not change to a pupa until spring.

Apple, cherry, plum, and pear trees are all susceptible to attack; young trees are often defoliated so that the wood does not ripen properly.

If the caterpillars become troublesome the trees should be sprayed with lead arsenate used at the rate of 2 pounds to 50 gallons of water.

Chas. L. Fluke, Jr.

Help Spread the Gospel of More Fruit

We have on hand a quantity of the December 1919 supplement "Helpful Hints for the Beginner in Fruit Growing." Members can help in the distribution of these. Please send for as many as you can use to advantage in your neighborhood. No charge for supplement or postage. These circulars cannot possibly help anyone as long as they are piled in a corner in the office; they **may** help someone if distributed. You can help.

We never lost a dollar bill yet so just tuck one in a letter for two years membership and two years' subscription to Wisconsin Horticulture to say nothing of the Annual Report.

If there is any one who thinks this too much write the secretary and the matter will be brought before the Board of Managers.

A St. Paul grocery store was selling big overgrown Colorado carrots at five cents a pound the other day and Minnesota grown carrots at three cents a pound. The Minnesota carrots were small and of all sizes, while the Colorado ones were large, smooth and even. While we did not sample either sort we will venture to say the Minnesota ones were the best. The grocer did not dare send them out on a phone order because they were not clean and even.—LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minn.

Have you gone over the vegeetables in the cellear lately and removed any that are beginning to decay?

Don't expect a fern to grow in a hot dry room with a little water applied to the surface once in a while. Water the plant thoroughly clear to the root tips and then devise some means of keeping the air of the room moist and the temperature regular. Folks as well as plants will thrive better.

NOMINATION BLANK

I HEREBY NOMINATE_____

_____

FOR LIFE MEMBERSHIP in The Wisconsin State Horticultural Society.

Name_____

P. O._____

POSITION WANTED: Robust, middle aged man wants position as manager of truck garden where vegetables are grown for wholesale market only.

Expert in low land gardening, onions, celery, cabbage, etc.

Wide experience and best of references. Open to engagement until March 1st.

Write Gardener, care of Wisconsin Horticulture, Madison, Wis.

Now is a good time to cut cions for top working trees next year.

GARDENER AND FRUIT GROWER WANTED

Mr. Alfred Morawetz of Milwaukee says: "I am in need of a gardener for my country place near Milwaukee. His principal duties will be caring for an apple orchard containing approximately five hundred trees. In addition to this he will have to look after a vegetable and flower garden." Write Mr. Morawetz in care of the Morawetz Co., Milwaukee.

An eight hour day would be fine for the market gardener, but somebody would pay more for garden produce. Vegetables cannot be manufactured rain or shine as easily as plows and wagons.

MY NEIGHBOR'S GARDEN

(Continued from page 91)

to waste. Usually people plant ten times as much lettuce as they use, wasting seed, effort and space. Plant successive but only a little each time. Half a dozen parsley plants will give you 3 times as much as you will use, two good pepper plants will invariably be enough. Of tomatoes you will want two or three dozen plants. Half a dozen early ones and the other medium early varieties. Of peas you will want one planting of the early dwarf, one of medium and one or two of late and high varieties. Plant all at the same time. If you try for a succession you may succeed one year in three, but the other years milldew will get your last plantings. Make all your rows north and south and 16 inches apart. Plant peas in double rows 8 inches apart, with two foot spaces between, and put brush or chicken wire between the narrow rows.

"Get your seeds from a reliable grower not from a grocery store. For most things one ordinary packet will be much more than you will need. For peas you will need more. A pound will be enough for a 25 foot double row.

"Have your garden spaded, and see that it is spaded down as far as a spading fork will reach. If you can get coarse manure, which you almost certainly can't, spade it in. If you have to rely on commercial fertilizer powdered sheep manure is as good as anything you can get. Sprinkle it over the ground before spading. Twenty-five pounds to the square rod won't be too much, although ten will do. Ground limestone will help a lot and should be used if the soil has been cultivated before. Fifty pounds to the square rod will be enough."

So much of my neighbor's advice I have remembered and written down, and he didn't get to flowers at all.

Neighbor.

The new strains of the old fashioned zinnia are fine additions to the flower garden. Many of these make as good cut flowers as other garden flowers.

Who Knows About Lilies?

A reader asks for information about lilies, garden culture, varieties, soil, time to plant, etc. Who can help?

Grafted Trees Long-Lived

With proper care and attention, there is no reason why budded and grafted trees will not be as long-lived as old time varieties. The earliest definite history of a grafted tree is a Summer Bonceretien, from Europe, planted by Governor Stuyvesant at New Amsterdam in 1647. The trunk of this tree remained standing in New York City on the corner of Third Avenue and Thirteenth Street until 1866 when it was broken down by a dray running over it. Here we had a grafted tree standing at the ripe old age of 219 years. This seems to us to prove that the longevity of a tree is not necessarily determined by whether it is grafted or seedling.

F. D. Garrison.

The Flag Iris

Don't say German Iris nor try to be botanical in your language and speak of Iris Germanica for it is no longer either good form nor correct. The name Flag Iris has been generally adopted both by dealers and amateurs. No one has been able to satisfactorily explain the adoption of the term German and Germanica as the species is not a native of Germany nor have but few species originated there.

Have you been successful with some vegetable, flower or shrub? Pass it along. Write one hundred words telling how you did it.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, February, 1920 | Number 6

SUPPLEMENT TO REGULAR EDITION

PROCEEDINGS

of the

AMERICAN POMOLOGICAL SOCIETY

THIRTY-SIXTH REGULAR BIENNIAL MEETING

St. Louis, Missouri

December 30, 31, 1919, to January 1, 1920

THIRTY-SIXTH BIENNIAL MEETING

of the

AMERICAN POMOLOGICAL SOCIETY

Sessions Held in Hotel Statler, St. Louis, Missouri

December 30, 31, 1919, to January 1, 1920

Though widely announced this meeting was scarcely more than a small size Conference; but in all respects apparently met the full needs of the occasion. Under the conditions it was impossible to hold to a regular schedule, though the call for the first session was promptly kept, but subsequent sessions were "zigzagged" to meet the expressed wishes of a majority of those interested. The presence of so many other conferences in the city was disconcerting on the whole.

The first real working session was held under the designation of "a Smoker" on Dec. 30, jointly with the Society for Horticultural Science. Here the real work before the Society was effectively presented by President Bailey; Adjournment was then taken until January 1, on which date two very active sessions were held, of which the following notes represent a fair account, though not a full one.

A. P. S. AND S. H. S.

In Joint Meeting, Dec. 30, 1919.

With the opening of the meeting Dr. Bailey was called upon to lead a round table discussion of A. P. S. problems and in his characteristic way submitted a program of activities which met with the cordial approval of those present. Then followed a report by the secretary covering the recent meeting at Columbus in connection with the proposed Junior Branch of this society. In the "round table talk" following all phases of the possible death of A. P. S. were touched upon, but the final consensus of opinion was positively to the effect that "something must be done"—After numerous suggestions had been made as to remedies for the case, the president appointed two committees, designated and composed as follows: *Plans and Policy;* Pickett, Crow, Cranefield, Lloyd Stark and Greene: *Ways and Means;* Gardner, Alderman, Macoun, Chandler and Taft.

At the morning session on January 1, 1920, the above special committees, together with certain standing ones offered the following reports;

Committee on Nomenclature:

The report of this committee covering the revision of the Code, together with a letter from Dr. Hedrick, Chairman, in which he said:

"As the Code (revised form) now stands, I judge it will be signed by all the members of the committee excepting Gould, who strongly objects to one or two provisions. Others of the committee, myself included, agree with Gould in his contention but feel that to change the Code as he suggests would prevent its adoption, in the particulars he wants changed, by nurserymen and fruit growers.—I hope the (revised) Code will be discussed and either adopted or rejected. I shall be sorry if it is changed very materially."

was read by the secretary. The report was quite fully discussed by the members who, without a dissenting voice, agreed that it was not acceptable; thereupon it was referred to a special committee with instructions to revise. This special committee, named by acting-president Irish and composed of Close, Hansen, and Lake reported at the afternoon session, and this report, after a full discussion, was slightly amended by the members, and finally adopted by unanimous vote, as printed herewith.

CODE OF POMOLOGICAL NOMENCLATURE.

The St. Louis Code.

Its Purpose.

This code aims to establish a simple and pure system of pomological nomenclature that shall be appropriate, dignified, and stable. In consonance with this idea it is urged that all persons conferring names upon

new varieties of fruits endeavor to select simple (and preferably) one-word names that are fittingly expressive of some character, quality, place, person, or event associated with the source, time or place of origin of the variety.

The paramount right of the originator, discoverer, or introducer of a new variety to name it, within the limitations of this code, is recognized and established.

Priority

A name once used in a group shall not be used again, provided that a name once established through long usage for two or more American varieties shall not be displaced for either or radically modified except when a well-known synonym can be used in its place. When no such synonym is available the varieties bearing identical names shall be distinguished by the addition of the name of the author who first described each, or some other suitable distinguishing term.

This code applies to all cultivated fruits including nuts, which are grouped together in common usage without regard to their botanical relationship.

The name first published for a variety shall be the accepted and recognized name except when contrary to the provisions of this code, and provided that names thoroughly established in American pomological literature shall not be displaced.

Names appearing in dated publications shall have precedence over those undated even though there be evidence that the two are of the same calendar year.

Form of Names.

Names of new varieties shall be of one word preferably but two words will be accepted. Names of existing varieties shall not be changed in such way as to lead to confusion or loss of identity.

Spelling.

The spelling and pronunciation of a variety name shall be the same as that of the person, place, substance or quality from which it is derived.

A possessive noun shall not be used.

A name shall not be formed by the compounding or hyphenating of two or more existing names, but this does not prohibit the formation of a one-word name by the use of parts of two or more existing names.

Neither Bartlett-Seckel nor Bar Seck may be used but Barseck is admissible.

The hyphen shall not be used between the words of a name.

Initials shall not be used as a part of a variety name,—e. g. J. H. Hale.

The use of such general terms as seedling, hybrid, beurre, damson, pippin, rare-ripe, etc., shall not be permitted.

An imported variety shall retail its foreign name provided it does not conflict with the provisions of this code or with an existing American name in the same group.

The name of a person shall not be applied to a variety during his life without his consent.

The name of a deceased person shall not be so applied except through formal action by some competent pomological body, preferably that with which the deceased was most closely associated.

Registration.

Names of new varieties shall be registered with this society and such registration shall be considered priority of publication.

Registration also includes, if known, (1) the name of the originator or discoverer; (2) the time and place of origin or discovery; (3) the parentage; (4) the derivation and significance of the name.

Publication of Names.

Publication consists (1) in registration as above; (2) in the public distribution of a printed name and description or characterization of the fruit; (3) in the publication of a new name for a variety described elsewhere under a different name, number, or other untenable designation, the synonym being given; or a varietal name may be established by current usage in the locality of its origin, when well known, and shall be considered as published and have precedence over a later printed name for the same variety.

Publication may be made in any book, bulletin, report, trade catalog or periodical bearing date of issue, and of public distribution.

Type of Variety.

The type of a variety is the fruit of the original plant; and, type descriptions or illustrations shall be made from material produced by the original plant, or when this is not available, from a plant as near as possible to the original in asexual reproduction, and preferably grown in the same pomological region.

Description.

The complete description of a variety shall consist of a detailed account of the detailed characteristics of the plant, foliage, flowers, fruit, and habit of growth, so as to distinguish it from other varieties of similar appearance.

Citation.

The full citation of a variety name consists of the name of the author who first described the variety, and the name, page, and date of the publication in which the description first appeared.

An author-citation following a name refers to the author of the original description of a variety: e. g. Turley, C.P.C.

Names of authors and published works may be abbreviated, in accordance with the usages of this society.

C. P. Close.
N. E. Hansen.
E. R. Lake.

Committee on New Fruits: C. P. Close, Chairman, made a verbal report upon the work done, and requested an extension of time in order to bring the report down to 1920,—request granted. It is expected to have the full report ready for the proceedings of the St. Louis meeting.

Committee on Plans and Policy: This special committee reported as follows: The committee begs to submit the following tentative recommendations:

1. That the American Pomological Society employ a paid executive secretary as soon as the necessary funds for his employment can be secured. The executive secretary shall give his full time to the work of the society and shall be officially independent of any state, provincial, or federal organization. The executive secretary shall be paid a salary on a par with that of business executives of similar responsibility. He shall be responsible to the president and the executive body (committee) of the society, and shall be engaged on the recommendation of the president by the executive body (committee). The executive secretary shall be recognized by title and otherwise as on a par with heads of departments of horticulture in standard agricultural colleges.
2. That the society adopt a definite program for the registration, introduction, and exchange of promising varieties and seedlings of fruits.
3. That the society publish as soon as practicable a carefully edited monthly journal of good appearance devoted to the field of the organization, non-competitive in character.
4. That the society meet annually instead of biennially and that dues cover the calendar year.
5. That the society look with favor upon the affiliation with it of horticultural students in the American colleges teaching this subject, and that steps be taken at an early date to press the organization of students for this purpose.
6. That a vigorous campaign for membership be pressed.
7. That a definite effort be made at once to secure a fund of twenty-five thousand dollars ($25,000) to underwrite the business of the society and that an annual budget of ten thousand dollars ($10,000) be provided for.
8. That temporary headquarters be determined by the president and the executive body (committee) and that permanent headquarters be determined by the society in regular convention.

The above report submitted to the American Pomological Society in a regular meeting held at the Statler Hotel, St. Louis, January 1, 1920.

B. S. Pickett, Illinois, Chairman
J. W. Crow, Ontario
Laurenz Greene, Indiana
Frederic Cranefield, Wisconsin
Lloyd Stark, Missouri

Committee on Ways and Means: Alderman verbally reported that the committee had been unable to reach definite action and as some of the members had been obliged to leave for home the work would have to be done by correspondence and they would try to report in time for the Executive Committee to consider their findings at the proposed early spring meeting of officers.

Executive Committee: This committee anticipating favorable action by the members upon the Junior Branch idea, and having in mind the several other proposed new activities, prepared a set of paragraphs dealing with the subject of changes in the constitution and by-laws made necessary by the adoption of the Pickett report. These amended articles were offered as items in the report of the

Committee on Resolutions: By McHatton, seconded by Hansen: *Resolved,* that the secretary be directed to solicit each agricultural college or experiment station management to set aside, cultivate and care for an acre, (or as much thereof as necessary) of land to be devoted to the propagation of meritorious new or little known varieties of fruit, the parents of which may be supplied them for such purposes by discoverers or breeders of new varieties, and the product of which, may be distributed to members of the A. P. S. through its official channels.

In fuller explanation of the merits of this resolution Messrs. Hansen and Macoun stated that it was their belief that breeders in experiment stations in particular were anxious to attain a wider distribution of their more promising varieties than is practicable at present. That if the colleges and stations would participate in this kind of a project it would do much to build up a wide interest in the testing out of new fruits: and by the method proposed would enable the originators to get their new varieties into the hands of the persons most interested in such work, thereby obtaining a much earlier and more reliable rating upon the merits of the tested material.—Secy.

By Cranefield; seconded by Lake: *Resolved,* that Article III of the constitution of this body be amended to read, as follows:

The membership of this body shall consist of Junior. Annual, Society, Life, and Honorary members.

1. The fees for membership shall be as follows for the calendar year: Junior, one dollar per annum; Annual, two dollars per annum; Society, ten and five dollars per annum respectively (see Paragraph 15 of the by-laws); Life, $100 in one or two payments.

2. Libraries and educational institutions may become members upon payment of fifty dollars; such membership to be designated as institutional and to be limited to a period of thirty years. This membership carries with it the right to receive one copy of all publications issued by the Society.

3. Honorary membership, in recognition of eminent services in pomology, may be conferred upon any person, who has been regularly nominated by the Executive Committee and whose nomination receives a two-thirds vote of approval by the members present at a regular meeting.

4. *Junior Patron.* The title of Junior Patron may be conferred upon any person, who contributes at any one time, to any of the permanent funds of the society, the sum of $500.

5. *Senior Patron.* The title of Senior Patron may likewise be conferred upon any person contributing in similar manner $1,000.

The nomination and election of patron shall be made in the same manner as for honorary membership.

Cranefield, seconded by Lake: *Resolved,* that Article IV of the constitution be amended to read as follows:

The regular meetings of this society shall be held annually at such time and place as the Executive Committee may decide.

Special meetings may be convened upon the call of the council or by the president on the petition of a majority of the members.

By Cranefield, seconded by Lake: *Resolved,* that Article V of the constitution be amended to read as follows:

The officers of this body shall consist of a president, a vice-president, first and second state vice-presidents, secretary, assistant-secretary, and treasurer, all of whom shall be elected by ballot, or otherwise, at the annual meeting, and who shall hold office for one year or until their successors are duly elected and qualified;

And, further; that the language of the other articles of the constitution, and the by-laws be so modified as to conform with the purposes of the above amendments.

By Lake, seconded by Cranefield: *Resolved,* that Article VII of the constitution shall read as follows:

(See Art. VII Constitution (revised) page 7 this supplement.)

By Cranefield, seconded by Lake: *Resolved,* that the by-laws of this body be amended as follows:

16. The voting privilege of this body shall be exercised by those life, society, and annual members who are in good standing and whose dues are paid for the current year.

By Dean, seconded by Dickens: *Resolved:* That the thanks of this society be extended to Mr. F. A. Wiggins of the Washington Nursery Company, Toppenish, Washington, for his very kind and generous contribution to the substantial pleasures of the meeting, in the form of a fine box of Ranier apples. "May his name long continue to be a joy on such occasions; and may his kind multiply and prosper unto the ends of this glorious old earth" and, be it further

Resolved, that we extend to the management of the Hotel Statler, St. Louis, our appreciative thanks for the courtesies extended in prompt service, delightful meeting rooms, and for a congenial and restful atmosphere all about our 36th biennial sessions.

M. L. Dean,
Frederic Cranefield,
J. P. Stewart.

The Wilder Medal Committee reported that a silver medal had been awarded Starks Nurseries, Louisiana, Mo. for a meritorious new yellow apple exhibited under the name of GOLDEN DELICIOUS.

CONSTITUTION (ST. LOUIS REVISION).

Italics indicate new matter

Article I.—Name.

The name of this Association shall be the American Pomological Society.

Article II.—Object.

Its object shall be the advancement of the science of Pomology.

Article III.—Membership.

The regular membership of this society shall consist of *Junior,* Annual, Society, Life, and Institutional members.

The special membership shall consist of *Honorary* members, *subscribers, contributors, Junior* and *Senior Patrons.*

Article IV.—Meetings.

The regular meetings of this society shall be held *annually* at such time and place as the Executive Committee may decide.

Special meetings may be convened upon the call of the council or by the president on petition signed by a majority of the members.

Article V.—Election of Members.

Students shall be eligible for junior membership on recommendation of the professor of pomology in the faculty of the institution whence the applicant registers.

Any person shall be eligible for annual membership on recommendation or approval of the vice-presidents of the state where he or she resides.

Any society of established standing shall be eligible for society membership and may become such member on its own election.

Any person shall be eligible to life membership on recommendation of a special committee appointed by the president to determine the applicant's qualifications; and may be elected to such membership on approval by two-thirds of the Executive Committee

Honorary membership, in recognition of eminent or distinguished services to pomology, may be conferred upon any person nominated by not less than a two-thirds vote of the Executive Committee, and who receives not less than a two-thirds vote of the membership present at a regular annual meeting.

The designation of subscriber may be conferred by vote of the Executive Committee upon any person, firm or corporation that may have contributed valuable services toward the accomplishment of a definite periodical purpose.

The designation of Contributor may be conferred, as above, upon any person, firm or corporation that may have contributed means, material or special services of notable permanent value for the advancement of the work being carried on by the society.

The title of Junior Patron may be conferred in similar manner upon any person—otherwise eligible to regular membership, who may contribute at any one time to any of the permanent funds of the society the sum of $500.

The title of Senior Patron may likewise be conferred upon any person similarly eligible, who has contributed, for a like purpose, the sum of $1,000.

Article VI.—Dues and Fees.

The dues for Junior membership shall be one dollar for the calendar year; for Annual membership shall be two dollars for the calendar year; for Society membership shall be ten (or five) dollars, the calendar year, as determined by states. See Par. 15 by-laws; The fee for Institutional membership shall be fifty dollars; the fee for Life membership shall be one hundred dollars, payable in one or two installments.

Article VII.—Officers and Council.

The officers of this organization shall consist of a President; a Vice President; First and *Second* State Vice Presidents; a Secretary; an *Assistant Secretary,* and a Treasurer, all of whom shall be elected by ballot at the regular *annual* meeting, and *who shall hold office for one year, or until their successors are duly elected and qualified.*

The Council shall consist of the life members and the Vice Presidents of the Society; the latter shall be elected as follows:

The first Vice-Presidents shall be elected by the affiliating State and Provincial Horticultural Societies in such manner as provided in by-law 15; the second Vice-Presidents shall be elected by the affiliating student pomological bodies, one for each state and province, and in the manner and under the provisions prescribed for the election of first vice-presidents.

The duties of the council shall be to serve as a nominating and administrative committee for the Society while in regular or special sessions and to serve as a board of directors and ad-interim and may at its discretion delegate such part of its ad-interim authority as is practicable to the executive committee subject to the confirmation of the general membership body at the next preceding or succeeding regular or special session. As a nominating committee the council shall prepare after careful deliberation a list of names of persons whom it deems especially fitted to perform the various duties of the organization and report such lists to the general body of the Society for its action if in session; or if in the case of vacancies ad-interim to submit such lists to the President for his approval or rejection.

As a board of directors the council shall have full charge of the ad-interim business of the organization; and separately shall be empowered to appoint their own proxies to attend regular and special sessions, providing their own delegating bodies do not otherwise direct.

It shall make full and complete reports of its ad-interim action together with such suggestions and recommendations as it deems for the best interests of the Society, to the general membership in session.

As an administrative committee it shall make recommendations to the membership in session, covering the general policy, finances, management and activities of the Society. Resolutions from the general membership of a character in common with the above subjects shall be referred to this body for consideration: Then its findings to the general membership for action.

The Secretary of the Society shall be ex-officio Secretary of the Council and the Executive Committee.

The Assistant-Secretary who shall be ex-officio, secretary of the Junior Branch, with the approval of the President, shall have charge of the work directly relating to the affiliated student activities and shall be recompensed in such manner as the Council may direct.

By-Laws (St. Louis Revision).

1. The President shall have a general superintendence of the affairs of the Society during its vacation; give due public notice of the time and place of meeting; preside at its deliberaitons; deliver an address on some subject relating to Pomology, at each annual meeting; and appoint all committees unless otherwise directed.

2. In the case of death, sickness or inability of the President, his official duties shall devolve on the Vice-President, or such one of the State Vice-Presidents as the Society may elect by ballot or otherwise.

3. The Treasurer shall receive all moneys belonging to the Society, and pay over the same on the written orders of the President.

4. There shall be a Finance Committee of three members appointed by the President at each annual meeting.

5. The Secretary shall, with the assistance of a reporter appointed by him, keep a record of the transactions of the Society for Publication.

6. There shall be an Executive Committee consisting of five members, together with the President and Vice-Prseident, ex-officio, five of whom shall constitute a quorum, who shall manage the affairs of the Society during its vacation.

7. A Chairman of Fruit Committees, for each State, Territory and Province and a General Chairman over all, shall be appointed annually. It shall be the duty of such Chairman to appoint four additional members of his committee, and with their aid and such information as he can procure, to forward to the General Chairman one month before each annual meeting, State Pomological Reports, to be condensed by him for publication.

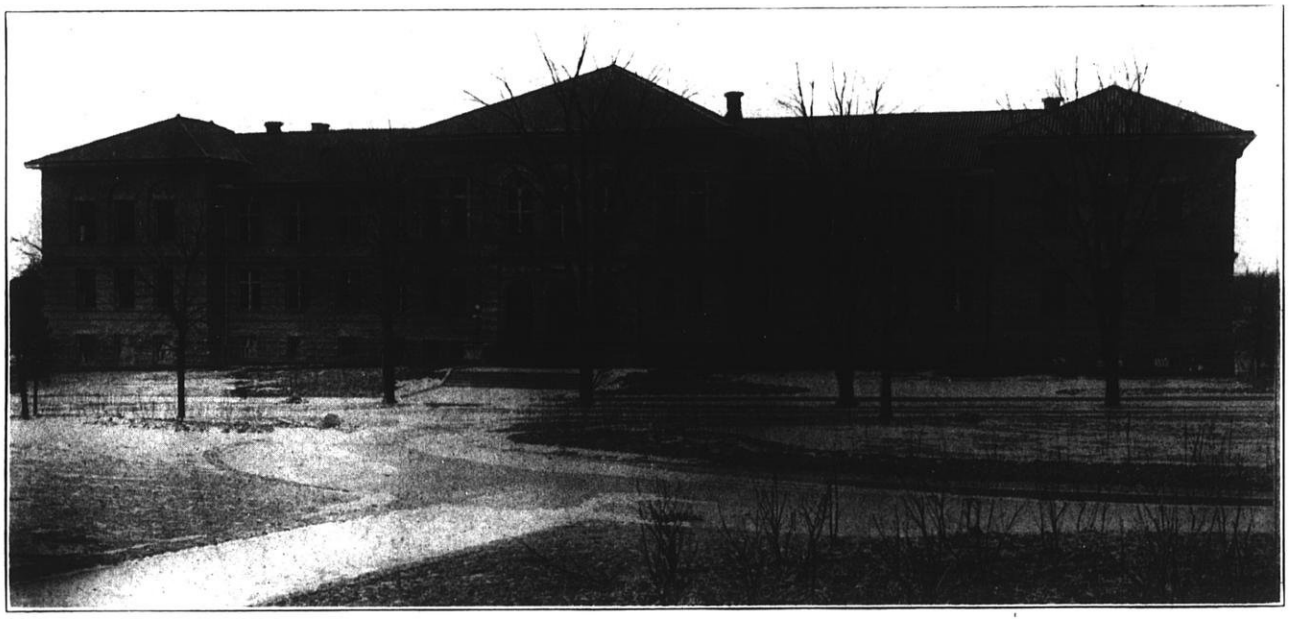
8. A Standing Committee on New Fruits of American Origin consisting of eleven members, shall be appointed by the President, immediately after his election. It shall be the duty of this Committee to report annually on new fruits of American origin, and also to examine, and before the close of the session report on, all new seedling varieties that may be exhibited and to make an AD INTERIM report on those that were exhibited in an unripe condition at the meeting of the Society, but had subsequently attained a state of maturity; and on such other seedlings as may have been submitted to their inspection during the Society's vacation.

9. A Standing Committee on Foreign Fruits, consisting of eleven members, shall be appointed, whose duties shall be similar to those of the committee in By-Law Eight.

10. A Standing Committee on Tropical and Sub-Tropical Fruits, consisting of eleven members, shall be appointed, whose duties shall be similar to those of the committee in By-Law Eight.

11. A Standing Committee on Nomenclature, consisting of seven members, shall be appointed annually.

12. Vacancies occurring in committees shall be filled by the chairman of each, and in case of his death or inability to serve, his place shall be supplied by the President of the Society.



THE HORTICULTURAL BUILDING, OHIO STATE UNIVERSITY

13. The order of business for each meeting shall be arranged by the Executive Committee.

14. The Constitution or By-Laws may be altered or amended, at any regular annual meeting, by a vote of two-thirds of the members present.

15. That there be hereby established a membership in this body to be known as Society Membership, which shall be open to state, provincial and district organizations. The fee for such membership shall be, for a State or Provincial society, ten dollars, and for a district society five dollars, the year. This membership carries with it the right and duty to appoint delegates, one for each hundred members, or major fraction thereof, and one delegate-at-large, of the delegating body, to attend and participate in the meetings of this Society; and in addition to these delegates a State or Provincial society member shall nominate the State or Provincial vice-president, such nomination to be made and submitted in writing, properly attested by the president and secretary of the delegating body, to the Secretary of this organization ten days prior to the date of the annual meeting next preceding the period for which such nominee is designated to serve. A State or Provincial society member shall be entitled to receive six copies of the proceedings of this Society; a district society member shall be entitled to receive three copies of the same publication.

Delegates from the above Society Members shall be entitled to all the privileges of other members of this Society; but in the case of the appointment of alternates, no alternate shall have a right to vote except in the absence of his principal, or in the event his principal elects to divide his privilege, thereby casting a one-half vote for principal and alternate.

16. The voting privilege of this organization shall be exercised by those annual, society and life members in good standing, and whose dues are paid for the current year.

Officers for 1920: President, L. H. Bailey, Ithaca, N. Y., Vice-President, W. T. Macoun, Ottawa, Canada; Secretary, E. R. Lake, Washington, D. C.; Treasurer, L. R. Taft, East Lansing, Michigan; *Executive Committee:* Laurenz Greene, Lafayette, Ind.; W. A. McComb, Staunton, Va.; J. P. Stewart, Milton, Penn.; Frederic Cranefield, Madison, Wis.; V. R. Gardner, Missouri.

Attention Members A. P. S.

The long overdue report of the Boston meeting has been going into the mails since January the first. A few copies, by mistake were sent out without being inspected. If you receive one that is faulty please return it so that we may correct the error.

Please accept this notice as a request that you send to the Treasurer, L. R. Taft, East Lansing, Michigan, at once, your dues for 1920 or your fees for life or other membership.

E. R. Lake, Secretary.

The Society voted to admit students as Junior Mem-bers and by appropriate changes in the By Laws provided for Junior branches.

Ohio University is the first to organize under the new rules as the following account shows. No doubt other Colleges will soon organize Junior branches.

The Junior Branch of the A. P. S. and Some of Its Activities

Columbus, Ohio the mother of this idea proudly proclaims the fact that she shelters in Horticultural Hall one of the most active bodies of coming American pomologists in the country. The following brief sketch of its history and achievements is a fitting (though it merits a fuller) introduction to the first official public announcement of the radical changes in policy and activities recently injected into the American Pomological Society. This long-respected and conservative tribunal of western continental pomology appears to be fully awakened to the significance of the present moment for world reconstruction, and accordingly enthusiastically enters upon a campaign of expansion to meet the requirements of this great industry—AMERICAN POMOLOGY.

The Department

Horticulture first taught in University of Ohio 1881, by W. R. Lazenby: Combined with Botany until 1892; From this date, with Forestry until 1908: This was a period of pioneering as with all other branches of Agriculture: 1908 became separate department, V. H. Davis in charge: 1909 Wendell Paddock took charge.. A general service with pleasant associations and at times exacting work but under adverse though improving conditions continued until 1915; Separate courses in vegetables and fruits then offered; Montgomery with vegetables; Paddock with fruits; output, two graduates 1911; 28 in 1916. Campaign for a new building formed in 1913; appropriations available May 1913 and February 1914; building begun August 1913; completed and occupied Sept. 1914. Horticultural Hall is fireproof; an acre of floor space; contains all the modern requirements; ventilated with washed air; cold storage rooms; canning, spray and other laboratories; Museums; course in Landscape Architecture offered 1915; popular from the start; officers and men from all sections of department volunteered for the service; others left to enter Government service. Now after trials of war and changes of peace there are sections in; pomology, vegetable gardening, landscape, floriculture, forestry with this faculty, Wendell Paddock, L. M. Montgomery, P. H. Elwood, A. C. Hottes, N. W. Scherer. Our service flag contains 115 stars—our graduates number 100.

The Student Society

Parent of the idea of a Junior Branch of the American Pomological Society; started in the early 90's; by 1906 had nearly ceased except name; 1911 a live bunch took hold, completely reorganized; thence full steam ahead; equal to any on the Campus now; officered by President (a senior) V. President (a junior); Secy.-Treasurer from any class; Ex-committee, above officers: Editorial board; Membership committee, three, appointed; program committee, two students, one teacher; meeting every second Tuesday during School year; dues fifty cents payable at opening of semester; all matter published approved by head of department; program and activities cover all phases of the subjects within the jurisdiction of the department; formerly had many outside speakers, this year all students and faculty; maintains orchestra; present membership fifty-six.

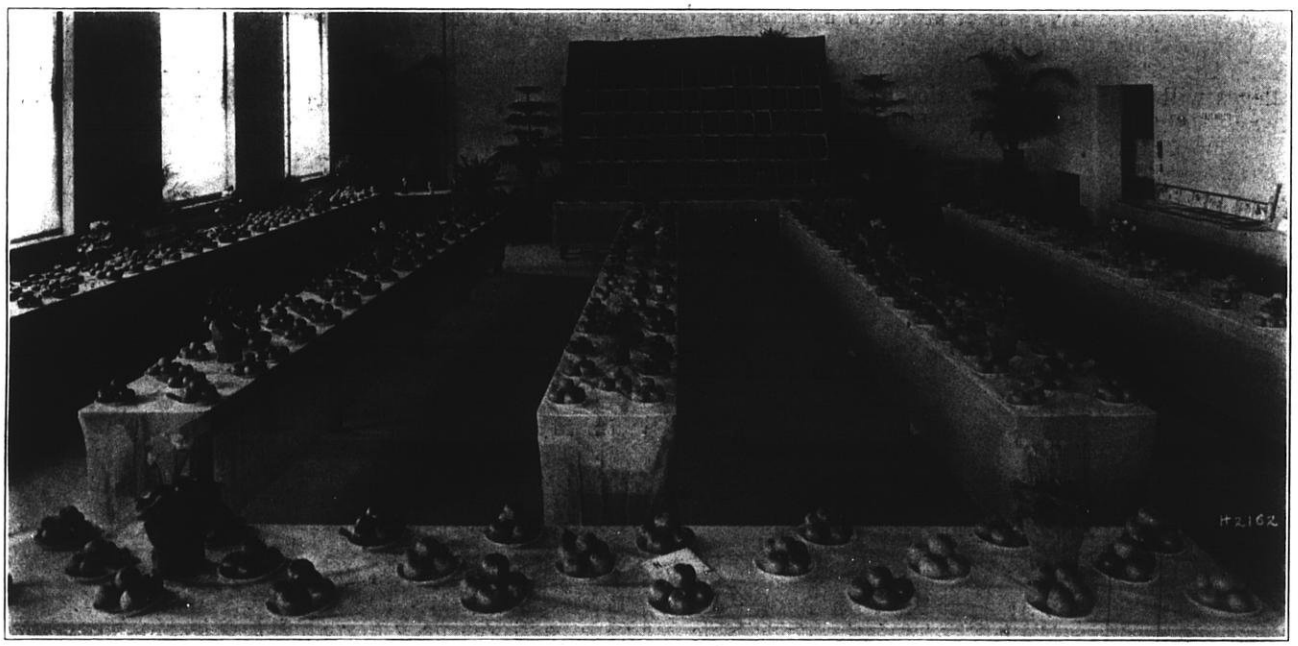
Crowning Event of the Year is Apple Show

All work done by students; directed by faculty: Not alone a fruit show; contains other features: Vegetable exhibits; floral decorations; landscape display; pathological and pest exhibits; apparatus and equipment exhibits; fruit judging contest; culinary phases; refreshments. Judging team member, intercollegiate Fruit judging League holds enviable record this event winning the championship cup twice out of a necessary thrice

for permanent possession; team is made up each year from the winning scores of the home men, and this team sent by the local society to the interstate contest which has been held as follows:

Jan. 8, 1915. Morgantown, Winner—Rutgers.
Nov. 19, 1915. Baltimore, Winner—Columbus.
Dec. 15, 1916. Columbus. Winner—Morgantown.
Dec. 13, 1917. State College. Winner—Rutgers.
1918. No contest.
Jan. 9, 1920. New Brunswick. Winner—Columbus.

This year December 12 the Horticultural Faculty gave a banquet in honor of the Alumni and ex-soldiers and sailors in the department, followed by a short program including the pageant illustrated with this article, demobilization of the service flag, unveiling of the memorial tablet and selections by the horticultural orchestra.



THE 1919 APPLE SHOW, OHIO STATE UNIVERSITY

Dec. 13 occurred conference of delegates assembled for discussion of this new idea. Three states, Indiana, Ohio, Pennsylvania were represented by student delegates. The program outlined by the A. P. S. for affiliation is very largely along the lines proposed by the student conference. And now there is in progress arrangements for a Spring festival to include banquet, musical and literary program and other features.

The Idea.

The idea of a Junior Branch was conceived by H. F. Connell, a senior student in horticulture; together with Professor Paddock a prospectus of the movement was proposed and sent to Dr. Bailey who cordially approved of the plan and directed the Secretary to get out invita-tions requesting the State Colleges of Agriculture to appoint delegates to a meeting at Columbus to consider the proposition and offer suggestions as to the best means for bringing about the ends in view. These delegates Messrs. Kempton of Indiana, Connell of Ohio, and Fagan of Pennsylvania, with Secretary Lake met at Columbus Dec. 13 in company with thirty-five young men and women of the University Horticultural Society and after listening to the reading of a letter from Dr. Bailey entered into a discussion of ways and means for launching and developing the new idea. The outcome, in substance, was about as represented in the plan finally adopted by the American Pomological Society at the St. Louis meeting and which is to be found expressed in brief in the revised by-laws of the Society as printed elsewhere in this report. In addition the student conference projects the form of constitution for the Junior Branch as published herewith.

Constitution.

Art. 1—The name of this organization shall be the Student Junior Branch of the American Pomological Society.

Art. 2—Object. The object of this organization shall be to stimulate undergraduate interest in Horticulture in all of its phases and in Pomology in particular and to encourage participation in the work of the American Pomological Society upon graduation.

Art. 3—Membership Sec. 1. Membership shall consist of the several student Horticultural organizations of the State Agricultural Colleges of the United States and the Canadian Provinces which shall have become affiliated with the American Pomological Society.

Sec. 2.—Local societies not charter members may become affiliated with this organization upon making application in writing for membership to the Secretary of the Junior Society three months previous to the convening of the National Society in annual session.

Art. 4.—Officers. The officers of this organization shall consist of President, Vice President and Secretary. The Secretary shall be ex-officio Assistant-Secretary of the American Pomological Society.

Art. 5.—Committee. The permanent committees of the Society shall consist of an administrative committee, a membership committee, a publicity committee. The administrative committee shall be composed of one delegate representative from each affiliating Society, whose duties shall be outlined by the American Pomological Society.

Art. 6. Each affiliating society shall elect a reporter, whose duties it shall be to provide the editor of the parent body (A. P. S.) with educational, instructional and news matter pertaining to the activities of his local society in consonance with the requirements of the parent body.

Art. 7—Amendments. This constitution may be amended upon the concurrence of two-thirds of the participating State and Provincial Societies at any annual meeting by and with the consent of the American Pomological Society, providing a published notice of such amendment shall have been made at least ninety days prior to the annual meeting.

By-Laws.

Art. 1—Section 1—Dues. Annual dues payable to the A. P. S. shall be fifty cents per member of the affiliating Society and payable on or before Oct. first each year.

Section 2—Such dues shall be transmitted to the secretary of the Junior body and by him to be payable by the affiliating Treasurer of the American Pomological Society.

Art. 2—The official organ of this Society shall consist of the official publications of the American Pomolo-ical Society.

Art. 3—Section 1—Duties of officers. The officers of this Society shall perform such services as are ordinarily required by their positions or shall be designated by action of the administrative committee of the American Pomological Society.

Section 2—The secretary shall receive and forward all membership dues to the Treasurer of the American Pomological Society on or before November 1st of each year.

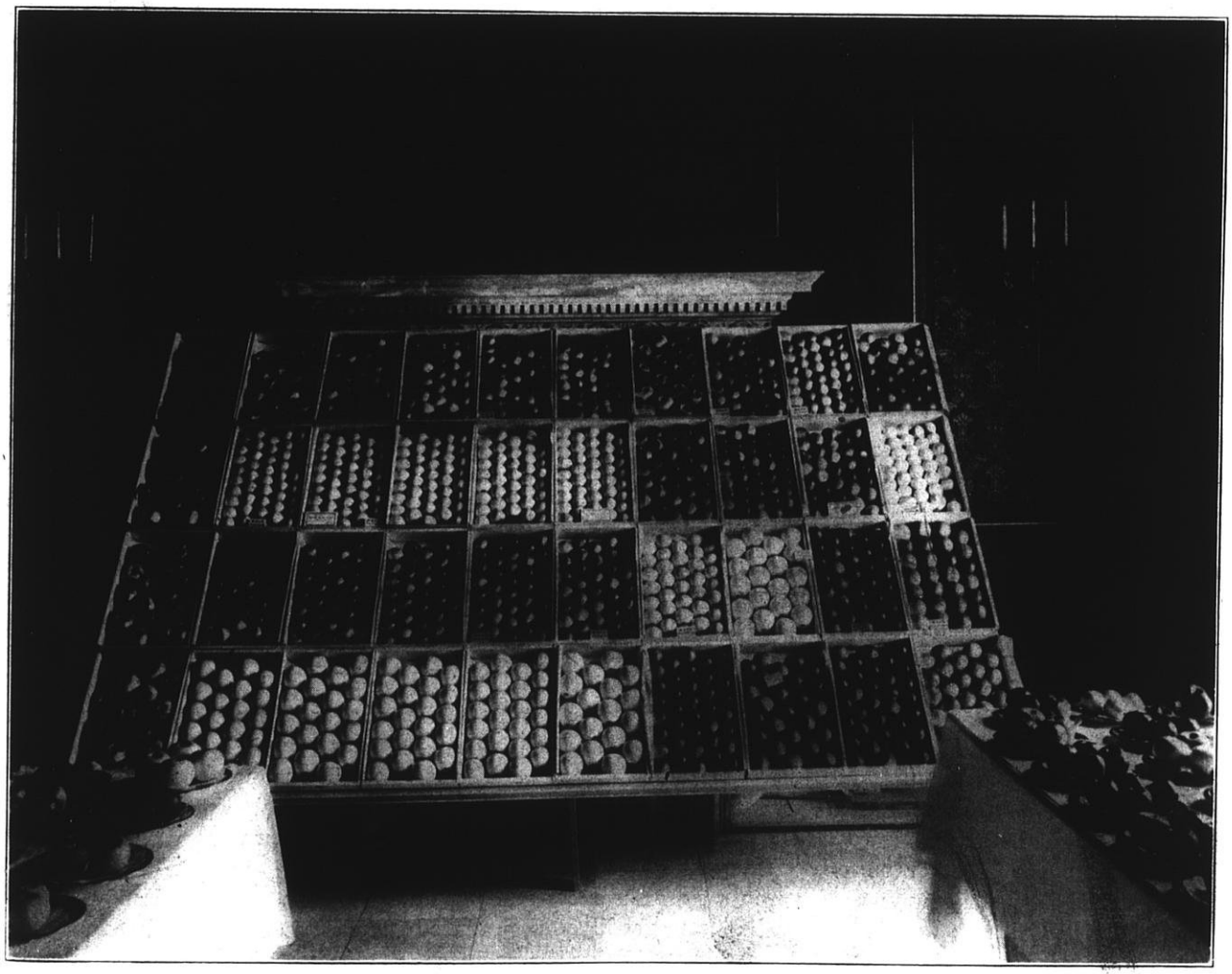
Art. 4—Meetings. The time and place of holding the annual meetings of the Society shall conform to those of the American Pomological Society.

Art. 5—Vacancies. All vacancies among officers of the Society shall be filled by the administrative committee.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, March, 1920 | Number 7



Few, if any, apples excel Wisconsin apples. These "Ski-Hi" and "Kickapoo" brands were shown at the annual convention, Jan. 6-8, 1920.

Collecting and Propagating Our Native Shrubs

William Toole, Sr.

In the discussions following the reading of the paper on Native Shrubs before the Wisconsin State Horticultural Society last winter a member asked for instructions how to propogate these native shrubs because as he said it is often the case that wild plants and shrubs are not in suitable form for removal and are very difficult to transplant. If we would increase our supply of native shrubs, we must have stock from which to propogate, and our source of supply must be either from the wild, a private collector or the nurseries.

Our material for increase may be sprouts from the roots for convenience called suckers—layers, grafting on other stock, or seeds. We naturally look first to the wild for our supply, and by careful searching we may secure plants of most kinds which are young enough to be handled successfully.

Some kinds bear transplanting more readily than others depending on the root system. If we can secure with our shrubs a supply of fine fibrous roots and keep them in a live condition to and through the time of planting success is assured if the work of planting is properly done. In taking up plants or shrubs soil about the roots is of value only so far as it may preserve the fine roots in good condition. With suitable packing material one can keep the roots in good order even without much soil adhering. If making a collecting trip one should be supplied with burlap and paper or other wrapping material also, sphagnum moss, partly decayed leaves or other packing material.

If roots are found to be dry at time of planting all dead material should be cut away to live wood, as the freshly cut surfaces will heal over while dead material will extend decay.

I like to sprinkle roots with water and then shake fresh earth over them at time of planting. This is better than smearing them with thin mud as is the practice with some. Of course there should be pruning of branches in proportion to loss of roots at planting time but the amount of pruning may be overdone. Dormant buds are sometimes very slow in developing. Too many leaves overtax the powers of the newly forming roots to furnish moisture yet some leaves are needed to assist the roots in their work.

I prefer early spring for shrub planting but planting in the Fall may be safely done with careful work and a protecting mulch applied for winter protection. We must not expect our shrubs to bear too sudden changes, so they should be given good soil about the roots even though the rest of the soil is not so good as desired. Most kinds of plants have great powers of adaptation; special kinds of soil are not always so necessary as is often supposed. For convenience it may be sometimes necessary to collect and heel in the shrubs in the fall to hold for spring planting.

In such cases the roots should be as carefully handled when heeling in as if being planted. Positively avoid any dry freezing of the roots, and mulch for winter protection. There are times when it is desirable to move shrubs in the summer time and this can be successfully done with proper care in saving the roots.

Many kinds of shrubs produce sprouts from the roots and young bushes can readily be produced from them. All having such tendency can be increased from root cuttings, and some kinds like Sumachs are easily increased in that way. Of those having the tendency to produce sprouts or suckers are Sumach, Hazel the Viburnums, Dogwoods or Cornels, Bladdernut, Prickly Ash, Wahoo or Burning Bush, Wild Currants, Sweet Fern, Spireas, Shadbush, Snow Berry, Coral Berry, the ornamental Raspberries and others. Most of these could be increased by twig cuttings and layering as well as by suckers. Of course all may be increased by seeds. Natsure's means of dissemination of the various kinds is through seeds, and some kinds respond readily to planting while others are very slow in germinating. I have found the Nine Bark as easily raised from seeds as any of the garden plants. Seeds saved dry through the winter and planted in the spring come up abundantly. Sumachs and the Elders come readily from seeds. I once sowed seeds from Cut Leaved Stag Horn Sumach, and raised a nice lot of plants. There were no cut leaved specimens among them, but they all showed more of the characteristics of the Smooth Sumach than they did of the Stag Horn species. Sheep berry seeds planted in the Fall came up readily while High Bush Cranberry did not respond. Thorn apple seeds are very slow to germinate, I don't know how slow. Mine are still dormant. I would like to grow the Crataegus from seeds to see if one might get several species—the product from one shrub. I shall some time try the hot water treatment on Thornapple seeds, to see if their germination can be hastened the same was as with the Honey Locust.

I once treated Honey Locust seeds according to directions with splendid success. The seeds were gathered in the Winter and in Spring at time of planting boiling

water poured over them. They were allowed to cool gradually and soak for several hours before planting. The seeds all grew. The seeds of fruit-bearing shrubs may be well planted in the Fall or stratified and left to freeze out of doors for spring planting, as is done with apple seeds. I find that some kinds start so early in the Spring it is difficult to handle them so prefer Fall planting with a mulch to prevent washing and baking of the surface. The mulching material should be such that can be readily removed in the spring without disturbing the seeds.

I have had such good success in raising Sweet Briar Rose from seed. I infer that our native roses might be increased in the same way but they are easily increased by suckers, root cuttings and division. Some like Leatherwood and Hamemelis, might probably be more readily increased by layering than from twig cuttings, and in quantity most readily from seeds. There are some kinds which are dioecious, that is having the staminate and pistilate flowers on separate plants thus making it necessary to plant both kinds to secure fruit or seeds. This is the case with the Winter Berry and Virgin's Bower Clematis also to some extent with the Celestrus or Climbing Bittersweet.

There are books which explain in detail various methods of propagation of trees and shrubs. Probably as good as any is the Nursery Book by Prof. L. H. Bailey. It could probably be secured through Secretary F. Cranefield. I give as follows a list of some of the most important kinds of native shrubs, suggesting methods of propagation suitable for each kind.

Prunus Virginiana. Choke Cherry. Seeds—suckers.

Prunus Pumila. Sand Cherry. Seeds—suckers—grafting.

Physocarpus opulifolius. Nine Bark. Seeds.

Purpleflowered Raspberry. Salmonberry. Suckers.

Pyrus arbutifolia. Red Chokeberry. Seeds—suckers.

Pyrus Melanacarpa. Black Chokeberry. Seeds—suckers.

Rhus—The Sumachs. Seeds—suckers—root cutting.

Ribes—The Currants and Gooseberries. Twig cutting—layers—suckers.

Rubus odoratus—R-pariflorum. suckers.

Rosa.—The wild roses are readily propagated from suckers, also seeds.

Spiraea Salicifolia. Meadow Sweet. Seeds—cuttings—division.

Salix. The Willows are all easily propagated from twig cuttings.

Sambucus Canadensis. Black Elder. Seeds—twig cuttings.

Sambucus racemosa Red Elder. Root cuttings.

Taxus canadensis. American Yew-Ground Hemlock. Seeds—probably layers.

Viburnum opulus. High Bush Cranberry. Layers—twig cuttings.

Virburnum lentago. Sheep Berry. Seeds—twig cuttings, suckers.

Viburnum Dentatum. Arrow Wood. Seeds—twig cuttings, suckers.

Viburnum Acerifolium. Maple leaf Virburnum. Seeds—twig cuttings, suckers.

Xanthoxalum Americanum.—Prickly Ash. Seeds—suckers—root cutting.

Amorpha Canescens. Lead Plant. Seeds, twigs, cuttings, layers, suckers.

Acer Spicatum. Mountain Maple. Seeds, layering.

Alnus incana. Speckled Alder. Seeds, suckers.

Amelanchier, Canadensis and oblongifolia. Shad Bush, June Berry or Service Berry. Seeds, suckers, layers, cuttings, grafting.

Crataegus. Thorn Apple in several species. Seeds, sown in Fall; twig cutting, grafting, root cut.

Corlyus — Americanus, Hazelnuts. Seeds, suckers, root cut.

Betula. Glandulosa & Pumila. Dwarf Birches. Seeds.

Carpinus Caroliniana. Blue Beech. Seeds.

Ceanothus Americana, Jersey Tea. Seeds, layers, twig cuttings.

Cephalanthus Occidentalis. Button Bush. Seeds, layers, twig cuttings.

Cornus or Dogwoods, several species.

Diervilla lonicera. Bush Honeysuckle. Cuttings, suckers.

Dirca Palustris. Leatherwood. Seeds, layers, twig cuttings.

Euonymus Atropurpureus. Wahoo, Burning Bush. Seeds, cuttings, suckers.

Hamamelis virginiana. Witch Hazel. Slow to germinate, slow to root. Seeds, layers.

Ilex Verticillata—Winterberry, Northern Holly. Seeds, suckers.

Juniperus horizontalis, Juniperus communis—depressa. Seeds, cuttings in fall, probably layering.

Lonicera. Honeysuckles. Seeds, layers, cuttings.

Myrica aploniafolia. Sweet Fern. Seeds, layers, twig cuttings, suckers.

Now the chemists tell us that lettuce, spinach, etc., furnish us certain elements which are important in the nutrition of human beings, especially children. Some folks have thought that lettuce was a luxury and not of much value at that. This is just another reason for growing and using more vegetables.—LeRoy Cady, associate horticulturist, University Farm, St. Paul.

Strawberries Every Year

J. E. Leverich, Sparta

(Continued from February)

Winter Covering.

As soon as the ground is frozen, we cover with straw, using two ton per acre. We also cover the old bed with straw or clover hullings, and sometimes have used coarse manure applied with the spreader, which is a very good covering. When covering we are very careful to place the cover just thick enough to hide the vines from view. Great care must be exercised not to cover too thick, as it will smother the plants in the spring if left on too long, and also be too bulky a mass to tread between the rows when they are uncovered.

The covering is left on in the spring as long as the growth of vines will permit without injury to them; the weather decides the time. A great many of the plants will grow through the straw if it has been put on properly. However, we go over every row about the last of April and rake off all surplus straw, and it is placed and tramped in the path between the rows. This acts as a mulch and is very beneficial in case of a dry spell during the picking season.

The past year we had no rain during the picking season, but, our berries showed very little effect of the dry spell as they were thoroughly mulched.

The Picking Season.

It is at this time, that great care and judgment must be used. We have now succeeded in growing an excellent stand of vines, and have a fine show for a crop of strawberries. Right at this time many of the growers fail. They are not able to get them picked on time and as a consequence have an inferior grade of fruit to market, the berries being too ripe and soft.

We, however, have been in the game so long, and fully realize the task we have before us. We are engaging pickers the year round, and when the season starts, we are equal to the task of getting them picked, and to market in good condition. We pick one half of the field each day. If we find that we are liable to get behind with the picking, we never wait until that is a stern reality, but get busy and hunt up a few extra pickers that can usually be secured for a few days if we hustle around and find them.

We have a set of rules printed on the tickets for the pickers to follow in regard to picking, etc., and we always employ a field superintendent, who does nothing but see that these rules are enforced, and above all things, knows that the berries are picked reasonably clean from the vines. If not they will be too ripe the next time they are picked. We pack in sixteen quart cases, immediately after they are brought to the packing sheds, and do not discriminate between the top and bottom of the cases. They are packed just as they come from the field and are equally as good on the bottom of the case as on the top. We are in the business to stay, and therefore aim to satisfy all customers. Berries that are to be shipped should be about three-quarters covered, depending on the stage of the season.

In short, we employ every possible means to get the berries to market in good condition, as we know the efficient manager of our Sparta Produce Exchange, Mr. Kern, cannot get the top price for our fruit unless we have done our part and he has the class of fruit that the trade demands and will safely carry to distant points.

Care of Bed After Picking.

As soon as the crop is harvested the field is mowed and the vines are left on the ground to act as a mulch. NO BURNING FOR US. The machine is set to cut 3 inches high. The field is also clipped again a month or so later, this time the machine is set to cut five inches high.

Soon after the first mowing, we use a springtooth sulky cultivator, which is regulated by taking the inside and outside teeth off from each gang. The gangs are made rigid by fastening a 2/4 between them at the proper place. This makes the center of the teeth about four feet wide. It leaves the old row about three feet wide. We have tried all kinds of tools with which to do this work, and so far have found nothing that even commences to equal it. The continual spring of the teeth appears to clear them from vines, mulch, etc., that all other cultivators we have tried will collect. After cultivation, we level with an iron harrow, the way the rows run, the harrow let down flat.

This is all the labor we put on an old bed. No hand work is done in any manner. We have tried out many different plans in caring for the old bed, but have found, that from a financial standpoint, this plan gets us the money, and that is what we are after.

Varieties.

Now, before I close I will say a few words in regard to varieties. We have fruited about all

varieties in trial beds. Our main crop is produced from Warfield, Dunlap, and Pokomoke. The Warfield has been our old "standby," and we stick to it. About one-half of our total planting is Warfield. Senator Dunlap is good, but does not yield as well as the Warfield. The Pokomoke is fine to look at, but a little inclined to be soft when it reaches the Dakotas. It is also a poor plant producer, but it is a heavy yielder. There is not much foliage, and the berries are exposed to the sun, and in hot weather, may sun scald.

We thoroughly try out all new varieties in our plant bed, not one year, but several years, before we feel safe to plant them in our regular field. At the present time we have some ten or more varieties in our plant bed, testing them out. However, I am not going to recommend any particular varieties, for, I believe every section and kind of soil has the berries best adapted to that location. What I have said in regard to varieties, applies to us at Sparta, and possibly may not be the varieties for other sections of the state.

In conclusion, let me say, that the growing of strawberries for commercial purposes, on a large scale, and for profit, requires lots of work and means long hours and some worry, during the picking season. If the prospective grower is not willing to accept these conditions, I would advise him to stay out of the business. But, if strawberries are looked after in the right manner, there is much pleasure to be derived, and profit to be gained.

I am not seeking converts for our plan. I have related to you how we have managed to produce berries, and it is my hope that some person may profit thereby.

Red Raspberries Highly Profitable

G. H. Townsend.

The raspberry survey made by the Horticultural Department of the University shows that the raspberry acreage has declined to possibly one-fifth what would have been an ordinary acreage a few years ago. The cause: Winterkilling, anthracnose and other pests, cellar stored plants, scarcity of labor and the high price of other products that could be quickly grown. When Europe produces the bulk of the food it requires the crop profits of red raspberries will be higher as compared with vegetable or other crops maturing the same year they are planted. Considering these facts a good many people ought to plant red raspberries and would do so if assured of success. If any particular variety stands the winters and yields big crops that is a good variety to plant. In Minnesota the "King" practically displaced all other varieties until the coming of the Minnesota No. 4—both iron clad hardy in Minnesota. In Michigan the commercial growers are now cultivating the "King" in preference to all other varieties. If the Marlboro and the Cuthbert do better in your community or on any particular soil plant them but as the "King" has proven such a reliable crop producer in cold climates the trend of commercial growers is to the "King."

Here is red raspberry crop insurance.

Plant the "Early King" raspberry as soon after the plants can be dug as possible. A plant does not lose its moisture rapidly in cool weather and does not need deep covering necessary to late planting which are often damaged from beating rains packing the ground over the plant. After plants are started sprinkle nitrate of soda around the plant without touching it and keep free of weeds and grass. Pinch off all fruit blossoms the first year. The second year if on clay loam soil use two hundred pounds to the acre. If on sandy soil use complete fertilizer. Give shallow cultivation as soon as plants start. Cultivate until the ground is in fine condition—usually two or three plowings close together—and then drag until a dust mulch is produced. Repeat after each heavy rain or rainy period and mulch the rows heavily with straw the middle of June and keep the plants down in the middle of the row. If planted six feet apart keep the rows not to exceed fifteen inches wide and cut out all small canes where there are large ones that will overshadow them. In early Spring cut back canes to the large buds—one-third of the height—more or less. Cut back weak canes standing alone more than strong ones. This method will insure four to five thousand pints to the acre at a cost including planting and cultivation to bearing of approximately one hundred dollars an acre, not including picking.

In starting a raspberry patch every fifth row should be planted double. Where plants do not make a vigorous start the extra plants should be taken up carefully with a spade and set where there is likely to be poor growth or no growth at all. A perfect stand and high vigor the first year is the key of raspberry success.

Pruning may be done now on warm days.

A Few Words About Grafting

FOR BEGINNERS.

(The following story about grafting first appeared in the Dec. 1912 issue of Wisconsin Horticulture and was reprinted in February 1917. Here it is again. It is not by any means the best story that could be written and is not intended to be more than a brief outline of the art of grafting; just enough to cover questions asked and to create a desire for further knowledge.)

The art of grafting is a simple one although often invested with mystery by the uninitiated.

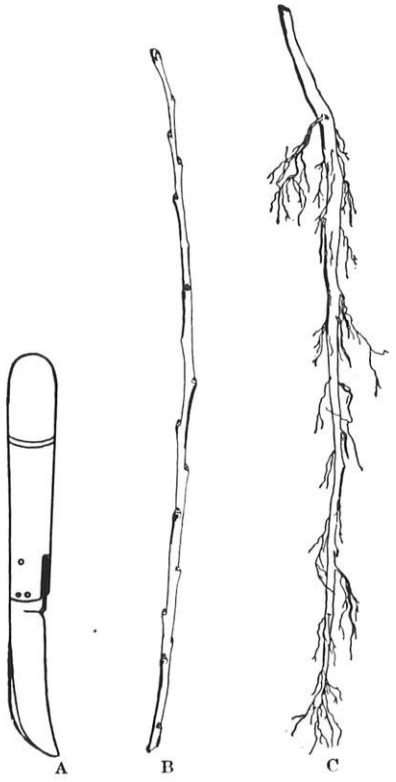


Fig. 1. (A) A good grafting knife; (B) Cion used in root grafting, must be new, current season, growth; (C) Root used in root grafting, the larger rootlets should be removed.

Simply stated, the possibilities of grafting are about as follows:

You can go into your orchard next spring, saw off a few limbs from the old Hibernal apple tree, graft on some twigs of Wealthy and in a couple of years have a new top in the old Hibernal tree bearing Wealthy apples.

If you have a pet seedling apple and want fifty or one hundred trees, get some straight one-year apple roots, these are grown especially for nurserymen from any old kind of apple seed, cut the roots into three-inch sections, splice to each a twig from your seedling tree and you have root grafts that will produce orchard size trees in two years. There are many other possibilities, but these two are the most practical.

All orchard trees are grafted or budded and budding is one form of grafting, because there is no other way to get fruit trees true to kind or name. The nurseryman knows the whole story and so do many of our readers, but for the benefit of any others who would like to try grafting an attempt is here made to tell how in simple words.

A part of it is written, a part told by pictures and the remainder left to the intelligence of our readers.

In the language of Goff "Grafting consists in placing together two portions of a plant or of different plants, containing living cambium in such a way that their cambium parts are maintained in intimate contact. If the operation is successful growth will unite the two parts," * * *

Root grafting: The materials for root grafting consists of twigs of new (1919) growth which may be cut any time from December to April and kept from drying until wanted and seedlings or stocks which may no doubt be had in limited quantities from any nurseryman. (These grew from seeds planted last spring). The tools: a sharp knife and some twine or candle wicking soaked in grafting wax. Cut the roots into pieces of about three inches in length and the twigs (cions) five to six inches. Make a sloping cut

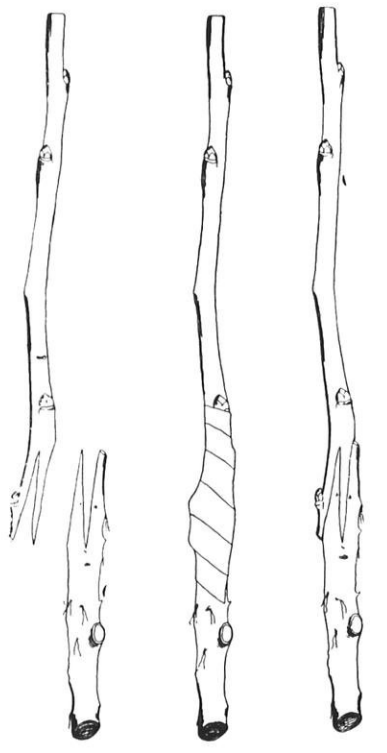


Fig. 2. Showing method of making root graft.

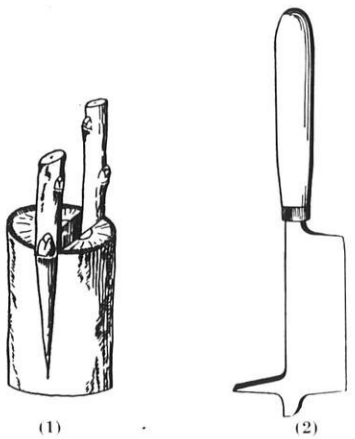
or cleft on both root and cion as shown in the picture (Fig. 2) and in such a way that the two can be united smoothly in a dove-tailed joint. The final operation consists in tying the parts with the waxed cord.

One very important point not mentioned so far is to have the cambium or inner bark of the cion in contact with the inner bark of the root when the two are fitted together. Make the joint so that it is smooth and even on one side, for only rarely will it be possible to make root and cion fit on **both** sides. The very thin layer, called cambium, lying between the bark and wood, is the only active

growing portion of either cion or root and the only part where growth can start, therefore these **must** be in contact in at least one point. Don't try to find this cambium layer, because you can't, but just see to it that you have a good fit on one side of the joint and let it go at that.

When the root grafts are finished, pack in damp sawdust or sand in the cellar until next spring and as soon as the ground can be worked plant in deep mellow soil, *down to the top bud of the cion.* Don't stick the root only in the soil, leaving most of the graft in the air, but bury until only an inch is visible.

Cleft grafting: For materials you will need a saw, butcher knife, mallet and cions of the same kind described in root grafting, but no roots. For cleft grafting any limbs from one to six inches in diameter may be used: saw these off at least a foot from the trunk and split as shown in Fig. 3; cut two cions each of about three inches and cut the lower ends wedge shaped, but



(1) (2)

Fig. 3. (1) Showing methods of inserting cleft grafts. (2) A good type of grafting chisel.

much thicker on one side. Insert these as shown herewith, keeping in mind the cambium story, and *cover the cleft and tips of cions with grafting wax.* This is not shown in the picture, but unless it is done failure will result.

Now this is about all we need to say, the principles are here, the details can be worked out. The grafting wax mentioned is made by melting together four parts resin, two parts beeswax and one part tallow. When melted, pour into a pail of water, grease your hands and have an old fashioned candy-pull.

Grafting is lots of fun; try it.

Destructive Leaf Rollers

Apple trees in certain sections of Wisconsin are troubled with

This apple eaten by the oblique—banded leaf roller. Note the parent moth which has just emerged from the pupal skin in the cavity.

two species of leaf rollers, pests which eat the opening buds in spring and often eat large irregular holes in recently set fruit. Nests of the unfolding buds are made by the worms and some years if they are not checked, they threaten prospects for good crops.

One species is called the fruit tree leaf roller, the other which is the most common in Wisconsin, is called the oblique-banded leaf roller, named from the presence of the three broad oblique dark brown bands which cross each fore wing of the adult moth.

The larvae of the fruit tree roller are about ¾ of an inch long, light green in color, with the head only, light brown. The larvae of the oblique banded roller are a trifle larger, darker green, and have a distinctly dark head.

When disturbed both have the habit of hanging suspended in mid-air by means of a fine silky thread.

These rollers spend the winter as eggs which are laid in the fall by the parent moths on the bark of the twigs in small, flat, light brown or grayish patches; each patch containing about 150 eggs and are covered with a water proof gummy substance to protect them from the weather.

The fruit tree leaf roller has only one generation a year, while the oblique-banded roller has two broods each season.

Spraying Checks These Pests

The most efficient control of these worms consists in a spray of a miscible oil, one part in 19 parts of water, applied to the trees while they are dormant. If a miscible oil is not available a spray of 10 per cent kerosene emulsion, well made, will aid. Both of these sprays kill the eggs. If the eggs are not treated, arsenate of lead, 3 lbs. to 50 gals. of water, should be applied soon after the buds begin to open and another when the blossom buds in the cluster separate and show pink. A thorough application is necessary as the young larvae are very difficult to kill. The best spray is the one which kills the eggs.

Charles L. Fluke, Jr.

Wisconsin Horticulture

Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Annual membership fee, fifty cents until April 1st, 1920, which includes twenty-five cents subscription price to Wisconsin Horticulture. Remit fifty cents to Frederic Cranefield, Editor, Madison, Wis.

Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card, and pays for two years. Personal checks accepted.

Postage stamps not accepted.

Last Call

This is positively the last call for memberships at the old rate. Fees mailed Wednesday, March 31st will be entered at the old rate, fifty cents, but any remitted after that date must be at the new rate, one dollar for annual membership. Any member now on the mailing list may pay two years in advance at the old rate and many are taking advantage of this offer.

Life membership at five dollars is altogether too cheap but the gates are wide open until April 1st. Either have the blank on page — signed by a fellow member or have him send in your fee. The life membership is a select circle and we must maintain this rule.

Important Notice

On and after April 1st, 1920 the fees for membership in this Society will be as follows: Life membership Ten Dollars, Annual membership, One Dollar, local and auxiliary society membership, Fifty Cents.

Memberships will be accepted at the former rates, one-half the above, until April 1st.

Applicants for life membership must be nominated by a member, annual or life, in good standing. Members "in good standing" are those whose fees are paid in advance.

No application or nomination is required for annual membership; merely the payment of the fee.

The membership fee in each case covers subscription to Wisconsin Horticulture.

Forward all fees to the Secretary.

Frederic Cranefield,
Sec'y. W. S. H. S.
Madison, Wis.

The Secretary will vouch for members personally known to him but not for others. This is the last chance, send in the dollar bills and the fives.

The Highest Honor We Confer

Our Honorary Life Membership roll is a small one and does not grow rapidly. In this list are the names of members who have rendered eminent service to the Society and to the cause of horticulture thru many years. There is not a youngster in the list and there is not likely to be one from the very nature of the case. Honorary Life Membership is a degree conferred by the Society at the Annual Convention and is an expression of appreciation by the members.

For many years this honor roll contained ten names but death cut it down to three in 1916. In that year the Society conferred the honor on William Toole, Sr., and in 1920 added three more names. The complete roll appears below:

HONORARY LIFE MEMBERS

Prof. L. H. Bailey.
Charles G. Patten.
Prof. Wm. Trelease.
Wm. Toole, Sr.
R. J. Coe.
L. G. Kellogg.
Irving Smith.

A Bound Volume of Wisconsin Horticulture Almost Free

On September of each year Wisconsin Horticulture is a year older. September, 1919, marked its ninth birthday. Each three year period a few sets are bound and of these a limited number are offered to members. Five copies, only, of the latest bound volume each containing all issues from Sept. 1916 to Sept. 1919, well bound in "boards" with so-called leather corners and back with an excellent index are now available for distribution but instead of selling them at cost as in the past it is proposed to give them away.

As long as they last a copy will be sent free, postage paid, to any resident of Wisconsin who sends in ten new two-year, members with one dollar for each, if the letter of

remittance bears a postmark March 31st or earlier. After that date our fees for membership go up and two dollars must be sent for each two-year membership. No renewals accepted, these must be *New* members each for two years. It is as easy to get a dollar for two years as fifty cents for one year, try it. If you find, however, that this guess is wrong we will compromise; two one year will be taken as one two year. If it happens that there are any unsuccessful applicants some sort of consolation prize will be sent.

Advertise in Wisconsin Horticulture

Members who advertise in Wisconsin Horticulture find that it pays. It is not expensive. For display advertisements, the only kind accepted, rates are as follows:

For one column inch one time	70c
Six or more times continous	60c
¼ page, one time	$4.70
½ page, one time	9.00
1 page, except back page	18.00
Back page	20.00

The paper is mailed on the sixth of the month and forms close on 25th of month preceding.

Let us have your business, the more advertising we get the more reading matter you will get as a page of reading matter will be added for each page of additional advertising.

AN EASY WAY TO SAVE A DOLLAR.

Renew your membership before April 1st or pay for two years in advance.

An Index For Wisconsin Horticulture

An index has been prepared for Vols. 7, 8 and 9 Wisconsin Horticulture and a copy will be sent free to any member on application to the secretary. For members who are keeping their back numbers of the paper these will prove valuable. There are also a few copies of the Index for the two preceding volumes, 1910 to 1912 inc. and 1913 to 1915 inc. available and these will be sent on request.

The A. P. S. Corner

Since the last issue of Wisconsin Horticulture was mailed eleven members have joined the A. P. S. ranks making a total of 17 to date. This leaves 83 to go. Good for a beginning but quite a bunch to round up before enlistments close.

Reports from other states show much activity but definite information as to number of members is lacking. There are two things about this A. P. S. affair: Firstly, it is worth the price. It may be difficult for the present officers of the reorganized Association, working at present without pay, to accomplish all the good things planned in one year but they will make the supreme effort, but just as soon as a little money comes rolling in things will begin to move. This plea for members is **not** made alone on the basis of making good for Wisconsin—it is made with the firm conviction on the part of your Secretary that it will be worth the price.

Secondly: Such an organization, national in scope, is badly needed among fruit growers in order to place the business both amateur and commercial on a dignified and stable basis. Let's **all** join. Who else has two dollars?

In addition to the fee each of the following sent a cheerful letter:

Prof. J. G. Moore
Ernst Gonzenbach
A. K. Bassett
Janes P. Oleson
J. H. Fiebing
S. J. Sorensen
H. B. Blackman

AMONG WISCONSIN BEEKEEPERS

The Wisconsin BeeKeepers Page
Prof. H. F. Wilson Editor

A B C OF BEEKEEPING

How to Secure Bees

For those who are planning to start with bees a few suggestions will help to avoid trouble. Do not under any circumstances accept bees, even from your best friend, unless you know that they have been inspected. See that every colony of bees bought by you or given you by a friend bears a certificate of inspection.

Why? Because bees in the brood stage are subject to disease known as fou brood and if you buy diseased bees, you will not only fail to get a crop of honey but you may lose your bees.

If you can buy a healthy colony or two of bees from your neighbor in the spring at 10 or 15 dollars a colony, that is the best way to start. Another way is to buy the hives, put in full sheets of comb foundation and leave these with the beekeeper to have him put swarms in them during the swarming period. Swarms wi l build up nicely and give you a nice surplus of honey if started near the beginning of the honey flow.

Few beekeepers are willing to dispose of their bees at this time because of the present price of honey and so the beginner must resort to buying package bees.

Package bees come in one, two or three pound packages. Queens are not sold with packages unless ordered. It does not pay to buy 1 pound packages except to strengthen weak colonies. Two pound packages give good returns but it is more profitable to buy the three pound size. Package bees are shipped in wire screen cages and the queen is placed in a queen cage and fastened in the center of the package. Enough stores are put in each package to carry the bees to the end of their journey with some to spare. If it is not possible to let the bees out at once, pour a little sugar syrup into the cage. A little water should be given if syrup is not fed to them. If the weather is cold the bees may be kept in doors for several days without harm providing they have stores. It is best to cover them with a cloth or carpet but they should not be allowed to get too warm. 60° to 70°F.

If drawn combs are not available, full sheets of foundation will do. In either case, sugar syrup made of equal parts of sugar and water, must be fed to the bees until they can gather an abundance of nectar in the field.

Before making a start with bees secure some good bee book and read it carefully.

AMONG WISCONSIN BEEKEEPERS

Meet Phillips and Demuth at the Second Annual Beekeepers' School and Chautauqua, Madison, Wisconsin, August 16–21, 1920.

BETTER KEEPS FOR BEE-KEEPERS

Keep cooperating, join your local association. Keep your dues paid up to the state association.

THE STATE FAIR FOR 1920

The Bee & Honey Department

Last month, copies of the 1920 State Fair Premium List, for the Bee & Honey Department, with other information, was mailed to every member of the Wisconsin State Beekeepers Association.

The State Fair wants every member of the State Association to be advised of the fact, that there is such a thing, as the BEE & HONEY DEPARTMENT at the State Fair. They also want you to know the inducements they offer, as compared with past years.

They want it known, that they are willing to do anything in the way of offering inducements, to build up the Bee & Honey Department, and place it on a basis of importance with the other Departments of the Fair. This is all that they can do, and it rests with the Beekeepers to wake up, and take advantage of the opportunity.

Naturally the State Association is the logical factor for promoting the interests of the Bee & Honey Industry at the State Fair. As they have increased their membership since 1916, from less than 200, to over 600, including the organizing of over 30 Local Associations, the result shou'd be in evidence at the 1920 State Fair.

You are now in possession of all the necessary information, and the Superintendent will gladly furnish you any further information needed. He will be glad to hear from you, regard'ng State Fair Matters in his Department.

Look over the Premium List and Circular careful'y, and better write at once, if you will consider making an entry.

This does not mean that you are to make entries at this time, we simply want the names of prospective Exhibitors, so that we may have an estimate of the prospects, and he will write you later, and at the proper time. This will enable the Superintendent to have everything planned in deta'l, and avoid rush and confusion at the last.

This may seem early to start this matter, but it is advisable to have a good estimate several months ahead, as it will help in planning the new building, and arranging the interior. Write at once, to, **Gus Dittmer, Sup't. Bee & Honey Dep't., Augusta, Wis.**

THE USE OF LARGE HIVES

The commercial beekeeper has one principal object in view and that is to make his bees show a profit. In order to make a paying proposition out of his apiaries, it is necessary for him to secure a maximum amount of honey with a minimum of labor and expense. The maximum production of honey depends on several things, some of them being beyond his control. For instance, there may not be sufficient flora or the weather may not be just right in order to produce the most honey, but with these in his favor, there are other things within his control which the beekeeper must have in order to secure the most honey from his bees. Two important points to my mind are, first; strong colonies: second; the prevention of swarming. If the beekeeper does not have strong colonies, the honey crop will be of little value to him. If he does have strong colonies, he is prepared to harvest a good crop, provided he can prevent swarming. Swarming is, perhaps, the stumbling block for many commercial honey producers and more time is spent in its prevention than for probably any other one thing. The writer well remembers a trip made through Northern Michigan with Mr. A. G. Woodman, now maker of Bingham smokers. We arrived one morning in our automobile at the home of a beekeeper who usually produced a nice crop of honey. We found him in a rather despondent mood. On inquiry, we found that his honey crop had failed because of conditions that had caused practically every colony in his yard to swarm, not only once, but twice and three times. To me, it was a revelation because I had never seen and hardly heard of anything of the kind before. Using large hives as we do and have been for many years, swarming in the Dadant apiaries, even during some of our heaviest honey flows, has been kept well under 10 per cent and our colonies which are run for extracted honey do not cast swarms on the average of more than four or five per cent. In years when the honey flow is prolonged and not heavy at any one time, we have gone through an entire season without a single swarm. This

too with comparatively no manipulation during the honey crop. To the beekeeper who is using or has used the 8 and 10 frame Langstroth hives, this seems almost impossible, but to the beekeeper who has used deep brood chambers in connection with extracted honey production, it is not so surprising.

Although numerous experiments were made on a large scale by Charles Dadant and C. P. Dadant, my Grandfather and Father, during the time when my brothers and myself were in school and college, we could not take it for granted that the large hives were very much better than the ordinary 10 frame Langstroth. As soon as we had the opportunity, we installed in our home apiary between 50 and 60 colonies in 10 frame Langstroth hives. These hives were located on one side of the apiary while on the other side were an equal number of colonies in 10 frame Quinby or Dadant hives. For four or five years, these were all watched closely. There was no comparison between the results of the two groups. Each spring as we worked over the home yard, we could tell without even keeping track that there was a big difference in favor of the bees in the large hives. They came through the winter in better condition, had more bees, more honey and were ready for business much earlier than the smaller ones and when it came later in the season to the production of honey, the large hives would have just as many and more supers than the small ones and the large supers of course, contained proportionately more honey. These same experiments had been made by our people before of course, but it seems that everyone must try it out for himself in order to be convinced.

To secure the maximum production of honey, it is not only necessary to use large hives, but also to make sure to have the colonies strong **for** the honey crop and not be compelled to build them up **on** the honey crop. Our friend Mr. Demuth of the Department at Washington has given us this motto and everyone of us should keep it in mind at all times. Strong colonies can be reared only by the use of prolific queens. In order for the prolific queen to do her best, there must be sufficient stores for her and she must have sufficient room so her laying will not be restricted in the least. The prolific queen and the large brood chamber are the two points which I propose to emphasize as the subject of "The Use of Large Hives" is practically covered by these two points.

For a prolific queen to extend herself, she must have just as little interruption as possible as she lays her eggs quite rapidly. The best authorities state that she can lay at the rate of from 2,000 to 5,000 eggs per day, and a good queen will average 3,500 eggs per day in the active season. Some experiments put the figures even higher than this. The average, however, is at the rate of something like 150 eggs per hour or about two or three eggs per minute. If the combs are large and if they are all in one hive body, she has a large circle to cover and loses practically no time in going from one frame to another. If, however, the frames are small, her egg laying circle is small and considerable time is lost. Several years ago we had in use some brood combs divided in the middle for use in mating nuclei. These combs when placed in the brood chamber had a three-quarter inch bar running through the center of them. Many times we noticed that queens would fill one side with brood and leave the other side untouched. The bar evidently disturbed the egg laying circle.

Large brood chambers can be secured in several ways. The long idea hive which allows the queen all the room she needs is practiced by some, but the most common method is by tiering bodies or supers, one over the other. Many beekeepers have used and are still using divisible brood chambers. In Texas, Louis H. Scholl and many others use the ordinary 5⅜ shallow extracting supers and tier them up, allowing the queen to use as many as she can fill with brood. This answers the purpose, but as stated before, each one of those separations is time lost for the queen. If the queen has to travel over a top-bar, an empty space and the bottom bar before she can reach the next story, there is no doubt that she loses considerable time and during the breeding season, every minute of egg laying counts. Another great objection, however, to the divisible brood chamber hive, is the number of frames it contains. In many localities, there are no bee diseases but where bee diseases are prevalent, it would be a great hardship to have to go over, 20, 30 or even 40 frames in order to make sure that no American or European foulbrood existed in that particular colony and when one considers having to go over several hundred colonies, the amount of unnecessary work is tremendous. The use of two 10-frame or 8-frame Langstroth bodies tiered one above the other, to secure a large brood chamber, has become quite common. This to our notion is similar to the divisible brood chamber hive as it too requires the manipulation of a great many frames. It has, however, one disadvantage that the shallow bodies do not possess. The Langstroth being a semi-deep frame has so nearly enough room for her that once the queen is established in the second story, she is slow to leave it and go back down stairs. The position of the two hive bodies may be reversed but this requires additional manipulation.

As stated before, the egg laying capacity of a prolific queen is something like 3,500 eggs per day. This is a total of 73,500 eggs during the 21 days which are required for the bees to hatch. Ten Langstroth frames which have 75,600 worker cells are not enough for her if any allowance is made for honey or imperfect cells and if she covered all of them. The extra story, therefore, is absolutely necessary if the 8 frame or 10 frame size of Langstroth equipment is used. This much added room in our opinion is entirely too much, especially if the colony is not given sufficient protection during winter. If sufficient protection is given, then this adds considerable to the expense and the amount of labor required to winter the bees. The use of a brood chamber with large frames, in one single story, therefore, is desirable for the accommodation of a prolific queen in order to get best results and secure the largest working force at the earliest possible date. Some persons may take exception to the statement that the largest possible force should be secured at the earliest possible date. It is true that in some localities the honey flow is deferred and a big working force is not desired. However, if the average beekeeper will adopt Langstroth's motto "keep your colonies strong", he will have little chance to regret it. In possibly 98 cases out of 100, there is greater chance of the colony not being strong enough for the honey flow than of its being too strong before the honey flow.

The hive with a large brood chamber lends itself very readily to the prevention of swarming. Plenty of breeding room satisfies the queen and does not render her restless. Sufficient ventilation, by means of the use of frames spaced 1½ inches apart, goes a long ways towards keeping the colony comfortable during the heavy honey flows and hot weather. A sufficient amount of honey may be stored in it for winter and still leave sufficient breeding space.

There is no doubt that the production of extracted honey, especially when the beekeeper has plenty of drawn combs, is a large item in the prevention of swarming. In our apiaries, shallow supers are used. These supers contain frames 6¼ inches deep. The fact that the queen does not like to lay in a small circle ordinarily keeps her from going up stairs, especially if there is no drone comb present in the super. Queen excluders therefore, are unnecessary. It is true that we keep something like one-half dozen excluders at each yard as occasionally a queen will go above and be unwilling to return. It is safe to say that during a season we do not use queen excluders on more than one or two per cent of our colonies. The shallow super, then, really becomes a safety valve for the queen. If the

lower story has become clogged with honey or for some other reason she needs added room, she does not encounter the excluder and can go up. She deserts the upper story, however, very quickly, as she does not like the small circle in which she is compelled to lay. Time and again we have noticed that when the queen went up into the supers, she would lay there just once, that is for only one cycle of brood. To our notion, this is not detrimental as the brood hatches before the honey is ready to be extracted. This no doubt goes a long ways towards satisfying the queen and keeps down swarming. The use of the excluder also prevents free circulation of air through the hive and this renders the bees uncomfortable. Even though the excluder is made with a great many openings, it obstructs more or less and is necessarily a promoter of swarming.

Large hives have disadvantages. They are not as handy as small ones to move from place to place and are heavier to lift. For nomadic or migratory beekeeping, they are rather inconvenient. Still, after having practiced moving of bees for several years in succession, the writer has come to the conclusion that he had rather go to the extra trouble of moving the large hives than to use smaller ones. Crop results justify using larger sized hives. During the past season, the clover crop in our locality was practically a failure. We had counted on the clover crop as a means of increasing our colonies and we did increase them approximately 30 per cent. Dry weather, however, prevented the colonies from building up and it looked as though we would lose every division we had made. We are fortunate, however, in being located near some Mississippi River bottom land which produces a large amount of heartsease and Spanish needle each year. The bees from the uplands were moved down into these bottoms with the result that the colonies built up into fine shape for winter and harvested something like 80 pounds per colony, spring count. This same result might have been obtained with smaller hives but our experience leads us seriously to doubt it and we are so well convinced that we would prefer to move the large hives at an added expense than to use smaller ones. A few extra pounds of honey will easily take care of all the expense of moving.

A great deal has been said in the bee journals during the past year or two in regard to spacing of frames. It was Allen Latham of Norwichtown, Connecticut, who brought the attention of the senior Dadant to the fact that 1½ inch spacing was much better than 1⅜. All of our equipment is built with 1½ inch spacing and this no doubt has had a great deal to do with the prevention of swarming in our apiaries, also in our success in wintering. The 1½ inch spacing gives ⅛ inch more space between the combs which would mean about 150 cubic inches more breathing space in an ordinary 10 frame Langstroth hive. This extra space is also available for winter clustering and as the top edges of the combs are thicker, there is that much more honey above the cluster where it is needed. The ordinary 10 frame Langstroth hive can accommodate 9 frames if spaced 1½ inches apart and to our notion, it is preferable to use 9 such frames.

Another prime requisite in keeping colonies strong, is to make sure there is a young queen present. It is true that many beekeepers have found that some queens three and four years old are as prolific as younger queens but, in handling large numbers of colonies, we have found that queens more than two years old are oftener inferior than otherwise. In our practice, we have made it a rule not to allow a queen to become more than two years old unless we intended to use her for breeding purposes. We have never made any practical tests between queens one year old and two years old, but believe a two year old queen will do as well as a year old queen where the season has not been exceptionally long. A young queen in the hive too, is not so apt to be superseded as an older one and consequently the chances of swarming are greatly reduced.

Large hives, therefore, properly manipulated, reduce the chance of swarming and allow the extensive beekeeper with outapiaries to care for a greater number of colonies with greater profit. If our work has been kept up to date, the only manipulations required during the honey flow, are to raise the entrances for ventilation and add supers for storage. There is no hunting for queen cells, no chasing of swarms, no reversing of brood chambers, in fact, none of the petty annoyances caused by colonies crowded into undersized hives.

If the commercial beekeeper is equipped with large hives containing deep brood frames, makes sure of young prolific queens so as to keep his colonies strong, sees that there is plenty of ventilation and super room during the honey flow so as to prevent swarming, he may be practically certain of producing the maximum amount of honey with the minimum of labor and expense.

L. C. Dadant,
Hamilton, Ill.

IS USE OF HONEY POPULAR?

The high price of butter, the great scarcity of sugar, and the almost prohibitive prices paid for what little sugar can be procured, the poor demand, and comparatively low price paid for honey, shows the unpopularity of honey, the most wholesome and delicious sweet known.

In years past, honey used to sell generally for about double the price of sugar. Today sugar sells for more, in many places than honey, with all kinds of honey on the market and in many stores attractively displayed. Whereas, sugar is rarely, if ever, displayed at a grocery store.

To the writer the above mentioned conditions are not satisfactory, and would be discouraging if there was no hope for improvement. The question "how can conditions be improved?" confronts every commercial beekeeper. And, if the price of honey is to maintain a level equal to that of other commodities, the honey producers will have to get busy.

Some people try to tell us, all we have to do is to produce a big crop of honey, and then let the jobber, bottler and commission man do the rest. To the writer such advice amounts to the same thing that it would if it were given to a shoe or overall manufacturer (altho shoes and overalls are popular) who, following such advice would manufacture the goods and turn over such portion to the jobber or commission man as they are able to find a market for; who spend such amounts as they (the jobber and commission man) would deem necessary for selling such portions of the goods as appears convenient and profitable to themselves; charge the

selling expenses to the manufacturer, even tho such selling costs should far exceed the cost of production, and such goods as the jobber and commission man could not sell conveniently leave on the hands of the manufacturer, for which he himself might find a market, if he can.

It makes very little difference what branch of production one is engaged in. It is up to the producer to keep up a live demand for his product, with a price sufficient to cover cost of production. Honey is no exception to the rule. But having been neglected for so many years and receiving an insufficient amount of advertising, it has become a shelf warmer in most grocery stores.

Following is an outline as how to improve and increase the demand for the product of the hive.

First: We must create strong local organizations, that will raise funds by assessing themselves.

Second: We must institute local honey cooking, baking, preserving, candy making, etc., contests, advertise these contests in the local papers, and pay liberal premiums to the winners. Such honey contests can be conducted in almost any village, city or metropolis. These contests may be continued year after year, without losing their interest to the public, because of the premiums they carry.

A. C. F. Bartz.

(Good for Brother Bartz. He is the first member of the association to use the association space for expressing himself. Come again. Don't forget that every member of the association is paying for space. Send in an article and we will print it.)

MARKET QUOTATIONS

Chicago: 1 Colo. and approximately 100 packages by freight from Illinois arrived. Supplie liberal. Demand and movement slow, market dull. Sales to jobbers—**Extracted:** Idahos, Colorados and Californias, White Sage and Alfalfa 19–20c. Amber Sage and Alfalfa 18–18½c per lb. **Comb:** 24-section cases, No. 1, $7.00–7.25. **Beeswax:** Supplies moderate. Demand and movement moderate, market steady. Sales to jobbers —per lb., Idahos, Colorados and Californias, Light 40–43c, dark 35–37½c.

Minneapolis: Supplies liberal. Demand good for extracted, demand slow for comb, market steady. Sales direct to retailers. **Comb:** Western, fancy Light, 24-section cases $7.50. **Extracted:** Westerns, 60-lb. cans 21c, few 22c per lb.

St. Paul: Supplies liberal. Demand and movement moderate, market steady. Sales direct to retailers. **Comb:** Western, fancy light, 24-section cases $7.25–7.50. **Extracted:** 60-lb. cans, few sales 25c per lb.

NOTES FROM LOCAL ASSOCIATIONS

All clover is well protected with plenty of snow.

Very little honey in the hands of the beekeepers.

Market is better since the holidays and honey is moving fast locally at 30c per pound retail.

All normal colonies are wintering well, too early to say much about it now.

Fox River Valley, Bee. Ass'n.
Outagamie County,
Edward Hassinger, Jr.

Local Secretaries Please Take Notice

Every affiliated local association is supposed to have a reporter who should send in local news items on the 10th of each month. If a reporter has not been appointed, your president should appoint one at once.

The Shawano County Beekeepers' Association held their annual meeting on January 28. Mr. R. A. Schwarzkopf of Bowler, was elected president and Mr. Wm. Hanneman, Cecil, secretary and treasurer.

The association voted to prepare a memorial for Mr. Carl Hanneman of Cecil. He was the first member of the Shawano County Beekeepers' Association. He was born January 14, 1845 at Proving Ponnern, Germany. He came to America in 1868 and settled at Bay Boon, Winnebago county, later moving to Cecil, Shawano county. He kept bees for many years and sometimes had as many as eighty colonies.

E. S. Hildemann,
Local News Reporter for Shawano County Beekeepers' Assn.

HOW WE PROGRESS

Wisconsin beekeepers are living in the most progressive era that has ever come to the beekeping industry in our state. According to Mr. Joseph A. Becker of the Wisconsin Crop Reporting Service, the first estimate of Wisconsin Honey Production has just been completed by the Wisconsin Crop Reporting Service. How often do we hear the inquiry—"What is the average colony production for Wisconsin?" At last we have something definite. Still, I wonder if we have a full report from all our beekeepers. Cooperation has reached a high standard among the beekeepers and all state officials connected with the beekeeping industry. A still higher standard can and will be reached by a slightly increased effort on the part of individuals interested in local and state affairs affecting the beekeeping industry. **More and better cooperation, improved beekeeping methods and standard grades of honey will make Wisconsin par excellence in beekeeping.**

The crop reporting service estimates that in 1919, 4,834,000 pounds of surplus honey was produced of which 4,008,000 pounds was extracted and 836,000 pounds of comb honey. This gives us an average for 90,000 colonies of 61 pounds of extracted, and 34 pounds of comb honey per colony. The total value of the crop reported is estimated at $1,207,730. On January 1, the average price was 24.8c for extracted honey and 32.6 for comb honey. The valuation of the bees is placed at an average of $8.50 per colony or a total of $765,000 for 90,000 colonies.

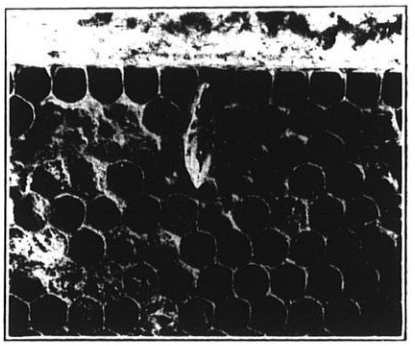
Look over these figures, brother beekeeper. They should give you cause for reflection. $765,000 worth of bees produces $1,207,730 worth of honey and we estimate the value of the colony at $8.50. Don't you believe it would be justice to give the bees a higher rating? Would not $18.50 per colony be nearer right? 61 pounds of extracted honey at 24.8c per pound is $15.13. 34 pounds of comb honey at 32.6c per pound is $11.18. How do you figure the value of your bees? Have you a cow on the place that will pay the same returns?

HOW TO GET RID OF WAX MOTHS

Since the wax moth is entirely dependent upon the product of the honey bee to sustain its life, it will only be found about the apiary or in the honey house where old combs and refuse wax is stored. It proves destructive when neglected but on the other hand is easily controlled when given a little attention.

The wax moth shuns the light and prefers to breed and carry on its destructive work in the dark. The adult moths move very quickly when disturbed and will dart nervously a short distance in search of a dark place to hide.

The females are less active than the males and when laying eggs they seem to resent but little, disturbance or the presence of light. The female lays her eggs along the edges of a brood comb preferring to lay them toward the top or sides of the frame. The time required for the egg to hatch varies greatly according to the temperature. The period will range from 5 to 27 days; a longer time being required in the spring than during the summer. Soon after hatching, the small white worm-like larvae begin to feed. Old brood frames are preferred to clean extracting frames a though both are readily attacked. They seem to be especially fond of pollen or bee bread and cappings. As the larvae or "worms" feed, they move about a great deal and always build a lined tunnel as they go, probably for protection. In a few days time, a good frame of worker brood will be



Female moth resting on comb.

nothing but a mass of dirty worm-filled webs. They continue to feed in the larval stage from 30 to 140 days depending upon the temperature and amount of food present. At the end of this period, the larva scallops out a shallow hole or trench in the side of the hive or frame, spins a white silken cocoon in which the larva transforms to an adult moth. This requires from two to five days depending upon the season. The adult moths do not feed. The insect winters over either in the larval or pupal stage.

Methods for the control and eradication of the wax moth have been worked out but there are still many beekeepers who are having considerable trouble keeping them in check. It is well known that weak colonies are more susceptible to attack than strong colonies and that black bees are more susceptible than Italians. It is an easy matter, then to keep them out of the hives in the bee yard. All colonies should be kept as strong as possible, weak colonies should be united or added to medium sized colonies. A young queen will help as much as anything else, since it is altogether a case of good housekeeping. Further help can be given by closing down the entrance somewhat so that the bees can keep the moths from entering the hive; see that the cover fits tightly and kill the adults and larvae whenever seen.

(Continued in April number)

My Neighbor's Garden

I went over the other evening to remind my neighbor that the last time we talked about my garden he used up all the evening telling me about vegetables and in the matter of flowers didn't get beyond telling me how much space to devote to them. "If you start with a strip eight to ten feet wide and sixty-six feet long you will find that this is either too much or too little. If you are not a real lover of flowers it will be too much, but if you are you will find yourself making room in your cabbage or turnip patch for flowers crowded out of your border."

"You will get the greatest satisfaction," so my neighbor says, "with the least effort, out of hardy perennials, that is from plants that live and blossom year after year. But even hardy perennials are not fool-proof, and need intelligent care and attention. Don't rush into novelties, but stick to the tried and tested sorts. Get advice from some one in your neighborhood who knows what can stand the climate and what cannot. Then as you get experience you can branch out cautiously and if successful you can glory in new things which no one else has.

Grade your plants according to height, putting the taller ones at the back and at the ends of your planting strip. Hollyhocks may be used to almost any extent but their period of bloom is rather short. You can get tall varieties to put at the ends and shorter ones towards the middle of the row. Other desirable tall growing plants are Bocconia, with loose sprays of delicate flowers and leaves like the bloodroot,

Boltonia with white daisy-like blossoms, snake-root, (eupatorium ageratoides) with white tufted blossoms, and the tall daisy (Pyrethrum uliginosum). These form clumps which increase in size year by year. For variety you can plant Astilbe Arendsii with feathery pink sprays, and hardy belladonna larkspur, bright turquoise blue, among the other clumps. All of these will grow four feet or more in height, and if the weeds are kept out and the ground cultivated and enriched they will increase in beauty year by year, though the hollyhocks cannot be relied upon with any certainty for more than one or two years. Almost as tall, is the burning bush or Dictamus with long sprays of reddish pink flowers which if undisturbed will live and increase in beauty for generations, the Anchusa with very deep brilliant blue flowers, which forms a large bush in two or three years, and the meadow rice, Thalictrum, with tufted lavender flowers.

In front of these will come peonies, phlox and columbine. Peonies come in all shades except blues, and at all prices from twenty-five cents to twenty-five dollars or more per root. In selecting varieties remember that some are as fragrant as a rose. White and pink shades will generally be most satisfactory. The columbine comes in almost all colors, white, bright blue, bright yellow, and the long-spurred hybrids with all sorts of shades and combinations of these colors. Their period of blossoming is a long one from mid-June to August. While they are not long lived and although not as curious as the Japanese flower, are much more satisfactory in the long run in the average garden. Sweet William and the hardy pinks can be used between the clumps of iris.

In front of the iris and along the border you will place the lower growing plants, forget-me-not, blue, pink and white, rock-cress, (arabis), pure white, moss-pink, (Phlox sublata), and yellow alyssum (Saxatile compactum).

These are by no means all of the desirable perennials, but those namd are of easy culture and are not too particular as to soil.

Not only should these be planted with reference to their own growth, but they should be so planted that space would be left for summer flowering bulbs and tubers and for annuals and biennials, and in the front section as a rule, they are very easily raised from the seed, and when one dies it can be readily replaced. The hardy phlox comes in all colors except bright blue. About the same height is the Chinese larkspur, with delicately cut foliage and brilliant dark blue or white sprays of blossoms. All these plants grow in clumps, increasing year by year.

Interspersed along the edge of the medium sized plants you can plant the hybrid pyrethrum with finely cut foliage and daisy-like flowers ranging from white to deep purple, Platycodons or Japanese bell flowers, both white and blue, day lilies, hemerocallis, sulphur and orange yellow.

In front of these will come the iris or fleur-de-lis. Of this there are many varieties, the most common being the flag iris and the Japanese iris. These come in all colors except clear bright reds. The flag iris is profusely hardy. Ample room should be left for spring-flowering bulbs.

Dahlias and the Italian cannas can be planted near or in the back row, lilies according to their height from back to front, and gladiolus along the middle line."

This isn't all my neighbor said of course, for he showed me cuts in his catalogues, and talked about the manifold beauties of his pet plants until I was fairly bewildered, and the end of the evening came before he had even commenced on annuals.

The Spray Gun

By N. D. Peacock, Indiana

During the last few years the development of spray equipment has been phenomenal. Through all this development the general tendency has been towards higher pressure and a means by which the spray could be better controlled. The slow back-breaking work with the spray rod and nozzle together with the urgent need for a more rapid means of applying the spray led to the introduction of the spray gun back in 1916. Since that time many different kinds have been designed, all with some modification of the same principle. The purpose of the spray gun is to apply a large amount of material, under high pressure, in a comparatively short time and still control the spray in such a way as to reach the desired distance with a good mist and as little waste as possible. In order to accomplish this purpose certain points in construction are fundamental.

In the first place the nozzle must produce a very fine, wide mist spray or a coarse, dense compact spray which will carry a long distance before breaking up and must be able to form almost any variation between these extremes if the best results are to be obtained.

Very closely connected to this and equally important in securing good results is the means of control. This must be rapid in order to prevent waste while changing from one type of spray to another and while passing from one tree to another. The shut-off must prevent any leaking but it must be easy to operate and not excessively tiresome. The entire gun must be of substantial durable construction and able to withstand a large amount of hard use. These are the important points to be desired in a gun and although they may not all be found in a single make at present, gradual development is bringing them nearer and nearer to the proper standard.

During the past spring I tested six different makes of spray guns both as to capacity, distance they would throw the spray vertically and horizontally with the different types of spray and also their performance in the field. These guns varied a large amount in types and details of construction and therefore clearly illustrate some important principles.

In the first place I found that none of the guns gave a satisfactory spray with 150 pounds pressure, 200 pounds were necessary for good results and 250 or even 300 pounds pressure was much better. The capacity increased fairly uniformily with the pressure in all cases. At 250 pounds pressure the capacity varied from 5 to 5¾ gallons per minute with the coarse spray adustment and from 3 to 4¼ gallons per minute with the wide fine spray adjustment according to the make of gun.

The guns that showed the greatest difference in capacity, between the coarse and fine spray adjustment, also showed the greatest difference in the distance they would throw the spray horizontally at the two adjustments.

* * *

Fine Mist Necessary.

For satisfactory results with a gun you must be able to direct a fine mist spray to all parts of the tree as you can with a rod and nozzle. With some makes of guns I found that you could make a very

(Continued on page 125)

Cyclamen and Primulas

Please tell me what kind of soil is suitable for "Cyclamen" and what for "Primula Obconica." I have the greatest difficulty with cyclamen. One plant grew three small leaves about 3/8-in. across all winter in a conservatory where everything else flourishes.

L. H. A.

In reading over the question in regard to cyclamen, I have the impression that the writer has been trying to grow an old bulb of cyclamen. It is hardly worth while to try to grow an old bulb in an ordinary dwelling house. The results are very disappointing and in most cases a complete failure. Sometimes it is done in a greenhouse with good results, but even florists seldom try it. Seed is usually sown the latter part of August or early in September, and with good culture make splendid blooming plants for Thanksgiving and Christmas the following year. Unless one has good facilities for raising cyclamen from seed, and can give the little plants special care, it is better to purchase a few plants from the florist in the fall. When placed in a sunny position they make splendid house plants, and with ordinary care in watering, will bloom for a long time.

The best soil for either cyclamen or primula obconica, is a mixture of well rotted turf, well rotted cow manure and leaf mould, with a liberal amount of sharp sand and some crushed charcoal. In mixing a batch of soil very few gardeners go by any set rules. They know what is necessary for different varieties of plants and mix the soil accordingly. A suitable compost for cyclamen and Primulas could be made up as follows: Six shovels well rotted turfy loam; two shovels well rotted cow manure, three shovels well rotted leaf mould, one shovel sharp sand, one six-inch potful of crushed charcoal and one four-inch potful of bone meal. If the plants are being raised from seed, more sand should be used while the plants are small, or until they are large enough to go into four inch pots. In localities where the soil is light and sandy less sand should be used.

James Livingstone.

Plants or flowers are among the best of gifts at any time. There are few people who do not like flowers.

Don't leave rubbish heaps about the garden or orchard. They only harbor all sorts of insects or disease and will in time cause you much labor if not loss.

A well kept and well planted lawn is essential for every home. Most any one can erect a shelter of boards or cement but some thought must be put into making that shelter a home. Comfort, convenience, and beauty ought to be found there. They are all needed if young people are going to stay long in the home. There is something wrong with a family that is willing to live among unkempt surroundings. — LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minn.

Half A Million For Cherries

The following report-copied from a Sturgeon Bay paper shows something of the extent of fruit growing in Door county. The figures are from the books of the Fruit Growers Union and represent only the business done by that organization. There are many fruit growers who are not members of the Union.

CHERRIES.

	Carloads Shipped	Cases in Cars	Express & Local Sales Cs.
Richmond	52	31652	989
Montmorency	70	42334	4097
Strawberries	2	1026	1369
Gooseberries	1	491	202
Currants	2	1083	557
Raspberries			30
	127	76586	7244

Cherries to Local Cannery—
Richmonds ..... 69513 Cs.
Monts. ..... 56868 Cs.
126381

EXPENSE OF MARKETING—Stockholders 4c per crate.

	Cases Mktd. by Growers	Net Sales	Average Per case
Strawberries No. 1	2363.	$ 7219.50	$3.05
Strawberries No. 2	32.	83.75	2.61
Gooseberries	693.	1545.00	2.23
Currants	1640.	4122.66	2.51
Raspberries	30.	118.86	3.96
Richmonds No. 1	99772.76	258615.18	2.59
Richmonds No. 2	2381.56	5630.96	2.36
Monts. No. 1	101461.88	272627.61	2.68
Monts. No. 2	1836.80	4309.46	2.34
	210211.	$554272.98	

COMPARATIVE STATEMENT

	1916	1917	1918	1919
Cherries	31371	104758	32792	205453
Strawberries	4980	8514	3739	2395
Currants	5460	2676	2130	1640
Gooseberries	1984	1186	876	693
Raspberries	87	40	88	30
	43882	117174	39625	210211

GROSS SALES AND INCOME

Gross Fruit Sales	$557882.87
Spray Material Sales	12889.86
Crate and Barrel Sales	19939.86
Commercial Fertilizer Sales	3329.53
Other Sales, Seed, Pickers' Equipment	2759.83
All other Income	10682.04
Total Annual Business	$607483.99

THE SPRAY GUM

(Continued from page 121)

fine mist close to you or a very coarse stream which would carry 35 or 38 feet, but you could not make a good mist at a medium distance. This is a very important disadvantage because in ordinary spraying the greater part of the tree will be only a medium distance from you and that is where you want your fine mist spray. Although the gun control is important in securing the desired fine mist the amount of pressure is even more important. The higher the pressure the more the material will be broken up and the more it will be spread. Both these conditions are necessary for rapid efficient work.

The guns I tested varied from 18 to 30 inches in length. I found the greater length to be a decided advantage. With the very short gun it was impossible to use them without having the spray blown back into your face. Even on very still days it was much more pleasant to have that large amount of material a little farther from you so that every flurry of air would not cover you with spray.

The spray gun is rapidly gaining in popularity among commercial growers and there is but little doubt but that it has come to stay. It is much more rapid than the old rod and nozzle and it is a great labor saver. There is still considerable difference of opinion as to the efficiency of this means of applying liquid for insect and disease control. It is however safe to say that it requires as great skill and more care to do thorough work with a gun than with a rod. With such a large amount of material passing through the gun there is apt to be quite a tendency to hurry along too fast without covering the tree entirely.

A green or carless hand would do better and more thorough work with a rod than a gun. All of the material is applied from outside the tree and low down with the gun, while it is possible to work the nozzle of the pole entirely to the center of the tree and direct the spray downward as desired. For this reason quite probably the gun would be less effective than the spray rod in applying the calyx spray but this has not been entirely proved in orchard work. There may also be some danger that the excessive pressure of the gun may injure the tender leaves and flowers but this also lacks conclusive proof.

Not all growers can use the gun to the same advantage. For the grower who desires absolutely 100 per cent efficiency and who is able to cover his orchard successfully with the slower pole and nozzle, probably, they will be more satisfactory than the gun. On the other hand the large commercial grower who cannot cover his orchard successfully with the pole and nozzle will probably find valuable use for the gun because of the fact that it reduces the man labor about one half.

Usually slightly more material is used with a gun than with a rod but this is largely a personal matter and the difference is less than is usually considered. It is not of sufficient importance to be a serious factor.

At the present stage in its development the spray gun is a valuable supplement to the spraying equipment but it should not entirely replace the old rod and nozzle for the calyx spray at least.—*American Fruit Grower.*

Fruit At Your Kitchen Door

In many sections of Florida and California the housewife needs only to step outside of her kitchen door to gather the grapefruit for breakfast or the oranges for dinner. This can not be done everywhere, but there is no reason why any rural or suburban housewife, even if she lives close to the Canadian border, should not have fruit of some kind growing in the back yard. This is the opinion of specialists in the U. S. Department of Agriculture, who treat in detail the subject of "Growing Fruit for Home Use" in a publication under that name. It is Farmers' Bulletin 1001 and may be obtained on application to the Division of Publications, U. S. Department of Agriculture, Washington, D. C.

The ideal fruit garden or home orchard should contain several different kinds of fruits, represented in many cases by a considerable number of varieties ripening one after another over a long period. Large yields, good shipping quality, and attractiveness in appearance, which are aims of the commercial grower, may be made secondary to high dessert quality or special excellence for cooking purposes.

Plans for Home Orchard

The home fruit plat should be planned carefully and, in general, with a view to supplying fruit continuously throughout the year either in the fresh state or canned or otherwise conserved. In the colder sections the winters are too severe for peaches and also for some of the other fruits named unless they are protected; while in the warmer parts apples, currants, gooseberries, and certain varieties of several of the other fruits fail because they are not adapted to the long hot summers and mild winters. One of the most important features of the plan for the home-fruit plantation is the selection of kinds of fruits and varieties of those kinds which will do well in the given locality and which will serve best the purpose for which they are desired.

The location of the land on which the fruits are planted, other things being equal, should be convenient to the house. It should be well drained, since fruit trees can not thrive in poorly drained soil. The air drainage also must be good.

Cold air settles to the lowest levels, and if a site is so located that cold air settles over it from some surrounding higher elevation, the fruit blossoms are likely to be killed by untimely spring frosts or the fruit may be injured by freezes in the autumn when sites located on the sides of slopes or at points which are higher than the surrounding area escape such injury.

Most fruits can be grown on a great variety of soils, but where possible it is better to avoid light sandy soils and heavy clays. A deep subsoil, which is friable and porous enough to permit a ready penetration of the roots and a free movement of soil moisture, is desirable.

Good nursery stock of suitable kinds and varieties is fundamental to success in fruit growing. While many of the long-established nurseries sell their stock largely thru agents whose integrity is unquestioned, many other nurseries have no traveling agents, but sell direct to purchasers. It is better, as a rule, for a grower to deal directly with a nurseryman rather than through an agent.

In the North and wherever the winter conditions are severe on plant life, either from low temperatures, drying winds, or other causes, fruits are usually planted in the spring as early as the soil can be put in suitable condition. It is very important that they be set out while the plants are perfectly dormant and before the buds

Exchange Department

One notice free.

Named gladiolus, kunderd and primalinus for hybrid or named Delphnium.

Charles N. Brown.
Madison, Wis.

Gladioli, America, Panama, Klondyke, Pride of Goshen, for Myrtle, Pink Perfection, War, Mrs. Watt, Evelyn Kirtland, Gretchen Zang, Bertrex, or Goliath.

Flowerfarm, Fort Atkinson, Wis.

have started. Many failures result from delaying the planting until the buds have started into growth.

If the prospective planter prepares the soil where his fruits are to stand as thoroughly as he should prepare his garden before planting vegetable seeds, the subsequent growth of his fruit trees will amply repay him. Where the site selected is in sod, it is advisable to cultivate it during one season at least after the sod is plowed under, in order that the grass roots may decay before the fruits are planted.

Where the fruit plantation occupies a garden site, usually it should receive about the same tillage that is given a vegetable plat. In the popular mind this represents a high standard of excellence. Frequent tillage to maintain the surface soil in the condition of a fine dust mulch is preferable in most cases to any other method of treatment. The tillage of fruit trees should be continued until midsummer in the North, but it may be kept up to good advantage somewhat later in the South. Strawberries, as a rule, should be cultivated until the approach of cold weather.

Under most conditions the same methods of maintaining the fertility of the soil which are followed in a vegetable garden are successful with fruits. Where stable manure is available, its liberal use generally gives excellent results.

The same kinds of insect pests and fungous diseases that are found in a commercial orchard in any region may be expected to occur in a fruit garden or home orchard located in the same region. Therefore, in planning a home-fruit plantation the grower should inform himself as completely as is possible in regard to the methods of controlling the common insects and diseases to which the fruits he is growing are subject in his locality. This information may be found in bulletins issued by State experiment stations, agricultural college extension divisions, the United States Department of Agriculture, and elsewhere.

The bulletin, which discusses these points at length, also gives attention to other problems that will confront the amateur fruit grower, such as seasons of planting, handling the stock from the nursery, planting, cultural methods, maintaining soil fertility, pruning and training, irrigation, varieties of fruit for different regions, fruit varieties, age of bearing, and varieties suitable for different districts.

The high price paid for apple trees this year ought to result in the buyer taking better care of the tree from the time it is set until it fruits. Perhaps it will also cause some tree owners to prune and spray their trees this year. Don't expect fruit if it is not sprayed or large fruit if no pruning is done.—LeRoy Cady.

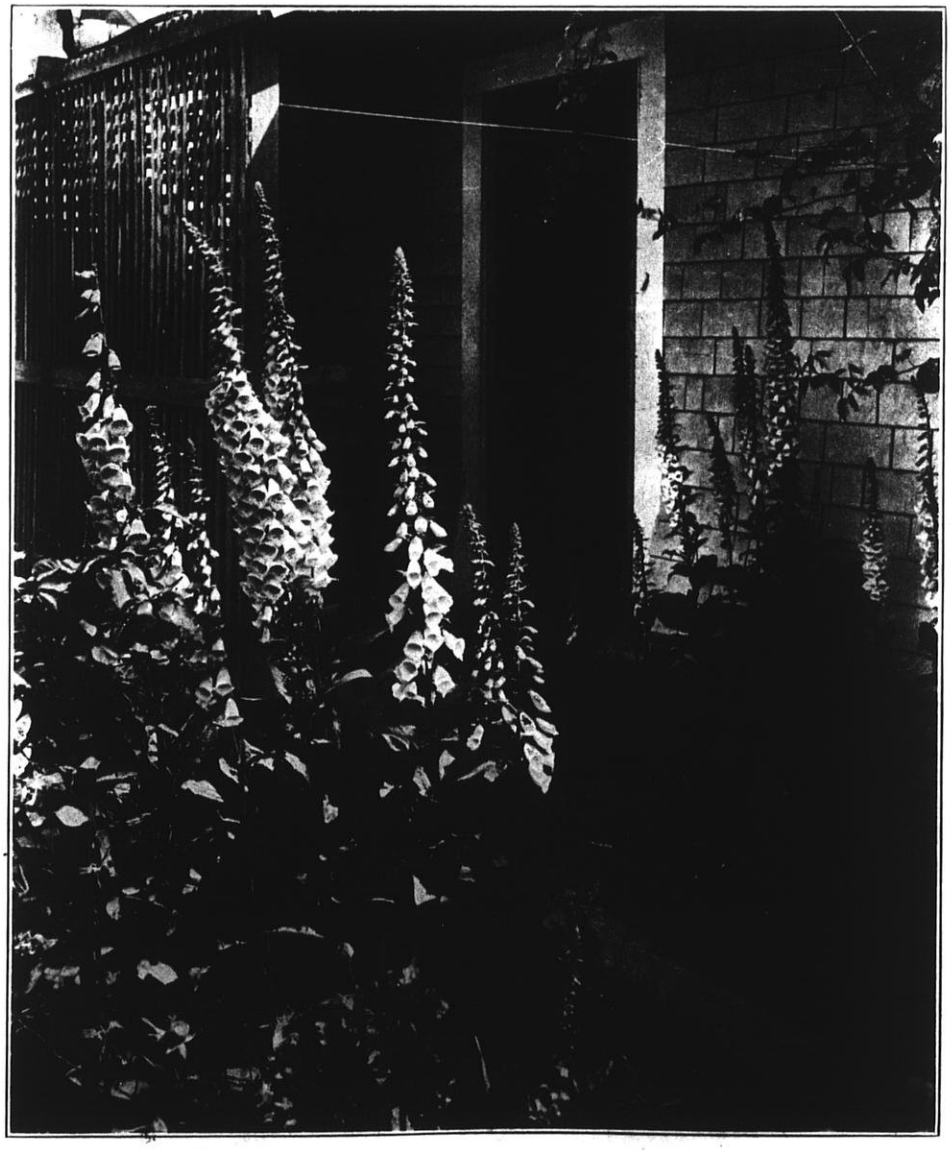
Cabbage has been high in price and scarce again this winter. Perhaps the south is not sending so many vegetables to the north as usual.

Has the corn, onion, and other vegetable seed been tested? Do it now.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, April, 1920 | Number 8



"The foxgloves are old-fashioned and dignified, clean of growth and wholesome company in the choicest garden."

My Neighbor's Garden

My neighbor is a very mild mannered man, but the next evening after the March number of Wisconsin Horticulture came out I found him wrathy.

"I don't know just what I said but I didn't talk the blankety blank nonsense you put into my mouth. If you can't do better than that you'd better quit! etc.! etc.!"

I had to lay it all to the make-up man, and had to show him that if you cut out and transposed you could really get some sense out of it, before he would really talk to me, and I could see all the evening that his feathers were not quite back in their usual places, although one can't be really angry and talk flowers at the same time.

I told him that I wanted to know something about annuals and biennials, and when I told him that I would look over the proof myself he consented to talk.

Of the annuals, my neighbor tells me, the aster holds first place. It grows from one foot to three feet in height and can be had in all shades except the yellows and the reds which incline to orange. They should be started in the house or in a cold frame and transplanted to their permanent places as soon as the plants are 3 inches high if the weather is warm.

Get several varieties and types. The tall, late branching varieties will be most satisfactory, but you will want some earlier ones. Consult the flower catalogues for descriptions. The larger varieties should have plenty of room say eighteen inches square, but the others may be much closer.

They do best in rather rich soil but must have plenty of moisture. Wood ashes and lime help them. They are subject to but one serious disease, the cause of which is unknown. Diseased plants develope unequally and part of the plant has a yellowish color. When the first symptom appears, pull the plant up and burn it. It is not proved that the disease is contagious, but it may be.

If you have a trellis or fence you should plant nasturtiums along it—the tall or climbing varieties of course. Nothing will give you so great a crop of beauty for so little pains. Get mixed seed from a good dealer. If you are very fond of nasturtiums and can't think of anything else to plant you can put in some of the dwarfs, but they do not compare with the taller ones for beauty or range or color.

Sweet alyssum and candytuft are low-growing white-flowered plants which are good for the front of the border. They do not need to be started inside.

The English daisy is not an annual and is best treated as a biennial. It is not quite hardy here, though self sown plants usually survive the winter. You will get the best results by sowing the seed in midsummer and wintering in a cold frame, and transplanting in the spring. In this way the plants will be well budded when set and there will be a constant succession of blooms all summer long if you give them enough water. The plants are low and can be set in the front of the border close to the grass.

Another perennial best treated as a biennial is the foxglove. This has a tall growing spike along which are ranged several rows of bell shaped flowers, white and purple usually with spotted throats. Three winters out of five they come through, and the other two you lose them unless you winter them in a cold frame and transplant early. Seed sown in a cold frame in May will produce plants which will send up fine stalks the following summer. They grow from three to five feet in height and should be set well back in the border with the larkspurs. The plants need about fifteen inches square.

The canterbury bells are biennials but do not winter any better than the foxgloves and should be grown in the same way. All plants wintered in the cold frame should have room enough so that they will not be crowded and should be transplanted to their permanent positions early. Pansies can be grown in the same way.

If you have a spot where the sun seems to fairly cook things you can make it a beauty spot by sowing portulaccas, either the single or the double kinds. Sow as soon as the ground is warm, covering the seed very lightly. California poppies can also be grown in exposed spots, and Shirley poppies anywhere. These will sow themselves year after year and for a month or more each year will furnish a riot of delicate colors. Another plant which will sow itself year after year is the calliopsis, generally called coreopsis, with single bright golden and brown blossoms, and delicate finely cut foliage.

Of marigolds there are a great variety, if we include the calendula. They are all yellow, ranging from pale lemon to deep golden brown. Calendulas grow about 2 feet in height and require

about a foot square each. African marigolds are rather too coarse for a small garden. They are 3 to 4 feet tall and rather sprawling. The French marigolds are only about a foot high, but are constantly covered with bright yellow and golden brown blossoms from August first to frost. If they are started in the house you will get blossoms somewhat earlier than if sown in the open.

Annual pinks are very interesting and of easy culture although rather difficult to start. They grow only a foot or so in height and are of all sorts of combinations of pink and white with deeply cut and fringed petals. Start in the house in cold frame or in the open.

The annual phlox comes in a great variety of shades of red, pink, purple, lilac and yellow, all combined with white. It grows about two feet in height and may be grown singly but is most effective in masses.

If you want a vivid mass of scarlet from the first of September till frost you can get it from salvia or scarlet sage. Sow the seeds early in the cold frame or in the house and transplant as early as danger from frost is past. Give plenty of room, cultivate freely and fertilize heavily.

Snapdragons must not be omitted. They come in all shades from a red that is so deep that it looks black to the palest pinks and yellows nearly all with white shadings. The tall varieties are the most pleasing. They grow up to two feet in height and if the first flower stalks are pinched back will form bushy plants a foot or more in diameter. Sow early in house or cold frame.

A flower not very well known, but one which desires to be, is the salpiglossis or painted tongue. It grows about two feet in height, has trumpet shaped blossoms with rather irregularly rounded lobes. The texture is velvet-like with various combinations of crimson, rose, purple and scarlet generously combined with gold. The seed should be sown early in the house or cold frame and transplanted.

Petunias come in all shades of purple and reddish pink, often wonderfully doubled and twisted. They are creeping rather than erect and are fine for window and porch boxes. The seed is rather difficult to start and should be covered very lightly. Start early in the house and transplant only when danger of frost is past. If you want double plants save the puniest seedlings.

Zinnias are now to be had in all colors except blues, and of all sorts of shapes. They are of easiest culture and may be started in the house or in a seed bed out of doors. They are stiff, but the range of color, and lasting quality of the flowers have made them very popular. They grow up to two feet in height with a spread of about the same.

You can best grow seeds in the house by taking a shallow box two and a half to three inches deep and not much more than a foot wide. Fill this to the top with a finely sifted mixture of one part or less of garden soil, one part of sand and one part or more of leaf mould. Press this down with a board so that the top is about half an inch below the edge of the box. Make shallow trenches about twice as deep as the diameter of the seed to be planted. Sow the seed in the trenches covering the seed not more than their diameter. The trenches for most things need be not more than an inch apart. Make a record of what is in each row. Cover the earth with a piece of sheeting as big as the inside of the box. Set the box level and then very gently pour water upon the cloth until the earth is thoroughly saturated. Cover the box with a piece of glass, put in a sunny window, on top of a radiator if you can. Keep the cloth moist. As soon as the sprouts raise the cloth, tear out a strip so that the little plants will get the light. Don't keep the cover glass on after the plants are well up. Transplant to other boxes, pots or the cold frame as soon as there is a leaf or two.

What more my neighbor may have told me I don't recall but I remember that he told me that he hadn't mentioned one-half the things that he could, and that he purposely left out some things of great beauty which the amateur will surely try, and in which he may succeed once or twice by sheer luck, but in which he is much more likely to fail.

In parting he said that if I didn't see the proof and keep him from being thought a candidate for Mendota, he would advise me to plant carducus onopordon, whatever that may be.

Planting That Nursery Stock

J. G. Moore and F. A. Aust
Extension Service of the College of Agriculture
The University of Wisconsin

Nursery stock which is worth buying is worth proper planting and care. Even if the nurseryman has guaranteed to replace stock which does not grow the first year, it is to the advantage of every planter to care properly for the plants. Even if the plants

are replaced, the grower is out the time spent in planting and the greater loss—one year's growth and development in the plant.

The first rule looking towards success is, "Get the plants as soon as possible after they arrive at your station." This does not mean waiting until it is convenient to get them. Thousands of plants are lost annually by allowing them to remain longer than necessary in the express or freight office. Even though the nurseryman has agreed to deliver the stock, it is usually advisable for the purchaser to get his own order, as theer is often considerable injury to the plants due to delay or to the methods used in making the delivery.

Care for Plants Carefully

Another source of loss is in not caring properly for the plants between the time they are received and the time of planting. It is of no advantage to get the plants promptly from the station if they are brought home and dumped in some out-of-the-way place until planting time. The roots may dry out or heat. Either is seriously injurious and makes success with the stock doubtful. It is desirable to open the package at once and determine the condition of the plants. With small plants, which are tied in bunches, such as strawberries or other herbaceous perennials, the centers of the bunches should be examined.

What is done with the plants will depend upon their condition and the length of time before planting: If heavily rooted plants whose roots are in good condition are to be set within a day or two, they may be left in the package, care being taken that the packing material be kept moist. If the planting is to be delayed several days, or if the number is so large that planting will require considerable time, then they should be removed from the package and "heeled-in." If the roots are very dry it is desirable to soak them in water for 15 or 20 minutes or more before heeling-in.

Heeling-in is temorary planting. If possible select a place protected from sun and wind.

Dig a trench about 12 to 18 inches deep, depending on the size of the root system, one side slanting at an angle of from 30 to 45 degrees. Place the roots in this trench and cover with earth, packing the dirt so that all parts of the roots are in contact with the soil, but not so tight as to break the roots. Where large numbers of several varieties are to be heeled-in, it is a good plan to put each variety in a separate trench.

Before heeling-in herbaceous perennials such as strawberries the packages should be opened so that the plants can be spread out and their roots brought in contact with the soil. The trench may be shallower than for the woody plants.

Preparing the Plants for Planting

Different classes of plants demand somewhat different treatment at planting. With herbaceous plants, such as strawberries, phlox, and larkspur, the questions are those of root and top pruning. The amount of root pruning of such plants depends largely upon the size of the root systems. If the plant has a good root system from one-third to one-half of it may be cut off without injury. Large amounts of foliage are of no advantage to the newly set plant because they are really a drain upon it until the root system has become somewhat established and has begun to send out new roots. All badly injured and dried up leaves should be removed and if more leaves remain than the roots can properly sustain, further reduction should be made. The reduction will need to be heavier if the soil and atmosphere are relatively dry than if they are moist.

The objects in pruning the roots of trees to be planted are to insure smooth wounds which heal more readily. Roots which have been badly injured in digging or shipment should be removed. A long root remaining on the tree may be cut back to correspond more closely in length to the other roots. Only in such cases should there be any more reduction of the roots than that necessary to secure the above objects. Top pruning of fruit trees, should preferably be left until the trees have been planted, as more time can be taken to size them up and determine which branches are the most desirable to leave for foundation branches. It is easier to determine this after the tree has been set.

How to Plant

The size of the hole should be large enough to admit the root system without crowding. Where the soil is heavy and compact increasing the size of the hole beyond that actually needed will give the root system a better chance to develop. The general rule is to set trees 3 or 4 inches deeper than they stood in the nursery. Shrubs may be planted slightly deeper than in the nursery. Herbaceous perennials should be set deep enough to cover all the roots but not so deep as to cover the crowns. Some herbaceous perennials which produce growth from buds arising below the surface of the soil, as in the case of poeny, funkia, and bleeding-heart may be planted deeper.

The chief essential in planting any plant is to have every part of the root system in contact with the soil. This requires fine soil and care in compacting it around the roots. Haste in filling in the soil certainly makes waste in planting.

Many newly planted herbaceous plants die from being "hung." "Hanging" is the packing of the soil around the crown of the plant while the roots are suspended in the opening made for the plant. It occurs when the soil has not been properly crowded in against the roots. Be sure to have good contact between the roots and the soil.

Water Usually Not Necessary at Planting

The application of water in setting plants is usually unnecessary except when the soil is very dry. As commonly used it does more injury than good. Watering herbaceous plants set in very bright weather will lessen the necessity for reducing the tops as much as would otherwise be necessary. Two common errors in using water in planting are applying it to the surface of the soil after the planting has been finished and in using it in too small amounts. If water is to be used it should be applied in sufficient quantities to thoroughly moisten the soil for some distance around the roots. It should either be poured into the hole before putting in the plant or added when the hole is partly filled so that the upper layer of soil used in filling the hole will not become compact and permit large moisture losses later. Usually the soil moisture condition in Wisconsin in the spring is such that the use of water in planting will be unnecessary.

Mulch to Save Moisture

During the hot, dry days of summer there is need of preventing the soil surrounding the roots of newly set plants from drying out. In the wood lot, shelter belt, commercial orchard, and small fruit plantation this is done by cultivation. Where it is practical to do this probably no better protection can be given. In ornamental plantings when it is impossible to employ this method the litter mulch is practically indispensible. Lawn clippings, grass, marsh hay, manure, or other material which will make a loose cover may be used. Manure is not as desirable for trees as other materials, but it can be used if they are not readily obtainable. With the herbaceous perennials, frequent shallow hoeing will usually be found most effective.

How to Top Prune Newly Set Fruit Trees

In pruning a one-year whip all that is necessary is to cut off the top sufficiently high to bring the head at the proper height, after allowing 12 to 15 inches for distribution of the branches. If the tree be branched, the number of branches left and their position depend on the character of the top desired. In Wisconsin the modified-leader type is preferred. This means that in pruning, the central leader or the branch making the upright growth from the center should be cut back leaving it long enough to give rise to about two well-spaced branches the following season.

To many main branches are usually left. For the apple, four to five branches are sufficient. In pruning the cherry and plum, some growers prefer one or two more foundation branches which are cut back more severely than when a lesser number is left. If too many branches are left at the start, the top becomes too thick, necessitating the removal of one or more branches later on, which is undesirable.

Avoid V-shaped crotches, and have the branches distributed along the trunk rather than coming out very close together. Cut back somewhat the branches left in order that the new branches may be forced out nearer the head of the tree. The foundation branches of apples are usually left from 10 to 18 inches long, the upper branch being the longest.

Some growers prune cherries and plums very similar to apples, while others prefer to cut the branches practically to spurs, about 6 to 8 inches long, leaving the upper branch about 12 to 15 inches long.

Onion Smut

R. E. Vaughan and J. C. Walker.
Extension Service of the College of Agriculture
The University of Wisconsin

The onion is an important truck crop in Wisconsin. It is a ready cash crop and is adapted to intensive cultivation. The acreage varies from 1,000 to 2,000 acres in different years, with yields around 500,000 bushels.

Onion smut is causing serious loss in some fields, taking over 50 per cent of the crop. Unless checked by preventive treatment it will drive many growers to seek other less profitable crops.

Onion smut is caused by a fungus, a microscopic plant, which lives in the soil. During the winter the fungus rests in the shape of rough black spore balls. These are so small that a microscope must be used to see them. When spring opens the spores germinate, just like seeds, and send out fungus threads which bear a quantity of secondary spores.

Smut on Onion Seedling

The young onion plant when it starts from the seed is very small and tender and cannot keep the fungus threads that come from the secondary spores from entering and growing in the leaves. After penetrating the young onion plant the fungus grows very rapidly and often kills the seedlings. The first symptom of the disease is the appearance of dark spots in the leaves. Then the plants wilt, the dark spots

(Continued on page 145)

What Horticulture Owes to Bees

Bees are a safeguard to horticulture. Of all insects which pollinate flowers the honey bee is the most important because its business is to visit flowers and it is always "on the job."

We know that bees visit flowers for two main purposes, to gather nectar and to gather pollen yet, how many of us have ever thought of the relationship between the flower which furnishes these substances and the bee which so eagerly seeks and gathers them. When Nature's secrets are learned we find that this relationship is most complex. The character of every part of a flower is so designed that the visiting bee may surely and quickly effect fertilization, to the end that the fruit or seed may develop. Flowers have three characteristics supposed to exist for the attraction of bees; showiness, fragrance and the possession of nectar. Many flowers have all of these characters and very rarely is one found having none of them. Some very showy flowers have little fragrance and vice versa. Many flowers with little or no nectar are rich in pollen, while flowers which secrete nectar in abundance as a rule have little pollen. Although pollen exists primarily for the fertilization of the flower, bees use it readily for food. It is certain that bees are able to detect the odor of flowers from quite a distance and they are attracted by showy colors. Memory also is an important factor in taking them direct from hive to flower and back again.

The nectar gathered by bees is a small part of their worth to the farmer and fruit grower of Wisconsin. Their great value lies in the fact that they continually distribute pollen and thus effect cross-pollination. Moreover they continue to visit flowers of the same kind until all the nectar has been gathered, passing by other species in their path. This is an advantage to the flowers and therefore to the farmer because it means rapid cross-fertilization with little waste of pollen; and an equal advantage to the bee and the beekeeper for it makes possible the rapid gathering of nectar all of one quality.

In studying Nature we learn that many species of plants, although having in each flower both male and female elements, i. e. stamens and pistils, are unable to fertilize themselves and must await the visit of some bee or other insect. The reason for this apparent defect is to make cross-fertilization more certain. Flowers have many intricate ways of preventing pollination with their own pollen. In many plants, buckwheat, rye and some legumes for instance, each flower must be fertilized by pollen from another flower and with nearly all plants pollen from one plant produces better fertilization on other blossoms of the same kind than it does in its own blossom. Certain types of plants notably the **legumes** are almost entirely dependent upon bees alone for the pollenization of their flowers. We find certain others, among them the **clovers,** growing naturally **only** where bees are found. It has been found that in growing **clover** for seed, the production of seed per acre decreases as the distance from an apiary increases.

The value of the bee, or better the absolute necessity of the bee in pollinating fruit blossoms, was clearly brought out by an experiment at the California Experiment Station. An attempt was made to discover why prune trees in certain localities bore heavily while trees in other localities bore no prunes or at best a very light crop. Two French prune trees were enclosed in two large insect proof tents of mosquito netting before the blossoms opened. A hive of bees was placed in one tent during the blossoming period. All insects were excluded from the other tent during the same period. When the petals had fallen the tents were removed. Bees worked readily in the tent in which they were confined. Counts were made of blossoms in the two tents and in the rest of the orchard. The fruit maturing from every thousand blossoms counted was as follows:

Average orchard set, 35 prunes.

Tree confined with bees, 180

Tree confined without bees, 10 prunes.

The results of this experiment aroused great interest among the California fruit growers.

In Oregon bees have been found to be a vital necessity in certain sections where cherry growing is the principal horticultural industry. A serious problem presented itself in securing a proper set of fruit. Although few growers complained that the trees did not bloom heavily enough, it frequently happened that not enough cherries matured to make a profitable crop.

After conducting experiments over a period of years it was brought out that the importance of bees as agents in cross-pollination cannot be over-emphasized. Cross-pollination is essential in nearly all varieties of cherries and it will not be effected, no matter how heavy the blooming, unless bees are present in numbers

to carry pollen from tree to tree.

There is little doubt but that many cherry orchards at present bearing light crops could be made to bear much heavier ones regularly if bees were kept in the orchard.

Thus the absolute dependence of many plants upon insects for pollination is shown. To what extent failure of certain crops to mature in "off" years may be due to lack of sufficient bees or to unfavorable weather for nectar gathering during the short blooming period, can only be surmised. It is well known however that some such failures have been overcome when bees were introduced.

Aside from certain wild plants and trees not important from a standpoint of the fertilization of their blossoms by bees, some of the principal trees and flowers depending largely or entirely upon bees for pollinating their flowers are: apple, cherry, peach, plum, pear, raspberry, currant, gooseberry, grape, clover (white, sweet, alsike, crimson), alfalfa, buckwheat, vetch, cow pea, rape, cucumber squash and melon. Some of the above plants are visited mainly for their pollen.

G. D. H.

Is Orchard Cultivation Necessary?

Is cultivation necessary in a bearing orchard?

If this question means is tillage necessary for fruit production then the answer would certainly be no. If the question involved is the advisability of tillage in a bearing orchard then the answer is not so readily reached.

There are three more or less distinct systems which may be used with propriety in managing the soil of a bearing orchard: sod mulch, definite mulch and tillage-cover-crop. The sod-mulch system is having the orchard in sod, cutting the grass occasionally and leaving it in the orchard. The definite mulch differs only in that the cut grass is piled under the trees as far out as the spread of the branches and enough additional material from other sources added to effectively prevent plant growth under the trees. In the tillage-cover-crop system the orchard is tilled during the early part of the season and between June 15 and Aug. 1 a crop which makes a rapid growth, called a cover crop is sown to remain on the orchard usually until tillage begins the following spring.

Experience shows that no system is best under all conditions. The chief effects of the various systems in comparison with each other may be summed up as follows.

The sod mulch hastens fruit production, and increases the amount of fruit the first few years but if continued will reduce the yields and retard the development of the tree. It is the least favorable system as regards its general effects upon the plants and fruits. Although it does produce higher colored fruit this advantage is usually offset by loss in size and quantity. The sod mulch favors both insects and diseases except fire blight and makes the production of good fruit very difficult. Its chief advantage can probably be said to be its adaptabiilty to steep or very stony sites where tillage is not feasible.

The "definite" mulch favors maximum development of the plant and ranks second in earliness of production and quantity of fruit produced during the early bearing period of the trees. This comes about through the fact that it is the best conserver of soil moisture causing relatively late growth of the tree. This one fact makes the advisability of using the definite mulch in Wisconsin very doubtful. It has the same disadvantages as the sod mulch in regards to insects and diseases.

The tillage-cover-crop is ordinarily considered the best system everything considered for the average Wisconsin orchard. The only points in which it does not equal or surpass the other systems is in earliness of production, high color of fruit and its relation to fire blight when compared to the sod mulch. The greater production, more ready control of pests, and general effects upon the plants seem to warrant its use whenever the character of the site will permit.

J. G. Moore,
College of Agriculture.

Oh Those "Barnyard" Apples

"At the office of A. Grossenbach & Co., commission merchants, it was said that no Wisconsin apples were handled and nothing was known regarding the crop in this state. "It does not pay to handle fruit from these 'barnyard orchards' as we call them," was said. "The trees are not cared for and the apples are wormy and poor in quality. The farmers want us to go out after this fruit, pick it and do all the work and the stuff is not worth it. No commission house in Milwaukee handles such apples. They are peddled out by the farmers themselves or by hucksters."—The Sentinel.

Wisconsin Horticulture

Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

The Rural Planning Law

Attention has been called to the Rural Planning Law in former issues of Wisconsin Horticulture. This most excellent law, enacted by the legislature of 1918–19 provides no appropriation for its administration. While this is unfortunate in a way it is fortunate in another way; many men and women in Wisconsin will now give of their time and efforts to further the plan of conserving our natural beauties and such services are invaluable. The talk at our January convention by Prof. F. A. Aust outlines some of the things that we all can do.

If we attempt to confute the benefits that may accrue to Wisconsin on account of this act, using the smallest and meanest measure that can be employed, the dollar and cents rule, we can readily see how it can be made to pay; in attracting tourists; in adding to the value of farms in the older communities; in attracting settlers to the newer sections and in many other ways. However, we do not live by bread alone. There are better things in life than money and among these is an appreciation of nature's choice gifts and a capacity to enjoy them.

By dedicating a waterfall, a "view from a tilltop," a woodland where wild flowers may grow undisturbed, the borders of a lake, rural parks and playgrounds, not alone to the present generation but to posterity, we will add more to the real wealth, the satisfaction, the happiness of the people of our state than by any other means.

The Rural Planning Law aims to accomplish this and should, therefore, have the wholehearted support of every citizen of our state.

In the administration of the law I am convinced that it should always be kept in mind that the law is for all of the state and not for any particular part of it.

A Cheerful Word From Lincoln County

Here is the Dollar for 2 more years' subscription. It is worth $10.00 and I never could see how you could furnish a monthly like our Wis. Horticulture for 50c a year, including book.

I have a farm of 80 acres in Lincoln county and have reserved 5 acres of this for orchard, small fruit and garden. Have about 70 young trees (apples, plums, cherries and even a few pears—Flamish Beauty). Some of the apple and cherry trees are 5 years old and they look fine. Years ago you wrote me that we could not raise cherries in Lincoln Co. But you should see them and be astonished. I have the early and late Richmond, Montmorency and Wragg, all are doing fine especially the Wragg. The trunk is about 3 in. in diameter.

Of apples I raise the common sorts like Duchess, McIntosh, Wealthy, Dudley and some better kinds like Stayman Winesap, Delicious, Yahnke, Scott Winter, etc.

Of Plums: Prof. Hansen's Hardy Plums, like Sapa, Waneta, Hanska and the common American sorts, also 1 Prune (4 yr. old). Lost during the last 5 years 4 apple trees, 2 plums (1 Prune and 1 Am. Plum) and 2 cherries (1 Richmond and 1 Montmorency). This is not so bad, is it?

My orchard is protected on the west and north by heavy woods—south slope. This perhaps is the reason of my success.

S. J. G.

The Apples of New York

This excellent work by Prof. Beach in two cloth bound volumes is published by the New York State Department of Agriculture and offered for sale, as long as the present edition lasts, at the absurdly low price of $2.25 for both volumes postage paid.

This is the best guide to the identification of varieties known to the writer. The title is somewhat misleading as these two volumes contain complete descriptions of hundreds if not thousands of varieties and include practically every apple grown in

the United States. Every apple grower whether amateur or professional should have these books. Send $2.25 to the Commissioner of Agriculture, Albany, N. Y.

Grafting Plum Trees

I have a half acre of seedling plums and wish to graft in some kind of a good market plum so as to make it a profitable bearing orchard but most of the plums recommended for northern Wisconsin are not satisfactory market plums. Can you recommend a good market variety for me to graft in to my seedlings.

H. R., Chippewa Co.

Small seedling plum trees not over an inch in diameter at the base may be successfully grafted by using a saddle or whip graft. Cut off one or two inches from the ground and use one cion wrapping firmly with strips of cloth which have been dipped in melted grafting wax. As to varieties suitable, such kinds as De Soto, Hawkeye, Forest Garden and Surprise should prove both hardy and profitable in Chippewa county.

Influence of Stock on Graft

Will a tender variety stand our winters any better on account of being grafted on limbs of a native seedling? H. R.

A much discussed question and most anybody is liable to invite trouble by giving a positive answer. Practical horticulturists in Minnesota claim increased hardiness for tender varieties when "top-worked" on Hibernal.

Wood Ashes For Apple Trees

A Waukesha county member asks if wood ashes may be used to advantage as a fertilizer in orchards.

Wood ashes contain much potash varying, according to the wood, from 15 to 40 per cent. Ashes will therefore prove a valuable fertilizer either for young growing trees or older bearing orchards. A very light application will be sufficient.

Some Garden Questions

I am going to again send you a series of questions and assure you that I greatly prize my membership in the society for the good I am receiving in this way.

In the matter of hot beds, how deep do you recommend the manure in Waukesha County? When the manure has spent itself and the period of usefulness of the hotbed has passed, can this used manure still be utilized as fertilizer for truck garden purposes? Is it possible to follow an early crop of sweet corn with a planting of dry bush beans and still have them mature? In the case of limited acreage where intensive cultivation is practiced would you say that a good quality of pie pumpkin and squash can be grown successfully if sown between rows of field corn at the time of last cultivation? Can watermelons of a good quality be grown in Waukesha County with any measure of success? I have read that it is not advisable to plant sweet corn near popcorn. Does this same advice hold true in connection with the planting of field corn near sweet or popcorn, and if so why, if any other reason besides the improper crossing resulting in the seeds in each variety?

S. F. H., Waukesha Co.

In general terms the life of a hotbed is in proportion to the depth of manure, the deeper the longer it will last. The depth of manure varies from 1 to 2½ feet.

The spent manure from hotbeds has lost none, or but little, of its value as a fertilizer if it was properly handled but the gardening season will be so far advanced by the time the hotbed crops have matured that there will be little opportunity to use it except for late plowed land or for mulching.

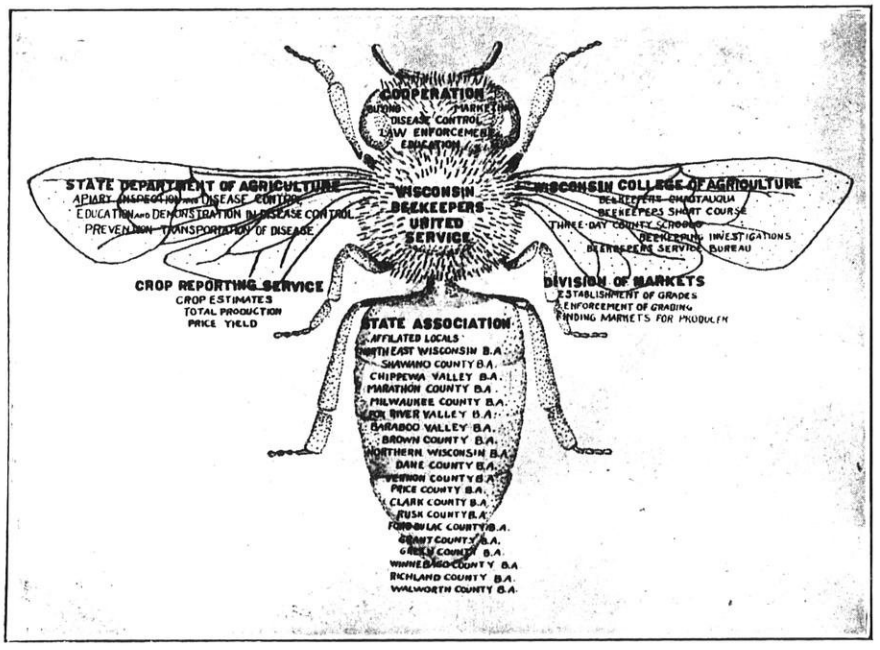
Many market gardeners use the spent hotbeds for growing melons, celery or head lettuce. Wisconsin's growing season is not long enough to mature a crop of navy beans planted after sweet corn. Plant snap beans, beets, rutabaga or yellow globeturnips or celery.

Pumpkins may be grown successfully in rows of field corn but must be planted earlier than the usual date of last cultivation of the corn. If planted in the hills soon after the corn is up there will be but little interference in cultivation. Squash will not succeed as well requiring more sunlight. The quality of sweet corn will not be seriously affected, if at all, by planting alongside field corn. Neither will the resultant seed be affected unless the blossoming periods of the two coincide which rarely happens in the case of early maturing sweet corn and field corn.

AMONG WISCONSIN BEEKEEPERS

Devoted to the Interests of The Wisconsin State Beekeepers, Association

H. F. Wilson Editor



HAVE YOU SIGNED UP FOR SPACE ON THE CAMP GROUND FOR THE SECOND ANNUAL BEEKEEPERS' SCHOOL AND CHAUTAUQUA MADISON, WISCONSIN, AUGUST 15–21, 1920?

The New Constitution and Directory

A copy of the revised constitution and directory has been mailed to every member of the State Association. If you have not received your copy, write to the Secretary.

CONCERNING THE STATE FAIR

Last month, copies of the 1920 State Fair Premium List, for the Bee & Honey Department, with circular letters, were mailed to all the members "OVER 600," of the Wisconsin State Beekéepers Association.

In addition, personal letters were written to all of the officers, and directors of all of the County Local Beekeepers Associations, and to all of the individual exhibitors, who exhibited last year and in the past.

In addition to this, all of the letters received have been answered, and follow-up letters written to those not having responded, in all over 125 personal letters have been written.

The result so far is most promising. We are reasonably assured at this time of about 19 large exhibits—10 county Association, 7 individual and 2 Commercial, and the corresponding individual entries, numbers 5 to 29.

We are in receipt of a number of letters from beekeepers, advising us of their intention of making entries for numbers 5 to 29.

As it is advisable to have the names of all beekeepers who intend to make these entries, they are urgently requested to write the Superintendent at once, and they will then hear from him at the proper time, with entry blanks, and everything will be arranged in proper shape, to the satisfaction of both the beekeeper and the superintendent.

We are confidently looking for not less than 25 large exhibits. Some of them will be a radical change from the old familiar exhibits, as some letters would indicate at this time, and the Superintendent has been obliged to add number 43 to the premium list, providing for an INDIVIDUAL GENERAL EXHIBIT, with $25.00, $20.00 and $15.00 as premiums, which makes the total of awards now offered by the State Fair, $1,144.00, for this department.

The superintendent wants it understood, that these articles in HORTICULTURE are especially intended for the general beekeepers, and not for the large exhibitor, with whom he keeps in touch by personal correspondence.

This does not mean, that correspondence with you is not solicited, on the contrary, it is urgently requested, just give the superintendent a chance to get in personal touch with you. If you are interested in the entries from 5 to 29 do not fail to write at once, to GUS DITTMER, AUGUSTA, WIS.

Out Apiaries

Where beekeeping is of secondary importance to the owner with a small home apiary, the bees should be well cared for—out apiaries should be left to the commercial beekeeper, who can devote more time, money and a system suitable to his conditions. The latter can afford to branch out with several apiaries. He must know what and where to find good pasture—sheltered locations for each apiary, good roads easily reached by auto truck, and where the land owner will grant a rental permit for term of years. The beekeeper with a system of management to suit his conditions can thus make out apiaries profitable. After some years of comparing returns from comb and extracted taken from my out apiaries, I found extracted honey far more satisfactory. All hives and supers are of one size (10 L. frame). I select a location where the bees do not bother the owner of the farm, get a rental contract for term of years and then erect a good building as bee house over an ideal bee cellar.

In this bee house are all necessary supers, queen excluders, bee escape boards, honey extractor, storage room and supplies. Some beekeepers prefer to haul home all extracting combs and after extracted to haul them back. This system has some good features; less capital is invested and the equipment is centralized. Not long ago I inspected a series of apiaries of five hundred colonies kept on this plan. Last spring disease broke out in one apiary, and by fall was more or less distributed to all, because all combs from the out apiaries were run through one extractor and

hundreds of supers of combs were more or less interchanged.

For extracted honey production, often a few miles may separate a good location from a failure, and it becomes a part of the owners' duty to select such places or possibly some years move entire apiary for some special honey crop.

Wintering: There are several ways to winfer bees safely in Wisconsin. Outside—with abundance of good stores, early outside protection, young queens and bees. In cellar—with uniform temperature and other conditions as above.

In putting the bees away for winter I select a time after Nov. 15th and before Dec. 5th when on a warm day the bees have had a good flight and place the bees in the cellar on the afternoon of the same day. The hives are piled in separate tiers facing the dark part of cellar and the entrances left wide open. I always use a red light when in the cellar with the bees. With a frame bee house over this winter cellar, I place a layer of forest leaves 2 feet deep over the entire floor while the bees are in winter quarters. I also use the deep reversible bottom board in winter and narrow side in summer. The bees in the cellar remain most of the time in a compact cluster under the frames and consume but little stores.

Spring: In the spring with still an abundance of good winter stores, and a young queen of last fall, there is abundance of hatching bees in every hive when taken from cellar and with plenty of outside protection to each hive, little more is needed until dandelion bloom, when another 10 frame super of all worker combs is given for expansion of the brood.

When clover bloom begins to yield nectar, a hive body of combs and foundation with one or two combs of very young brood and the queen are placed in the lower hive. The two supers of brood and honey are placed above a wood and wire excluder. In 8 or 9 days all queen cells above the excluder are removed (either used or destroyed) and an abundance of room provided. When this is done there will be no swarming all summer up to the close of the honey flow. The several supers above the excluder are full of sealed honey and nice lot of hatching brood in lower super at the end of the nectar flow. A few choice untested queens from reliable breeders are bought each year, some of which may prove to be good stock as queen breeders.

Three pound packages of bees put on drawn combs at beginning of honey flow pay well. In each apiary I use a steam heated uncapping knive, 6 frame extractor, an automatic honey strainer, and a few storage tanks with faucets in each, so that all honey extracted in one day is at evening in 5 gallon cans ready for the consumer. A few moments ride in an auto truck brings me home for supper. Then the same work next day for another out apiary.

N. E. France,
Platteville, Wisconsin.

How To Get Rid of Wax Moths

(Continued from March)

Ridding the yard of the moth is no indication that the honey house or storeroom is free from them. If the worms are found in the yard, they are almost sure to be found among stored frames. Some beekeepers pile empty extracting frames over strong colonies and allow the bees to guard them from the wax moths until cold weather comes. There is then no danger since cold weather will kill the insect in its various stages. However, this is a bad practice. When we follow this plan, we are giving these bees much extra labor as it requires much more heat and activity on the part of the bees to care for the extra combs and space and energy is being used which should be conserved for the next spring. Colonies that are forced to be active during the fall and winter cannot be strong colonies in the spring.

After extracting, frames should be carefully put away in empty hive bodies and placed in the honey house. It is almost impossible to construct a room or building tight enough to keep out the moth and even if we did, the chances are that we would carry in a few unnoticed larvae with our empty frames or hive bodies. A week or so after storing, the combs should be examined for the presence of wax worms. All infested hive bodies should then be removed a considerable distance from the honey house and carefully tiered in columns of eight. The bottom hive body should fit tightly to the ground or upon some flat surface. An empty super is then placed on top. We are now ready to fumigate. For every 10 frame hive bodies a little less than a half a cup of **carbon bisulphide** is poured in a dish and placed on top of the frames. A tight cover is then clamped over the empty super. A heavy gas is formed as the carbon bisulphide evaporates and the gas settles toward the bottom of the pile suffocating all larvae and moths. If treated in the evening, they should remain undisturbed until morning.

CAUTION: Carbon bisulphide is highly inflammable and when properly mixed with air is easily ignited. Great care should be taken to keep all fire away from it, such as cigarettes, stoves, etc. For this reason, the hive bodies containing combs should not be treated in a building in which there is a fire of any sort. If there are no fires or live stock in the building, the frames can be fumigated without moving them. **Carbon bisulphide** gives off a most disagreeable odor and is not pleasant to breathe. A person should work quickly and not breathe more of the gas than necessary. It is easily procurable from any drug store and sells at present for about 60c a pound. A pound will fumigate from 50 to 64 ten frame hive bodies full of combs. The carbon bisulphide gas will not destroy the eggs of the moth so it will be necessary to inspect the fumigated frames a week or two after the treatment. If larvae are then present, a second fumigation should entirely eradicate the moth. Drained cappings and refuse wax should be placed in a barrel or some other sort of receptacle and thoroughly tramped down. When pressed together, the moths will not tunnel into the wax. The top inch may be attackeed but since the worms do not work in cakes of wax, little damage will be done.

James I. Hambleton.

Two and one-half million boys and girls were enrolled in the school garden army in 1919. It's slogan, "A garden for every child —Every child a garden" is a good one and would mean much to the country if carried out.

Many deciduous trees and shrubs have a beauty in winter nearly as effective as in summer.

Their graceful outline, bright bark, or changing buds all help to make the winter landscape attractive.

Early cabbage and cauliflower may be sown late in February in the house for transplanting later.

Hot beds and cold frames give a chance to start vegetables earlier and gain on the weather and insects.

House plants need fresh air as much as people. It should not be given them in draughts. Tender plants show the effects of lack of care very quickly.

Apiary Inspection Plans

By S. B. Fracker, State Department of Agriculture.

One of the results of the rapid development of the bee industry the last three years has been a strong realization everywhere of the danger from bee diseases. The situation is serious in twenty or thirty counties and honey producers are alarmed in many others. As a consequence the demand for area cleanup campaigns is most flattering to the inspection service but the calls for help are more numerous than we can answer.

Such campaigns have been nearly completed in Manitowoc, Shawano, and Langlade counties, and are under way in Calumet, Winnebago, Milwaukee, Jefferson, Dane, and Richland. Small parts of Grant, Chippewa, Waupaca, Dodge, and Waukesha have also been inspected in connection with adjoining counties and the work must be continued in these small areas also. In speaking of a completed campaign, permanent eradication of American foul brood is not meant; but the disease appears to have been wiped out for the present and local inspectors can take care of new developments.

The outlook is favorable for reduction of American foul brood in Calumet, Jefferson, and part of Dane counties to a negligible factor during the coming season. Milwaukee will give more trouble on account of the continual receipt of shipments of infected honey and there may always remain a certain amount of disease. Winnebago and Richland counties, and other smaller areas will also take a little more time but the beekeepers may anticipate a rapid improvement with comparative safety after about two more years.

In 1919 complete and effective treatment was undertaken throughout all the principal areas except in Winnebago county which it was not possible to reach in time. Rechecking must be done in every case this season. Owner's treatment is usually about 80 per cent successful and 20 per cent of the colonies may be expected to show reinfection, necessitating treatment again. In some cases where the owners were careless the disease will probably reappear extensively so the work will have to be repeated throut the apiary.

The heaviest demand for new campaigns comes from Outagamie, Brown, Fond du Lac, Sheboygan, Wood, Waukesha, Green, Barron, and Vernon counties with less pressing requests from Pierce, Juneau, and Dodge. Not more than one or two of these counties can be undertaken this season in addition to completing the work now under way.

When a situation becomes particularly dangerous outside of the cleanup areas, special inspectors are often sent. This is helpful when foul brood is newly introduced into a locality or when one or two badly infested yards are endangering many others in the neighborhood. The new county inspectors will also be able to help under such conditions.

The bee disease control work consists of several branches. An outline of these activities may interest readers of WISCONSIN HORTICULTURE, as few realize the amount of organization the work necessitates.

I. Field control of bee diseases.
   - A. Area cleanup campaigns. These are undertaken a county at a time; six full time statemen are employed and they cooperate with local inspectors. Inspectors treat or destroy if the owners do not.
   - B. Special inspections in other localities. Requests of individual beekeepers for help are granted so far as possible.

II. Preventing distribution of disease.
   - A. Permit or inspection required for all moving of bees. Inspection made by county inspectors after the owner's application to the Madison office.
   - B. Permits or inspection required for all bees shipped in from outside the state.
   - C. Following up reports of violations sent in by volunteer correspondents. This refers both to the regulations for moving bees and to careless exposure of infected material.

III. Educational measures.
   - A. Cooperation with the college of agriculture in reaching every beekeeper thru literature and bee schools with information about American and European foul brood and their control. This is especially important for the European form.
   - B. Demonstrations of foul brood treatment. Usually given in area cleanup counties but occasionally arranged in other places on request.

The apiary inspection service is also cooperating with the divisions of crop estimates and of markets in developing marketing facilities for honey. But that is another story, which has been told before and will be before the beekeepers many times in the future.

The state department of agriculture is ready to develop apiary inspection and the bee disease control work as rapidly as funds are made available for that purpose. Possibly some arrangements can be made in the future for charging part of the cost to the county funds. In the meantime we are stretching the state appropriations as far as they will go.

County Bee Inspectors Appointed

Final appointments of county apiary inspectors in about twenty counties are being made this month as a result of the examination in February. In many counties there were three or four applicants, while in others only one took the examination.

The county inspectors are to make inspections at the request of the state inspector at Madison and to report on the movement of bees in their localities. They will act as local representatives of the State Department of Agriculture in this work but are not expected to carry on area cleanup campaigns or to make inspections or treatments without the consent of the owner under ordinary conditions.

A new examination will probably be held in May and any counties which wish to recommend inspectors for appointment should send such recommendations to S. B. Fracker, Acting State Entomologist, State Capitol Madison, before the 15th of April. Suggestions and applications will gladly be received also from counties in which there is no association but where honey production is sufficiently important to warrant the appointment of an inspector. Those who take these positions are paid by the day for the time actually employed. In most cases it will be only a few days a year.

GRADING WISCONSIN HONEY

By S. B. Fracker

Chairman, State Beekeepers Association, Marketing Committee

Someone recently said to a state official about a suggested project, "It sounds all right but there are no precedents for it", and the reply came back quick as a flash, "Wisconsin never has precedents to copy, she makes them."

The beekeepers are no exception to the rule. At the last meeting of the state association the members present investigated the marketing problem and decided that grading honey, securing adequate crop estimates, and using the services of the state division of markets would benefit the industry. It was clear that the distribution of the 4,800,000 pounds produced annually in the state could be improved. Consequently they asked the division to establish grades and the crop reporting service to make the estimates.

To follow up this request a marketing committee was appointed by the beekeepers and they drew up a set of proposed grades which were submitted to the state marketing officials. Hearings were then held on this subject at Appleton, Eau Claire, and Madison the last week of January and many beekeepers either attended the meetings or wrote out their opinions and mailed them to the director of markets.

Grades have now been defined and will go into effect about the middle of August. **After that date every section of comb honey and every can or other container of extracted honey, sold or delivered, must be stamped or labeled with the grade, and color of the honey and a number showing the producer or packer, or else be marked "Ungraded."**

The grades established will result in improving the quality and finish of Wisconsin honey and will put a premium on care in handling it. Too often "honey is honey", especially on the retail market; the storekeepers buy wherever they can secure honey for the lowest price and sell for all they can get.

Many beekeepers will sell their product "ungraded" and label it so for the next year or two. But it has been the universal experience that marking a first class product "Fancy" or "No. 1" so extends the market and increases the demand that undoubtedly all commercial producers will register with the division of markets and secure the right to grade their honey within a couple of seasons.

Notes From Local Associations

At the business meeting held at the end of the three day bee school which came March 3, 4 and 5, Reedsville, Manitowoc County, the following resolutions were adopted by the Northeast Wisconsin Beekeepers' Association.

"We the members of the Northeast Wisconsin Beekeepers' Association agree

1. That we will sell our honey properly graded under the label of the above named association.
2. That we will not sell wholesale (except locally) to any other person, firm or corporation.
3. That we will accept the market price received for our honey at the time we order it sold, provided that there is a market for it at that time.

The association also instructed the Board of Directors to appoint a competent person as grader for the association. The place for grading will be decided upon by the Board of Directors.

The members of the association also ordered 200 pure bred Italian queens. This is one of the most important steps taken in recent years by our local beekeepers and to my mind is the beginning of what will soon be a state-wide selling organization.

Snow nearly all gone. Outdoor bees had a few days warm enough to fly and contrary to expectations have wintered fine with just a few exceptions. It seems that many hives had a few bees filled with feces early in the winter and when those had left the hives the balance of the bees in each colony were O. K.

Fox River Valley Bee. Ass'n.,
Edward Hassinger, Jr.

Preparation of Soil For Gardens

N. A. Rasmussen.

Initial preparation for gardens should begin when the snow is going off and with the coming of the spring rains.

See that all surface water is drained off quickly and the garden will be found in much better condition than though the water had been left to soak in or find its own course. Do not begin working too soon. When soil is in good condition for mudpies it is not fit for garden work, it should be in a loose crumbly condition.

If the garden is to be spaded ordinarily the length of a spading fork tine will be the proper depth. If new or virgin soil, turn only the top layer and about an inch of the subsoil (this can usually be ascertained by the difference in color and the sticky consistency of the subsoil), spading an inch or two deeper each year until from 12 to 15 inches has been turned and become a top soil in itself whence best results can be expected. When spading do not cut more than 2 or 3 inches at the most. Be sure it is fully turned and all lumps broken by a strike of the spade while if left for the rake it often bakes thereby involving much extra labor. Immediately after spading it should be thoroly raked and packed firm but not hard and the top should be kept pulverized until the time of sowing. If ploughed see that it is properly done and not by the cut and cover system as is sometimes used by one who plows gardens by the job. By this I mean plowing an 18 in. furrow with a 12 in. plow leaving about 4 in. covered but not turned. No amount of discing, harrowing, nor hand work can get soil thus plowed into proper condition. In most gardens if plowed in narrow lands or beds with furrows left open for paths and for carrying off surplus water better results will be obtained; this applies also to spaded gardens as surface water should never be allowed to stand in the garden in pools at any time of the year.

Manure is perhaps the most essential factor of successful gardening if properly applied. Well-rotted manure or vegetable matter can be applied in large quantities either in spring or fall and thoroly mixed with the soil. If the soil is clay or of very fine texture, or of such nature which bakes readily and stable manure can not be obtained to supply humus enough to overcome this condition, sifted coal ashes (not wood ashes) will greatly improve the condition of such soil and can be applied in large quantities say perhaps from 1 to 2 inches deep over the entire surface but must be well mixed with the soil.

Straw manure or coarse litter if applied in the Spring and worked into the soil will be a detriment to the garden but if used as a mulch when dry weather sets in, about the month of July, on such crops as berries, tomatoes, cabbage, cucumbers, beans, sweet corn, etc., it will prove beneficial both as a protection from a drought and as a fertilizer. Commercial fertilizers and lime both have their place in the garden but the amateur would better consult an experienced gardener before attempting to use them.

Nitrate of Soda For Orchards

Will Nitrate of Soda take the place of barnyard manure in a bearing orchard? (Can it do any damage) part of orchard has been partly under cultivation and manured heavy for last two to five years, rest is in sod. Manure could be used to better advantage on rest of farm. What are the commercial orchardists doing?

Barnyard manure and nitrate of soda both supply the element of plant food called **nitrogen,** and the manure supplies in addition large quantities of organic matter together with minor amounts of **phosphorus** and **potassium.** Orchard trees usually do not respond to applications of phosphorus and potassium but the value of the organic matter in the orchard soil is unquestionable. Manure is, therefore, preferable to nitrate, but where sufficient quantities of manure are not available nitrate of soda, or other commercial forms of nitrogen such as dried blood and ammonium sulphate may be used to good advantage. Commercial orchardists over the entire country have recently begun to use large quantities of commercial forms of nitrogen in their bearing orchards. Orchards in sod usually respond especially well.

Is Nitrate of Soda good in place of manure in a new orchard?

Experiments with young cultivated orchards have usually failed to show any appreciable benefit from applications of nitrate of soda or other commercial fertilizers This does not apply of course to exceptionally poor soils or soils from which the organic matter has been burned out.

George F. Potter,
College of Agriculture.

Planting and Care of Lilies

Lilies must have a rather loose soil. It should be well enriched preferably with well rotted cow manure. If you cannot get it, and you probably cannot get it unless you are a farmer, then you can use shredded sheep manure or some commercial fertilizer. If you use sheep manure it is best to compost it, i. e., mix it with earth or sods and let it ferment and rot, before applying it to bulbs. Whatever fertilizer is used it should not touch, or indeed be placed within an inch of the bulb.

Before planting the bulb loosen the soil to the depth of 18 inches to 2 feet for a distance of a foot or more in all directions, working fertilizer into the soil, and adding sand if the soil is heavy. Plant the bulb so that its base will be from 8 to 10 inches below the surface, except in the case of the smaller growing lilies which should be about 4 inches deep. Put an inch or more of clean sand or sphagnum moss under the bulb and bring it up on the sides so as to keep the earth away from it entirely. As many lilies make roots from the stalk above the bulb as well as from the base of the bulb the soil should be well fertilized above as well as below the bulb.

Bulbs should be planted in the fall whenever possible. Some bulbs ripen and are ready for early planting, but most of them are not ready until cold weather. Prepare your soil early in the fall. Have your dealer send the bulbs to you as soon as he receives them. If they do not come till late, protect the ground by a thick coating of leaves or straw so that it will not freeze, and put the bulbs in when they come. The first year keep the ground covered so that the bulbs will not freeze, or at least so that they will not freeze very hard. After they are established they will stand a much harder freeze. They should always be covered enough to keep them from thawing out and then being frozen again.

When the buds have formed see that they are liberally supplied with water. If the season is a wet one, spraying with Bordeaux will be an excellent prevention of blight, though it will not cure blight after it developes.

Most lilies do not like lime, so when you are liming your garden, skip them.

Like all other garden plants lilies must have food and care and the more the better. They do best where the ground is shaded, but they must have the sun upon their blossoms. They can therefore be planted among lower growing plants which shade the ground. They must have food, and a mulch serves the double purpose of keeping the ground cool and furnishing food. Coarse manure is a good mulch if not too fresh. If put on in the fall it will do no harm.

Start with the hardier and more vigorous varieties, Candidum, elegans, Henryi, regale, longiflorum and tigrinum, and add others as you acquire experience. If you can succeed with auratum you will know that you are a real gardener. B.

A small amount of liquid manure applied to house ferns once in a while during the winter will keep them growing nicely.

Keep palms and ferns clean by wiping the leaves with a weak solution of whale oil soap. This will keep down the scale.

Home plants must have a good drainage in the pots and as a rule will require more water now than at other times of the year because the air of the house is dryer.

A few flowers given plenty of room in a vase are much more effective than many crowded into a small receptacle. One nice rose is often more attractive than half a dozen crowded together.

Onion Smut

(Continued from page 133)

break open, and the black mass of smut spores is spilled about on the ground.

Some plants remain alive and give small bulbs. These usually have smut boils in the scales. In badly diseased fields, plants that grow without smut are not held in shape by neighboring plants and so grow big bull necks. These cure out slowly and are more subject to decay.

A drip of formaldehyde solution with the seed at planting kills the smut spores near the seed and allows the plants to start unmolested by the smut fungus.

Onion plants which have started four or five leaves are much more resistant against the fungus than the plants just starting. Formaldehyde evaporates soon after it is applied so that to get best effects it must be put in with the seed. If the seed is poor and the field has to be replanted, a second application of formaldehyde must be made.

Formaldehyde treatment for onion smut is not expensive. A drip attachment may be made from a kerosene can or constructed by a good tin-smith. A lever handle faucet is more satisfactory than a screw faucet for controlling the stream of formaldehyde solution. The initial cost for the attachment should not be over $10 and the cost for treatment about $5 for an acre.

On sick fields, the increase due to treatment (1913 to 1918) averaged 328 bushels an acre. The average amount of smut on the untreated fields was 47 per cent, and on the treated fields 5 per cent.

How to Control Onion Smut

1. Provide seeder with 2-gallon solution can having in the bottom 3/8-inch lever handle faucet with 5/16-inch opening through body and key, extended handle to be operated as the seed control, 3/8-inch drip pipe that will deliver solution on the seed before it is covered; tight fitting, or preferably screw top, cover to prevent slopping of solution.

2. Dilute the strong 40 per cent formaldehyde 1 ounce to 1 gallon of water (1 pint to 16 gallons gives the same dilution). Have this dilute solution in a barrel so it will be handy to fill the can.

3. Set lever and run seeder so that 1 gallon of solution will be delivered for every 185 feet of row. This is about 200 gallons for an acre.

4. Take special care in filling the formaldehyde can to avoid splashing the solution on the seed box or packing wheel. Adjust the drip pipe to prevent the solution from coming in contact with any of the seeder parts. If the soil tends to clog between the plow and the packing wheel remove one or both of the seed coverers. Thorough preparation of the seed bed will make the treatment easier to apply.

Black Smut Boils on Scales of Partly Developed Onions

5. Larger tanks and drip attachments may be provided for the horse-drawn 6-row seeders.

An Organized Industry

The cherry growers of Door county are thoroly organized. The Fruit Growers Union takes care of marketing the fruit and the buying of crates, boxes, spray material, etc. The Fruit Growers Canning Company, organized for the purpose of taking up the slack when the outside market lagged, has grown to be one of the biggest factors for success in the cherry business. Just recently the growers have organized the Cherry Harvesting Association, a twenty thousand dollar corporation, to insure prompt harvesting of the crop. The following from the Sturgeon Bay Advocate explains:

"The Cherry Harvesting Association is to be incorporated for $20,000, about half of the stock having already been subscribed. The object of the association is to supply pickers to its members on a basis of six or seven pickers to every $100 worth of stock. The association will secure the majority of its pickers from outside, and will maintain a camp with all modern conveniences in which to quarter and board them during the picking season. It will regulate the picking price, and establish such other rules necessary for the pickers in the orchards.

"Wherever there are sufficient members who are located a distance from the central camp, to demand 100 pickers or more, camps will be established near them to take care of a sufficient number of pickers for their needs. In all probability a camp would be established in Sawyer, and possibly another in the northern part of the county.

"When the association is perfected it will take over the camp equipment now owned by the Fruit Growers Union, and that organization will no longer be identified with the picking proposition. The new organization will also rent several of its equipments and quarters now maintained by the larger growers. It will secure its outside pickers through some organization, probably the Y. M. C. A., which has furnished pickers for the Union in the past, and of which J. W. Brandenberg had charge. It takes from 3,500 to 4,000 pickers to harvest the cherry crop."

Endive, often called winter lettuce is a salad plant of no mean importance. Seed planted as late as the first week of August will mature sufficiently for blanching, either in the field or cellar.

It is often a good plan to take flowers from the vase at night and lay them in a box between moist papers. This keeps the air off of them and they will often come out fresher in the morning for the treatment. This is a good treatment where one is living in a flat and has no cool place to set the vase except in a window. Flowers do not keep well in a draught or when chilled.—LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minnesota.

Winter Apples For Wisconsin

Is there any good winter apple for Wisconsin commercial orchards beside N. W. Greening? How about Newell, Windsor, Lubsk Queen, Utter, Malinda, Scotts Winter? Why were these varieties dropped from commercial apple list as this only leaves N. W. Greening for winter apple in commercial apple list? Should N. W. Greening be planted with other varieties for pollination?

Newell, Windsor, Malinda and Scott Winter are good winter varieties and all are included in our list of standard varietes and also in state fair premium list.

Lubsk Queen is a "summer" apple ripening in advance of Duchess and exceedingly short-lived. Utter ripens in September and is not a long keeper. Exact information is lacking regarding self-sterility of the different varieties of apples but is quite generally conceded that most if not all varieties bear better in mixed orchards than when planted alone.

Clean well graded fruit will always bring a good price. In a year of plenty, it will sell at a better price and quicker than will mixed lots.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

How to Control the Striped Cucumber Beetle

The striped cucumber beetle is the most important of all our cucumber insect pests and attacks all forms of cucurbits. Both the adults, or beetles, and the larvae, or "worms" do serious damage.

There is as yet no specific remedy for this insect but several measures help to prevent or lessen the damage.

Young cucumber plants grown in hills may be covered with wire screen. Complete protection is afforded at a critical time if the screen is made beetle tight.

Planting an excess of seed or planting at week intervals for 3 or 4 weeks may be the means of securing a good stand in certain years.

A spray of lead arsenate combined with Bordeaux mixture (2½ lbs. of lead arsenate to 50 gals. of Bordeaux) is probably the best remedy known. The Bordeaux appears to repel the beetles, while the arsenate kills all that remain to eat the sprayed leaves. It is necessary to apply this spray several times in a season to protect the new growth.

Dusting is somewhat easier than spraying but is not as reliable. Tobacco dust combined with lime is an old remedy of doubtful value. Arsenite of zinc 1 lb. to lime 10 lbs. has given good results.

Whether spraying or dusting it is essential for good results that the material be discharged from the apparatus in a cloud made up of very fine particles, in order to thoroughly cover all the foliage.

JOHN E. DUDLEY, Jr.
Bureau of Entomology,
U. S. Department of Agriculture.

Fleas

Do you permit the dog or cat to live in the house with the rest of the family? Perhaps neither are allowed to exactly live in the house but invariably these pets have the freedom of the whole household. Are you aware that under proper conditions your pets have caused many homes to experience a general flea infestation and moreover that human blood is not at all to be spurned by these minute jumping creatures?

Fleas are harbored by practically every dog and cat some time during their life if not during the whole of it. No matter how well "educated" the dog may be nor the class of society it enjoys, dogs at their best, and cats too, are never very careful in choosing their companions. Fido may have to sleep in the barn and on the other hand the velvet lap of his mistress may be his favorite resting place, nevertheless "dogs is dogs" and "cats is cats" and sooner or later Fido skips away to greet one of his own blood. In this friendly exchange of greetings Fido unknowingly brings home some new "thoughts." These "thoughts" will cause him no little worry and Fido will scratch his head over them for hours at a time. The flea, like any of us, enjoys an occasional change of menu and Fido certainly looks more attractive than the half starved cur.

The adult flea lays its eggs in great numbers between hairs of the dog or cat. These eggs are only loosely fastened and so readily fall off. Thus, many eggs will be found in the dog's sleeping quarters and eggs are constantly dropped as the dog walks about the house. In a few days the eggs hatch and become small active worms which feed, not on the dog or cat but upon dirt and rubbish found on the floor. In two weeks or less they adopt a resting stage, during which time they change from the worm stage to full grown fleas. In this condition they are brought into the world with a ravenous appetite which they satisfy preferably by feeding upon a dog or cat and if neither of these are present, they will adopt a human being as their host.

Houses and even buildings may become badly infested if care is difficult to eradicate, mattings and carpets must be removed and either washed or sprayed with benzine. Floors should be scrubbed with hot soap suds or sprayed with benzine, care being taken to reach all cracks and crevices where the larvae live. Infestation is likely to occur during a moist summer when the family has closed the house for the season. The larvae develop most readily when left undisturbed and will be ready to greet the occupants when they return in the fall.

As in most cases prevention is easier than eradication. Dogs and cats should not be permitted

to sleep in the house. The straw, rags or whatever composes their beds should be frequently changed. The larvae are easily killed when disturbed so daily sweeping the house will insure against their being established there. Bathing with soap and water or dusting with Pyrethrum powder will rid the dog or cat of most of its fleas. The latter treatment only stupifies the fleas which should afterward be swept up and burned.

James I. Hambleton.

War, Yes War on Insects

Everything seems to indicate that insects of all kinds have passed the winter in good shape. Now is the time to fight them to a finish. No war was ever won by the side using out-of-date weapons. Get the best of sprayers, the best of insecticides; and go after the armies of insects with determination and persistence.

You will often run across insects that you know nothing about! If you are interested and wish to learn something regarding our common insect friends or foes write the editor of the Insect Page. He will be glad to answer your questions. If possible always send samples of insects with a little of their food plants. This will help us to identify them. Wrap carefully.

Address: Editor, Insect Page, Dept. Economic Entomology, Univ. of Wis., Madison, Wis.

Orchardists—Attention

It is time to be thinking of the spring spray program. The buds will soon be swelling and opportunities to apply the dormant spray will soon pass. Are your trees troubled with the Oyster Shell Scale? Most orchards in Wisconsin are. Lets rid our trees of this pest! Lime sulphur applied at the strength of one gallon to 10 or 12 gallons of water before the leaves appear will do it.

Platycodon or Chinese Bellflower

This is one of my best perennial flowers as it blooms constantly from end of June to late in September. This is also known as Balloon flower as the flower before completely opening up resembles a balloon. The blue or white large star, bell shaped flowers appear in numerous loose racemes. One or two year roots will bloom the first season set out, and after that appear annually. In fall when the stalks become dry they should be cut off four or six inches above the ground. Do not pull the stalks, as the buds for next year's blooms are at the bottom of the stalks near the root. Will make a dense branching bush about two feet high the second year which should be tied to a stake.

Wm. Pfaender, Jr.

Water gladioli well when they begin to flower. It is also sometimes a good plan to give them a little fertilizer.

Do not let the strawberry bed become too thick with berries. A frequent trimming of the runners will prevent this.

Making Peonies Bloom in Your Garden

Bertrand H. Farr, Wyomissing, Pa., in Canadian Horticulturist

The peony has been considered singularly free from disease or insect pests, and to all intents and purposes so far as the amateur is concerned this is still true. There are two troubles, however, which within the last few years have given rise to a great deal of discussion, most of which I believe has been misleading, and since scientists at a number of experiment stations, where investigations have been undertaken, do not fully agree upon the nature of the cause of the trouble, and do not suggest a remedy, I will simply state my own experience and conclusions, which I feel sure will tend to allay any needless apprehension on the part of the amateur gardener.

In certain seasons under favorable conditions peonies are subject to fungous attacks manifested first by black spots on the leaves; second by a blighting of the buds when half opened, or the decaying of the half opened buds at the base of the petals, deforming the flower; third, the extension of the fungous growth down the stem, sometimes its entire length, causing what is commonly called "stem rot," which in severe cases extends down into the roots. Sometimes the stem is first affected causing it to "damp off" and wilt. The conditions favorable to the spread of fungus seem to be moist, humid weather, with frequent showers, followed by hot sunshine. It may be quite severe one season and disappear entirely the following season, and unless the roots themselves are affected, there seems to be no permanent injury, and it is only in a few sections where serious harm has been done and where I believe the same soil condition and overfeeding, which I have previously explained, has something to do with it.

Spraying with Bordeaux mixture as a preventative has been recommended. Where roots are badly affected it is best to replant them in perfectly fresh, sweet soil, free from manure, cutting away all affected parts.

The trouble is variously known as "Nematodes or Eel Worms," "Club Roots," "Lemoine Disease," etc. There has been much discussion and difference of opinion regarding these so-called diseased roots. I believe it to be more a condition than a disease; a condition brought on usually as previously stated, by the excessive use of manure when the roots are newly planted and before they can properly assimilate the overdose. It is manifested by distorted, undeveloped roots, covered with lumpy knots and nodules. An unusual number of eyes are formed, sending up many stems of weak growth which do not mature flower buds. This condition can also be produced by too deep planting, the use of large divisions of old worn-out roots, or by planting in a sour, pasty soil, or anything which seems to check a healthy action of the roots.

Paris green and air-slaked lime dusted over cabbage plants when moist will usually rid the plants of cabbage worms.

White cauliflower is obtained by tying the leaves over the head, protecting it from the sun. If this protection is not given, the head burns and soon decays.

Melons ripen more evenly if placed on boards or tile.

Exchange Department

One notice free.

Have all kinds of Dahlia bulbs to exchange for Gladioli bulbs.

L. A. Burmeister, Jr.
1151—18th St.,
Milwaukee, Wis.

Control of Green Apple Aphis in Bearing Orchards.

Review of Bulletin 461, New York Agr. Exp. Station.

The eggs of the aphis are deposited in the autumn, and hatch the following spring. The majority hatch out as color is showing in the leaf tips of the opening blossom buds. Development is rapid, and winged forms of the second generation appear in late May or early June, when there is a migration to other trees. The species breeds continuously thruout the summer, producing many broods.

They prefer succulent tissues such as exist on terminal growths, watersprouts and suckers, and are generally present in injurious numbers for more or less extended periods during the summer months in nursery plantings and young apple orchards. In occasional years destructive outbreaks of the insect occur in bearing orchards.

Their attacks cause curling of apple leaves which may result in defoliation of affected branches. Succulent growth often exhibits a dying back of terminal areas. Invasion of fruit clusters may be attended with dwarfed, misshapen apples which display pimpling and red stippling of the surfaces. The appearance of the fruits is often marred by the sooty fungus which thrives upon the excretions of the lice.

The delayed dormant, or bud spray, treatment of lime sulfur and nicotine sulfate protected bearing orchards until about the middle of June, when there was a reinfestation from winged migrants. Further spraying with nicotine sulfate and soap, during midsummer resulted in efficient control. Following the treatment, there was noticeable improvement in the condition of apples in most orchards with respect to shape, size and freedom from reddish discolorations.

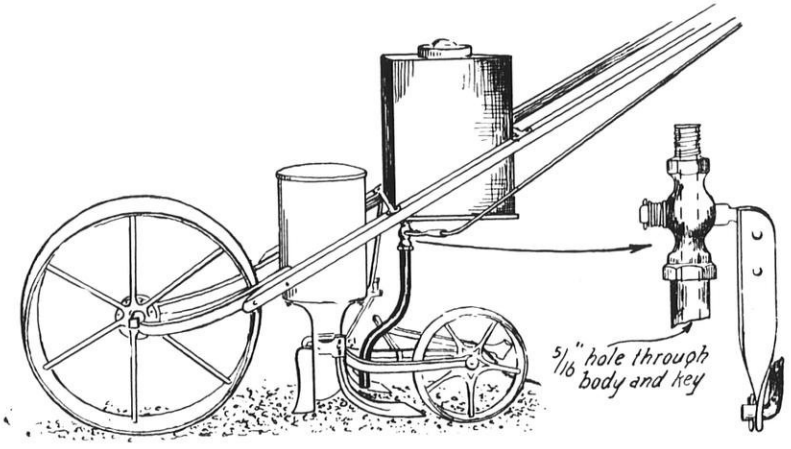
Comparative tests of nicotine sulfate with soap or large amounts of lime indicated few differences in insecticidal qualities of these preparations. The advantages of the lime wash were its deterrent action on the aphids and its cleansing properties to the fruits. On account of its lack of surface tension and the difficulty and cost of application to large trees, the use of the lime mixture should properly be limited to young, non-bearing trees or those of moderate size. The rapid killing with nicotine sulfate in combination with soap and its greater spreading properties point to its superiority for large trees. It is probable, for these considerations, that apple growers having trees of great height with widespread branches will continue to place their dependence on the nicotine sulfate-soap spray for the control of the green aphis.

The complete bulletin may be secured by addressing the Station at Geneva, N. Y.

Onions and potatoes must be handled carefully if you want them to keep well.

Fresh rhubarb from the cellar comes in handy now. It doesn't take many plants to furnish a good supply.

One hundred bushels of tomatoes will produce about 25 pounds of seeds. It takes 8,000 bushels to get one ton of seed.



Seeder equipped with formaldehyde drip attachment for control of onion smut.

SUPPLEMENT
Wisconsin Horticulture

Volume X | Madison, Wisconsin, April, 1920 | Number 8

CONTROL OF INSECTS AND DISEASES

S. B. Fracker, State Department of Agriculture, and R. E. Vaughan, College of Agriculture

Spraying of fruit trees has become standardized and simplified within the last four or five years. It is now an easy matter for an amateur to get profitable results without elaborate preparation, if a good spray pump is available.

This has been accomplished by the development of a regular spray schedule to be applied every year, using materials which require no heating or other unwieldy process. The schedule for apples, plums, and cherries is outlined on page 7. Additional applications may be needed under unusual conditions. The following paragraphs describe the more common spray materials and their purpose.

For Chewing Insects

(Caterpillars, Slugs, and "Worms")

These insects eat leaves or fruit and are controlled by stomach poisons.

Arsenate of Lead

This spray material is more widely used than all others for the control of chewing insects altho the one described below (arsenate of calcium) is now being made in better quality than before and is becoming popular. In spraying orchards it is usually applied in combination with lime sulphur.

Orchard Formula

Arsenate of lead (powdered)	1½ lb.
Water	50 gal.

Garden Formula

Arsenate of lead (powdered)	1 oz.
Water (preferably soapy)	2 gal.

or

Arsenate of lead (powdered)	1 tablespoonful
Soapy water	1 quart

Arsenate of lead is sometimes purchased in a paste form which contains 50 per cent water. If this form is used, the amounts given in the above formulae must be doubled.

Powdered arsenate of lead may be applied dry with a dust gun or mixed with air slaked lime or flour and dusted over the infected

A Garden Memorandum

"What shall I do to kill cabbage and currant worms?" and "How can I get rid of the green lice on peas and potatoes?" are common questions which we never seem to be able to answer often enough.

Insecticides are as important to the amateur gardener as fertilizer, and a small sprayer as essential as a hoe. Nothing is more discouraging than the onslaught of the "bugs" after a row of vegetable gets nicely started. Insects and diseases often cause a loss of nearly everything in the city garden except the early lettuce, radishes, and onions, especially when the garden also suffers from a shortage of fertilizer, cultivation, or water.

Equipment

The atomizer is the most common and most discouraging form

plants. The dust sticks better if applied while the dew is on the leaves.

Arsenate of Calcium

Arsenite of Zinc.

These are cheaper than arsenate of lead but there is some danger of burning the foliage. If used, substitute the commercial form for arsenate of lead in the formulae given above, or not quite so strong, and add an equal amount of unslaked lime. Most of the calcium

A complete, up-to-date spray outfit. Rigs of this type are used in all large commercial orchards.

arsenate on the market is a mixed product containing many inert ingredients. Both these arsenicals are valuable for spraying potatoes.

Paris Green

Paris green is now used on potatoes only, where its strength makes some growers prefer it to arsenate of lead for the Colorado potato beetle. A common formula is

Paris Green	1 lb.
Unslaked lime	1 lb.
Water	50 gal.

Even this strength is often not sufficient if the spray is applied with a sprinkling can, a whisk broom, or a leaky, unsatisfactory spray pump. Use a good spray outfit even if small. If yours is not in good shape double or treble the amount of Paris Green and lime.

Sucking Insects

Sucking insects such as apple aphis, plum aphis, oyster shell scale and San Josè scale do not consume either bark or foliage but suck the sap of the plant. These insects can not, therefore, be destroyed by spraying poison on the bark or foliage. We must attack the insect itself. Spray the insects, not the leaves or bark.

of inexpensive spray pump. The amount of energy used in pumping one of these little sixty cent machines is exceeded only by their surprising conservation of material. Fortunately there is also on the market a type of small sprayer which looks like the ordinary tin atomizer but which sprays continuously and is equipped with a brass nozzle serving to direct the spray up or down as required. This latter form is more desirable, for with the same amount of work one can cover the ground more effectively and rapidly.

For chewing insects dusting may be used successfully, preferably while the dew is on the plants. This requires practically no equipment altho a small blower may be used. Unfortunately no satisfactory inexpensive dry insecticides effective against plant lice and no efficient dry fungicides have yet been worked out. Dusting with powdered lead arsenate, calcium arsenate or arsenite of zinc for cabbage and currant worms and potato beetles is satisfactory especially when the garden is so small that the waste of material is not a factor.

Compressed air sprayers in sizes from one gallon up are satisfactory if the spray material is carefully strained. A large size of this type (3 gal.) is probably the best style on the market for the small truck-garden. The smallest really effective sprayer for home use is the bucket pump and it is the one to get if a few apple and cherry trees are also to be treated. Its disadvantage is the fact that two operators are necessary. For bearing trees an extension rod and plenty of hose are essential.

Sucking insects should not all be grouped together for the control measures used for plant lice and for scale insects are different.

Scale Insects

(Oystershell, San Josè, etc.)

Lime-sulfur, a brown liquid, is used on the infested trees while dormant. Sometimes it is effective against aphid eggs and it also is beneficial against certain fungus diseases when used at this time.

Use one gallon of the commercial concentrated lime-sulfur (testing 32° or 33° Baumé) to 8 gallons of water.

Dry soluble sulfur compounds have not given good results against San José scale in Wisconsin.

Scalecide and other miscible oils are also effective against oystershell and San José scale. They are not fungicidal, however, and do not have the "holdover" effect of lime-sulfur.

Use scalecide at the rate of 1 gallon to 12 or 15 gallons of water. It must be applied only to the dormant trees.

Aphids

Nicotine sulfate

Always use 40 per cent nicotine sulfate against aphids or plant lice if it can be obtained.

Orchard formula

40% nicotine sulfate	½ pint
Soap	2 lb.
Water	50 gal.

Garden formula

40% nicotine sulfate	1 teaspoonful
Water (preferably soapy)	1 gal.

Kerosene Emulsion

Kerosene emulsion is not recommended owing to the danger of burning the foliage. If the nicotine preparation cannot be secured it may be used against plant lice.

Make the stock solution as follows: Dissolve ½ pound hard soap in 1 gallon boiling water. While still boiling hot add 2 gallons kerosene. With a small sprayer, pump the mixture back into itself until a creamy mass results. Set aside until cold.

If pure kerosene has not separated from the mixture after standing, dilute for spraying by adding 10 gallons water to each gallon of stock solution.

Repellants

It is difficult to control some insects, notably both flea beetles and leaf hoppers on potatoes, by insecticides. They may be effectually repelled, however, by bordeaux mixture (see later).

The barrel pump operates on the same principle as the bucket size and is needed for more than a few trees. Double-acting and power pumps are used in a few orchards of the state.

In a word it is easier to get satisfactory large size equipment but every home gardener can find some form of spray pump to fit his purse and need.

Materials

For the back lot and farm garden two kinds of spray material are always needed, with a third if there are fruit trees. These should be kept on hand in a safe

Many a successful orchard is sprayed with a barrel outfit.

place where children cannot reach them, as occasion to use them will arise every year. They are

(a) Powdered arsenate of lead; (or arsenate of lime or arsenite of zinc; the kind of poison is not as important as the thoroness with which it is applied).

(b) Black Leaf "40" (or other nicotine sulfate);

and if you have apple trees

(c) Lime-sulfur solution.

Arsenate of Lead

A general rule is to use the first named, arsenate of lead, either as a dust with air-slaked lime, or sprayed at the rate of a tablespoonful to a quart of soapy water every spring as follows:

Asparagus, for the voracious little asparagus beetles; immedi-

PLANT DISEASES

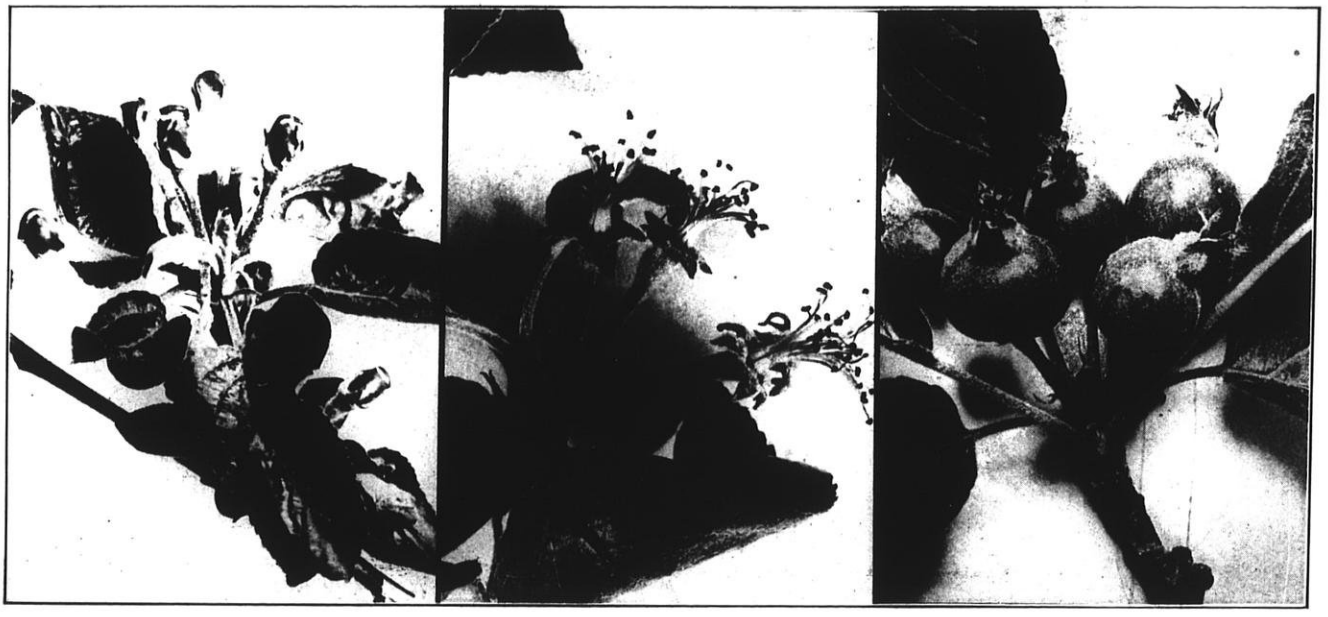
The losses from plant diseases may be largely prevented by taking advantage of one or more of the following lines of attack:

1. **Exclusion.** A harmful disease may be kept away by federal, state, or local quarantine. Example: Potato wart.

2. **Destruction.** The disease "germs" or carriers of them may be destroyed. Example: Burning the red cedars to control apple rust.

3. **Sanitation.** Making conditions so favorable for the plant and unfavorable for the disease germs that the latter can not grow. Example: Burning old plant rubbish, reducing surface water, and increasing aeration to check damping-off.

4. **Protection.** Covering the exposed parts with a film that will kill fungus invaders before they can gain a foothold. Example: Spraying to control apple scab.



First spray when blossom buds show pink but after cluster separates. Second spray after petals have fallen. Two other applications are made later in the season.

5. **Disease Resistance.** Securing strains or varieties of plants that will not succumb to the disease. Example: The Wisconsin Hollander cabbage selected for resistance to yellows. The use of disease resistant plants is most ideal where it can be employed.

FORMULAS FOR SPRAY MIXTURES

Bordeaux Mixture

This mixture was introduced about 1884 at Bordeaux, France, for the control of grape mildew. It is valuable for controlling many leaf diseases as apple scab and potato late blight. The active agent in Bordeaux is an insoluble salt of copper and lime which makes a film over the leaves. It is a preventive, not a cure.

ately after you have finished cutting, repeating as necessary.

Cabbage and cauliflower, for three or four kinds of cabbage worms; shortly after planting; if watched every day, one may wait until the first holes are seen. Repeat the dose every week or two, until after heading.

Currant bushes, for currant worms; as soon as the leaves are half grown and again two weeks later.

For other vegetables and small fruit it is safe to wait until you see signs of some insect work on the leaves, except in the case of potatoes and cucumbers and melons. These require special treatment every year.

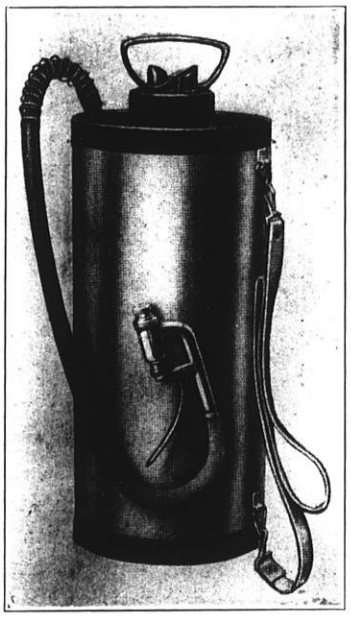
Special treatments

Potatoes; to prevent leafhoppers,* potato beetles, and blights;

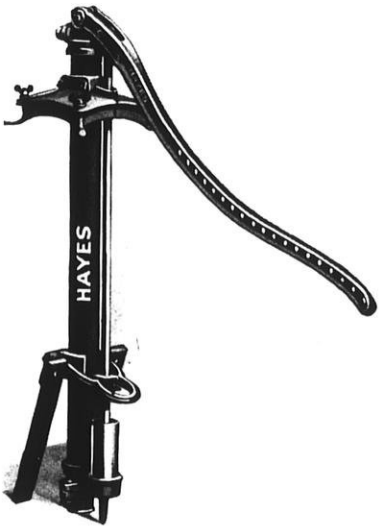
* The value of bordeaux as a leafhopper control was worked out by J. E. Dudley, Jr., at the Agricultural Experiment Station but the results remain unpublished to date.

To make a barrel of this mixture dissolve 4 pounds of copper sulfate in a pail of hot water and dilute to 25 gallons; also slake 4 pounds of fresh stone lime and dilute to 25 gallons. Strain the lime and pour the two dilute solutions together into the sprayer, or pour one into the other while they are being stirred. In any case, do not try to combine concentrated solutions because a very inferior product will result. Apply with a spray pump that will maintain a high pressure and throw a fine spray.

When preparing for large spraying operations time can be saved by previously making stock solutions of copper sulfate and of lime of such strength that one gallon will represent one pound. Then to make up a barrel of spray take four gallons of stock solution of copper sulfate and dilute it to 25 gallons, 4 gallons of stock solution of lime and dilute to 25 gallons. Then combine as before.



Compressed air sprayer; the best type for a medium-sized garden.



Barrel pump.

Stock solutions will keep indefinitely and be of known strength if the height on the stock barrels is marked when through spraying and the water lost by evaporation is made up before commencing to make spray the next time. The preparation of Bordeaux will be more convenient if the stock solutions and dilution barrels are arranged on a platform with water connections so that the sprayer may be filled by gravity.

Cautions. Copper sulfate corrodes iron or steel and should be handled in wood or cement containers. Tinned or galvanized pails are safe if the coating is intact. Stir the mixture while it is being made and in the sprayer.

Note. In statements of the various formulas the pounds of copper sulfate are given first, the pounds of lime second, and the gallons of water third. Example: 4-4-50 or 3-3-50.

spray when they are six or eight inches high and repeat every one or two weeks as needed. Use prepared dry Bordeaux mixture, 7 to 9 pounds, and powdered arsenate of lead two or three pounds in 50 gallons of water, or, in garden proportions:

Arsenate of lead (powdered)—1½ oz. (12 level tablespoonfuls), and prepared Bordeaux mixture (powdered)—6 oz. (24 level tablespoonfuls), to each gallon.

A bucket pump is satisfactory for a few trees if sufficient hose and an extension rod are used.

If there are more than a few short rows of potatoes it is best to prepare the bordeaux at home as described on another page.

To protect **cucumbers** either cover the plants while young or spray with Bordeaux mixture and arsenate of lead as for potatoes. An old effective measure is to dust the plants thoroly and often with wood ashes while the dew is on the plants in the morning.

For **cutworms** use poisoned bran mash or protect plants by a card board collar around each.

Prepared dry bordeaux mixtures are used at the rate of 7 to 9 lbs. in 50 gal. water; if the paste form is used double the amount. These commercial mixtures are fairly satisfactory.

Lime-sulfur

Lime-sulfur has come to supersede Bordeaux in certain of the spray applications on fruit trees because of its recognized fungicidal properties, the fact that it does not cause so much russeting of the fruit, and is more easily made up. It is not applicable to the spraying of the vegetables. The summer strength of spray is secured by using 1½ gallons of commercial 32° Beaume lime sulfur to 50 gallons. Determine the density by using a hydrometer. It refers to the proportion of sulfides in solution. If the reading varies from 32° or 33° an adjustment in the amount of water should be made in the same proportion. Dilution tables are furnished by the spray companies.

Potassium Sulfide

Potassium sulfide, liver of sulfur, is sometimes used to check surface mildews as those on gooseberry and roses where Bordeaux would cause undesirable staining. Make up the solution in the proportion of 4 ounces to 10 gallons of water. It loses its strength if allowed to stand and should be used promptly.

Sulfur

Fine powdered sulphur known as "flowers of sulphur" is sometimes used to dust on plants or to make a paste and apply to steam pipes in greenhouses as a remedy for mildews. It is also effective in controlling red spiders if dusted on the underside of the leaves.

COMBINING INSECTICIDES AND FUNGICIDES

Arsenate of lead and nicotine compounds may be safely combined with Bordeaux mixture or lime-sulfur solution, making it possible to control insect pests and fungous diseases with the same operation. This is especially important in relation to apple scab, codling moth, and apple worm injury. When using arsenate with Bordeaux it should be added to the lime water instead of pouring it into the combined mixture. When combined with lime-sulfur there is a sludge formed in the tank which must be removed from time to time.

Plant Diseases

In considering plant disease control in the home garden it is well to remember that most plant diseases are either introduced with the seeds, carried on old refuse from last year, or brought in by insects.

Diseases which live over winter in the seed like the bean anthracnose can be largely prevented by obtaining disease-free seed. If the seed is saved from pods known to be free from spots there is little danger.

The germs of some diseases are carried on the surface of the seeds and may be removed by seed disinfection. Cucumber anthracnose is an example of this kind. Corrosive sublimate is the best disinfectant and may be made up with one tablet to a pint of water. Cucumber seed should be soaked in the disinfectant 5 minutes; then washed in running water 15 minutes and dried at once.

Diseases carried on old refuse can be largely controlled by pulling up and burning or burying diseased plants immediately after harvest. In addition to this a crop should be grown in a new position in the garden each year. A disease handled in this way is smut on sweet corn.

Leaf spot diseases are produced by many different species of fungi. In cases of severe attacks these diseases can usually be controlled by keeping the foliage protected by Bordeaux mixture as suggested under potatoes. Bordeaux may be purchased in powder or paste form in which case it should be made up into solution according to directions furnished by the manufacturers. The strength should be equivalent to 4 pounds copper sulfate, 4 pounds stone lime to 50 gallons of water. Garden crops most often sprayed with Bordeaux are potatoes for blights, flea beetles, and hopper; cucumbers and melons for anthracnose; and tomatoes for leaf blight. The spray should be applied every one or two weeks as required.

Plant	Disease	Insect	Spray	Time of Application				Remarks
				1st	2nd	3rd	4th	
APPLE Regular Annual Program	Scab	Codling moth, curculio and others	Lime-sulphur 1½ gal.;* and arsenate of lead powder 1½ lbs.; in 50 gal. water	Blossom buds showing pink,* but after cluster separates	Petals mostly fallen	10 days later	Between August 5 and 14 usually	Plow under dead leaves
		Scale Insects (If Oystershell or San Jose are present)	Lime-sulphur, 1 gal. to each 8 gal. water	Before growth starts				Do not use this spray unless needed. It is sometimes effective against aphid eggs also.
APPLE (Special sprays)		Aphids (plant lice)	Add ½ pint (¾ pint for cherries) 40% nicotine sulfate to each 50 gal. in regular spray program when necessary	As necessary				
CHERRY and PLUM Regular Annual Program	Shot-hole or leaf spot	Slugs, curculio, etc. [For aphids, see apple]	Lime-sulphur 1½ gal., and arsenate of lead powder 1 lb., to 50 gal. water	Just after the petals fall	10 days later	After cherry picking if necessary		Plow under dead leaves. When possible apply 1st cherry spray and 1st apple spray at same time.
STRAWBERRY	Leaf spot	Leafrollers and slugs	Arsenate of lead powder 1½ lbs., in Bordeaux mixture 3-3-50.	When leaves appear	After petals fall if necessary			Cut and burn 1 year old bed. Plow under after second year.
CURRANT and GOOSEBERRY		Currant worms	Arsenate of lead powder 1½ to 50	When leaves are well open	As necessary			
		Aphids (plant lice)	40% nicotine sulfate, 1-800	As necessary				
RASPBERRY and BLACKBERRY	Anthracnose		Lime-sulphur 1-8	As buds are swelling but before leaves appear				

* In spraying apples (badly scabbing varieties) greater protection against scab may be secured by including an additional early lime-sulphur spray (1½ to 50) when the first three or four leaves have separated from the fruit buds, and at about the time the leading bud shows the first trace of pink. This is known as the "pre-pink" spray. Additional information can be furnished if desired.

Note.—Bordeaux mixture may, if desired, be substituted for lime-sulphur in any apple scab spray.

The Wisconsin State Horticultural Society

The officers of the Society extend to every reader of this Supplement an invitation to become a member. The fee for a year is ONE DOLLAR.

THREE REASONS

1. Subscription to WISCONSIN HORTICULTURE for one year.

2. A copy of the ANNUAL REPORT which contains lists of recommended fruits, shrubs and flowers; directions for spraying and nearly two hundred pages of papers and discussions by well informed growers, amateur and professional, on practical subjects.

3. The Privilege of Membership. The State Horticultural Society of Wisconsin enjoys a reputation which is not excelled by any similar organization in the world. It is recognized as the chief exponent of practical horticulture in Wisconsin.

The principal expense of the Society work is borne by the State thru an annual appropriation but the prestige, the standing of the Society and scope of its influence depends on a large membership evenly distributed over the whole state. Without members we would become merely a bureau, an insignificant cog in a wheeel of the State government. With a big interested and satisfied membership we constitute a whole wheel. You are invited to join.

Send One Dollar to Secretary State Horticultural Society, 702 Gay Building, Madison, Wisconsin.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, May, 1920 | Number 9

DWARF HORSE CHESTNUT, HIPPOCASTANUM PUMILA

Cultivating Our Native Cyprepediums

Probably none of our native wild flowers are more popular than are those showy members of the Orchid family—the Cyprepediums or Moccasin flowers—also popularly known as Wild Lady's Slipper. The yellow Lady's Slipper of the two species Cyprepedium parviflorum or Smaller Lady's Slipper and Cyprepedium pubescens or Large Yellow Lady's Slipper have been and still are the most common with us but they are now becoming scarce even where pasturing does not prevail. The stemless Lady's Slipper—Cyprepedium acaule which some consider the real Moccasin flower, used to be plentiful in the north part of the county but is now becoming scarce. The small white Lady's Slipper, Cyprepedium candidum, never has been plentiful here in Sauk county and it has always seemed a treat to flower lovers to find the little flowers nestled in the grass of some swampy meadow.

Most attractive of all is the showy Lady's Slipper which we have known so many years as Cyprepedium spectabile but now the botanists say we must call the species C. hirsutum. Thirty or forty years ago there were a number of places where I was certain of finding these showy flowers with their delicate shading of crimson, pink and white. Now I can only make a guess at where they may probably be growing and I won't tell where for I hope to get a few specimens for planting. They do not grow in the swamps with us as I am told they do in some parts of the state. They are probably yet plentiful in the more newly settled parts of the state, but in time pasturing will crowd them out. To encourage those who care to grow the Cyprepedium I here tell of the success of Mr. A. R. Reinking, a merchant in the city of Baraboo.

Last June I received from his father, Mr. A. Reinking, an invitation to call and see the "Wild Lady's Slipper" in bloom. I went and was indeed pleasantly surprised to see the show of flowers of the spectabile species then in their prime, and a few lingering flowers of the yellow species which had about done blooming. They grew on the north side of the house receiving only the morning sun. Some of the plants had probably a dozen stems many having two flowers to the stem. Among the plants and mingling with them were native ferns and various species of early spring flowers such as Blood Root, Hepatica, Spring Beauty, Violets, the showy Orchis and others. The larger ferns extended along the side of the house beyond the Lady's Slipper. I remember there were the two Onocleas—the sensitive fern and the Ostrich fern—the Osmundas or flowering ferns, the Maiden Hair and Lady ferns, the Beech ferns—the slender Cystoperis and the graceful Cystoperis. During a recent interview with Mr. A. R. Reinking, he told me that his first planting was one of the Yellow Lady Slippers during the World's Fair year 1893. The original plant set out nearly twenty-seven years ago is still thrifty and has increased in size from one stem to a large clump. A couple of years later he planted the showy lady's slipper and other plants of the yellow kinds. All of these plants, including the showy kind planted over twenty-five years ago are all doing well and of course have increased in size. During these four years he had passed through high school and then there was an interruption in his planting while attending University in Michigan. After the college days there were occasional additions made but none later than about ten years ago. After the first

Bed of Lady's Slipper, grounds of A. R. Reinking, partial view.

One clump of Showy Lady's Slipper from one stalk. Over 20 years old.

planting Mr. Reinking took up the soil near the house for a foot or more deep filling in with a good clay soil and surfacing with good garden soil. He did this because he noticed that he found all of his wild plants where there was a natural clayey soil with a surface of woods earth. All of his plants were collected while in bud or in bloom because then was the time when he could find them. He always took up a fair amount of soil with the roots and has always had success in planting the two kinds—the yellow and the showy. Some years ago he collected and planted the stemless Lady's Slipper. They grew and bloomed for a few years but finally dwindled away. He has occasionally given the bed an addition of woods earth to the surface and a couple of times gave a light dressing of thoroughly rotted manure from the henyard. Every fall at the approach of winter he gives the bed a mulching of leaves, and in the spring leaves most of them for the plants to come up through. He has never divided the plants but thinks it could be successfully done.

He finds that some people are unpleasantly affected with handling the leaves, much like the irritation from poison ivy or primula obconica. He has not been in the habit of cutting or taking flowers from these plants but thinks the practice would cause no harm to the plant if carefully done. There is such a growth of plants in variety growing together there can be no stirring of soil between. An occasional thinning out of some kinds of plants is necessary especially with the violets. As he has city water convenient it is not probable that Mr. Reinking allows the plants to suffer in a dry time.

The location is not exposed to sweeping winds. Any one having a location which could be given partial shade and protection from sweeping winds could have the same success with these popular flowers as has Mr. Reinking.

William Toole.

Plant a good supply of annuals for cut flowers in the home this year. Sweet peas, nasturtiums, phlox, zinnias, candytuft, and mignonette are all good.

YELLOW LADY'S SLIPPER

My Neighbor's Garden

When I went over to see my neighbor the other evening I found him with a copy of Wisconsin Horticulture reading my latest notes, and perfectly good natured. So much for a little extra attention.

It occurred to me that there was a lot of transplanting to be done in the garden he had laid out for me, and I wanted him to tell me how to do it.

"If you realize what you are doing, you'll have no trouble in transplanting things," he told me. "Most transplanting troubles disappear when you use your brains. If you don't use your brains the result is just the same as if you hadn't any, and in that case you needn't try to be a gardener. To transplant things successfully you must get the plant into the ground with the least possible interruption to its process of growth. If you can take up soil enough, and get it into the place you want it without tearing the roots or loosening the soil, you should succeed if the plan is a suitable one. In most cases you cannot do this, so you do the best you can to approach this ideal.

If you buy plants they generally come to you without any soil to speak of. When they come put them at once in warm water —not hot, but so it is just warm to the hand, and get them into the earth as soon as possible.

Examine the roots carefully, unless they are small and thread like, and if in digging the roots have been bruised or torn, cut off the bruised part with a sharp knife making a clean cut. Spread out the roots working the soil well between them so that each root, so far as possible, is surrounded by soil, and by fine, moist soil. The finer it is the better. It must not be dry and it does not need to be soggy or wet. What you should try to do is to get the plant into fresh soil with its roots as nearly as possible as they were where it grew originally. If it was in a pot and the roots have grown to conform to the shape of the pot, leave them as they are rather than try to straighten them out, for if you try to straighten them out you will surely tear the delicate feeding rootlets. If the roots are all in a bunch, growing in a circle from the crown or main stem, you can spread them most easily by making a conical mound in the bottom of your hole and spreading the roots evenly on all sides of it. The hole should be larger than the roots so that there will be plenty of fine soil all about them for them to penetrate while they are regaining the vigor lost in transplanting operations.

The depth at which the plant shall be set is important. Generally speaking it should be set just a little deeper than it was in the seed bed or if it is a mature plant just about as it was before with an allowance for the natural settling of the soil. If it is a young plant set so that the lower leaves are just clear of the earth. If it is a plant of which the foliage dies down in the winter, like the peony, set so that the eye will be well below the surface. If it has a fleshy root or a bundle of roots from which a crown of leaves starts, like a primrose or a strawberry set it so that the crown is just about even with the surface. If you are transplanting in the fall compact the earth so that water will drain from the plant, in spring and summer so that water will drain towards it unless your soil is naturally damp.

No matter how careful you are you are sure to injure the delicate feeding rootlets of the plant, and if you don't do something to counteract this your plant will suffer. The leaves of the plant give off water constantly and if this is not supplied by the roots the plant dies. The more leaves the faster the evaporation. The moisture of the soil is taken up by the feeding rootlets, not by the big roots. In digging the plant the rootlets are either broken, or the intimate contact between the soil and the rootlets has been disturbed so that it cannot supply the water required to prevent withering. What's the remedy? Isn't it obvious? Cut off leaves enough to somewhat sustain the balance between absorption and evaporation. If you think half the rootlets have been injured cut off half of the leaves or more. You are less likely to cut off too many, than to leave too many on. For the same reason newly transplanted plants should be shaded from the sun. Use anything that will keep the sun off them, but will not smother them for they need some air. The ideal thing is a common flower pot inverted over them. This keeps off the sun, lets in the air, and being porous does not get as excessively hot in the summer sun as a tin can would. A shingle put in at an angle, a pie-plant leaf kept in place by lumps of dirt, an old hat or even a discarded easter bonnet, can be used if pots are not available.

Should you use water in transplanting? That depends. If you use brains, you can use water, or not as it is most convenient.

Ordinarily it is not necessary, but if you can't get plenty of good moist soil without too much difficulty, then use water. If you use water you must have plenty of fine earth. Pour the water into the hole, plenty of it. Put the roots of your plant into the water and move it about to spread out the roots. Then sift in continuously the fine earth, working the plant up and down so as to bring all the roots in contact with the mud. Put in only enough earth to come within an inch or more of the original surface. When all the water has been absorbed cover the hole with fine earth slightly rounded to allow for settling. Don't press it down at all or you are likely to have the roots of your plant encased in a hard ball of mud. The danger in using water, if your soil is clayey, is that just this will happen, but if you are careful and keep the top soil about the plant stirred, and the cracks filled, that the roots will probably get out of the ball and into the adjacent earth.

If you don't use water then you must be careful to see that the earth is quite firmly compacted about the roots of the plants, and the top soil quite firmly compacted over them, or they will dry out before the rootlets can establish connection with the soil. This doesn't mean that the top layer of soil must be compact, for after you have pressed the soil down about the roots as hard as you can it is best to spread an inch of loose soil over the top of the hole to act as a mulch.

The time of transplanting doesn't so much matter if the soil is in good condition. It's best not to try it too late in the fall, though it could be done, or in the midst of a summer drought, for it's not so easy, but it can be done even then.

How big should the plant be? It doesn't make so much difference provided it's young. In fact a young seedling will survive under very adverse conditions and will stand treatment which would ruin an older one.

Don't think you can transplant anything and everything. You can't. Most plants cannot be transplanted when in blossom or in vigorous growth unless you can get a ball of earth which will take in all the roots, and some have such an extended and such a delicate root growth that this is practically out of the question. The best time is while the plant is dormant, that is, is not making growth, and it may be either in the spring before growth has gone very far or in the fall after growth has stopped, if it stops early enough to let the earth get well compacted before frost. This, of course, does not apply to seedlings, which, however, should be transplanted very early, at least before the flower stalks form.

If the plant is a perennial and is to remain permanently where you set it, you should see that it has a good supply of food within easy reach of its roots. If the soil is shallow dig out a good deep hole and fill with good earth with well rotted manure worked in, or if you can't get it, then powdered sheep manure can be used but should not be in contact with the roots. Bone meal is better, if it can be procured, as there is less danger that it may injure the roots.

Cucumbers and melons may be fed by pouring liquid manure into holes near the plants.

A. P. S. News

The executive committee of the American Pomological Society met in Columbus, Ohio, March 24th.

The sub-committee on Ways and Means failed to report and the full committee took over their task of providing funds for carrying on the work of the Society.

The plan of issuing debenture bonds was approved and these will be offered to members in the near future.

A vigorous campaign for increasing the membership will be prosecuted.

A publication to be known as the "Bulletin" of the A. P. S. was authorized and Frederic Cranefield was elected as editor. The Bulletin is to be merely a news letter for members rather than a magazine or journal.

The date of the next annual convention and fruit exhibit was fixed for Dec. 1–3, 1920 at Columbus, Ohio.

President Bailey will arrange for the publication of a year book, as separate from the regular annual report, which will record the progress of pomology in all lines during the year 1920. Under President Bailey's direction this cannot fail to be a valuable book. It will be sent free to members.

Wisconsin still lacks over fifty members to complete its quota of one hundred promised by your secretary. If you are an amateur you will enjoy membership in this big national organization; if you are a grower of fruits for market you cannot afford to be on the outside.

Two dollars will make you a member. Send the fee to Prof. L. R. Taft, East Lansing, Michigan, or to this office.

A Life Well Begun

Editor Wis. Horticulture: Replying to the notice in the March number regarding Honorary Life members, I wish to express to the members of the society my thanks for the honor bestowed. There seemed to be no opportunity to say anything at the annual meeting, so I have waited for the notice of the action then taken.

I have always tried to be a good member and one to help where opportunity offered. Perhaps my fellow members would like to know who Irving Smith is that he should be among the honored few.

I was born in Green Bay, Wis. Dec. 1st, 1860. My father, J. M. Smith, went into the civil war a strong rugged man and returned a physical wreck so far as any kind of hard work was concerned. He had been doing a little gardening, so in 1865 he started gardening as a business.

When I was 14 years old father said to me "Irving can't you take care of the hotbeds?" and I did. We had then probably 75 to 100 sash and a number of cloth covered beds and made more later. At 18 I was the best hotbed man around there and I think as good as any in the state. From that time I turned over most of the actual work to others and I went into the garden as foreman. We were then cultivating about 30 acres.

Soon father began traveling a good deal, leaving the garden to me. I took care of it well enough so that the garden was frequently spoken of as the finest garden in the northwest. Of course father always went over the place frequently and made suggestions.

Father died Feb. 20, 1894 and the garden was continued for 13 years longer as J. M. Smith's Sons. In the winter of 1906–7 I negotiated a sale proposition with a Chicago real estate man, and in May 1907 we put on a sale on the long time small payment plan and sold 204 lots in 6 days. Two months later, July, I moved to Ashland with wife and two children, 4½ and 6 years old, to take up work as Supt. of the Industrial dept. of Northland college. In 1910 I resigned my position with the college to start "The Golden Rule Garden." It had been my belief for many years that the golden rule is the only proper basis on which to do business and so I tried it out where I had no one to say no, and it works admirably. In starting my present business it was with the openly avowed purpose of showing the people of Ashland that vegetables in good variety could be successfully grown here.

The piece of land I bought is very similar to most of the clay land here. The man who did my plowing for the first two or three years insisted that it was the worst blankety blank forty of land in Ashland county. After ten years of hard work in developing the place to its present condition, I am not ashamed to say that I have made good on my statement to show the people good vegetables. Seveal of our members have been on the place and gone over it. While it is far from perfect, I think they will bear me out in the above statement.

As to the State Society, I think it was the summer of 1894 that I cast in my lot with you. Since that time to the present I have never sought any office but have had some official place a large part of the time. It has been my fixed policy to do whatever the president or secretary asked if it seemed reasonably possible. I was one who insisted for years that we must hire a secretary to give his whole time to the work if we were to accomplish much.

While I have never given very much time to writing for publication I have written quite a good many items for various papers and have at least two articles in L. H. Bailey's Cyclopedia of Horticulture.

Again thanking my fellow members for the honor you have bestowed I am,

Yours truly,
Irving C. Smith.

Ashland Notes

Snow is gone in the fields. Ice is getting honeycombed in the bay.

There is very little frost in the ground, and none in the lower parts between lands. Underdrains are working in fine shape.

Clover and alfalfa look green as last fall.

Orchard seems in good condition.

Grass is starting in favored spots. Looks like an early spring.

Irving C. Smith,
Mch. 29.

Growing Onions

H. C. Christenson, Oshkosh, Co., Wis., in Market Growers Journal

We grow our ripe Onions from seed sown directly in the field. They are usually grown on the same soil for a succession of years. They require an especially fertile soil, rich in humus, and the heavy application of manure seems to improve the soil from year to year.

Preparation for sowing is made the fall previous when a heavy coat of manure is plowed under.

Our soil is a black loam, underlaid with red clay, and, as it is not underdrained, we plow in rather narrow beds. During the winter a top dressing of spent hotbed manure is applied.

In the spring, just as soon as the land is dry enough to work, it is thoroughly worked with the spring tooth harrow and then a smoothing harrow is used and, last, the soil is leveled with a planker or float.

The seed is sown about one-fourth inches deep in rows fifteen inches apart. We sow the seed thickly so that there will be from twelve to fifteen Onions to the foot as they stand considerable crowding if the soil is fertile and they are given good cultivation. We never thin them.

As soon as the Onions show in the rows we go through them with a planet Jr. wheel hoe and keep this up every week until the tops get too large. We alternate with the knives and teeth, thus keeping the soil more mellow.

We use boys and girls for weeding. We live in the suburbs of a manufacturing city where the children almost invariably say "our ma" and "our pa," when speaking of their parents, so we always have plenty of this kind of help, and it is efficient, if rightfully handled. We only work three or four hours at a time and go through the Onions early and often, before the weeds crowd, as children dislike very much to work on a weedy row.

When most of the Onion tops are down the Onions are pulled and just as soon as the tops are dry we have the children top the Onions into bushel crates and they are then stored in these slatted crates in the barn or an open shed until hard freezing weather.

Our Onions are all sold locally, grocers handling the bulk. Nothing but a yellow Onion is used in this vicinity, there being no sale whatever for red or white ones. Yellow Globe Danvers is the favorite variety.

We use sets for early bunching Onions but have never had any success in growing ripe Onions that way, as every set larger than a pea will run to seed. I have been told that they do not do this farther south. I have a brother who lived in Kansas a number of years, and he said it was a general practice among farmers there to raise their Onions from sets and that sets up to the size of hickory nuts would produce good Onions. Last year a woman who had come from Tennessee wanted to know why her Onion sets all went to seed here.

We also raise a few Onions for exhibition purposes by sowing the seed in flats in the greenhouse in February, transplanting to the field as soon as hard freezing weather is over.

The grocers claim that the Spanish Onions grown here are not of as high quality as those grown in the South, and that they are stronger and not as sweet. As my taste does not lie in that direction, I am unable to prove or disapprove this statement.

Late in the season we sow Endive, Chinese Radish, Lettuce and Turnips between every other row of Onions and as soon as the Onions are harvested these late vegetables are cultivated with the horse and in this way the ground is kept free from weeds and these late vegetables often prove quite profitable.

About Heading in Apple Trees

Is it a good plan in a bearing orchard, fifteen years old, to cut off ends of limbs and tops of trees to make a more sturdy tree and confine the tree to growing fruit instead of getting such long branches. I have been told to cut off most of the last year growth. Will this promote growth of watersprouts?

"In general it is a good plan to do some heading back on trees of 15 years of age. This may cause the tree to be more fruitful but the principle object in this type of pruning is to improve the light condition in the lower part of the tree and to reduce the height so it is easier to harvest and spray. Water sprouts and suckers will come up close to the cut if care is not taken to make the cut at the proper place. If a limb is cut back to small spurs or branches, suckers and shoots will quite certainly be produced. If the branches are headed back to a fair sized lateral it is unusual for many suckers to be produced."

The Globe type of onion is the best for all purposes since there is less waste in preparing it for cooking.

Cheap labor in the garden is often the most expensive in the long run. Better hire good help at a fair price than cheap help at any price.

Popcorn is easily grown either as a part of the farm garden or on a city lot. A space forty by fifty will give at least two baskets of fine quality corn. White rice is the best variety to use.

Wisconsin Horticulture

Published Monthly by the Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Inside Information

The fee for annual membership is now One Dollar. Some members are forgetting about the change and send fifty cents. Sometimes I think it isn't always a lapse of memory.

Both the March and April issues were 24 page papers and in April an eight page supplement. This may not hold out all year. If the membership list grows the advertising will grow and as the fees received for both grow the paper will grow; kind of a sprouting game all around. Send in a new member now and then and watch Horticulture grow.

The Society now embraces 700 bee-keepers in its membership list hence the bee pages. Mighty interesting reading even if you are not a bee-keeper, don't you think so?

If you have been successful in growing fine flowers or vegetables tell how you did it. One hundred words will often be enough to tell the story. You owe this much to your fellow members.

A few copies remain of the Feb. 1919 garden supplement. This is a complete manual on gardening. Send for one if you need it.

West Allis has a new local—the W. A. Horticultural Society, organized March 27th with 27 members and more to follow. J. M. Barr was elected president and Miss Gertrude Bailey, secretary. The organization of this local does not in any way affect the activities of the W. A. Garden Club, a smaller organization limited to 16 members, which has a special field of work.

Other locals affiliated with the State society and number of members in each are as follows: Oshkosh 50 members; Manitowoc 30; Bayfield 11; Lake Geneva 26; Madison 19 and the Milwaukee Florist's Club 52 members; The Sauk County Horticultural Society 49 members.

The Wisconsin State Cranberry Growers' Association 61 members and the State Beekeepers' Association 702 members are auxiliary societies.

An advertisement in Wisconsin Horticulture at 70 cents a column inch is a good investment, because we reach the right kind of people. Try it.

There are only a few copies left of the 1918 Annual Report and these are reserved for new members. When your neighbor drops in show him your copy and your Wisconsin Horticulture and ask him how about it.

Friends of Our Native Landscape

J. A. Hazelwood

Everybody truly loves the out-of-doors. Thoreau tells us of the importance of a keen appreciation of nature's beauties. He says that the in-door life breeds insanity, and that the house is in a limited sense a hospital. The world outside is a panorama, the greatest of all movies, and man should learn to know and love the hills, valleys, fields and the wild flora and fauna, if life is to be rich, full and complete. Too few of us know the common stars and constellations above us that talk to nature lovers in the evening; too few of us know the names and characters of the common wild trees, shrubs and flowers; too few of us know how to enjoy the beauties of landscapes we have on all hands in the state. Any agency that will bring about more of an appreciation of the aesthetic should be encouraged.

Wisconsin needs at this time such a society to help awaken an interest in beautifying the highways; to improve and enlarge the state park system; to preserve streams with their adjoining bluffs; woods of the white and Norway pine; woods of birch and woods of maple; the ravines and canyons with their rare trees and ferns; ponds and swamps where the water birds make their haunts, and many plants find their homes, mounds with their

mute testimony of the race long since gone; native monuments of historical interest that will tie the present and future generations to the past and serve as playgrounds for the people and the homes of wild plants and animal life of our native state. A lot of people banded together for the purposes above set forth can accomplish inestimable good for Wisconsin.

Purpose

Friends of our Native Landscape will desire those to join them in their work who feel that the beauty of the out-of-doors has its importance in character building and is of value in the future development of the race; those who believe that pilgrimage to the native landscape has a restoring influence upon soul and body; those who believe that these bits of native expression are a real part of one's spiritual life; those who believe that there is a mission in thus disseminating knowledge and appreciation of the out-of-doors, so that the coming generation may grow up in a full understanding of nature's beauty; all these are urged to join the ranks of the Friends of our Native Landscape.

Chicago Society

It is not expected that the society will meet many times during the year. The organization will meet only when and where the opportunity or convenience of the greater number permits and desires. There will be pilgrimages made to various places of natural beauty and historical interest about Madison and the state. The Chicago Society of Friends of our Native Landscape have what is termed "The Festival of Wild Crab Blossoms" and the festival known as that of the "Falling Leaf." A pilgrimage into the wintry landscape with a feast of starlight and a council fire afterwards completes the state gatherings of the year. The Chicago Society once made a pilgrimage to Holy Hill in Wisconsin, and those who made that trip have ever since that time been speaking of the beauty and wonder of Holy Hill. One year the same society made a pilgrimage down the Rock River in Illinois from Rockford to Rock Island. Many other pilgrimages were taken by groups of the society to interesting scenic and historical places.

Nature Lovers' Field

Those who love the world of out-of-doors, the hills and rivers, valleys and woods, the broad plains and lakes, should unite in this new movement. It will mean a refreshment of the spirit and will broaden the horizon of all those who participate. Wisconsin with her rolling farm lands, her hills, her river regions, her dells, her thousands of lakes, with forests and tall pine and sturdy oak, her many places of historic and scenic interest, furnishes a splendid field for the work of a society having the purposes of the Friends of Our Native Landscape.

The Prediction of Frosts

Ralph M. Beckwith

From the very beginning of the fruit-growing industry the horticulturist has had to combat frost as one of his most formidable enemies. Not only in temperate climates, but even in semi-tropical regions, does this malefactor creep upon him in the nighttime, killing the tender buds and young fruit, and leaving the grower discouraged, but impotent to repair the ravages wrought upon his crop. Millions of dollars have been lost annually due to frost damage; a large part of which could not have been saved perhaps, but another part of which undoubtedly could have been preserved. Frost damage can be controlled to a greater or less extent, but in order that it may be controlled to any extent, some knowledge must be had of when to expect the frost.

If it were possible to have a trained weather forecaster on every farm, then the matter of frost prediction might be left to him, but the farm would have to be a large one to permit of such an arrangement. The Government predictions may be applied to large districts, but owing to the wide variation of local conditions the grower must be able to make the simpler ones for himself. Elevation, slope, and proximity to large bodies of water exert such a marked influence on the climate of a place that, in such a state as Wisconsin, any generalization of climatic conditions is of little value to the practical farmer.

"Frost is commonly defined as the moisture of the air condensed at freezing temperatures on plants or other objects near the surface of the earth." It is evident, therefore, that the temperature of the surface upon which frosts forms must be at or below 32 degrees Fahrenheit. Since it is the formation of ice in the intercellular spaces that causes the damage in plants, the temperature of the plant is the determining factor, and not the appearance of ice on the exterior surface. The condensation

Continued on page 166

AMONG WISCONSIN BEEKEEPERS

Devoted to the Interests of The Wisconsin State Beekeepers, Association

H. F. Wilson Editor

Better Keeps For Beekeepers

Keep good Italian strains, REQUEEN every year.
Keep strong colonies and European Foulbrood you will never need to fear.
Keep plenty of stores for the Bees
Keep them protected so they won't freeze.
Then give the bees plenty of room and they will store the honey,
Lots of bees, lots of room, good protection , lots of honey—lots of money.
Money makes the mare go, also the auto
It also permits the beekkeeeper to go.
Then let the bees pay your way,
Come to the BEEKEEPERS' CHAUTAUQUA, MADISON, August 16–21, 1920.
Meet with us at the State Beekeepers' Convention, **Dec. 1, 2, and 3, 1920.**

Practical Beekeeping Extension Work

By A. Swahn, Ellsworth, Wis.

Some time ago, I received an invitation from Mr. H. F. Wilson to give a talk on some branch of beekeeping at the Beekeeping School and Chautauqua at Madison in August. I appreciate this invitation very much and at that time fully expected to be there, but find it next to impossible to get help to take my place here at this time, so the very best I can do is to make an effort to give my ideas in writing. I have asked Mr. Wilson to kindly read my paper in my stead.

The subject assigned to me is "Practical Beekeeping Extension Work" and I will try to make my subject as brief as possible.

In the past I have not been fully satisfied with the extension work done in this state, and Mr. Wilson and I have had correspondence on the subject before. Lately, however, I am pleased to say that huge strides have been made for the betterment of this branch of the work.

Our present Beekeepers School and Chautauqua is a move in the right direction and will be of untold benefit to the advanced beekeepers of the state who will attend. I am heartily in favor of it and think it should be developed to the limit. There are, however, two branches to this extension work. One is the advanced branch like our present Chautauqua and the other is the primary branch which cannot very well be taken up at these meetings. The primary branch of this work is the one in which I am mostly interested at the present time. If we are to get the greatest benefit from any such extension work we must begin at the bottom and work up. I claim that it is the careless and poor beekeepers who need the most assistance. The modern method men will work things out for themselves and modernize their work to the best advantage.

Our present Chautauqua is in reality a post graduate course for our experienced beekeepers, and it will do them a vast amount of good. There are, however, a great many small or side line beekeepers who cannot or will not attend these meetings owing to lack of time for one thing and to lack of comprehension for another. A great many will feel that the talk and work in this course will be beyond their understanding. It is a sad fact that a great many so called beekeepers are in reality only bee owners and care for their bees by the ancient methods of their grandfathers. Many of them have neither books or magazines on the subject and know absolutely nothing about the inside workings of a bee hive. I recall that a short time ago an old bee owner of 40 years' experience came to me and asked what a queen cell looked like. This makes us think that a great many such men simply put the bees out in the spring and back in the cellar in the fall, take what little honey they get and let it go at that, and if the amount is not what they think it should be they complain about it being a poor year. All years are poor years to such men.

My idea is to do either one of two things—discourage these ancient method bee owners and get them out of the way or educate them to more modern methods. Their ancient methods are a menace to those who try to be more modern in their work. It is very discouraging indeed to be continually surrounded with foulbrood and foul methods of all kinds. The conditions under which honey is handled in some apiaries are not only insanitary but disgusting. These conditions and insanitary methods in no way advances the industry of beekeeping and honey consumption in the minds of the public.

I fully sympathize with our inspectors and extension agents and realize that theirs is not an enviable vocation. Inspectors come and go and still nothing is done (here at least) to remove the menace of foulbrood and other foul methods. Most beekeepers dislike very much to report a neighbor beekeeper even if his apiary suffers from disease transmitted to his colonies. My idea is that our inspectors should insist on having every apiary cleaned up and if this is not done in a reasonable time by the owner steps should be taken to have it done by someone else.

I fully realize that it is impossible for our inspectors to do all this detail work, and think they should be given full authority to appoint deputy inspectors in every county and through them should see to it that this work is done in a proper manner. Enforcing the law as above stated should of course be done only as a last resort, and before this is done every means should be employed to reach the personal pride of the bee owner and to educate him to voluntarily adopt more modern methods or get out of the business. The best way to reach these men is through the medium of their pocket books. They should be shown how they can make more money by modern methods, and they should be shown how to do some of this by actual demonstration and assistance.

It is all very nice to try to make ourselves believe that we are in the business strictly for the love of it, and for the pleasure and benefit derived from the fresh air and stings, but there is a doubt in my mind whether many of us would be quite so enthusiastic if we did not expect to make a little money out of the business.

In business I have found that the best sales talk is price and quality. In beekeeping nothing will appeal or arouse one's enthusiasm like the anticipation of profit together with the pleasure and health derived from the business if conducted by modern methods.

Now in order to make my ideas plain I am going to find fault with our extension work in the past. I hope our inspectors and extension agents will pardon this, as I have no intention to find fault with them personally as they cannot do differently in the time given them by their superiors. It is these superiors and bosses that I am after and what I think is their faulty methods.

In the first place it seems that the instructions given every inspector and extension agent is to "speak their little piece" and get out as soon as possible, and to see how many places can possibly be visited in a given time. I realize that this is an age when speed counts, but there are a few exceptions even to this rule, and this is one of them where haste should be made slowly. This Chautauqua work is one of the best moves ever made, and it is just like a college for professional men—it is a good place for experienced beekeep-

ers to take a Post Graduate Course.

The novice or farmer beekeepers will not as a rule attend this Chautauqua because the work taken up will be too far advanced for them to comprehend. It will be very much the same as a primary school boy attending a teachers institute—he would not get much out of it. The bee owners who are the real menace to modern methods cannot be reached by the present methods of instruction. In the practice of medicine a physician will quarantine a contagious disease and keep it within certain bounds, but in beekeeping this cannot be done. More radical methods must be employed if necessary, and all this must be shown to the ancients in the business.

It would be quite tiresome for the experienced should the speaker spend much time explaining what a queen cell looks like or how to find the queen or how to graft a cell and many other such primary matters. Nevertheless, that is exactly what should be done in order to make beekeepers out of the present bee owners. They should first be given the A. B. C. of bee culture together with a sprinkling of the financial possibilities of the business in order to get them interested. Too much of the X. Y. Z. or advanced work should not be taken up as it will confuse them and make them think it is too deep for them to comprehend and master. Lead them up to it gradually much the same as a school boy is led up the educational ladder—step by step. In order to carry out my ideas it would be necessary for the extension agent to remain at some central point for at least a week, and to classify the work and to take up certain subjects each day so that all classes of beemen can select the days best suited to their understanding of the business, if they should not care to take in the entire course. The work so arranged would benefit not only the novice but the expert as well. More good will be derived from one week of such work in any locality than from years of work by the present system.

By the proper effort and encouragement on the part of the extension agent and his "Bosses" some beekeepers in every county can be induced to put his apiary in model condition and by holding the meetings at these apiaries results will be obtained through the medium of personal pride. After seeing how a model apiary looks and what can be eliminated by modern methods it will be a very poor stick of a man who will not try to improve his methods.

The novice should be shown how to proceed in order to get the proper knowledge of the business. He should be advised to buy the proper books and magazines, and told how to study them. A question box should be used at every meeting, and all questions should be taken up and made plain both by explanation and demonstration. Do not confine these meetings to some comfortable room or hall. Let us pull our coats, put on our veils and light our smoker and get right among the bees and show the novices the inside workings of a bee hive.

By a little advanced preparation the apiary at which the meeting is to be held can be made ready so that queen cells will be available and instructions can be given with them in many ways which might be of assistance to the expert as well as the novice. Pages might be written of the details of the useful work which could be done at these meetings but that is unnecessary now. If these suggestions have any merits and if I can be of any assistance in any way in the development of better beekeeping methods I will put my shoulder to the wheel and do the best I can. I thank you and hope to meet you all in person at some future date.

Out-Yard Advantages

It appears to me that every beekeeper who wants to make a success of beekeeping on a large scale must have more than one yard of bees. If a beekeeper in my locality was confined to one yard he would not be able to keep more than about 200 colonies, and not that many if his neighbor chose to keep some.

I know of a man who has 400 colonies in one yard and does not get any more honey than others do from a yard of 200. I mention a yard of 200 but I prefer a yard of about 100. A few years ago when there were about 75 colonies of bees in my neighborhood, I usually averaged over 100 pounds per colony. Later when the number of colonies was increased to over 200, my average yield fell off about 10%—300 pounds surplus light honey and about 400 pounds dark honey. The yield of the light honey was small on account of the weak condition of the colonies in the spring. Therefore, I cannot make a true comparison on the light honey.

With the dark honey I can compare two yards, and they stand like this. Ten colonies in one small out yard yielded 40 pounds per colony and in the home yard where the bees were crowded the yield was 13⅓ pounds per colony. This extra honey came in handy indeed when I could not get sugar for fall feeding, and would have had to feed light honey. If I had had as many colonies in the out yard as in the other, I would have received about 2,400 pounds of dark honey and at 18c per pound would have been $432. So the safest way is to have two or three yards to be in the best locality possible.

I know of some bees that are kept in such poor places that it is a wonder that they get any surplus honey at all. These bees could be moved a few miles and be in a fine location surrounded by pasture land and fields of Alsike clover. Another factor comes in manipulation when raising queens that are to be mated before putting them in colonies. Have a super divided into 6 separations with holes bored through so as to have six entrances, three on each side. Have corks for these holes so they can be closed easily. On the bottom have a screen nailed tight. Place some partly filled sections in these compartments and when young queens are hatched, shake some bees in each of these compartments and put a young queen in each one. Then take this hive to an out yard and set the super on top of another colony. The heat from the colony will keep these small nuclei warm and the bees will stay because they cannot return to their old place and each young queen will have time to mate.

A convenient way of transferring bees from one yard to another is to have a Ford roadster. These are the only cars that I know of in which the back can be removed and a box easily attached. The box I have is on inside measurements 37 inches wide, 70 inches long, 10 inches high. And side rack 10 inches so that I can haul 12 colonies at one time, 6 to a tier.

The combined weight will not exceed 900 pounds at the most. My car is good for 1,000 pounds and when not loaded is very light and one can quickly go from one yard to another. Of course, if one is working out yards extensively, a larger and more expensive truck is better.

Charles Duax,
Chippewa Falls, Wis.

Grading Wisconsin Honey

Continued from April

The standards as published provide for three grades of comb honey and one of extracted. In either case the color is to be marked separately from the grade. Either comb or extracted honey may be marked with the single word "Ungraded" and sold at any time without stating the color or attaching any other label.

Comb honey designated "Wisconsin Fancy" must be the highest class clean table honey in the best grade clean sections and with all the cells capped over except the outside row next to the wood. This grade will probably be produced only by comb honey specialists and only a small percentage of the total crop will be included. Sections of "Wisconsin Fancy" must weigh at least 12½ ounces net.

Wisconsin No. 1 will be the ordinary high quality honey in which all the cells are sealed except not more than six on each side beside the outside row next the wood. Sections will be well cleaned and well filled. Slight travelstain permitted, ten cells on each side may be off color, and sections must weigh 11 ounces or more net.

Wisconsin No. 2 includes all other honey which should be placed on the market. Sixty cells may be unsealed beside the outside row and there are no requirements in regard to even capping or the attachment of comb. Sections must weigh at least 10 ounces net.

In each grade every section and case is to be marked with the grade, the color, and the packer's number which will be explained later.

Only one grade is provided in extracted honey, to be known as "Wisconsin No. 1 Extracted Honey." This consists of well ripened, well strained honey in new containers, and weighing 12 pounds to the gallon. Each container must be marked with the grade, the color, the net weight, and the packer's number.

Complete information in regard to these grades may be obtained from the Division of Markets, State Capitol, Madison, Wis.

Every beekeeper who wishes to sell or deliver any honey under these grades is required to secure stamps from the division of markets. These will be purchased wholesale and supplied at cost. Numbers will be assigned by the division in the order of receipt of the applications. Each beekeeper will then be responsible for the correctness of the grade of every container on which his number is used.

A feature of the hearings and correspondence which was a surprise was the fact that no opposition to the establishment of grades was expressed by anyone. Several were anxious to be permitted to sell all or some honey ungraded but no opposition to marking it so was encountered. The only requirement affecting the small beekeeper who does not wish to grade his honey is that every section or can shall be marked "Ungraded" with a stamp or in any other convenient way. This relieves the regulations of any burden they might bring.

In providing for state grading the beekeepers have shown that they are ready to advance a step whenever conditions warrant and are anxious to do their share to making Wisconsin honey take the place it deserves on the national market.

Keep plenty of dishes filled with water about the yard if you want bird neighbors.

Queen Rearing

(By Kennith Hawkins)
(G. B. Lewis Company)

In this paper we will stress the essentials of practice commonly used by better breeders of queen bees. Really good queens cannot be reared by less intensive methods, and when you have listened to this outline, you should be able to raise good queens for your own use. If you do not intend to follow at least these simple methods in detail, do not try queen rearing; much better queen bees can be purchased from reliable breeders who can afford to insure all these conditions.

Bees rear queens under three conditions: 1—To replace a lost queen; 2—To prepare for swarming; 3—To replace a failing queen. Beekeepers have observed for years that the best queens are reared under supercedure conditions. Let us see why this is.

Bees are animals, but they differ from humans, horses and most other animals with which we are familiar. This is because a bee emerges from the cell with a life store of energy and supply of muscle. Bees consume food, but very little of it goes to replace worn muscle and when a bee is once worn out, she cannot sleep and eat, like a human, and regain that strength. Bees, emerging with their life store of strength are as strong at that time as they ever will be. It is impossible for them to better their conditions materially. Thus it is of the **utmost importance that queens emerge with a real maximum of strength,** since the queen is the most important bee in the hive. Supercedure tends to produce queens of this sort because of the excess of food and attention they receive as larvae at that time; we know that good queens are reared that way.

The Condition of Supercedure

Let us examine the condition of the hive at the time of normal supercedure, to see how we can approximate these conditions in rearing our own queens. We must study these phases of bee behavior if we would succeed. Supercedure usually comes shortly after the main honey flow is past. At this time there are thousands of nurse bees in the hive and an abundance of stores at all times. The colony is usually at the peak of its strength as to bees, honey and larval food. No larvae at this time ever suffers for lack of food, lack of warmth or lack of moisture.

To approximate this condition, let us proceed as follows: 1—Pick out a strong colony and reduce it to a single story; 2—Make this colony queenless and remove from it all brood less than three days of age; 3—If necessary, insure a surplus of nurse bees by shaking before this hive, half a dozen frames of bees from other hives.

What We Have Done

Then we have a strong queenless colony of bees with an excess of stores and a maximum of nurse bees. Only one thing is needed and that is a queen. By doing this toward evening, the next morning will find our queenless colony ready to accept our attentions.

A queen bee may be reared from any brood intended to produce either a queen or worker bee, provided worker larvae chosen are less than three days old. One may give this brood to the colony by the plan followed by Dr. C. C. Miller and which has been printed in the American Bee Journal and Gleanings, or by the Doolittle artificial cell method.

In choosing queen cell larvae, unless one is in a great hurry, only the smallest larvae should be taken, preferably those less than 24 hours old. One may learn the size of larvae of this age by examining those larvae in a brood frame which lie next to eggs. It is also necessary to know the approximate age of the larvae used, to guage the time when the queen cells should be distributed.

This queenless colony may be given the larvae either in the Miller queen frame or in Doolittle cells. This colony is known among queen breeders as the "cell starting" colony and the larvae should not remain in this colony more than a day or two at the most. When the queen cells have been begun by the bees and great quantities of larval food placed in the cells, the beekeeper should give these cells to the "cell building" colony. The bees in both the cell building and cell starting colony should be fed slowly, a thin sugar syrup **every hour day and night that the cells are in the hive.** After cells have been taken away from the starters, another batch of cells may be given and the operation repeated daily as often as they will continue to start a sufficient number.

Building the Cells

Above a queen excluder over a full queenright colony, place another hive body well supplied with honey, many uncapped larvae and an excess of nurse bees. Both cell starting and cell building colonies should be so strong that they need occasional attention to **keep them from swarming out.** In place of the centre frame of the cell building colony, place the frame holding your started queen cells. Put on the feeder and let the bees do the rest.

The next problem will be the distribution of these queen cells before they hatch, to colonies from which the queens are to mate. Sixteen days are required from the egg laid to the emerging queen bee. Since the eggs require three days to hatch and were

about one day old when used to start queen cells, they were then at that time about four days old. The queens would then emerge on the twelfth day after they were given to the cell starters and for safety, must be distributed the evening of the eleventh day. If not distributed before one or more of the queens emerge, all the cells will be lost, as the first queen out, with the aid or abetment of the bees, will proceed to destroy all her royal sisters and the work of the beekeeper will be lost.

Distributing the Cells

The greatest care must be used in distributing the cells. Queens are in the most delicate stage of their existence at this time and are easily injured or made worthless. The cells must never be squeezed, must not be dropped and always held, in handling, with the tips of the cells hanging down. We recommend the Ben Davis cell block for carrying them about the apiary. One cell is given, preferably in a West cell protector, to each queenless hive or mating nucleus, where the queen should emerge the next day.

We never recommend that cells should be allowed to hatch in cages, but always directly into a hive or mating nucleus. Queens hatched in captivity seldom make as good queens as those allowed the liberty of their hive at once, upon hatching. We also are unreservedly against the "baby" nucleus in any style. Most of the better queen bee breeders now are using mating nuclei of full Hoffman frame depth and holding from two to five such frames. Only in a nucleus of this size will an emerging queen receive the warmth, food and attention she deserves, if she is to serve you well as the head of a honey producing colony.

Local Association Notes

Winter loss, one yard none, one yard 25 per cent, one yard 30 per cent and one yard 40 per cent. The yard with no loss and most of the balance of the colonies in the other yards that are in fine condition were such that were **not** fed any liquid feed, but had enough honey in the brood chamber or were given sealed combs of honey. The yard of 40 per cent loss was fed mostly damaged sugar some of which contained salt. Nearly all the colonies were fed in late October and in November and did not have a good flight day afterward until March 9–10. Because the bees that were not disturbed late by liquid feeding wintered in practically perfect condition,

it is evident that the late liquid feeding used up so much **Bee Energy** and filled them with feces so early that they could not live thru the past severe winter.

Two years ago with about the same kind of a winter my loss was 2 per cent, all the colonies needing more stores were given sealed combs of honey.

MORAL: If liquid feed must be given it must be given early, say the last week in September, but better than that is to give only sealed combs of honey that is ripe, thus saving all the bee energy for that long cold winter that may come anytime. On March 31st the bees were gathering TAG ALDER pollen, but have not had a fair day since. (April 11th).

Honey sales (local) are very slow compared to February and March, at 30c. Clover seems to be in fair condition at this time.

Edw. Hassinger, Jr.,
Fox River Valley Beekeepers' Assn.

Beekeeping An Organized Industry

Has the beekeeper a right to organize? He has: the same right as the banker, the manufacturer, the laborer. No more, no less. Organization is the big secret to success in every undertaking. Beekeeping has never been organized—the result has been that the industry instead of being a recognized business, has been a side issue with all the vagaries of a wandering caravan. A few men early saw the possibilities and have made beekeeping a paying business. However these men have been handicapped by the indifference of the mass of the beekeepers. Lack of knowledge on the part of most of our beekeepers have played an important part in holding the industry back. It has taken a world wide war to bring about a true realization of the bigness of beekeeping as an industry. Lack of organization, lack of business methods has prevented its advancement and made it an etherall thing of more or less obscure origin.

When bills dealing with bee laws and appropriations for their enforcement were brought before our legislatures they were made the butt of many jokes because the members of the legislature knew little or nothing of beekeeping. In some cases our college men have been forced to recognize the industry as a necessary part of their agricultural work.

Organization has done a wonderful thing for beekeeping in Wisconsin. Better production, better methods, and better and more stable prices are being established. Furthermore the people of the state and the executive officers of the government, the legislature and the university have been brought to have a wholesome respect for it as a bona fide business. Up to 1918 it was almost impossible to get any recognition from our legislature. But in 1919 through our state association and the local organizations an organized effort was made which resulted in a new law and a somewhat adequate appropriation. And would you believe it before the bill was introduced several Senators and Representatives were around looking for the bill and wanting to introduce it. At critical stages several of them went out of their way to do special work on the bill. Every committee to which the bill was referred passed it in a hurry and at one time a special rollcall was called to hurry the bill through. In fact but a single vote was cast against it in either the Senate or Assembly. Petitions, personal visits, and letters were presented which left no doubt in the minds of the legislature as to the size of the industry and the necessity of the bill. A similar united effort on the part of beekeepers in other states and a nation wide campaign will make beekeeping a real industry.

Advertise honey in the proper manner and make it known for its real food value and few homes will be without it in every month of the year.

Most people have heard of honey but how few have ever tasted it. Bees are dangerous and are to be avoided. The sting and its effect are far more talked about among the initiated than is honey. Personally I never saw a colony of bees until I was 19 years of age and previous to that time had never tasted honey but once. People crave sweets and yearly eat millions of pounds of filler to get a little of one and another. How well do I remember the good old days of Black Jack chewing gum and candy beans. No thought was had of what it contained only that it had a flavor which remained for several hours. The filler might just as well have been india rubber. Syrups, jams, jellies, etc. on bread, pancakes and biscuits. Little or no thought of food value and the filler was eaten to get the sweet. Imagine every child brought up with a taste for honey and the mother knowing that every drop eaten has full food value as well as medicinal qualities. There is no filler or synthetic and impure flavors here and never will be because the beekeepers at large will not permit. Personally I do not believe that honey should have ever been sold by the beekeeper for less than fifteen cnts per pound and when he accepted less he sold it at less than cost if his labor was worth anything.

This being the case shall we let honey go back to the old prices or shall we organize and keep it a profitable business, receiving a fair return for our work and product. The 100 per cent incease in bee supplies is not likely to go down soon.

Furthermore beekeeping is an expert business and the expert is entitled to his pay in this as well as in other lines. The efficiency engineer, the mining expert, the surgeon and the lawyer all receive expert wages why not the beekeeper. The surgeon is an expert manipulator of surgical implements with skill, so is the beekeeper. It is true that there is a difference but is the skill required for both not the same. The great difference lies in that the lawyers, doctors, etc., are organized while the beekeepers are not. Is a haircut worth more than it was ten years ago? Then we paid ten cents for a shave and twenty-five for a haircut. Now we pay twenty-five and fifty. How did it happen? Last week you paid forty cents for a haircut. Saturday you noticed the following item in the paper: "At the national meeting of barbers held last week in Chicago the executive committee decided that because of the high cost of barber supplies all barbers should raise their prices and they suggested that after Sept. 1, shaves should be twenty-five cents and haircuts fifty. The result: today every barber in our town is charging those prices. Supposing for a change that beekeepers instead of asking the buyer what he will give tell him what you will take and stick to it. We should not be unreasonable—find out what honey is worth and ask for a profitable return. H. F. W.

The Prediction of Frosts

Continued from page 161

of the moisture of the atmosphere *may* take place below freezing, and while the appearance of ice on the exterior of a plant is good evidence that the temperature of the exterior is at or below freezing, its *non*-appearance is *not* good proof that ice has *not* been formed in the intercellular spaces of the plant. The term "frost" should be taken, therefore, as signifying injurious temperatures without regard to whether or not ice has appeared on the exterior surfaces of plants or other objects.

All bodies give off heat in cooling,—at different rates, to be sure, as, e. g., water gives off its heat much more slowly than does land, but heat passes off into the atmosphere none the less. Now, the conditions favorable to frost formation

are (1) a clear sky, because there are no clouds to hold the heat radiated from cooling bodies close to the surface of the earth; (2) dry air, because with dry air cooling by radiation will continue to a lower temperature before checked by the heat given off in condensation, than with moist air; and (3) a still night, because the air in this event, arranges itself in layers according to its weight, and the cooler air collects near the surface.

Now, in this section of the country, frosts may be expected anywhere from September to May, and there is danger of freezing at any time when the temperature arrives at from 8–10 degrees above the actual frost point. Assuming that it is the season of the year when frosts are likely to occur, the points to be considered, aside from local topography, are as follows:

1. The nature of the preceding weather.
2. The condition of the sky—whether cloudy or clear.
3. The direction and force of the wind.
4. The trend of the temperature.
5. Atmospheric pressure.

Taking up these points more in detail, we have first,—the nature of the preceding weather. We can see from any weather map that different conditions move across the country in irregularly shaped but well defined lines. Hence, there is always danger of one extreme following up another, and a frost may come right after an abnormally warm period. If, during the warm period the buds have developed to any extent, a mild frost will do more damage than a more severe frost following up a period of cooler weather where the buds are still undeveloped. An unusually warm period does not always mean that a frost will follow, but frosts *do* follow such periods, and hence warning must be taken.

Secondly, the condition of the sky. Clouds act as a blanket over the earth, and prevent the escape of heat. Even a hazy condition or the thinnest clouds have an appreciable effect in checking the radiation of heat at the surface. Hence, frost is not likely to occur if the sky is overcast. When unhindered by clouds the heat given off by the earth is so disseminated through the atmosphere, and even beyond the atmosphere, that unless the earth has a great store of heat, a decided fall in temperature is likely to occur, causing frost.

Thirdly, the force and direction of the wind. The force and direction of the wind is a reliable weather indicator. If the wind suddenly changes from the south to the southwest or west, it is a good indication that the weather will turn cooler. A frost occasionally follows when the wind changes from the east or northeast to the north or northwest. The conditions to be looked for as the wind changes are a falling temperature, decreasing wind, and a clear sky.

Fourthly, the trend of the temperature. If there is a continuous fall in the temperature in the late afternoon and early evening of 1 degree per hour till the temperature reaches 40 degrees by 6 p. m., and there is a light wind and a clear sky, frost must be looked for in the early morning. If the fall is more than 1 degree per hour, frost may be expected even though the temperature is considerably above 40 degrees in the late afternoon.

Lastly, atmospheric pressure. Actual barometric pressure is of little value in predicting frost, except that a warm period of low pressure is likely to be followed by the opposite extreme. The *change* in pressure is the important factor. A rapid rise in the barometer is good indication that a cold period is rapidly approaching. The change in pressure usually shortly precedes a change in the direction of the wind, as wind is dependent on pressure. We have already taken up a discussion of the influence of the direction of the wind and will not go into it further at this point.

There has arisen within recent years considerable discussion as to the value of the evening dew-point as indicating the probable fall in temperature during the ensuing night. By the term "dew-point" is meant that temperature at which the changge from vapor to water begins, and is, therefore, the temperature at which the release of heat begins also. The theory is that if the dew-point is above freezing in the evening, it will not change to any material extent during the night, and there will be sufficient latent heat liberated when the temperature reaches the freezing point to prevent it from going any lower, and consequently there will be no frost the next morning. If, however, the temperature of saturation is below freezing, there is nothing to prevent it from going below that point and a frost is to be expected. If this theory was substantiated, it would be easy to predict frosts, but unfortunately it is not. In some sections of the country good results have been obtained by this method, but in the most places no dependence can be placed upon it. Professor Cox, in his investigation of frosts in the cranberry districts of Wisconsin, found that "the early evening dew-point afforded no indication what-

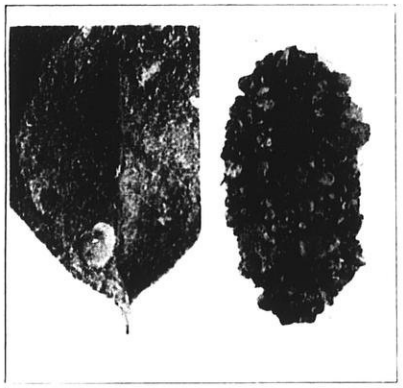
(Continued on page 170)

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

Cause of Wormy Peas

Peas grown in northeastern Wisconsin are troubled by the presence of a worm which feeds within the pods on the growing peas. The best method known at present to check the damage and spread of this pest is the selection of quickly maturing varieties and planting as early in the spring as possible.



Egg Cocoon

STAGES OF THE PEA MOTH

This insect attacks practically all varieties of both garden and field peas. No other host other than peas is known. Late varieties are more susceptible to attack than the earlier maturing forms. This is due entirely to the time of appearance of the moth itself and not to any varietal resistance of the peas.

Eggs: They are small, not quite as large as the head of an ordinary pin; flat and slightly oval in shape; whitish in color; and nearly transparent when first laid. Within two days two reddish transverse streaks appear, one at each end of the developing embryo. The eggs are laid usually singly upon the pods, leaves, or stems of the pea vines; and sometimes on the stems and leaves of grasses or weeds growing in the pea fields. The incubation period ranges from 7 to 10 days.

Larvae: As soon as hatched the tiny young worms seek suitable places to eat their way through the growing pea pod. After they reach the interior it is almost impossible to tell whether the pods are infested or not. Infestation seems to hasten maturity of the pods and sometimes causes them to blanch prematurely. The young feed upon the peas within and grow rapidly, completing their development within 16 to 26 days.

One to all the peas in each pod attacked are injured by the larvae. The worms make irregular holes in the peas and cover them with frass webbed together wherever they feed.

Pupae: The worms, upon completing their growth leave the pods through small round holes and seek suitable wintering quarters, usually a few inches under the surface of the soil. Here they construct their cocoons and are then ready to pass the winter.

Moths: The moths which are small, dull colored, and about 5/16 of an inch in length, appear shortly after the peas begin to bloom. The adults, in their characteristic zizzag flight, are usually seen about the pea vines late in the afternoon. Very few of them fly at night.

Best Methods to Control the Pea Moth

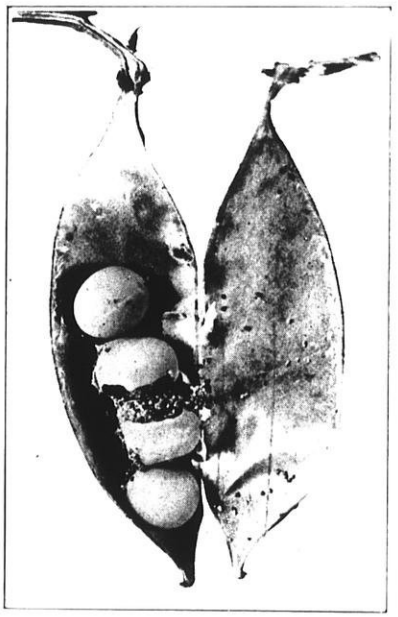
Spraying is not successful. The reasons for this are many, the most important is because of the methods of pea culture and the nature of the growth of the vines.

Cultural practices such as fall plowing, discing, and cleaning up of all vines left in the field after harvesting will help some.

The best recommendations are:

1. Select the best early maturing varieties.
2. Plant as early in the spring as it is possible.

Chas. L. Fluke, Jr.



Such peas are unfit for table use, ruined for seed and reduced in value for stock feed.

Prevent Losses From Cabbage Worm

Every season the cabbage worm causes serious losses to cabbage and cauliflower in Wisconsin. These losses can be prevented by the use of proper spray materials.

Important Points to Remember

1. **Spray when worms first appear.** Don't wait until the cabbage is seriously injured.

2. **Repeat the spray when necessary** to cover new leaf growth and to poison worms of later generations. Eggs for the second generation are usually laid early in July and for the third early in August. Eggs hatch in from four days to a week.

Young cabbage plant badly injured by cabbage worms.

3. **Use some kind of "sticker" in the liquid spray.** Common yellow laundry soap is satisfactory. Cabbage leaves are smooth and waxy and unless a "sticker" is added, much spray will roll off.

4. **Apply the spray in the form of a fine mist** so that the leaves will be thoroughly coated.

5. **Keep the spray material well stirred** so that it will not settle to the bottom of the tank.

6. **Strain spray materials before placing in tank** to avoid clogging of nozzles.

Kinds of Poison to Use

Arsenical sprays such as lead arsenate, calcium arsenate and paris green all give good results in controlling the cabbage worm. Lead and calcium arsenates are cheaper than paris green and stick better. They also show white on the plants.

How to Apply and How Much to Use

The poisons may be applied either in the liquid or powder form, but under Wisconsin conditions the former seems to give somewhat better results.

As a liquid spray lead and calcium arsenates are used at the rate of 1 pound of the powder (or 2 pounds of the paste) to 50 gallons of water in which 2 to 4 pounds of common yellow laundry soap have been dissolved. In smaller quantities one may use ½ ounce of the powder to a gallon of water, plus an inch cube of soap.

No Danger of Poisoning

There is no danger of poisoning to the consumer from eating cabbage so treated, if ordinary care is used in preparing it. The cabbage plant grows from the inside out and the outer leaves are all removed before cooking. Heavily sprayed outer leaves may have enough poison on them to be injurious to stock.

L. G. Gentner,
Scientific Assistant,
U. S. Bureau of Entomology.

Between the Rows

Next month we expect to write about Raspberry and Blackberry insects. Look for the articles. They may contain something of interest to you.

* * *

Several inquiries have recently come to the editor of the insect page regarding reddish brown, hemispherical scales on apple and elm; known as lecaniums. These are described by one as "lady-bug shaped." The important point to remember about them is, they **are not controlled** by the use of lime sulphur. The best spray is kerosene emulsion—using one part emulsion to 4 or 5 parts of water. This is a strong solution and should be used in the spring before any foliage appears.

The Prediction of Frosts

Continued from page 167

ever of the ensuing minimum temperature."

As so much of the data on this method is contradictory, no practical value can be attached to it. I might say that the dew-point is found by taking a wet-and-dry-bulb thermometer, whirling the two for about two minutes, and noting the difference in reading. From the tables accompanying the instrument the dew-point can easily be computed.

About the only important factor which still remains to influence the coming of frost is the condition of the soil. Frost may be expected on a damp soil sooner than on a dry soil, providing, of course, that the soil is not too wet. Rapid evaporation promotes a rapid loss of heat in the water exaporated, which passes on into the atmosphere and is lost. If the soil is very wet, however, the air becomes saturated with moisture, and holds back the heat given off in evaporation, thus helping to ward off frosts.

In conclusion—There is little doubt in the minds of modern horticulturists as to the effectiveness of frost prevention methods at times when an entire fruit crop may be saved by saved by raising the temperature a very few degrees. Expenditures for frost prevention should be looked upon as insurance, and should not be exceeded by the amounts spent in protection against cyclones and fire. The United States Weather Bureau has inaugurated a system for the distribution of frost warnings which is limited only by the telegraph, telephone, mail, and signal services, and growers whose location renders possible the receipt of these warnings, by any of the methods referred to, should adopt means for securing them. That these warnings, supplemented by the growers own observations, have a high value is shown by the testimony of those who have received substantial benefits therefrom.

Lime-sulphur without arsenate of lead is not nearly so strong a fungicide as with the arsenate. In all applications use arsenate of lead at the rate of 1 pound of the powder to 50 gallons of spray.—Prof. G. W. Keitt.

A good lawn is best made of 80 per cent Kentucky blue grass and 20 per cent of white clover and red top. The red top and white clover are temporary grasses and soon give way to the blue grass. They do give a good quick lawn.

A good vegetable garden should be an important part of every home. Are you planning yours? Why not have something besides potatoes and squash in it this year?

Potatoes were selling at a dollar a peck the other day. Many

towns and all farm homes could well raise their year's supply at much less than one dollar a peck.

Head lettuce thrives best in cool moist weather. It cannot be grown to advantage in hot weather.

Spraying is good crop insurance. Better get the equipment and materials now for use later.

Make frequent sowings of peas, carrots, beets and spinach this year. The root crops are always more tender if grown rapidly.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, June, 1920 | Number 10

JAPANESE IRIS, IRIS KAEMPFERI

Luck With Dahlias

Mrs. A. R. Reinking, Baraboo, Wis.

The Dahlia is a native of Mexico and South America where it can be found today. In its wild state it is a single flower of red, yellow, or purple, small but brilliant tho rather insignificant. From this humble little flower the most gorgeous and remarkable group of flowers has been developed. Every color and shade and every imaginable combination of colors except blue is to be seen in this lovely flower—there is even a green dahlia, a decided novelty but not a beauty.

The Dahlia varies in size from an inch to a foot in diameter and takes on more forms than any other flower resembling the cosmos, daisy, poinsettia, clematis, anemone, zinnia, aster, water-lily, cactus, peony, and chrysantheum.

The first introduction of the Dahlia into Europe was in 1789 when the director of the Mexican Botanical Gardens sent some seeds to the director of the Royal Gardens at Madrid. This director was so pleased with the brilliant flowers the seeds produced he named them Dahlia in honor of a noted Swedish botanist, Andreas Dahl.

Most of the new forms of the dahlia are productions of England, France, Germany, and Holland. America contributed the Giant Singles or Century Dahlias and American gardens have added many noteworthy Dahlias of all types.

Probably there is no other flower that is grown so extensively for commercial purposes as the Dahlia for there are many farms of 40 to 75 acres and several of hundreds of acres that grow them exclusively.

So often one hears another say, "O yes, I like Dahlias but I don't have any luck with them, I can't make them blossom." Now luck with Dahlias is the same as with anything else, they must be under stood and handled just about right. Dahlia raising is a fascinating hobby, they do well in most any soil. Soil that will grow potatoes will grow dahlias equall well, provided they have a great amount of sunshine.

Perhaps the first reason for poor luck is that many people plant them too early—they try to get blossoms before their neighbors and unless it is an unusually moist season they generally fail to get any. The reason being that flowers are borne on soft, rapidly growing stems and during the hot, dry spell in July and August when the buds are formed and the plant is about ready to blossom the growth is checked, the stems become woody and the buds blighted. From the last of May to the middle of June is the best time in this climate, indeed we have planted as late as July 1st and produced an abundance of fine blooms.

Prepare the Dahlia bed by spading deeply. Avoid an excessive use of fertilizer as it tends to produce much foliage and few flowers. If the ground is too heavy a little sand or sifted coal ashes will lighten and improve it. A good time to fertilize is after the first buds appear. In planting dig a hole six inches deep, lay the root on its side and cover with about two inches of earth. Fill in the remainder of the hole, in cultivating as the plants grow. In doing this the roots have been planted deep enough to give the plant support in time of storm and deep enough to guard against an ordinary drouth. Avoid water unless it is done thoroughly, superficial watering tends to bring the rootlets to the surface where they are readily dried out.

During the growing season the ground should be cultivated about once a week and as soon after a rain as it can be worked. Cultivate shallow after the buds begin to appear so that the rootlets may not be injured.

Another reason for "poor luck" is that Dahlias are often planted just as they were dug in the fall. One would not think of planting a dozen potatoes in one hill and for the same reason a whole clump of Dahlias should not be planted in one hill. Be sure to divide the clumps so that there is at least one good, strong eye to each division and do not allow more than two stalks to develop from each hill—better still, only one.

To get the best flowers it is well to disbud. As a rule three flower buds appear in a cluster, the center one being the larger but not always the best, save the best one and pick off the others. The plants will produce more and larger flowers if the blossoms are kept picked and not allowed to wither and go to seed.

After a killing frost cut off the tops and it is well to allow the bulbs to cure for a few days. Then on a bright day lift them out carefully, leave a little dirt on the crown to prevent the bulbs breaking off and dry in the sun for an hour or two. A good way to store them is by packing in boxes or barrels that have been lined with paper, place the clumps with the stems down to allow any moisture to drain out. Place boxes in a frost proof cellar but away from furnace heat and the roots will undoubtedly be in first class condition in the spring.

PROGRESS IN RURAL PLANNING

J. A. Hazelwood

Those who favored and secured the enactment of the Rural Planning Act by the last legislature are more than pleased with results thus far obtained. Organization has been brought about, programs outlined, and some progress made by way of execution in more than half of the counties of the state. Several County Boards have made appropriations to the Rural Planning Committee to help in carrying alnog their work. Men and women of vision have been selected in every county in the state to work with the ex-officio members provided for by Chapter 693.

A Few Counties' Programs

La Crosse County's Committee has worked out a program whereby they are to emphasize the securing and improving of scenic spots. That County has decided to secure, as far as possible, river banks and scenic hill tops for the public. One camping site has been given to the Rural Planning Committee by one of the interested representative citizens of the County. Prospects for other woodlots to be donated to the Rural Planning Committee in that County are excellent. The Rural Planning Committee has arranged for many meetings in various sections of the County to arouse public sentiment in support of their program.

Brown County has taken up the landsmark phase of the rural planning work. They are planning to secure and mark all the historic places in and about Green Bay. The Committee has had several meetings to discuss plans. No county in the state has more spots in it of historic interest than Brown County. The first settlers of the state located in Brown County. It was the most important trading post in the state for twenty-five years. The County lends itself strongly to the work proposed to be done by the Committee.

Jefferson County has decided to emphasize another important line of work. If plans are worked out, roadside beautification will receive large attention. It is proposed to take the road from Jefferson to Ft. Atkinson and make it a still more scenic drive than it is at present. The beauty of the road today is remarkable. The drive winds along Rock River for four or five miles with a splendid growth of trees, wild shrubbery and wild flowers on the river side. It is proposed to thin out the shrubbery and trim up the trees on the river bank and side of the road and plant trees, shrubbery and flowers on the other side of the highway. The wild trees on the river bank are splendid specimens of oak, elm and ash, varying from a few feet to many feet in height. It is proposed by the Rural Planning Committee to employ a landscape engineer to work out plans.

Jefferson County's Rural Planning Committee has already obtained an appropriation of $500 from the County Board for the purpose of securing option on the ancient Aztalan Mounds. This means that the famous Aztalan Mounds are to be preserved. There are no Indian mounds in the United States that can be compared with the Aztalan Mounds in size and importance. Aztalan Village received votes by the territorial legislature at Belmonth for the capitol of the state. This fact in addition to the Indian Mounds makes the place of great historic impotrance. It is proposed to obtain about twenty-five acres of land, preserve the Mounds, plant trees and shrubbery and otherwise beautify the already aesthetic Crawfish River bank. The place is of such importance it should be made at an early date one of Wisconsin's state parks.

The Rural Planning Committee hopes to improve many of the roadsides in Jefferson County during this year. Emphasis, however, will be placed upon the drive above mentioned.

Other Counties

Many of the other counties of the state are working out plans to carry out the provisions of the rural planning act. Attention is to be given particularly to the creation and development of community centers. County fair parks are being generally set aside for camping sites in the state. Almost every city in the state, under the inspiration of the rural planning act, is at present considering the providing of camp sites. Almost every county is studying places of local and historic interest, places of scenic importance, with a view to securing and preserving same for future generations. Many counties are looking forward to obtaining titles to lands along rivers and lakes, and places of fine outlook from hill tops. These things are thought of with a view to preserving our native landscape. Some attention will be given to the planting of trees, shrubs and flowers along the highways in many counties of the state. Of course, the movement is new in Wiscon-

sin, and those who are interesting themselves in the work are not looking for mushroom development.

Following is an extract from a letter received by the Highwway Commission:

"You commended the state highway marking system and declared it to be the best in the world. If to this utilitarian statement another could be added that the state trunk highways are also to be the most beautiful in the world, your commission would place future generations under lasting obligations.

"An example of the 'extreme local control' of a state trunk highway is a stretch of road in Jefferson County between Watertown and Ebenezer. For years this road was noticeably beautiful on account of the fine shade trees and abundant shrubbery that make it a joy to the traveler. Public utilities and the farmer decided that this form of beauty must go, so in place of ancient oaks, elms and maples, stretches a line of poles so ugly in perspective that a traveler, viewing it for the first time, remarked, 'If Ali Babi had done this deed in times long past, he and his forty thieves would have been hanged to the cross arms and the boiling oil conserved.'

"Cannot some way be found to save the remaining beauty of the highways of this wonderful state and at the same time give the people the benefit of modern convenience?

"France has a system of tree conservation that might, with profit, be imitated and our present wasteful methods abolished."

The writer of the letter truly senses the need of an active rural planning committee. There has been a habit among our road builders to destroy all trees and shrubbery within the four rod strip, as well as companies running wires. This should be stopped.

Watch Relocation of Roads

A man writes there is a road running south from Hayward where the County Highway Commission left a group of white birches that encroached somewhat on the highway but that these birches were a joy by day and a delight by night, when the auto lights showed them up.

Another reckless way in which road builders are denying the public beautiful scenic drives, is that of re-location. There is a case cited up in Sawyer County where the road ran along the shore of White Fish Lake and was a thing of beauty. It was a joy to travelers. There was a chance to get water, to camp on the lake and get a glimpse of the beautiful scene. This had been enjoyed for thirty years. A few years ago a new road was built away from the lake, and fenced this in, part of it for a pleasure resort, so there is only one place where the lake can be seen and that is where tourists cross a bridge at an outlet to the lake.

Cases above cited are only a few of many that might be mentioned where there has been thoughtlessness and recklessness in the matter of destroying beauty along the highways.

The rural planning committees of the state propose to call a halt to this work and institute in place of it a program of roadside beautification. The work is worthy of the heartiest cooperation of all. No county in the state can afford to be without a good, live rural planning committee.

My Neighbor's Garden

A few mornings ago my neighbor sent me a generous bunch of bright crisp radishes, and a fine bunch of crinkly lettuce. They were so good and so fresh that I knew at once he had raised them himself, and so I went over in the evening to thank him and to ask him about it. It seemed to me like a marvel, for my radishes and lettuce were only just planted, but he made light of it. "Pshaw, anybody can do it if he only has a little gumption." Now by the use of that word you will know at once that my neighbor is also a New Englander, or at least of New England descent. Gumption means capacity to do things and as my neighbor meant only that one need only to have a little capacity to do things in order to raise such marvels, I was naturally interested.

"How did you do it?" I asked.

"Cold frame," was his answer. "If I could only have gotten the stuff for a hot bed I could have had them a month earlier."

So I asked him to tell me all about cold frames and hot beds.

"I can't tell you all about either one, but I can tell you enough so that with only the slightest trouble and attention you can do just as well as I have done."

I will write down as nearly as I can remember, the substance of what my neighbor told me.

A cold frame is a bottomless box put down over garden soil, and covered with something which will let the most of the light in and keep some of the cold out. It need not be at all elaborate. The principal item and the most expensive one is a glazed sash. Cold frame sashes can be bought, but an ordinary storm

sash is just as good, and it can be taken off the house in the early spring and made to cover a double purpose. If you haven't a storm sash then you may be able to get a discarded window from a carpenter. If you buy one, don't get a double glazed one unless you can get a 3 x 3 as 6x3 is too heavy. Having gotten your sash, make a bottomless box, the outside of which is two inches smaller than your sash. If you are making it, have the sides vertical, but make one side lower than the other, making the slope about one inch to the foot. If you are making it from old lumber, or using what you have, it will make no difference if the slope is 1½ inches to the foot. If it is three feet wide, the front should be about 4 to 8 inches in height and the back 7 to 14 inches. It is better to bevel the edges of the front and back so that the sash will fit closely. If you don't want to split your board, or haven't a rip saw sink the front board into the ground until you get a proper slope, and if you haven't nails you can fasten your boards in place with 3 or 4 stakes at each corner. As you will want to use your frame early in the spring while the ground is still frozen, you should get your frame and your soil ready in the fall. Place the narrow edge of the frame to the south. Your soil should be as rich as possible, but friable so as to be easily worked, and as fine as possible. The ideal soil is one-third well sifted garden soil, one-third clean, coarse sand and one-third leafmould. This should be mixed in the fall and placed in the frame. You will gain a little time in the spring if you keep it covered so as to keep out snow and ice. As soon as there is some appearance or prospect of spring, put on the sash, and as soon as the soil is thawed out on top so that the soil is not sticky, put in your seed and put on your sash and wait results. If the weather is sunny you seed will be up in a week. Don't sow your seed too thickly. You need only barely to cover the seed and all that come up less than half an inch apart in the row are wasted. As soon as the seed is well up you must give a little ventilation in the middle of clear warm days. All you need to do is to raise the upper edge of the sash a quarter of an inch or more, depending on the heat of the same. If the ground is distinctly warm to the hand, you must ventilate or your plants may damp off, i. e., they will wither and die. As soon as the ground gets dry on top, water the plants in the morning so the plants will dry off rapidly as water on the plants tends to promote damping off. It's really very little trouble to make or operate a cold frame, less even than it seems from the telling. The uses of a cold-frame to the gardner are many. Egg plant, tomatoes, parsley, cabbage, cauliflower and other plants which should be started early can be raised in it, or if started in the house can be transferred to it, and can be grown until cold weather is past. It is an advantage to do this on account of the better root growth which comes from the extra transplanting. For the flower gardener it is invaluable. He can use it in starting fine and delicate seed, which can hardly be successfully planted in the open ground on account of exposure to sun, rain and winds. If the weather is cold or if rain threatens, keep on the sash. In most cases you should shade the ground either by cotton sheeting laid over the ground, or stretched on a frame or held in place by weights on the outside of the sash. A very good shade is made by coarse sacking or burlap on a movable frame just a little larger than the sash. After the annual flowers have been started and transplanted, the biennial and perennial seeds can be put in next year. They can be handled in the same way and either transplanted in the fall, or better yet, wintered over in the frame, to be transplanted in the spring. If you can't get any sort of a sash, use sheeting as the farmers do over their tobacco beds. If you wish, you may sow your seeds in the fall, taking care to sow them so late that they will not germinate, leaving the sash off till spring.

A hotbed is an artificially heated cold frame. The cheapest heat for the farmer is that furnished by fermenting litter from the horsebarn. The method of obtaining the heat is very simple. About the first of March take from the manure pile as much of the strawy litter as will make a pile two feet thick and two feet larger each way than your frame. Some of this will be old and have been heated more or less. Mix the pile selected thoroughly so that it will be quite homogeneous. In a few days it will begin to heat. As soon as it gets hot, mix it again thoroughly and put it in place, tramping it down thoroughly; put on your frame, put in your prepared soil, which you shauld have handy in boxes or barrels, put on your sash and wait for it to get hot. In a day or two the soil will be hot,—not warm—

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Eradication of Ivy Advocated; Treatment Recommended in Poisoning Cases

The best ways to avoid ivy and sumac poisoning, the most practical means of eradicating these noxious plants, and the most approved method of treating cases of such poisoning have been the subjects of an investigation conducted jointly by the United States Department of Agriculture and the Public Health Service of the United States Treasury Department. Despite general belief there is good reason for believing that absolute immunity from ivy and sumac poisoning does not exist, investigators state They also found that many common methods of treatment are not to be commended. If one must handle these poisonous plants, gloves, preferably of rubber, should be worn. After the gloves have been removed they should be thoroughly washed with soap and water and rinsed several times. Inasmuch as the clothing which comes in contact with the leaves may be a source of infection for a considerable period, care should be taken in changing the garments, and also the shoes. Many cases of poisoning have resulted merely from contact with exposed clothing.

Thorough Washing Helps

One of the surest and best methods of minimizing or preventing infection after the hands, face, or other parts of the body have been exposed, is to wash and rinse them repeatedly with an abundance of good kitchen soap and hot water. The poison, after being deposited on the skin, requires some time to penetrate, and if this penetration can be prevented by thorough washing, eruption and irritation will not result. While exposed parts should be cleansed in this manner as soon after exposure as possible, it is worth while to make the attempt even 12 or 20 hours afterwards in the hope that at least a portion of the poison may be removed. A heavy lather should be produced and the washing continued several minutes. Severe scrubbing with a brush is not advisable, but several swabs or small compresses of gauze may be used, discarding each in turn, so that the poison may not be distributed by the cloth.

Bathing with alcohol diluted with an equal amount of water is also an effective preventive. Where exposure has been more general, a bath for the entire body, followed by a change of clothing, is a good preventive measure. The hair should not be neglected. Bathing, if not accompanied by sufficient changing of water or rinsing, may result in spreading the rash to skin that had not been infected. In cases that are at all serious a physician should be consulted.

Sugar of Lead Recommended

The investigators call attention to the fact that scores of remedies and prescriptions are more or less in popular favor, but in spite of the claim they assert that no specific treatment for poisoning from ivy and sumac is yet available. Ointments should not be used in the acute stage of the disease. In the later stages, however, soothing and astringent ointments may be of value in allaying irritation and hastening cure. The extent to which it is desirable to use solu tions of permanganate of potash, hyposulphite of soda, sulphate of magnesium (Epsom salts), and other remedies, is also discussed. Sugar of lead, formerly much used, often proves disappointing if applied after inflammation has developed, and the user runs the risk of lead poisoning if this substance is applied extensively.

How to Recognize Poison Sumac

Poison sumac grows in moist ground, usually in swamps or along low, miry banks of streams and ponds. It occurs from New England to Florida, and westward to Minnesota, Arkansas, and Louisiana. The poison sumac leaves are readily distinguished from the harmless sumac and species of ash, elder, and other shrubs and trees, having a somewhat similar foliage, and the character, appearance, and color of the fruits furnish other simple means of identification. Furthermore, the poison sumac occurs on moist or swampy land, and in drier locations is found only along the borders of swamps or bogs. The number of leaflets into which the leaves of harmless sumacs are divided range from 9 to 21 and 31, while the poison sumac leaves divide into 7 to 13 leaflets.

While many persons are of the opinion that contact with these plants is not necessary to produce poisoning, it is probable that many cases supposed to have originated in this way have actually been due to direct or indirect contact. There are cases on record showing that the smoke from burning plants will give rise to irritation, and in some cases severe poisoning has resulted from this form of exposure. Regarding the popular belief that some persons are wholly immune. the investigators state that there is good reason to believe absolute immunity does not exist, although it is recognized that some persons are much less susceptible than others.

How to Eradicate Poisonous Plants

Eradication of these plants should be widely undertaken and followed up systematically. Every landowner should feel a measure of responsibility in this matter. The simplest method is by grubbing, in which care should be taken to cover the hands properly, and also to prevent infection by means of the clothing.

The plants in fields may be destroyed by plowing them up and putting in cultivated crops. Often repeated mowing is also effective. The use of kerosene is recommended where injury to other plants or trees is not to be feared. It may be applied with a sprinkler or aspraying pump, and in many cases one application is sufficient. Arsenate of soda has been used very successfully to kill poison ivy on trees 6 to 10 inches in diameter without injury to the trees, as well as on stone walls, buildings, and along fences.

Care of House Plants

James Livingstone.

The question, how often should I water my plants, has been asked so many times that perhaps a little information on that subject may not be out of place at this time. The lot of the average house-plant is a hard one as a rule, and in their case, prohibition is often applied too vigorously. I do not wish to give the impression that all house-plants are neglected or abused, because I have often seen splendid specimens of various varieties of plants grown in an ordinary dwelling house window, and I sometimes marvelled at the skill displayed in their growth.

The plants that suffer most in the average home are those that have been grown by a florist. They have, as a rule, been grown in a warm, moist greenhouse, and, in some cases forced along under high temperature to get them into bloom for certain holidays or occasions. Unless they have been "hardened off," to use a florist's expression, that is, to take them from the hot temperature where they have been forced, into a home with more air and a cooler temperature and in this way hardened to the conditions found in the average home, they are apt to suffer severely and sometimes last only a few days, to the disappointment of the owner. The air is hot and dry in most homes, totally unlike the temperature these plants have been grown in. Added to this drawback is the lack of knowledge in the care of the plants by the average householder.

Some varieties of plants are more suitable as house plants than others but this is seldom taken into consideration by the purchaser. The plant is bought because it suits the taste of the buyer either as a gift to a friend or for home adornment. Plants in bloom, purchased from a florist, can't, even under the best conditions, be expected to last over two or three weeks at the most; some kinds don't last even that length of time. Cyclamen are very satisfactory plants and when given any sort of fair treatment, last a long time, sending up a succession of blossoms for two or three months. Some varieties of Begonias do very well, such as the different varieties of Rex Begonias, Begonia Alba Picta, Picta Rosea, Rubra, and the old favorite, Beefsteak Begonia. These are all winter flowering varieties and if grown outdoors in a shady place in the summer, brought into the house in the fall, and placed in a sunny window, will bloom most of the winter. The most beautiful of all the Begonia family are: Glorie De Lorraine and Glory of Cincinnatti. These require a great deal of care and a close, warm, moist atmosphere to grow them satisfactorily; when they are brought into a hot dry living room they do not last long. Foliage plants, while not so fascinating as blooming plants, are usually much longer lived than house plants. Palms, Boston Ferns, Peperomia, Sansveria, and Aspidistra usually do quite well and last a long time.

Knowing how to water plants seems to be a stumbling block to a great many people. A mistake is often made by placing the flower pot into a fancy jardinere and if enough water is given the plants, it soaks down through the soil, through the hole in the bottom of the pot and collects in the jardinere. It is sometimes left to accumulate there till the water becomes sour and stagnant. The result is that the soil in the flower pot becomes water-logged and sour and the roots of the plant rotted off. When a plant is placed in a jardinere particular care should be taken that the water is emptied at least once a day, preferably just after the plant has been watered thoroughly. When a flower pot is placed in a saucer, the same care should be taken to have the water poured out of the saucer. I do not like the practice of allowing plants to stand in a saucer of water. This may be all right with semi-acquatic plants, but the general run of house plants are better off without it. Be sure that the plant has good drainage, that is, don't allow the

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Wisconsin Horticulture

Published Monthly by the Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Annual membership fee, one dollar, which includes fifty cents, subscription price to Wisconsin Horticulture. Send one dollar to Frederic Cranefield, Editor, Madison, Wis.
Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card. Personal checks accepted.

Postage stamps not accepted.

President Martini Resigns

Our members will, we are certain, learn with sincere regret that President Martini tendered his resignation as president of this society at the meeting of the Board of Managers May 27. Mr. Martini's letter follows:

Lake Geneva, Wis., May 27, 1920.
Frederic Cranefield, Secy.,
My dear Mr. Cranefield:

Having accepted the superintendency of a large private estate in Cedar Rapids, Iowa, on June 1st it becomes my duty to submit to you my resignation from the office of president of the W. S. H. S.

I can assure you that only force of circumstances prompted me to accept a more remunerative position in another state.

To the members of our society I send a cordial farewell. From the close association with the society's affairs that you have given me the power to obtain I can assure all that its policy is being carried out with great honesty of purpose. I sincerely deplore that my change of residence to another state makes my resignation necessary. I shall always thankfully remember the benefits I have gained as well as the friends I have made among you and with best wishes for the continued success of the society and its affairs I say au revoir but not good bye,

A. Martini.

The Secretary feels no hesitation in tendering to Mr. Martini the appreciation of his fellow members and their best wishes for success in his new undertaking.

Mr. Martini is an extremely likable man cultured and of dignified demeanor and has a host of friends who will regret the necessity that takes him to another state. Altho serving but a few months the earnestness of his efforts and the effects of his clear-sighted wisdom will be felt in the society for a long time.

Under Article 6 of our Constitution Vice President J. A. Hays becomes acting president for the balance of the term.

Summer meeting, Racine, Aug 18th and 19th, 1920.

Local Societies and Their Activities

The Sauk County Society held the first meeting of the season at the home of Dr. and Mrs. F. R. Winslow Thursday evening April 29th. Papers on Selection of Vegetable Seed; Planting Flower Seeds; Dahlia Culture and Spraying were presented and discussed. The next meeting is set for May 28th.

The West Allis Horticultural Society met at the public library Thursday May 6th to discuss plans for future work.

The Bayfield Society met for discussion of seasonable topics April 24th and found the meeting so interesting and profitable that another meeting was called for early in May.

The Oshkosh Society held its regular monthly meeting Friday evening May 14th. Plans were formulated for a peony and iris show in June.

The Lake Geneva Society meets monthly.

Corrections and Apologies

In the May number Oshkosh local was credited with 50 members when in fact there are 63. The Sauk County Society has 54 members instead of 49 as stated and Lake Geneva 32 not 26.

The editor offers four apologies, the societies mentioned please take one each and leave one in case another mistake turns up.

State Florists Meet

The summer meeting of the State Florists Association will be held in Sheboygan in July. The date will be announced later. President J. E. Mathewson is concluding a campaign for members.

A Cash Offer

In the March issue we offered a bound copy of Wisconsin Horticulture free for ten new members. There were no takers.

There are five copies only, available, bound in "boards" and near-leather back and corners complete from Sept. 1916 to Sept. 1919. As the premium stunt failed to work these are offered for sale at $2.00 per volume which includes postage. The cost of binding was $1.79 per volume.

NECROLOGY

J. Mills Smith

Friends of Irving Smith, and who that knows him is not his friend, will learn with sorrow of the death of his oldest son, J. Mills, on April 18th, within five days of 19 years old.

Of splendid physique, apparently in excellent health he had enjoyed life to the utmost, and retiring, fell into the sleep of death, a victim of unsuspected heart disease. Mills was graduated from the Ashland high school and Northland College. He was a life member of our Society.

H. B. Tuttle

Herbert Bushrod Tuttle was born in Baraboo, Sauk County, Wisconsin, Sept. 23, 1850 and died April 29, 1920 after an illness lasting ten months.

He was the son of A. G. Tuttle of Baraboo who was one of the pioneer fruit-men of Wisconsin. All of his early life was devoted to nursery work and the past thirty years to cranberry culture.

He was one who always strove to help those with whom he dealt. A kind friend, loving husband and father, a patient sufferer. He leaves to mourn beside his wife, four children, eight grand children, two brothers and a host of friends.

The Eau Claire Civic and Commerce Association will plant an avenue of elms bordering the new concrete highway between that city and Chippewa Falls. It is estimated that two thousand trees will be required.

Mr. Irving C. Smith has presented the city with three hundred trees, one hundred elms and two hundred maples, which will be planted on the bay front, around school buildings and other public buildings.

This is the first time that Ashland has received such a gift, especially a gift which will help to make the city more attractive and the citizens of Ashland are especially grateful.

Ashland needs public-spirited men who are willing to give something towards the future good of the town.

Within a few year's time these trees will have reached a size and beauty that will bring credit to their donor and enjoyment to a host of people.—*Ashland Press.*

Control Measures Given for Bacterial Wilt

Infection with the bacterial wilt of cucurbits does not occur through soil or seed. The striped cucumber beetle and the 12-spotted cucumber beetle are both summer carriers, and probably the only means of summer transmission of the disease in the localities that have been studied. Introduction of virulent bacteria into the interior plant tissues is necessary for infection.

These points are given in a recent United States Department of Agriculture publication detailing the results of studies on the disease, which occurs in 31 States, including the territory from Vermont and Canada to Florida and west to Minnesota, Nebraska, Colorado, and Texas. The disease also probably occurs in parts of California. Of the common domestic cucurbits the disease affects cucumbers, cantaloupes, summer and winter squashes, and pumpkins, but not watermelons.

Control Measures Recommended

Spraying with strong Bordeaux mixture and lead arsenate paste (4-5-50 plus 2) is recommended where the disease is likely to be severe. Treatments should begin as soon as the cucumber plants develop their first true leaves and should continue at intervals of about a week until the cucumber beetles practically disappear from the field. In localities where downy mildew is also prevalent the treatments should be continued later as a partial insurance against this disease. The beetles prefer unsprayed plants as food, and undoubtedly the efficiency of wilt control would be enhanced if a slightly earlier trap crop, such as squash, were planted along the edges of the cucumber field. The beetles could be easily poisoned there with a strong insecticide.

Pulling of wilted vines during the first part of the season, or as long as it can be done without mechanically injuring the healthy plants, will greatly assist in controlling bacterial wilt if consistently done in all neighboring fields. The diseased vines should be buried or otherwise removed from access by the beetles.

Screening in Garden Plats

Where a few plants only are grown in garden plats, screening the hills with fine mosquito netting will prevent the appearance of the disease.

For control in greenhouses the beetles, in the first place, should be kept out. Do not grow cucurbits nor pile cucurbit refuse in the immediate vicinity of green houses, as this attracts the beetles and many will later find their way into the houses. If the beetles once gain entrance to a house filled with growing plants hand picking is the only remedy to be recommended until some fumigant is found that will kill the beetles without injuring the cucumber plants. Besides destroying the cucumber beetles, great care must be exercised in disinfecting all instruments used in pruning wilted vines before using them again on healthy plants. This may easily be done with a bottle of 1 to 1,000 mercuric chlorid and a sponge.

Plant liberally of a goodly number of vegetables. Seed and cultivation are going to be cheaper than to buy the finished product this year.

Summer meeting, Racine, Aug. 18th and 19th, 1920.

AMONG WISCONSIN BEEKEEPERS

Devoted to the Interests of The Wisconsin State Beekeepers, Association

H. F. Wilson Editor

Every Member Get a Member

The Wisconsin State Beekeepers' Association now has 732 members. Below we are giving the number of members for each county and we hope that every beekeeper will make it a point to secure one new member for the State Association. We must have 1,000 members by the time of the next state convention in December. Hereafter, we are going to list all associations that have 20 or more state members. Let's see which county can have the largest membership by the time of the next convention.

State Association Membership by Counties

In each succeeding issue we will list all counties having 25 or more members in the State Association. A few new members in several counties will place them in the honor division.

1.	Dane Co.	56 members
2.	Fond du Lac Co.	44 members
3.	Milwaukee Co.	43 members
4.	Waukesha Co.	40 members
5.	Winnebago Co.	33 members
6.	Chippewa Co.	31 members
7.	Richland Co.	28 members
8.	Grant Co.	27 members
9.	Langlade Co.	24 members
10.	Brown Co.	23 members
11.	Manitowoc Co.	23 members
12.	Shawano Co.	23 members
13.	Jefferson Co.	20 members
14.	Sauk Co.	20 members
15.	Dodge Co.	19 members
16.	Marathon Co.	19 members
17.	Price Co.	19 members
18.	Wood Co.	19 members
19.	Green Co.	17 members
20.	Outagamie Co.	16 members
21.	Vernon Co.	16 members
22.	Clark Co.	15 members
23.	Pierce Co.	15 members
24.	Walworth Co.	15 members
25.	Calumet Co.	13 members
26.	Rusk Co.	10 members
27.	Washington Co.	10 members
28.	Kenosha Co.	9 members
29.	Waupaca Co.	8 members
30.	Columbia Co.	6 members
31.	Eau Claire Co.	6 members
32.	Monroe Co.	6 members
33.	Ozaukee Co.	6 members
34.	Rock Co.	6 members
35.	Sheboygan Co.	6 members
36.	Lafayette Co.	4 members
37.	Waushara Co.	4 members
38.	Crawford Co.	3 members
39.	Dunn Co.	3 members
40.	La Crosse Co.	3 members
41.	Marinette Co.	3 members
42.	Lincoln Co.	3 members
43.	Barron Co.	2 members
44.	Bayfield Co.	2 members
45.	Iowa Co.	2 members
46.	Juneau Co.	2 members
47.	Racine Co.	2 members
48.	Ashland Co.	1 member
49.	Douglas Co.	1 member
50.	Oconto Co.	1 member
51.	Oneida Co.	1 member
52.	Pepin Co.	1 member
53.	St. Croix Co.	1 member
54.	Washburn Co.	1 member

Remember your exhibit for the State Fair.

A Beekeepers' Meeting to talk over Marketing and Prices will be held Thursday of STATE FAIR WEEK on the Fair Ground.

WISCONSIN STATE BEEKEEPERS' CONVENTION December 1, 2, and 3, 1920.

Second Wisconsin Beekeepers' Field Meet and Chautauqua August 16–21

Dr. Phillips and Mr. Demuth have consented to come and hold another field meet August 16 to 21 and we hope that the attendance will warrant their giving us this special effort. 161 people were registered at the last school and I hope we may make the number 250 this year. Special effort is being made to provide lodging quarters and meals at the very minimum. We are already making arrangements for a larger tent than was available last year and a regular camp ground will be laid out beside the Lake. This field meet will afford a splendid opportunity for an outing and it is fully agreed that all meetings will end in time for the usual afternoon swim. Professor Barr of Milwaukee has been asked to take charge of the entertainment and the boat trip and picnic similar to the one held last year.

A preliminary program is issued at this time. Other details will be given in our next issue.

Monday, August 16

9 A. M.—Behavior of Bees in the Fall—E. F. Phillips.

10:30 A. M.—Fall Management—G. S. Demuth.

1 P. M.—The Purchase of Bees from the South—Kennith Hawkins.

2–5 P. M.—Local men on any subject excepting wintering and diseases.

Tuesday, August 17

9 A. M.—Behavior of Bees in Winter—E. F. Phillips.

10:30 A. M.—Outdoor Wintering—G. S. Demuth.

1 P. M.—Behavior of Bees in Winter (continued)—E. F. Phillips.

2:30 P. M.—Cellar Wintering—G. S. Demuth.

4 P. M.—Local Speaker (on wintering if desired).

Wednesday, August 18

9 A. M.—Behavior of Bees in Spring—E. F. Phillips.

10:30 A. M.—Spring Management—G. S. Demuth.

1 P. M.—Symptoms of the Brood Diseases (2 hrs.)—E. F. Phillips.

3 P. M.—The Future Education of the Beekeepers—H. F. Wilson.

4 P. M.—What the State Fair Means to Wisconsin Beekeepers—G. Dittmer.

7:30 P. M.—Development of Beekeeping Practices—G. S. Demuth.

Thursday, August 19

9 A. M.—Behavior of Bees during the Honey-Flow—E. F. Phillips.

10:30 A. M.—Colony Morale—G. S. Demuth.

1 P. M.—Queen Rearing—G. S. Demuth.

2:30 P. M.—Factors Influencing Nectar Secretion—E. F. Phillips.

4 P. M.—Variations in Wisconsin Honey Sources—H. L. McMurry.

PICNIC

Friday, August 20

9 A. M.—Behavior of Bees in Swarming—E. F. Phillips.

10:30 A. M.—Swarm Control—G. S. Demuth.

1 P. M.—Treatment of American Foulbrood—G. S. Demuth.

2 P. M.—Control of European Foulbrood (2 hours)—E. F. Phillips.

4 P. M.—Distribution of Brood Diseases in Wisconsin—S. B. Fracker.

7:30 P. M.—Development of Bee Disease Control—E. F. Phillips.

Need of Better Marketing

By Iona Fowls

Last season's crop practically sold itself. It needed only to be displayed, and straightway it attracted the attention of the sweet-craving public, and, because many of the people had fallen into the habit of spending freely, the

honey sold readily and with no special effort on the part of the beekeeper. Just how long such conditions will continue we do not know; but from present prospects it is evident that there is a shortage of colonies, due to insufficient and poor stores during last winter. Also, reports indicate that the honey plants are in unusually good condition. Further, it is claimed that the per capita consumption of sugar has been increasing so rapidly since the country has gone dry in spite of the certain increase in cane and beet sugar production, it will for several years be impossible for production to increase as rapidly as consumption. All of these conditions, pointing toward a good market in the immediate future, help us to forget the marketing problems of the past and overlook the certainty that they will again recur in the future.

The present bright outlook is bound to attract others to beekeeping. And many of those now in the business will materially increase their output. In fact, they are already doing so, many having doubled or tripled their production within the last year or two. Now we do not really fear an overproduction of the amount of honey that could be consumed if the public fully realized its value. But suppose that demand does not keep up with supply; suppose that production continues to increase rapidly; then a bumper honey crop is raised thruout the country and at the same time, perhaps consumers are found with less ready cash than at present—a condition that is bound to arise soon. Just about that time we would suddenly waken up to the fact that our present tactics in marketing will not do, and that even in time of prosperity we should all have been doing our best to increase demand and to use more business-like methods in the disposal of our crop.

Beekeepers in rather inaccessible parts of the country often find it necessary to sell at wholesale. Others, even in more thickly settled districts, sell in the same way, feeling that they cannot afford to compete with big bottling concerns in the disposal of their crop. They point out that this is an age of specialization. They say they are experts in raising honey, not in marketing. If such a beekeeper takes the trouble to become as well posted as possible before making the sale, he may get a fair price and be relieved from further worry during the rest of the year. At the present time this works out nicely; but the year will come when the market will be weak, and he will then be left high and dry with his honey or else be compelled to sell below its real value.

Those who retail at least a part of their crop in their own and neighboring towns have the advantage that every pound thus sold advertises the entire crop, present and future; for there is no better ad than a fine grade of honey put out under the producer's name. Selling in this way leads one to raise the very best grade possible, and many beekeepers find a distinct pleasure in retailing honey which they themselves have produced. Their pride and pleasure in the selling give them a cheerful optimism that is in itself an inducement to buy. If the trade is followed up closely and the customers kept always supplied, in a very short time one may double the amount of honey consumed in a given locality. In many places where one ton of honey was consumed annually a few years ago, as much as ten tons is now required to supply the trade.

Systematic advertising in the local newspapers, exhibits at county fairs, an occasional address or demonstration in the schools, and fine window displays, all help to increase the demand. Perhaps the last is as satisfactory a way of advertising as any. A very attractive display may be made by placing mirrors at the back of the window, thus causing a multiple reflections, and in front of the mirrors tiering the jars of honey in the form of pyramids, with sheets of clear glass just the right size between the tiers. The sheets of glass make it possible to leave equal spaces between jars so that by a judicious use of lights a beautiful effect may be obtained. It also adds to the interest to place in the window an observatory hive of bees so that the passers-by may watch the bees, as they suppose, "making honey." The novelty of seeing live bees always attracts the public.

For the beekeeper who has the time and inclination, there is no doubt that it will pay him well in dollars as well as in satisfaction to retail at least a part of his crop in his own locality; and, if he raises a good article, he will be helping not only himself but also all other beekeepers.

There are a number of factors that are at present preventing the best marketing conditions. Most of them may be grouped under the heading, "Poor Business Methods." In some cases the beekeepers accept prices far below what they consider the true value of the honey. Others sell to the grocers and then canvass from house to house, selling at a price lower than the grocer can afford to meet. A few beekeepers have been foolish enough, after disposing of their own honey, to buy an inferior grade hoping to keep their trade. There could of course be no better way devised for losing it.

Some have shown that distressing state of mind of being "perfectly satisfied" with present conditions. It is a fortunate thing that this feeling is not general, otherwise there would be little chance for improvement in the future. Some of us are far from satisfied with present conditions. In some localities the beekeeper with a good article is unable to sell until the market has been cleared of all the poor, half-price honey rushed in by the small beekeepers in the vicinity. We have also heard of honey sold in the same package in which it was purchased, yet sold at an increase of 100 per cent. The final selling price was only fair; so it is evident the producer received altogether too small an amount to pay him for the time and labor expended. There are also reports of buyers paying different prices for the same grade of honey, in the same vicinity and on the same day. Such conditions call for—not satisfaction but decided objection, followed by united action of the beekeepers.

Some have felt no special attention necessary in the disposal of the honey crop, since they believe the law of supply and demand will automatically take care of the matter of marketing. A few years ago a large firm began spending hundreds of thousands of dollars in advertising honey. Demand responded by shooting ahead of anything dreamed of. This firm did not sit idly awaiting demand but went out and made it. Today all beekeepers are profiting by it. And yet, what they have done is very small in comparison with what can be done.

We beekeepers working individually can increase demand and improve marketing conditions but think what a tremendous force we would be working along this line collectively. Some day we are going to do it. I do not know how soon this will be, but some day in the not too distant future, the beekeepers of this country are going to work together for the individual and common good, just as the orange growers, raisin producers and others have done. Are we going to do this now under present prosperous conditions or are we going to wait till more adverse conditions force the matter on to our attention? If we are foresighted enough to look past the present and see the time when honey will sell less readily than during the past winter, we shall not only see the necessity of working up a larger, more dependable trade individually but also shall realize the imperative need of immediate and concerted action of beekeepers as a whole.

Shipping Packages For Honey

The large number of claims that have been entered against the railroad and express companies for damage on shipments of both comb and extracted honey are clear evidence that something is radically wrong with our shipping packages. Many beekeepers have purchased the cheap-

est packages available, expressing the view that they receive just as much for their honey in the cheaper package as when a more expensive package is used. This in the past has been true to a certain extent but is re-acting against the industry in advanced rates and unless something is done to decrease the risk of loss by the public carriers in transportation, either shipments will be refused or the rates will be advanced to a prohibitive point.

COMB HONEY—Much of the trouble is caused by comb honey being shipped either by freight or express in the twenty-four section shipping case without further protection. This case was never intended for shipment in less than car lots without protection, and it is the exception rather than the rule that the honey is received in good condition when shipped in this manner.

For L. C. L. shipments, comb honey should be packed in crates or carriers built to hold eight cases, providing room for at least four inches of packing, (straw or similar material) in the bottom of the carrier. The straw in the bottom of the carrier is absolutely necessary and unless this is used and shipment is made during cold weather, many of the sections will be broken loose and the combs cracked by the jar in handling the crates. It is not advisable to use larger crates because of the weight, making the package so heavy that it cannot be carefully handled while in transit.

There is no doubt, that there are some beekeepers who believe themselves unjustly treated by the party purchasing their honey because of deductions having been made for loss in shipping due to improper packing. They have been inclined to question the statements of their principals, assuming that it was merely a desire on their part to take advantage of the shipper. There is no question that some such cases may have occurred. But in many instances if the shipper could see his product when it was received by the customer, he would then understand the need for greater care in preparing his crop for shipment.

EXTRACTED HONEY—The five gallon tin can, packed two in a case is the best and most satisfactory package for bulk extracted honey. In these days of high prices there has been a tendency to make the cans of too light grade of tin and also use a poor grade and thinner lumber in the cases making the entire package too light. The reason for this has been insistent demand on the part of the beekeeper for the cheapest package that could be obtained. There is already a strong sentiment not only among the buyers of honey but also shippers in favor of heavier cases. The California Honey Producers' Association have taken steps in advance along this line and have officially adopted a case which more nearly meets the requirements of both L. C. L. and carload shipments.

The shipper of today must recognize that ultimately he is the one who must pay the loss resulting from inadequate and improper packing. This will come in either reduced prices for his product or increased rate of freight on the particular commodity. In the past the shipper has been very ready to absolve himself from all blame by simple statement that the goods were in good condition when delivered to the R. R. Co. and if not in good condition when received by the buyer the transportation company was responsible and should pay the claim. Because of this indifference, the past few years have seen a great number of claims entered against the R. R. companies which has caused them to consider the question of making the rates high enough to cover the loss which they have to pay and leave a reasonable profit for carrying the goods. It is not the object of the writer to absolve the transportation companies from blame, only that we should look the matter square in the face and shoulder the responsibility that is clearly ours. Then when claims are entered for losses that are clearly the result of carelessness or accident, they will be paid without question. Satisfied customers are the greatest asset of any producer and in the near future when the real test of honey distribution is coming with an enormous increase in production with a conservative estimate that the beekeepers market must be doubled, no one can afford to overlook any factor that may insure his product reaching the consumer in the best condition possible.

Very truly yours,
J. A. Warren,
Representing A. I. Root Co.,
Medina, Ohio.

Local Association Notes

I am desirous of calling your attention to the new national association, the American Honey Producers' League.

The League is, without doubt, an organization of beekeepers, for beekeepers and by the beekeepers, which should fairly represent the best interests of beemen of all sections of the United States. I believe what is good for the West is also good for the East and what is good for the East is also good for the West.

Evidently because it is of the beekeepers, for the beekeepers and by the beekeepers, it is being opposed by certain outside interests. I understand that propaganda is being sent out with the purpose of discrediting the movement and causing dissension among beekeepers.

It seems that beekeeping is about the only industry not organized nationally and I believe that the time is now opportune for a national organization of actual producers. The fact that the meeting at Kansas City was attended by delegates from twenty-five or more state and regional associations representing more than half of the commercial beemen of the United States, and that the action of this meeting was unanimously endorsed by the Buffalo meeting, are proofs that there is a demand for an effective organization.

It must be understood that it is NOT a purpose of the League to form a nation-wide selling agency, as claimed by its detractors in spite of repeated denials, but its purpose is to assist all member associations in whatever activities will benefit the industry in general. The objects as set forth: Better Distribution, Uniform Equipment, Beneficial Legislation, a secretary not three days but every day in the year, Crop Reports, Advertising. Can we afford to turn these down? If the constitution is defective, it can be amended. If the officers do not represent us as they should, we can elect others. The League will be what the beekeepers make it. Of course, it must have the moral and financial support of the beekeepers, for without this it will be powerless to carry on its work.

* * *

On an average colonies are not as strong on this date as after a more normal winter and spring. However, if the season continues late all colonies will have time to build up before the clover flow. Honey movement is very slow, but better than last month. Clover appears to be in good condition.

Edward Hassinger, Jr.,
Fox River Valley Bee Ass'n, Greenville, Wis.

Uses of Honey

Honey is used both in its natural state and as an ingredient of cooked food. In this country it is more commonly used uncooked than cooked, and practically all comb honey is consumed in this way. Honey is much more commonly used in cookery in Europe than in America, though commercial bakers and confectioners in the United States use much larger quantities than many persons realize.

The simplest way of using honey is to serve it like jam or sirup with bread, breakfast cereals, boiled rice, pancakes, and other mild-flavored foods. As ordinarily used on bread, an ounce of honey "spreads" as many slices as an ounce of jam. When it is to be used in the place of sirup some people dilute it by mixing it with hot water, which has the effect of making it not only less sweet but also easier to pour.

Honey or a mixture of honey and sugar sirup can be satisfactorily used

for sweetening lemonade and other fruit drinks. Sirup of any kind is more convenient for this purpose than undissolved sugar, and when charged water is to be added it has a further advantage since it has less tendency to expel the gas.

Honey can be used in place of sugar for some kinds of preserving, and there is reason to believe that fruits cooked in it keep very well indeed. Bar-le-Duc currants, which form a very delicate and expensive article of commerce, are often made by cooking currants in honey. They are frequently served with cream cheese and crackers or other form of bread. A satisfactory substitute may be secured by serving honey and tart fruit, either cooked or uncooked, with cottage cheese and bread and butter. Three ounces of cottage cheese curd, two ounces of bread, two-thirds ounce of butter (either added to the curd or spread on the bread), two ounces of honey, and six ounces of strawberries or other watery fruit would make a reasonably well balanced meal. Sometimes honey alone is served with cream cheese. Crisp crackers, spread with cream cheese and honey, form a good combination from the point of view of nutritive value and taste. Honey may be substituted for sugar in baking apples.

MY NEIGHBOR'S GARDEN

Continued from page 177

but hot. When the first fierce heat is gone, in two or three days, when it is down to about blood heat, put in your seeds. You will have to watch the ventilation very carefully, as damping off is much more likely to occur than in an unheated frame. If you wish to take the trouble you can save manure by having a pit for your manure which should be just a little larger than your frame. You can start your hot bed two weeks or a month earlier than you can your cold frame and produce your early vegetables in half the time. Before trying to transplant from a cold frame or a hotbed, you must harden off your plants by leaving off your sash,—part of a day at a time at first, gradually lengthening the time of exposure.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

Raspberry and Blackberry Insects

The Tree Crickets

The females of tree crickets injure plants of blackberries and raspberries by depositing their eggs in punctures which run lengthwise in the canes. Some are often two inches in length and contain on the average about 30 eggs each.

The rows of punctures either kill the upper part of the cane or so weaken it as to prevent the full development of the fruit. This loss is considerable in Wisconsin especially where the vines grow near neglected fields.

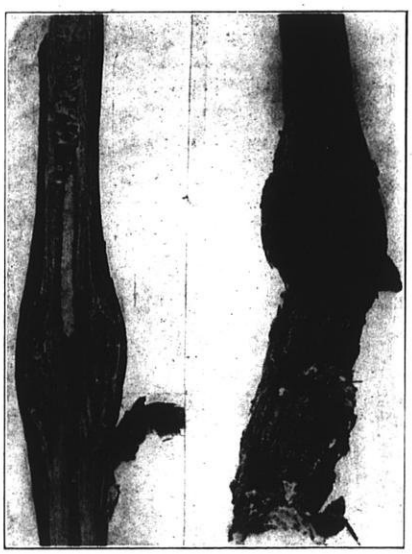
The young which hatch from these eggs are not harmful since they are predaceous, feeding principally on aphids and other soft-bodied insects.

Tree crickets can be held in check by systematically pruning out the infested canes and burning them.

Raspberry Cane Borer

This undoubtedly is one of the worst pests of raspberries, both black and red varieties, that occurs in Wisconsin. The adult is a slender-bodied beetle about one-half inch in length and dark in color except the prothorax, which is yellow. The beetles appear in June and the female deposits her eggs singly in the pith of the tender shoots about six inches from the tips of the canes. First, she makes two rows of punctures about half an inch apart; these punctures encircle the cane and cause the tip to wilt. Between these rows of punctures, but nearer the lower row, she inserts her egg.

The young which hatches from the egg bores down the cane and continues its work until the second year; by this time the cane usually dies. The burrow winds thru the pith and at frequent intervals an opening is made in the bark through which the larva casts forth its excrement. The second spring the larva pupates and then changes to an adult and the life cycle begins over again.



Galls caused by the presence of the Red-necked cane borer. The one on the left shows cane split and the full grown larva in its burrow. The one on the right shows the kind of enlargement made at the base of the cane.

Treatment: The wilted tips as mentioned above are easily noticed and they should be cut off below the girdles and destroyed. At pruning time any of the infested canes should be cut off close to the ground and burned. The infested canes are easily detected by the openings the larvae make to the outside.

The Red-necked Cane Borer

This borer ranks next to the raspberry cane borer, if it does not equal it in the amount of injury done to blackberry and raspberry canes. The adult is a beetle which causes irregular swellings or galls from one to three inches in length. The galls are gradual enlargements of the canes and are easily noticed by longitudinal splitting of the bark. The infested canes are so injured as to stunt the growth and proper development of the fruit.

The larva forms a gall above ground and then makes its way through the pith of the cane and forms another similar gall at the base of the stalk. It then goes up the cane until full grown at which time it changes to a pupa and then to an adult.

Control Measures consist in pruning out and burning all infested stalks.

The Raspberry Byturus

The Byturus is another pest which is destructive to the opening buds of the red raspberry. This insect is treated in detail in the June issue last spring. It is easily checked by spraying with lead arsenate two pounds to 50 gallons of water.

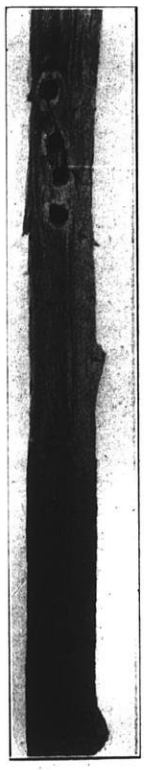
Raspberry and Blackberry Crown-Borer or the Raspberry Root Borer

Look up your last November number and turn to page 42. There you will find a summary regarding its life history and control. Additional evidence as to the occurrence of this insect in Wisconsin has come from a couple of places near Madison. Farmers should keep a careful lookout for the large whitish larvae and im-

mediately destroy infested canes down to the roots as the borer if permitted a chance to become well established would probably prove the most severe pest of raspberry canes.

Three other insects that often injure the raspberry and blackberry plants are the cane maggot, not known to occur in Wisconsin; the leaf miner, which seldom proves troublesome; and the raspberry sawfly, the larva of which is about ¾ inches in length, light green in color, and covered with blackish tubercles which give the worm a spotted appearance. They feed upon the leaves, eating out irregular holes and leave only the larger veins. They are easily controlled with a spray of lead arsenate, ½ pound to 25 gallons of water.

Chas. L. Fluke, Jr.



Holes made to the outside of the cane by the Raspberry cane borer.

Grasshoppers Numerous This Year

The young grasshoppers are already appearing in large numbers and everything points to an epidemic of these pests this year. Farmers and county agents should be on the lookout for them and

Larva of the Raspberry cane borer in its burrow, nearly ready to change to an adult.

use poisoned bait before they have a chance to ruin our crops.

Make poisoned bait as follows:

Materials Needed

Bran, alfalfa meal, or midlings	25 pounds
Paris Green or White Arsenic	1 pound
Low Grade Molasses	2 quarts
Lemons or Oranges	6
Water	3 gallons

Mix the above materials as follows:

Mix together thoroughly while dry the Paris green and bran. Dilute the molasses with the water and add the lemons, finely chopped up, to this mixture. Stir the molasses, water and lemon mixture into the bran and Paris green. Add just enough water to make the bait crumbly but not sloppy. Scatter broadcast, not in piles, over the fields where the grasshoppers are found, using 5 to 7 pounds to the acre. This is best done toward evening or early in the morning.

This bait is also good to use against cutworms.

Chas. L. Fluke, Jr.

CARE OF HOUSE PLANTS

Continued from page 179

hole, in the bottom of the pot, to become clogged. If the hole is allowed to become clogged, the soil will become water-logged and sour and the plant will soon die.

When the plant is watered, enough should be given so that it runs through the hole in the bottom. Sometimes a plant is allowed to become so dry that the soil shrinks away from the edges of the pot and when the water is given, it runs through between the soil and the pot without wetting the center of the ball of earth. In this case the best thing to do is to place the pot in a pail of water up to the height of the soil in the pot. The water will gradually work its way up through the entire ball of earth. When the surface of the soil has become wet the plant should be taken out and allowed to drain thoroughly.

How to tell when a plant needs water is a puzzle to a great many people and many a fine plant has been killed from this cause. The old-fashioned way of rapping on

the rim of the pot is the most reliable way, and when once the trick is learned, no further trouble will be experienced. To explain this method I would say, take an empty flower pot, a plant you know is very dry, and a plant that has been thoroughly watered. Place the three side by side. Bend the fingers of the hand slightly and with the knuckles of the second joints rap on the rim of the empty pot. It will give a clear, empty sound. Now rap on the rim of the one you know is awfully dry, it will give a sound similar to the empty pot. Rap the rim of the plant that has been thoroughly watered, and it will give a dull sound, almost as if you were rapping on a solid brick wall. If this practice is continued, one soon becomes an expert and the amount of moisture in the soil of any pot plant can be determined b ythe sound. The greater the need of the plant for water the clearer the sound will be.

The Opening of Flowers

Willard N. Clute in Gardeners' Chronicle.

There is probably no more interesting chapter in botany than that which concerns the opening of flowers. The casual observer noting the general resumption of activity by the world at large as the day breaks is likely to jump to the conclusion that flowers follow the general custom of opening with the advent of day and closing as night approaches. It is true that many plants have this habit, but it is far from the rule among plants. In fact, the phenomena of the opening and closing of flowers, or *anthesis*, as it is called, are extremely complicated and call for the best efforts of the botanist to explain. Just as the form, color and odor of flowers have been modified or even developed with reference to pollinating insects, so the time at which flowers open and the length of time they remain in this condition is determined by many extraneous agencies, many of which may possibly not be known at present.

Not only is there much variation in the time at which flowers open and close, but the greatest diversity exists as regards the length of time the individual flowers remain open. Certain orchids, if unpollinated, may remain open for six weeks or more and in general the absence of pollination tends to lengthen the life of the flower. Tulips, Easter Lilies and the like may be made to remain open for some time longer than they naturally would if pollination is prevented. Contrasted with these examples is a little weed, common in cultivated grounds which is known as "flower-of-an-hour" because its blossoms do not remain expanded much longer than the period indicated in the common name. The blossom of the wild grape is still more remarkable, for just as the bud expands and the flower seems about to open the whole corolla falls off and thus the flower, though exposing stamens and pistils, can in a certain sense be said not to open at all. The garden plant called okra, though it ordinarily opens its flowers, may, on occasion, follow the example of the grape, and it is but a step from these to cleistogamous flowers like the summer flowers of some violets which entirely lack petals, and though perfecting much seed, always remain budlike.

In ordinary flowers some days usually elapse between the time the petals first unfold and the date at which they wither and fall from the plant. The corolla, in the least interesting forms, remains continuously open until anthesis is past, but in others the flowers may close temporarily several times in response to moisture, lowered temperature, darkness or possibly other things.

The opening of our early spring flowers, such as Crocus and Dog-tooth-violet, is frequently determined solely by temperature. If the temperature of the air and soil rise above a certain point they seem obliged to open. In fact, the same phenomena seem to govern the very production of such flowers and it has been found possible in many cases to ascertain the exact number of heat units necessary to produce a given blossom. It is a matter of common knowledge that the first flowers of any kind do not appear just anywhere. We must seek the earliest in the sunny and sheltered nooks where the required number of heat units are first received.

Temperature, however, may cause the closing flowers, as we see in the case of the Waterlily, which, though it opens its flowers as soon as the day breaks, closes by mid-day. The same is true of Morning Glories, and possibly of other flowers that open late in the day and last until the next morning. That it is really temperature that causes the flowers of Morning Glory, Four O'clock and the like to close seems proven by the fact that late in the year, when the temperature has lessened, these flowers remain open all day and the Morning Glories become all-day glories.

The effects of light upon the opening of some flowers are very marked. Waterlilies, picked in the early morning before they have opened and kept in the dark will open whenever brought to the light. Thus one may decorate the house with full-blown Waterlilies at evening. The dandelion, also, is very sensitive to the light and refuses to open unless the day is sunny. Often a few hours of cloudy weather in the middle of the day will cause the flowers to close. Sir John Lubbock, experimenting with these plants, found that if a blooming dandelion in a pot was exposed to bright lamplight it would remain open all night.

Darkness also apparently has an effect upon the opening of flowers, as in the Night Blooming Cereus and various other cacti which commonly do not unfold their petals until well along toward midnight. There are a host of other blossoms whose main period of bloom is during the hours of darkness. Many of these have common names that indicate the fact, as Four O'clock, Evening Primrose, Night Flowering Catchfly, Pretty-by-night, and the like. Flowers of this kind commonly remain open until the sun is well up and seldom open the second time.

That darkness like temperature, may have opposite effects upon different flowers is seen in the fact that it is usual for many blossoms to close as night approaches. This is so common a phenomenon that its very commonness gains it little attention. It will probably be difficult for one to name off-hand a flower that does close at night. Of this class, however, is the Day Lily, and so is the Daisy, whose name, literally the day's eye, is truly significant.

The amount of moisture in the air is also at times sufficient to influence the opening of flowers. The scarlet pimpernel, a common weed with tiny red blossoms, is known in some sections as "poor man's weather glass." Its flowers are so sensitive to moisture that they invariably close with the rise in humidity that betokens a storm and some hours in advance of it. The chickweed, common in cultivated grounds everywhere, is said to have the same habit. Many other flowers close in time to escape an actual wetting by the rain, while still others, though they do not close, are able to assume positions that keep the raindrop out of the flowers. The wild geranium turns its blossoms upside down.

It is doubtless a fact that many of the phenomena of anthesis attributed to temperature, light and the like may, in the last analysis, turn out to be in response to the visits of insects. For instance, many of the flowers that open at dusk do so because they are polli-

nated by crepuscular insects. Further support is given this theory by the fact that many of these give out a fragrance at dusk and at dawn only, when such insects are abroad. It is hard, however, to reconcile the behavior of the oyster plant and goat's-beard with any theory of adjustment to insects, for they close at exactly the time when insect visitors are most abundant. The goat's-beard, in fact, has received the comomn name of John-go-to-bed-at-noon because the flowers close so promtly at mid-day that one could almost set his watch by them.

It is a noticeable fact that flowers most affected by the agencies mentioned are all of the kind known as entomophilous, that is, insect pollinated flowers, since they open for the express purpose of receiving insect vision. It is likely that all the responses they make to temperature, light and the like are really made with pollination as the ultimate end in view. Finding, however, that these phenomena are so intimately related to the flight of insects that they can be used as guides they have apparently been adopted. If an insect, for instance, does not emerge from its cocoon until a certain degree of heat is received and does not roam abroad unless the day is fair, the flower that is adjusted to the same amounts of heat and light is certain to be in condition to be pollinated when the insect is flying. It may be possible to trace similar adjustments through all the variations in anthesis throughout the world of plants.

Fragrance in Wild Flowers

A new angle in the fragrant wild flower situation has been developed by a note from Dr. A. F. Blakeslee in Science. He found two forms of garden verbena, one of which was fragrant to him and one of which was not. Happening to call the attention of an assistant to the flowers, the latter reported the odorless one fragrant and the fragrant one without odor, so far as he was concerned. This led to further experiment with the result that out of a considerable number of people tested, some found one form fragrant and some the other. The subjects were tested blindfolded so that no color suggestion vitiated the results. If this condition is found to exist with regard to other flowers, we may have to have new tests to decide which flowers are fragrant and which are not. We have repeatedly suggested that all flowers may be fragrant to the insects that visit them and here, at least, we have evidence that even fragrant flowers may be odorless to noses that can distinguish fragrance in other forms. It is likely that those who can smell at all would not disagree in the case of such strongly scented flowers as pink azalea, wild crab, wild grape and arbutus, but in flowers reputed to be only faintly fragrant, the question now arises, are they fragrant, or is our own nose at fault?—American Botanist.

The Control of Apple Scab

Scab is by all odds the most serious disease with which Wisconsin growers have to contend. The situation is particularly aggravating because of the fact that the disease seems to vary in different sections and seasons. A grower may spray "by the book," or bulletin this year and get a crop 90 per cent scab free and next year with the same treatment have 90 per cent scab. On account of this many growers have about concluded that the bulletin writers were either doing some wild guessing or else they were repeating what someone else had said and without knowing very much about scab.

The best help we have had lately is from Prof. G. W. Keitt, who has been studying scab in Door county for two years. Like all investigators who mean to get to the bottom of things he is reluctant to make positive state-

ments until the work is completed. pleted.

Here are a few of the "high lights" from a special bulletin by Prof. Keitt:

"The fungus passes the winter in the dead leaves on the ground where in the spring it produces spores which are discharged into the air. When these spores lodge on the young leaves or fruits of the apple they germinate and produce the disease."

"The studies of the fungus showed that the winter spores began to be discharged in abundance from the old leaves on the ground on May 15th ten to twelve days before the time for the 'pink spray.'" (This at Sturgeon Bay, Editor.)

"The spores are discharged in abundance only when it rains."

In the course of the experiments Bordeaux mixture, lime sulphur, dry lime sulphur and a mixed schedule were used. On certain badly scabbing varieties such as Snow, Lubsk Queen and McIntosh an extra or "pre-pink" spray was applied, "as soon as the young fruit buds were exposed in the clusters, well before their separation." While a cautious tone marks all of Keitt's bulletin the following recommendations (for (Door county) are offered "temporarily until further results are available."

1. Where clean culture is practiced and the land permits, plow or disk **thoroughly** before the young fruit buds are exposed to infection, and thereby lessen the number of winter spores to be discharged.

2. Use lime-sulphur, 1–40, or dry lime-sulphur, (3 to 4 lbs. in 50 gallons) on varieties that russet or take a poor finish from Bordeaux.

3. Apply a "pre-pink" spray on badly scabbing varieties, as Snow, McIntosh, and Lubsk's Queen.

4. Apply the "pre-pink" spray as the young fruit buds are exposed to infection from air-borne spores. This will ordinarily be when the first three or four leaves have separated from them, and at about the time the leading bud begins to show the first trace of pink.

Apply the "pink" spray as soon as the buds are well separated in the clusters, and the blossom buds show pink just before blooming.

Apply the "calyx" spray as soon as the petals are off. If blooming is irregular begin when they are three-fourths off.

Apply the following spray 10 days after the "calyx" application.

Apply the last spray at the time best suited for controlling the second brood of codling moth, provided this is not so near harvest that the appearance of the fruit will be marred by spray. This will probably be about the middle of August in Door county. For further information on this point address the Department of Economic Entomology, College of Agriculture, Madison.

If the final application must be made in excessively hot weather, use Bordeaux mixture instead of lime-sulphur.

5. Do not let the growth of the trees become unduly thick, so as to hinder spraying and to prevent free circulation of air.

Cautions

Thoroughness and timeliness of application are necessary if scab is to be controlled satisfactorily on such varieties as Snow, Lubsk's Queen, and McIntosh.

Lime-sulphur without arsenate of lead is not nearly so strong a fungicide as with the arsenate. In all applications use arsenate of lead at the rate of 1 pound of the powder to 50 gallons of spray.

Apple Spraying

A good spray schedule, one which has been tested.

Spray No. I. Lime sulfur one gallon to 12 gallons water. For scale insects and to be applied before the buds open.

Spray No. II. Lime sulfur five quarts to 50 gallons water. Add 2 lbs. of lead arsenate for leaf feeding insects. This is the **pink** spray and should be applied when the buds open up in the clusters.

Spray No. III. Lime sulfur the same as in spray 2. Use also 1 pound of lead arsenate to 50 gallons of the spray. This is the **calyx** spray and should be applied just after the petals fall and before the calyx cup closes. For diseases, codling moth and plum curculio.

Spray No. IV. Same as No. 3 applied two weeks later.

Spray No. V. Same as No. 3 or 4 and should be applied 65 to 75 days after spray No. 4. This application is primarily for the codling moth and if put on before the 12th of August it doesn't do the greatest amount of good. Tests carried on at Madison show that the eggs **do not** begin to hatch until after August 12 to 15

Wood ashes are a good fertilizer to apply to fruit plants in small quantities.

Milwaukee Wis
March, 27, 1920

Dear Sir:-

Kindly send me your

mount

What Will We Do About This?

Someone sent the above letter or part of a letter and fifty cents, presumably for membership. Who is he? Where in — Milwaukee is he? Can any reader help us find him?

SPRAY QUERIES

Will you let me know if the dry form of lime sulphur has been tried out thoroly enough to know whether it will take the place of liquid lime sulphur; the dry form to be used as a liquid spray.

Ans: No. Quite satisfactory results in controlling apple scab have been secured on experimental plats and by commercial growers during the past two years. Further trials should be made before recommending the dry lime as a substitute for the liquid, especially, as reports from other states show less satisfactory results than those secured in Wisconsin.

Can the spray barrel be filled with water and then the dry arsenate of lead and lime sulphur be put in the barrel and thoroly mixed with the spray pump? Yes.

A Minneapolis nurseryman has sold more than $700 worth of pussy willow sprays this year. Not bad for a sideline. He did this by advertising in a florist paper and furnishing fine quality material.

Lettuce and Swiss chard are two good kitchen vegetables and are also good for chickens' green food.

Sunflowers are ornamental and the seeds make good hen food. Plant a few.

Summer meeting, Racine, Aug. 18th and 19th, 1920.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, July, 1920 | Number 11

CHARLES G. PATTEN

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Mr. Patten now in his 89th year is as mentally alert as ever and takes a very keen interest in all that goes on in fruit breeding.—*Lanz.*

Charles G. Patten

Emminent Fruit Breeder and Horticulturist

By H. L. Lantz

Charles G. Patten has long been widely recognized as a pioneer and leading plant breeder. For fifty years he has labored with fine public spirit in an untiring effort to develop new fruits for the Upper Mississippi Valley which would be hardly enough to withstand the rigors of the exacting climatic conditions of that region. Mr. Patten's pioneer effort in fruit breeding has given to the people of the Upper Mississippi Valley region a number of new hardy apples, pears and plums. More than that, he has developed a unique collection of foundation plant material which should be used for further advancement in the development of hardy fruits of good quality.

I shall never forget my first visit at Mr. Patten's breeding and testing grounds located at the edge of Charles City, Iowa. It was in September, 1917. The fruition of a life time of effort was a tangible reality expressed by hundreds of perfectly hardy trees which were ripening loads of beautiful fruit. New apples, pears and plums were fruiting under the trying climatic conditions of a formerly fruitless prairie.

Mr. Patten was born in northern New York in 1832. He was a farm boy and was brought up amidst the general farm husbandry of northern New York, receiving what advantages the common schools of New York gave up until the time he was about 14 years of age. Following this he had one winter in a poor school in northern New York, and three winters in Wisconsin, only one of which he considered a good "common" school. "Nevertheless," says Mr. Patten, "at the close of the winter following my nineteenth birthday I could have obtained a certificate to teach."

He then spent about two years in the construction of railroads, being a contractor part of the time. His "school" education was completed by studying two terms at the Delton Academy, Sauk County, Wisconsin.

He followed general farming in Wisconsin from 1856 to 1864, and then moved to Charles City, Iowa, engaging for two years in mixed farming and lumbering.

Mr. Patten is by nature a lover of plants. He saw at once the great need of fruits and ornamentals for northern Iowa, so he immediately set himself to the task of supplying that need. In 1866, without ever having seen a graft made he began in the nursery business.

"In 1866," says Mr. Patten, "I made quite a large planting of apple seeds with a view of improving the well known varieties. I had made some effort in this work in Wisconsin." From that time on his fruit breeding work was studiously carried on, twenty acres being entirely given over to the work. This was done in the midst of a business carried on for a livelihood and in spite of a constant struggle for health.

Mr. Patten's methods were not haphazard, but born of foresight well planned and always looking toward hardiness and fruitfulness of tree as well as to quality of fruit. He had no training in plant breeding, but nevertheless began contributing articles for the papers in the early 70's and from 1875 contributed many of the leading papers on fruit breeding to be found in the reports of the Iowa Horticultural Society. These articles show the vision and prophetic eye of the true plant breeder.

None of the standard Eastern varieties such as Baldwin, Northern Spy and Rhode Island Greening were hardy enough for this region. Even many of the Wisconsin varieties failed in northern Iowa. In the early days winter killing repeatedly eliminated nearly every variety except Briar Sweet Crab. Consequently most of the farmers relied mainly upon this variety to supply their needs for fruit. Even Oldenburg, Wealthy, Fameuse, which are classed among the more hardy sorts, were sometimes severely injured or killed outright by the fierce winters. Clearly it was necessary to breed a new race of fruits. In looking over the standard varieties grown in the United States, Mr. Patten observed that nearly all were of American origin. He did not believe that the hardy Russian sorts were adapted to northern Iowa. Neither did he believe advancement would be made by hybridizing with native crab, the Soulard or the Siberian crabs. These were too small in size. Indiscriminate planting of seeds, trusting that something of value might come out of it did not appeal, altho Peter Gideon did produce the Wealthy in this way. This method he considered too unscientific.

He began then, after considering all these theories, to plant seeds only of the best and most hardy varieties of apples. These were his foundation. Seedlings

of superior merit were preserved and these crossed with other varieties of merit. The results were concrete almost from the start.

In 1869 Mr. Patten planted a number of seeds of Oldenburg from Wisconsin from which he secured his Patten (Greening) a variety well known, reliably hardy and productive in the Dakotas, northern Iowa, Minnesota, Wisconsin, and even in Canada it has proved its worth. Mr. Patten's success in producing this seedling further convinced him that the best winter apples for the Upper Mississippi Valley region would have to be produced in that region. He did not believe that a good winter apple would come out of the Russian importations, and constantly set before the people the necessity of planting and testing thousands of seedlings.

Out of the thousands of seedlings grown by Mr. Patten a number of varieties have been named and distributed. Other promising new varieties are being tested.

Patten (Greening), a seedling of Oldenburg, originated in 1869. It is probably the most widely known of Mr. Patten's originations.

Eastman is a fine large and striped apple, a seedling of Fameuse originating in 1880.

Brilliant is another seedling of Fameuse originated in 1881 which bids fair in Mr. Patten's estimation to become an important variety in Michigan and Wisconsin.

Silas Wilson, a bright red, attractive, sprightly, subacid apple, is a seedling of Ben Davis and evidently a cross with Jonathan, showing as it does many of the characteristics of Jonathan in both tree and fruit. It is of good quality, but not reliably hardy in northern Iowa unless top worked.

These are a few of the most notable varieties which Mr. Patten has originated and introduced. Other new promising sorts are being tested, some of which no doubt will prove to be of value.

Developments in Pear Breeding

In the early 80's Mr. Patten secured several trees of a hardy, blight resistant Chinese pear which was first thought to be Pyrus sinensis, but which was later identified as Pyrus ussuriensis by Professor F. C. Reinmer. Pyrus ussuriensis is perhaps at present the most talked of blight resistant pear of all the Chinese species which have been introduced in the United States because of the possibilities which it offers as a blight resistant stock for the best varieties of pears now grown in America. Mr. Patten came to recognize its value as a new foundation upon which to breed for hardiness of tree and blight resistance. Today there are growing on the grounds a number of seedlings of Pyrus ussuriensis which are without doubt crosses with Seckel. These seedlings are "hardy as an oak," one of which has been a regular and consistent bearer for more than 10 years. Several thousand cross bred seedlings of these particular hybrids, crossed with such varieties as Bartlett, Flemish Beauty, Howell, Anjou and Winter Nelis are now coming into fruiting. These seedlings are very vigorous, and to date have shown no injury from blight, altho they show much variation as to hardiness, vigor, type of growth, leaf area, etc. Out of this collection with such remarkable blood lines, if one may judge from results heretofore obtained by Mr. Patten's work, will no doubt come a distinct advance in the breeding of blight resistant hardy pears of superior hardiness.

Several hardy pears have been troduced by Mr. Patten. Seckel No. 1 is a seedling of Seckel. It is perfectly hardy at Charles City and is a vigorous grower and regular bearer. The fruit resembles Seckel in form and color, but is easily a third larger in size and quite similar in quality and season.

The most notable seedling in point of size and quality is a cross of Orel 15 and Anjou. It favors Anjou in form and size, is an attractive green pear with a red cheek, juicy, sprightly, fine in grain and ranks very good in quality. Season September.

Other promising new pear seedlings have fruited which bear out Mr. Patten's early prediction that hardy and blight resistant varieties could be and would be originated by scientific breeding. He is living to see his prediction realized in a measure in already developed pears suited to northern Iowa, Minnesota, Wisconsin and the Dakotas.

Plum Breeding

A prominent nurseryman not long ago stated that if all the known varieties of American plums now grown in the Upper Mississippi Valley were wiped out, and the plums of Mr. Patten's origination were to be placed on the market in their stead, plum growing would be advanced 20 years.

Mr. Patten has bred, grown and selected from thousands of

seedlings, always preserving the best. Out of this effort has come many plums of fine size and dessert quality. Several are freestone.

These are a few of the things Mr. Patten has accomplished in a life time of unselfish effort. He has given the people of the Upper Mississippi Valley, where climatic conditions were not conducive to fruit growing, new varieties of apples, pears, and plums of superior hardiness and of better quality. His contribution to horticulture will not only benefit the immediate region of Iowa and its contiguous territory but the whole of American horticulture.

Mr. Patten's work has been widely recognized. He was awarded honorary certificates, by both Iowa State College and by the University of Minnesota some years ago, in recognition of his work in fruit breeding. He is an honorary member of both the Wisconsin and Iowa State Horticultural Societies having served as president and director of the latter Society for a number of years. In 1905 he exhibited at the annual meeting of the American Pomological Society held in Kansas City, a large collection of cross bred fruits receiving the coveted Wilder Silver Medal which is the highest award given by this Society. At the Jamestown Exposition he again exhibited at the Pomological Meeting sixty varieties which he originated, again winning the Wilder Medal. At St. Louis in 1904, he was awarded a bronze medal for his exhibit of new fruits shown at the Louisiana Purchase Exposition.

Mr. Patten, through the efforts of friends, secured assistance for the prosecution of his fruit breeding work from time to time both in money and expert assistance. In 1905 an arrangement was made whereby the Iowa Agricultural Experiment Station, the Iowa State Horticultural Society and the United States Department of Agriculture were to co-operate with Mr. Patten, he being appointed as manager.

In May 1917, Mr. Patten's trial grounds became the property of the State of Iowa, together with many thousands of seedlings to be used, and further developed by the Pomology Section of the Iowa Agricultural Experiment Station. Not only does the Staff of the Pomology Section regard this as a fortunate acquisition because of the wonderful foundation already established for hardiness of tree, but horticulturists all through the Middle West and West have recognized its value.

There are hundreds of seedlings just coming into bearing which have been bred with a knowledge of the peculiarly trying climatic requirements of northern Iowa, out of which further advances in fruit breeding work are to be made. Extensive breeding work is being done, thousands of new seedlings of known parentage having been bred these past three years. When the State acquired this collection and grounds Mr. Patten was appointed Associate in Fruit Breeding and made a member of the Staff so that this valuable experience might be retained and used.

Mr. Patten is now in his 89th year, is as mentally alert as ever and takes a very keen interest in all that goes on in fruit breeding.

My Neighbor's Garden

Looking into my neighbor's back yard the other day I saw him bent over industriously shaking a big flat box and on looking closer I saw he was sifting something. My curiosity was aroused and I found that he was sifting dirt into one of his cold frames. He had filled one of his cold frames to within about an inch and a half of the lower edge with earth and had leveled it down carefully, and was sifting a light layer of very fine soil uniformly over the top.

I asked him to tell me what he was doing, what he had done and why.

He told me he was getting ready to sow the seeds of his biennials, his tender perennials and some perennials which he did not have in his flower garden. These need not be started until after the spring rush, and while it is best to start the latter part of May, it can be done any time up to the first or middle of August. As soon as a cold frame is emptied of the plants that have come through the winter in it, or the plants which have been started in the house and transplanted to it temporarily, have been set in their permanent places, my neighbor puts in some soil to replace that which has been lost in transplanting, levels it off carefully, soaks it with water, and then sifts over it, to the uniform depth of an inch or more, a fine mixture of garden soil, sand and leaf-mold, about one-third of each, the more leaf-mold the better. In this he makes very shallow scratches in which he sows his seeds. He says his one rule is to use plenty of soil, to cover his seed at varying depths so the

some of it will be right, and that his experience is that he more often sows too deep than too shallow. The seeds of perennials are generally small and need only the slightest covering, sometimes they are so small that they are best mixed with sand before sowing and then they need only to be pressed into the soil with a flat board or block. They must be kept damp until after they have rooted. This can only be done by shading and covering. My neighbor covers his rows with strips of wornout sheeting pressed down so that it is close to the soil, and then covers the whole frame with burlap. The object of this is to keep the seeds and seedlings moist and to shield them from the hot mid-summer sun. In other words to approximate natural conditions. In case of a very heavy summer rain it is well to put the sash over the frame so that the seeds and seedlings may not be washed away. After the seeds are sown and covered with the sheeting, the bed should be carefully sprinkled with the watering pot, and the cloth should be kept moist until the seedlings have pushed it up. It should then be removed so that the plant shall not grow spindling. The burlap shade should be continued until the first real leaves of the plant show. It is better to leave it on in the middle of the day for a week or so, leaving it off until eleven, and taking it off again at four. The surface of the soil should be kept moist, and when rather dry it should be stirred occasionally to break up the capillary channels, and to prevent the surface from baking. The seedlings should of course be thinned so as not to crowd and if there is time and another coldframe available it is advisable to transplant the plants, as the root growth will be better.

The seed which my neighbor was sowing was foxglove, Canterbury bell, English daisy. He says that foxglove and English daisy are really perennials, but that in this climate they are so sure to be killed by the second winter that they are best treated as biennials, and a new lot of plants raised each year for blossoming the next. About three winters out of five they will be killed the first winter if left in the open, so it is safest to leave them in the coldframes until spring and then to transfer them to their permanent places. In this way my neighbor makes sure of having these plants every year. My neighbor raises a lot of columbine plants each year. Although columbines are perennials, the hybrids are generally not long lived, so he raises a lot each year to replace those which have died out, or which have been rooted out for having inferior blossoms. He is always experimenting with the novelties offered in the seed catalogs keeping the plants if they please him and rooting them out if they do not. If he finds that a perennial which he likes is not hardy in the open he treats it as a biennial, winters it over in the coldframe and starts a new supply from seed. By raising his own plants he can get a lot of plants for the money which he would have paid for one, and have a lot to give away.

Vegetable and flowering plants are often mulched with well rotted manure during the dry season. This supplies food and also keeps the roots cool and moist.

Appletree Barnes Moves

A. D. "Appletree" Barnes, who has successfully conducted the Waupaca Arctic Nursery for thirty-three years, has recently sold his farm there and purchased property in Friendship. His Waupaca site consisted of about one hundred acres which he purchased at $25 to $35 per acre. He, at that time, had optimistic views for the future of Waupaca county, and has just proved that his views are correct as he recently sold his farm there at $210 per acre.

Mr. Barnes has been a firm believer in the future prosperity of the light soil belt of Central Wisconsin, and has demonstrated his faith by purchasing, during the last twenty years something over 5,000 acres of land, mostly in Adams county. He has recently purchased the Adams County Real Estate and Abstract business, together with residence properties at county seat, Friendship; and together with his son, R. V. Barnes, he will not only look after the selling and renting of farms, but will also enter extensively into the abstract business, as well as conduct a nursery which they are now planting at Friendship.—Grand Rapids Tribune.

There are commercial preparations on the market which combine an arsenical and bordeaux. These are often adaptable to a small garden.

Shasta daisies make fine specimen plants in a shrubbery and furnish excellent cut flowers.

Wisconsin Horticulture

Published Monthly by the Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

Wisconsin State Horticultural Society

Annual membership fee, one dollar, which includes fifty cents, subscription price to Wisconsin Horticulture. Send one dollar to Frederic Cranefield, Editor, Madison, Wis.

Remit by Postal or Express Money Order. A dollar bill may be sent safely if wrapped or attached to a card. Personal checks accepted.

Postage stamps not accepted.

Summer Meeting

Racine, Wednesday and Thursday, August 18th and 19th

Many are wondering why Racine was selected for the summer meeting; Brother Moyle takes it as a joke. The joke may be on him before we are thru. While it is true that the city of Racine is not a noted center of horticultural interest and while we have no local society there it is not horticulturally dead by any means.

It was not, however, the city of Racine which attracted us in making the selection but the surroundings. This southwestern corner of the state, Racine and Kenosha counties, comprises one of the biggest truck farming districts in the middle west. Thousands of acres of vegetables, largely onion and cabbage are grown in these counties and it is this sort of thing that we are going to see. Other years we have visited cherry and apple orchards, market gardens and last year a nursery. Now let's see how the humble onion grows.

There should also be a demonstration of garden tractors,—no doubt will be.

While the citizens of Racine have not at this writing been consulted they will no doubt extend the glad hand.

While not horticulture many of our members may be seized with a desire to learn how an automobile is made. There are many of them made at Racine and Kenosha. Last but surely not least, Racine is the home of the Wisconsin Agriculturist and we may learn how that is made altho the editor of this publication doubts that any one will learn. How such things are done is beyond any human understanding. Altogether we should have a very pleasant time.

Program Summer Meeting

To date none has been arranged. There may be none. Arrangements have been made with specialists in floriculture, berry growing, landscape art and other lines of interest to our members but none of them has been asked to prepare a paper or set address. If our members will come with the determination to ask and to answer questions a very pleasant time will be had by all. To satisfy those who crave a regular set program the following is assured.

Thursday forenoon — ten to twelve o'clock: Discussions on strawberries, raspberries, roses, peonies and any other flower or fruit called for.

Thursday afternoon — two to four-thirty: Plant pests. That's enough for two days but we must condense it to 2½ hours. At least two and probably four experts will be present to answer your questions.

Four-thirty to midnight: A tramp to a certain spot on the lake shore where there is a bit of woods; picnic supper at the proper time followed by an entertainment by the Wisconsin chapter of Friends of Our Native Landscape. There will be a camp fire and speech making. Then if we withdraw to the shadows there may come the spirit of Americans who inhabited this land for centuries before Kellogg planted his first apple tree here, to plead with us for the preservation of Our Native Landscape.

These friends have high ideals and many of us may leave in a subdued and chastened spirit. Quite likely there are better things in this life than we have heretofore known of.

On Thursday we will journey by automobile thru endless fields of onions, sugar beets and cabbage. We may land at Kenosha for lunch, who knows? Or cares?

Milwaukee Members, Attention

Racine is only 23.1 miles from Milwaukee by rail, 27 miles by automobile and 30 afoot. There are nearly 200 Milwaukeeans bearing the W. S. H. S. brand. How many will attend?

PREMIUM LIST

The following premiums are offered for exhibits of flowers and vegetables, at the Summer Meeting, Racine, August 18 and 19, 1920.

Class I

	1st prize	2d	3d
10 vases of Asters, 1 doz. each	$3.00	$2.00	$1.00
5 vases of Asters, 1 doz. each	2.00	1.00	.50
Vase Asters, one color, 1 doz., for each color	1.00	.50	.25
Display Dahlias, not less than 5 varieties	5.00	3.00	2.00
Display Pansies	3.00	2.00	1.00
Display Perennial Phlox, not less than 5 varieties	3.00	2.00	1.00
Display of Gladioli, not less than 25 blooms	3.00	2.00	1.00
Display of Annual Garden Flowers, not less than 12 varieties nor less than 3 blooms of each	5.00	3.00	2.00
Display Herbaceous perennials correctly named not less than 10 varieties	5.00	3.00	2.00
For best specimens Fuchsia, Rex Begonia, Begonia of any other variety, Sword Fern, Asparagus Sprengerii, for each	2.00	1.00	.50
Best collection native flowers in arrangement and variety; varieties to be shown separately, each with card attached giving both common and botanical name, not less than 10 varieties	5.00	3.00	2.00

Class II

Snap Beans, 1 lb.	2.00	1.00	.50
Lima Beans, 1 lb.	2.00	1.00	.50
Cranberry Beans	2.00	1.00	.50
Two Heads Cabbage	2.00	1.00	.50
Six Onions	2.00	1.00	.50
Six Ears Sweet Corn	2.00	1.00	.50
Three Cucumbers	2.00	1.00	.50
Three Muskmelons	2.00	1.00	.50
Six Tomatoes	2.00	1.00	.50
Six Beets	2.00	1.00	.50
Six Carrots	2.00	1.00	.50
Two Egg Plant	2.00	1.00	.50

Class III

Best display vegetables grown by boy or girl under 16, in home or school garden. Ten dollars divided pro rata.

Best display vegetables from "home" garden by person over 16. Ten dollars divided pro rata.

Exhibitors in Class III may also show in Class II.

In classes I and II the exact number or quantity must be shown, neither more nor less, in order to compete.

Cherries Nation Wide

An organization to be known as the National Cherry Growers association was formed at a meeting of cherry growers held at Frankfort, Mich., May 19, under the auspices of the Michigan State Farm bureau.

An executive committee composed of representatives from the cherry sections of Michigan, New York and Wisconsin, elected the following temporary organization to call the first national meeting next winter. M. B. Goff, temporary president, of Sturgeon Bay, Wis.; George A. Morse, vice-president, of Williamson, N. Y.; A. J. Rogers, secretary-treasurer, of Beulah, Mich., and Amos Tucker, of Kibbe, Mich., Thomas G. MacDill of Sodus, New York, and H. W. Ullsperger of Sturgeon Bay, Wis. as members of the executive committee.

The purpose of this organization is to assist the various cherry growing regions in the interchange of information on market, and on cultural practices, and to stimulate in all possible ways the best interests of cherry growing in the United States.

Door county has the outlook for most favorable crop this year. Growers predict that there will be a good crop providing the premature dropping of fruit is not abnormal.

At the cannery new machinery and a rebuild of the plant has doubled the capacity without any additional crew being required. The Cherry Harvesting association has completed arrangements for an exceptionally large number of pickers and altogether it appears that no matter how great the crop the fruit will all be taken care of nicely.—*Advocate Sturgeon Bay.*

AMONG WISCONSIN BEEKEEPERS

Devoted to the Interests of The Wisconsin State Beekeepers, Association

H. F. Wilson Editor

THE HONOR ROLL

Counties Having 20 or More Members in the State Beekeepers' Association

A few new members from several other counties will place them in the honor division.

1. Dane Co. .....56 members
2. Fond du Lac Co. ..44 members
3. Milwaukee Co. ....43 members
4. Waukesha Co. ....40 members
5. Winnebago Co. ....33 members
6. Chippewa Co. .....31 members
7. Marathon Co. .....30 members
8. Richland Co. .....28 members
9. Grant Co. .....27 members
10. Langlade Co. .....27 members
11. Brown Co. .....23 members
12. Manitowoc Co. ....23 members
13. Shawano Co. .....23 members
14. Sheboygan Co. ....23 members
15. Jefferson Co. .....20 members
16. Sauk Co. .....20 members
17. Wood Co. .....20 members

THURSDAY, STATE FAIR WEEK, a Beekeepers' Field Meet will be held on the State Fair Grounds at Milwaukee to discuss marketing problems and prices for this year's crop.

WISCONSIN STATE BEEKEEPERS' CONVENTION, December 1, 2 and 3, 1920.

Have you received a copy of the grading rules and have you made application for honey stamps to the State Marketing Commission, State Capitol, Madison?

Make Wisconsin Safe for the Bees

In May and June numbers of Gleanings in Bee Culture appeared two articles of special interest to Wisconsin beekeepers. Prof. H. F. Wilson's article on "Organization Work" told how the state organization had grown to over 500 members and how county organizations are being formed and are affiliating with the state association, also how educational work in beekeeping is being offered the beekeepers of the state. Mr. S. B. Fracker's article on "Foul Brood Control" showed that Wisconsin bees are badly infected with American Foul Brood, that the former methods of inspection had failed, and that a new drastic foul brood law was in force. The present method is the area clean-up followed by rechecking for a number of years; a method which has given good results.

These two articles, when considered together present a most hopeful situation. It appears to be the work of Wisconsin to demonstrate how to get rid of American Foul Brood by the double method of organization and inspection. In the past, diffused inspection with careless treatment was almost the sole means of fighting foul brood, and it failed because of the ignorance and lack of cooperation of the individual beekeeper. Knowledge must precede intelligent action. Many a beekeeper opposed inspection and concealed the fact that he had foul brood because he was afraid of losing his bees; but, he had been instructed regarding American Foul Brood, he would have known that all his bees were doomed without inspection and treatment, but with them the healthy would not be likely to become diseased and the bees of the diseased colonies could be saved. To inform beekeepers, the Dept. of Agriculture sends out pamphlets to them, the Dept. of Entomology sends its ablest men to lecture to those who can go to Madison to hear them, and the Dept. of Agric. of the U. of Wis. sends speakers into the different counties of the state to give 3 day bee schools under the auspices of the county associations. But without organizations the Beekeeper's Chautauqua and the bee schools would amount to very little. The individual beekeeper must be educated if foul brood is to be eradicated, because his intelligent cooperation is necessary. Here enters the work of the state and county organizations, because through them the beekeeper can most easily be reached. Then when the state gets ready for inspection and treatment, it will find the counties ready and wanting cleanups, even vieing with each other in precedence and local assistance.

One statement of Prof. Wilson's must be borne in mind, "No association of beekeepers can continue indefinitely unless there is a tangible asset to membership." The local must meet the needs of its members. Beekeepers must be fed something besides foul brood. There are areas where theer is no foul brood, but it is doubtful if there are areas where better beekeeping methods are not needed. Show the beekeepers at the association meetings how they can increase their honey yields and winter their bees successfully. The writer believes every member should be made to feel that he is getting many times "value received." If he can prove that he has not, he should get this money back.

It may seem like a round-about way of fighting foul brood by building up the associations, but it will produce results just as surely as did the teaching of the evil effects of alcohol in the schools, and it will produce results in the shortest time possible. The "how" of building up a county association is the writer's task in hand. As beekeepers of Wisconsin let us all strive together to form strong state and county associations and take as our slogan, "Make Wisconsin Safe for the Bees, until American Foul Brood is gone from the state.

Ivan Whiting,
Plymouth, Wis

Monthly News Report blanks were sent out from the secretary's office for the first time this month to the twenty-four local associations affiliated with the state association. Sev-

SECOND WISCONSIN BEEKEEPERS' FIELD MEET AND CHAUTAUQUA

August 16 to 21, 1920

Can You Afford to Miss the Beekeepers' Field Meet and Chautauqua?

Beekeepers who attended the Chautauqua in 1919 will tell you that they learned more about keeping bees in one week than they had previously learned in many years. No better opportunity to get the facts in beekeeping will ever present itself and this may be the last opportunity we will have of holding such a meeting as it is likely that Dr. Phillips and Mr. Demuth will not be able to give us their help in the future.

All you who expect to attend should cut out and sign the printed slip below. Please let us know whether you would like to have a tent or a room and we shall be glad to make the necessary reservations.

Please reserve a campsite or room for me at the Beekeepers' Chautauqua, August 16 to 21, 1920.

(Fill in your name and address and mail to H. F. Wilson, Madison, Wisconsin.)

Name .....

Address .....

enteen of these locals have to date returned their reports which are as follows:

June 11—Bees two weeks behind in average of strength. Heavy winter losses and heavy spring losses. Condition of nectar secreting plants good. No extracted or comb honey on hand. Reporter, Emma Bartz, Chippewa Valley Beekeepers' Association.

June 12—Bees not as far advanced as usual but are just starting to swarm. Nectar secreting plants are dandelion, soft maple, hard maple, raspberry, wild white clover, alsike, and buckwheat. No honey on hand. Expect the whole beekeepers' meeting in July. Reporter, J. S. Sloniker, Clark County Beekeepers' Associa-Association.

June 15—Condition of bees fair because of the backward spring but building up rapidly under present conditions. Condition of nectar secreting plants: alsike and white clover yielding freely at present. Local showers the past three days assuring steady nectar flow for the near future at least. Basswood rapidly advancing, probably blooming earlier than usual. Small amount of extracted honey on hand. Two field meets have been held, one on 20th of May at apiary of H. Lappley, Mazomanie, and the other on the 4th of July at Madison. The Madison local Bee club held its monthly meeting at the home of C. L. Kocher, Madison, June 26. Dane county beekeepers are showing more enthusiasm and interest than ever before. Reporter, Robert L. Siebecker, Dane County Beekeepers' Association.

June 7—Bees below normal for this season of the year. Nectar secreting plants only fair. No honey on hand. The winter loss according to the older beekeepers was the heaviest in twenty years. Reporter, Edward Hassinger, Jr., Fox River Valley Bee Assn.

June 5—Several beekeepers have reported slight winter losses. General condition of bees fair. Not much nectar at present. Good prospects for white clover. A few small lots of comb honey on hand. Amateur Bee Club formed. All beekeepers very interested. Many receiving package bees. A summer picnic will be held Aug. 1 to make arrangements for state fair exhibit. Reporter, Geo. W. Davies, Grant County Beekeepers' Assn.

June 12—About 50 per cent died in winter, otherwise bees in good condition. No honey on hand. Reporter, W. R. Abbott, Jefferson County Beekeepers' Assn.

June 17—Condition of bees not any too good. The past winter was not a very severe one but a very long one. The beekeepers who kept their bees in confinement faired the best. The ones who got their bees onto the summer stands earliest suffered severe losses by severe frosts. Others who left the bees in a week longer report nice results. Nectar plants were nearly one month late in opening up to the bees. Practically no honey on hand. Beekeepers very enthusiastic and many who suffered losses are starting with renewed energy. Also many new beekeepers getting into the game. Langlade county is destined to become a good honey producing county. Beekeepers coming in from other counties. A Mr. David Blanchard and family have just moved to Langlade County from Michigan bringing with them 150 colonies of fine bees. Reporter, C. S. Leykom, Langlade Co. Beekeepers' Association.

June 14—Condition of bees in general pretty good, better than expected. Careful feeding did the trick when that method was applied. Condition of nectar secreting plants good. An exceptional flow of dandelion, raspberry and alsike. Clover and white clover just beginning full flow. Will be on in a week or ten days. Much rain this week. No honey on hand. Beekeepers showing a great deal of interest and enthusiasm. Two field meets will be held at the yards of Lewis Francisco and Mrs. Baesman. Reporter, I. C. Painter, Marathon County Beekeepers' Assn.

June 6—Bees wintered fairly well. Late spring, however, caused a good many to dwindle badly. Dandelion and fruit bloom was good, while clover prospects good. No honey on hand. Foulbrood campaign seems to have been quite successful. Another inspection will be given in July. Reporter, C. D. Adams, Milwaukee Co. Beekeepers' Association.

June 9—Winter and spring loss about 50 per cent. Most colonies weak but building up fairly well. Dandelion and maple yield good in this locality. Strong colonies stored as high as 40 lbs. Clover flow will be on in about 10 days. No honey on hand. Reporter, Martin Krueger, Northeast Wis. Beekeepers' Assn.

June 5—Bees in very good condition. All wintered colonies in two hive bodies with brood. Gathered considerable dandelion honey. Clover not showing up yet. Association meetings will be held in July. No honey on hand. Reporter, H. J. Rahmlow, Price County Beekeepers' Assn.

June 4—Wintered loss about 75 per cent, present condition as remainder perhaps 33 per cent normal strength at this time. Honey plants in splendid condition. Bees too weak to make heavy surplus anywhere in this county. About 1200 pounds extracted honey on hand. Reporter, E. R. Wilson, Rusk Co. Beekeepers' Association.

June 13—Condition of bees below average. Only about one-half of colonies strong enough to begin work in supers. Heavy winter losses. No honey on hand. A meeting will be held June 16. Condition of nectar secreting plants good. Reporter, Wm. Hannemann, Kewaunee Co. Beekeepers' Assn.

June 12—Condition of bees, generally the bees are in poor condition, but during the last two weeks have made wonderful improvements; as near as I can ascertain about 75 per cent of the colonies died last winter and spring, most of them since the 1st of April. Condition of nectar secreting plants; dandelion gave us a very good yield. It saved many colonies from starving. Fruit blossoms did not give us as good a flow as usual. White clover and alsike are just coming and we look for a big crop from the colonies that are strong. Three meetings have been held this spring. Beekeepers are very interested. Reporter, L. T. Bishop, Sheboygan Co. Beekeepers' Association.

June 3—In general bees are in fair shape. Nat much nectar coming in at present time. Very little honey on hand. A great many beekeepers are increasing their number of colonies. Reporter, L. E. Cass, Vernon Co. Honey Producers' Assn.

June 14—Beekeepers lost from 10 to 90 per cent during winter. Many weak colonies. A great deal of white clover but weather extremely dry. No honey on hand. Reporter, W. T. Sherman, Walworth Co. Beekeepers' Assn.

June 13—Heavy winter losses and disease. Bees not as strong as they should be at this time of the year. Not much swarming to date. Considerable clover in bloom but not yielding yet as it is too dry. Bees did well on fruit bloom. No honey on hand. Reporter, H. E. Greenwood, Winnebago Co. Beekeepers' Assn.

June 7—In general the bees are in poor shape with large spring losses. Plants were a long time coming out. Now unless we get a rain soon I believe the bees will have a hard time to keep alive. No honey on hand. Several inspections were made and in one case found a very bad case of European foul brood. Samples were sent to Madison and Washington. No meetings were held since the bee schools. Reporter, W. A. Sprise, Wood Co. Beekeepers' Assn.

Standardizing and Organizing the Honey Industry in Wisconsin

By A. Swahn, Ellsworth.

As this paper is in reality a sequel to the one I wrote on "Practical Bee-Keeping Extension Work" for the

Chautauqua held at Madison in August, I will begin about where I left off at that time.

For the benefit of those who were saved the torture of hearing that paper read, will state briefly that the substance of it was along educational lines for the novices in the business, together with a few suggestions which might be worked out to advantage for the experienced. In that paper my hope was to make some suggestions which would make bee keepers out of our present bee owners, and to eliminate the menace of foul brood and other foul methods so often found among the novices. Besides this I had hopes that my suggestions might lead up to plans by which Maximum production would be obtained with Minimum labor and expense.

Now if you please, we will for the moment, imagine that my dreams in that direction have materialized, and that the Wisconsin bee-keepers have so modernized their Apiaries and methods as to be producing maximum honey crops. The next step is to market that crop to the best advantage of both producer and consumer.

In order to market in a satisfactory manner we must first standardize our product and methods and organize our industry in about the same manner that other industries standardize and organize. This envolves a great deal of thought and will take time and experiment to perfect, but it can be done. My efforts will only be to suggest a possible nucleus around which we may in time build a permanent standard for the betterment of our industry.

Our pure food laws require certain standards of cleanliness and purity to be maintained in the manufacture of other food products, yet—honey the choicest of all known sweets, is sold from hives reeking with foul brood and other foul conditions, and is sometimes extracted under conditions which are not the most sanitary.

This of course does not apply to the majority, but it does apply to some. We have laws regulating such matters it is true, but unless these laws are enforced they are useless. A standard of cleanliness and purity in the Apiary, as well as in the extracting house should be insisted upon, so we can go to the market and offer for sale Pure Honey.

The matter of cleanliness was brought to my attention very forcibly about a year ago by one of our leading physicians. I had on display in my store window a lot of extracted honey in glass jars. He noticed it, and came in to talk about it, and made the statement that he could never again eat "strained honey" as he called it. I of course made it a point to learn why not. He told me that on one of his visits to a farmer beeowner and patient of his, he saw some honey strained and ever since that time he has been unable to eat it. While this was an extreme case it goes to show that one knocker like him can do more harm than ten boosters can repair. With all my explanation of the difference between the old process of straining and the modern process of extracting I was unable to sell him honey.

Cleanliness should be the first round in our ladder of standardization, and every apiary where honey is offered for sale (if there is only one hive) should be inspected and certain standards insisted upon. I will put quality as the second round in our ladder, because the bees will give us the best quality in every case if we will give them the chance. All we have to do is to grade it according to color, kind, etc. When our work of standardizing is completed we are ready to step up to the next and last round in our ladder—the standard of price.

While it will always be unwise to establish any fixed price for any certain grade of honey, it is possible and wise to establish a rule not to sell until we know that we are getting the top market price direct from the consumer. This takes us through the field of standardizing and brings us up to the next step in my paper—Organizing.

This is a subject which brings us face to face with our Bank account and our bread and butter. While cleanliness and quality should of course be our first aim we must not ignore the fact that proper organization and co-operation will do a great deal to make our industry more remunerative.

The subject of Organization envolves many perplexing conditions which have been hard to overcome in the past. They can, however, be overcome and nearly 100 per cent efficiency reached, if we put our shoulders to the wheel and organize and co-operate on business principles, and not be afraid to put a few dollars behind the effort.

In the past many attempts have been made to organize and with varied results. No organization will amount to much on the mere verbal promise to maintain any certain price and still be compelled to sell on an open and uncertain market. On the other hand I do not believe in compelling any one to hold for any stated price. Supply, demand and other causes for fluctuation in the market will make this impracticable. Neither do I believe in local organizations. The successful organization must be state wide and take in most of our best honey producers; and then in order to get results we must put a little money behind it, and also some sound business principles, and confidence in its ultimate outcome, and remember that there will be may obstacles to overcome from time to time, and we must not expect 100 per cent efficiency from the start. Such is far from my expectations. All I hope to accomplish by this paper is to suggest a plan which may at least form a starting point for a complete and successful organization such as I hope to see in the near future.

The plan I have in mind and the one I will recommend is along the same lines as the plan of the Amalgamated Apple Growers Association of Oregon. In this Association each member pays into the treasury a certain amount per acre of growing orchard, and all the selling is done through the Association by one man who has full charge and who looks up the markets and obtains the best price possible for the members. A similar plan should be adopted by the honey producers of Wisconsin. The sale of honey should be much more simple than the sale of fruit.

I suggest that the organization be started by a few active beekeepers who should get together and arrange to get in touch with all the leading honey producers in the state and solicit them to join a "Beekeepers Co-Operative Association." After a sufficient number have signified their willingness to join this association, officers should be appointed and the treasurer bonded for the full amount he would be expected to handle at any time. After this is done the money should be collected in, up to an amount sufficient to guarantee the lnancial security of the association. We should now look up a manager who would be competent to handle the large business which we can develop. I would advise paying this manager a salary sufficiently large so as to enable him to put in his whole time at it, and then see to it that he gets results. Good results in any business costs money and they are worth it.

This association should not be limited to selling honey alone it should be used in buying supplies as well. What will it mean to the members if they can make 10 per cent or more in the sale of their honey through the association, and then save as much mor in buying their supplies? It will mean that the middle man will be cut out at both ends. A good manager under the directions of a good advisory board will do wonders fort he bee-keepers of Wisconsin.

If the plan I will now continue to outline has any merits we should get it in motion at once as it will take time to develop it, and we should be all readv for next year's crop. We must not start however, until we have the co-operation of about one-half of our leading bee-keepers assured. It is too large a proposition to go into on a small scale. As to its ultimate success will say that if the apple growers in the west find this method of marketing and buying profitable why

cannot the honey producers also profit by it.

If all our bee-keepers were good business men it would perhaps, be comparatively easy for them to find good retail markets, but there are a great many who, while expert in the production of maximum crops of first quality they are not always able to find satisfactory markets for their product. This sometimes causes them to become afraid that they will not be able to dispose of their crop, and as a result will sell at a price below what it should bring. This will have a tendency to demoralize the market in that vicinity at least, and will make a much better field for the unscrupulous buyers who are always looking for just such conditions.

Another factor also comes to notice, and that is, that at times some of our producers are pressed for ready cash to meet some obligation and will sell to the first bidder, and learn after it is too late that if they had but waited a little while longer they could have realized a great deal more. In other words "United we stand—Separated we fall."

For cases like the above where there is urgent need of money, arrangements should be made to either advance on the crop, buy it outright or find some member who would buy it. Always see to it that it is handled either directly or indirectly by the association, and not let it be sold to any one at a price below the regular market.

I favor a strictly co-operative plan. We should first decide on the number of members necessary to organize, then ascertain the approximate running expenses and sinking fund necessary for its success, then divide this by the number of members, or by the number of colonies represented to get the amount each one should pay. This should represent the par value of one share of stock, and I would not advise allowing any member to own more than one share of this stock.

So much for the general plan of the proposed association. I will now try to show approximately what it will cost each member to maintain such an organization.

I will estimate running expenses sufficiently high so as to be sure of sufficient funds.

Manager's salary per year	$3,000.00
Secretary and Treasurer	1,000.00
Traveling expenses, manager	1,500.00
Stationery and incidentals	400.00
Office rent	300.00
Total	$6,200.00

Our state records show that we have approximately 100,000 colonies and 10,000 bee-keepers in the state.

We will estimate that we can secure one-half that number as members of our organization. With a yearly running expense for the association of $6,200 we find that it will cost the bee-keepers 12 2/5 cents per colony. This will not bankrupt any of us.

We will now see if this expense in reality comes out of the bee-keepers pockets or out of the pockets of the former middlemen. Our state records do not give us the average production per colony so we will have to estimate that, and we will make it low for the class of bee-keepers we expect to get as our charter members.

Putting comb and extracted together we will estimate an average of 50 pounds per colony. We will have represented in our association 50,000 colonies and that will give us a total production of 2,500,000 lbs. available for our manager to dispose of. ¼c per pound on this production will give us $6,250.00 or more than enough to pay all expenses of the association. In other words, if our manager only succeeds in getting ¼ cent per pound more for our honey than we could have sold it for individually, he has been a good investment for us, as he has saved us the trouble of looking up our own markets. He will be a poor manager indeed if he cannot get us several times that much more. If there is anyone here who would not be willing to pay ¼ cent per pound for the maintenance of such an organization let him speak up and show good reasons why not.

So much for running expenses—we will now provide for working capital. As before stated there will always be a good many producers who, for various reasons will want to dispose of their crop before the association manager is ready to call it in for shipment. This situation must be taken care of. Cash must be provided for that purpose, and it might also be advisable at times to buy outside the association members, as by so doing we may possibly get new members from time to time. When our manager is asked to buy before he is ready, or before he has located an outlet for his honey, a discount should be demanded of ½ cent per pound on such purchases to cover interest on the money advanced, no matter if it is only held a few days. It will be difficult to determine just how much of a fund will be necessary for this purpose, but we will provide what we think will be sufficient. I suggest that we provide a fund on the supposition that 25 per cent of our honey will be offered for sale before the association manager is ready to accept it for shipment. This will mean that we must provide a fund amounting to $125,000.00. This will mean a loan to the association of $25.00 each for one-half of our Wisconsin bee-keepers. If after a season's experience this fund is found to be more than necessary, it will be a very easy matter to pro-rate it back to the members. There should be no trouble in raising this money as there is no possible chance to lose it. In the first place it is in reality only a loan and will always draw interest. When not in use the Bank will pay interest on it, and when in use as before stated the ½ cent deduction on all premature purchases will amount to the same as interest. Then too our Treasurer will be fully bonded so there is no chance to lose it there. As our money will either be safely deposited in a bank or invested in honey I am unable to see any possible chance for a loss. I do not claim that this plan is above criticism and correction in detail, but I do claim that it is right in substance, and do claim that it can be worked out to the great advantage of our Wisconsin bee-keepers.

In conclusion will say that if it meets with the approval of those present why not put the wheels in motion right now and see what can be done to perfect the details and get ready for our 1920 crop. I am ready and willing to give my assistance and backing in any way possible for the promotion of this or any similar plan for the betterment of our bee-keepers. I thank you.

A. Swahn.

Spray for Potato Leafhopper and Prevent "Hopperburn"

The potato leafhopper is a very small, destructive, light green insect. It flies and hops readily and may occur in vast numbers for two or three years in succession. Its greatest injury is done to potatoes, although it feeds upon many other plants. Injury is of two kinds: loss of plant juices through feeding, for this is a sucking insect; and the appearance of a so-called disease termed "hopperburn" which is transmitted to the plant while the insect feeds.

This leafhopper was very abundant during 1918 and 1919. Severe losses occurred in some sections of Wisconsin as well as in many other states. Probably the pest will appear this summer in harmful numbers. In order to prevent injury and raise a full

Continued on page 207

Can We Help the Blind?

Quite recently there has been organized The Badger State Advancement Association of the Blind, chartered by the State of Wisconsin. The following letter has been received by the editor of Wisconsin Horticulture:

June 10th, 1920.

Dear Sir:—

The Badger State Advancement Association of the Blind, an Association composed entirely of blind or partially blind residents of this State, has just been granted a charter by the State of Wisconsin.

That there always has been a great need for an organization of this kind is emphasized by the fact that there is not a single school or institution in the State of Wisconsin where the adult blind can learn a trade or obtain special training of any description that will enable them to become useful and self supporting citizens. It shall be our purpose to raise the stigma of pity and helplessness and place our members on a self-reliant, independent basis.

Believing that you are anxious to lend us your co-operation in this movement, we respectfully ask that you insert a news item in your publication regarding this organization. We are desirous of obtaining a complete list of all blind people in this State and should your city number among its population any blind or partially blind, we would be pleased to have you forward us their names.

We are contemplating the purchase of a Home and Factory, which will be conducted along the lines of the famous Lighthouse in Chicago, where all blind will be welcome to learn a trade and make a living wage.

Publicity is essential to the success of this association, therefore, we are asking every newspaper in Wisconsin to give us as much publicity as possible.

Yours very truly,
Jos. A. Bell,
Publicity Chairman,
Milwaukee, Wis.

Blindness is the most terrible affliction that can befall any living being. The blind appreciate our sympathy but do not want our pity. The one thing they crave above all else is a chance to do something, an opportunity to work so that they may feel that they are a part of the community rather than a burden and a drag upon it.

What, if anything, is there in our work that the blind can do?

Ten Perennials and Then Ten More

At the June meeting of the Sauk County Horticultural Society W. A. Toole was called on for a list of 10 hardy perennials that everybody can grow. Here is the list: Iris, phlox, peony, poppy (oriental), pyrethrum, achillea, larkspur, aster, gaillardia, coliopsis. A list of ten seems very small to one who grows hundreds of kinds so Mr. Toole asked permission to add another list as follows: Lily of the valley, fuschia, mertensia, golden marguerite, columbine, gypsophila, dianthus, astilbe campanula, veronica.

May Control Chrysanthemum Midge

The chrysanthemum midge entered the United States from Europe a few years ago and is now an established greenhouse pest, says the United States Department of Agriculture. It was first reported in this country from Michigan and is now known to be present in more than twenty states and in Canada. It is regarded as one of the most important pests to be reckoned with by chrysantheum growers.

While principally a greenhouse pest, it occurs on outdoor plants even as far north as Ottawa, Canada. The injury to badly infested plants is such as to destroy their value for commercial purposes. In the tender portions of the plant are laid the eggs from which tiny maggots hatch. The maggots then bore their way into the plant tissues thereby causing galls. Apparently, this midge was brought to America without its quota of parasites and it is not yet certain that native parasites of gall midge fauna are preying upon it effectively.

Control Measures Worked Out

Many experiments have been conducted by the specialists of the department in working out control measures. The results are summarized as follows in Department Bulletin No. 833, just issued:

"From the life history, as well as from the experimental data thus far submitted, it is clear that certain points must be kept in mind to secure the best practical results. First, there are always several generations present in greenhouses during the spring and fall occurrences; second, the adults emerge and mate during the very early morning hours, and egg laying quickly follows; third, preliminary control experiments show that the egg stage may be controlled by means of spraying or dipping the cuttings or plants; fourth, it has been demonstrated that the adult can

be killed easily at the time of emergence by consistent spraying; fifth, fumigation experiments in a commercial house proved that the adult is easily killed by fumigating either with nicotine papers or hydrocyanic-acid gas; sixth, experiments applicable to general propagation practices show conclusively that such measures offer a reasonable safeguard an protection against doubtful stock and infested material without injury to the plants.

Insect Readily Controlled

"By adherence to a definite control program, involving any of the above cited measures, either singly or in combination, the insect can be readily controlled."

The bulletin is a complete technical discussion of the chrysanthemum midge. Copies may be had on application to the department by persons interested in chrysanthemum culture.

Formula for Making Kerosene Emulsion

Hard soap ----------½ pound
Water (soft) ----------1 gallon
Kerosene ----------2 gallons

Dissolve the soap in boiling water, remove from fire and add the kerosene slowly while agitating the mixture. This is best done by a hand pump, forcing the mixture through the hose and back into the container. Continue until the mixture is creamy white and no oil separates out on standing. This is your stock solution.

Use one part emulsion to 5 to 10 of water according to nature of pest.

* * *

It is just as we thought. Many are writing us this spring regarding oyster shell scales. If you will look up your last October number of Wisconsin Horticulture, you will find a short but concise description, with pictures, of our common scale insects. Control measures are also discussed.

* * *

Better spray machinery.
Better spray materials.
Better applications.

Give

Better fruit.
More money.
Better satisfaction.

TRY IT!

"GOD OF THE OPEN AIR"

By Dr. Henry Van Dyke

These are the things I ask
  Of Thee, spirit serene:
Strength for the daily task,
  Courage to face the road,
  Good cheer to help to bear the travelers' load
And, for the hours of rest that come between,
  An inward joy in all things heard and seen.

These are the things I fain
  Would have Thee take away;
Malice, and cold disdain,
  Hot anger, and sullen hate,
  Scorn of the lowly, envy of the great
And discontent that casts its shadow gray
  On all the burdens of the common clay.

These are the things I prize
  And hold of dearest worth:
Light of the sapphire skies,
  Peace of the silent hills,
  Music of birds, murmur of little rills,
Shadows of cloud that swiftly pass,
  And, after showers,
  The smell of flowers,
And of the good brown earth,—
  And best of all, along the way, friendship and mirth."

Plant Lice on Rose Bushes

Nicotine sulphate (40% solution) is effective against the little green plant lice on rose bushes and sweet pea vines. Use 1¼ teaspoons of the sulphate to a gallon of water; add about 2 one-inch cubes of dissolved laundry soap to make the spray spread. Be sure to add the soap as the solution is not nearly as effective without it. This spray will also aid in checking the whitish leaf hoppers which make the leaves appear spotted and also the rose slug, an insect which skelotinizes the leaves. C. L. F.

Watch for currant worms on currants and gooseberries. When they appear mix enough paris green with fine air slaked lime to give it a greenish caste and then when the foliage is moist, dust it over the plants. Arsenate of lead sprayed on the same as for potato bugs is also effective.

Don't market apples in a flour sack or dirty box and expect to get a good price. Clean, well graded, unbruised fruit in a clean package always sells at a good price.

If onions do not ripen evenly, it is well to bend the tops to the ground.

SPRAY FOR POTATO LEAF HOPPER AND PREVENT "HOPPERBURN"

Continued from page 204

crop of potatoes, every grower should **know what to do and then do it.**

The insect lives over winter in the adult stage hidden away in weeds and grass. In the vicinity of Madison, Wis., it becomes active again about the first of June. After feeding upon various plants for a couple of weeks, it seeks potato fields and soon begins to lay eggs.

Bordeaux mixture made to the 4-4-50 formula will repel this leafhopper and thereby largely prevent the appearance or spread of the "disease." The material must be applied to the underside of the leaves but may also be applied to the upper side. When combined with lead arsenate and applied to the under side, it is equally effective against the leafhopper and Colorado potato beetle and is less subject to the effect of rain.

The first spray should be applied shortly after the leafhopper has appeared—about the 21st of June near Madison. A second spray will be needed in ten days or two weeks depending upon the amount of new growth, the abundance of the leafhopper and the amount of rain. A third spray must be applied in about two weeks from the second. Now and then a fourth spray may be well worth while.

The watchful grower may usually time his spraying so that with an arsenical added to the Bordeaux, several potato insects and certain potato diseases may be aimed at with each application.

Experiments have clearly shown that the yields from rows of potatoes sprayed several times with Bordeaux mixture are from two to three times greater than yields from rows sprayed only with an arsenical.

John E. Dudley, Jr.,
Bureau of Entomology, U. S. Dept. of Agriculture.

The Plum and Pear Slug

Plums, pears, and cherries are all attacked by this insect and in severe infestations orchards have the appearance of having been swept by fire. The damage is done by the larvae which feed upon the upper surface of the leaves, eating only the epidermis and leaving the veins and under surface to wither up and turn brown. Some of the leaves will fall and in some cases the trees become almost defoliated. This stunts the tree and interferes with bud formation. Sometimes the trees will put out new leaves but these in turn may be attacked by the second brood of slugs unless remedial measures have been applied.

The slugs spend the winter within their cocoons which are

formed in the soil. In the spring they change to pupae and in a short time to adults, which are four winged, glossy black flies about 1/5 inch in length. They appear in May or June and the females, which are provided with sharp saw-like ovipositors, lay their eggs on the under surface of the leaves. Within two weeks the eggs hatch and the young larvae escape to the surface through a semi-circular cut in the epidermis. They soon become covered with a blackish sticky slime; the head end enlarges and gives the larvae the appearance of slugs.

At different times the worms shed their skins and at the last molt they lose their slimy coverings and become light orange yellow in color. They then fall to the ground, enter the soil, pupate, and emerge for a second brood which appears in August and September.

Slugs Easily Checked

The plum slug is very easily checked if the proper materials are used at the right time. Arsenate of lead is the safest and best. Use it at the rate of 2 pounds to 50 gallons of water. Insect powder, 1 part to 5 parts air-slaked lime, may be used by merely dusting it over the leaves. Any of the contact sprays such as nicotine sulphate, 1 part to 800 parts of water are also effective.

Charles L. Fluke, Jr.

More evergreens could well be raised on every farm.

WISCONSIN HORTICULTURE

OFFICIAL ORGAN OF THE WISCONSIN STATE HORTICULTURAL SOCIETY

Volume X | Madison, Wisconsin, August, [illegible] | Number 12

Anemone Japonica

Country Parks For Country People

At our 1919 summer meeting at Fort Atkinson much of the program was devoted to a discussion of country parks. The Rural Planning Law, then recently enacted, contains provisions intended to aid in establishing such rural parks and, as always, the W. S. H. S. was the first association in the state to do something toward making the law more than mere legal palaver.

Your secretary has "viewed with regret" the tendency of country people to seek their pleasures wholly in the city. The movies and the flivver make a wonderful combination but it's a combination that is utterly destroying the last remaining shred of rural social life. The city and village merchants as well as the movie men encourage this sort of thing and from a selfish standpoint they are justified in doing so.

But do we country people want the city people to feel that we have no capacity for amusement or diversion among ourselves, that we are satisfied with the shallow pleasures offered by the city. If so then we deserve the name of "Rube" or "Jake" or other contemptuous term that they may apply to us.

The community center work is well done by other departments and is not horticulture but this particular field of parks and playgrounds is one to which we as horticulturists should give most serious thought.

Farmers, gardeners and fruit growers would live longer and happier as well as make more money if they would knock off work Saturday afternoons in summer. This idea will be laughed to scorn by most farmers and put down as the raving of a city "agriculturist." Very well, laugh if you will. The editor was born and reared on a farm and knows that most farmers keep their noses so close to the ground, grubbing for dollars, that they never see the sunlight above and around them nor hear the music of the woodlands; they rarely see their neighbors nor anything else in life worth while. If they would let up on the everlasting grind for a few hours occasionally, and it's a mighty poor manager that can't arrange to do it even on a farm, and drive over to the neighborhood park for a visit with the neighbors they would begin to realize soon that there is, or may be, a healthy social life in the country. If not on Saturday then Sunday afternoon is none to good for a picnic. The place for the picnic is the rural park. Please consider Miss McDonald's plea, Mrs. Rasmussen's concise statement of facts as well as Oldham's plea for the country merchant.

The editor offers no apology for devoting so much space to this subject, it's a big one.

Country Parks

(From Reporter's Transcript)

Miss Ellen D. McDonald: When I was a little girl—and that is a long time ago—we had little autograph albums in which we wrote verses, and I remember one of these verses that ran like this:

Happy may you be,
Blessed with forty children,

Twenty on each knee.

I have done better than that; I have 8,713 by the last count, and that is quite a family for an old maid to adopt, so you will not mind while I am talking that I will keep my eye on the children, so to speak.

I am heartily in sympathy with all that has been said in regard to the community parks; I am very much interested, in fact, I am sure they are coming. I see them from the angle of the township as the unit of measure, however, and I think that in time to come very soon, we will have in every township a community park. It will perhaps be located in the most beautiful spot in the township, as near as can be to the center of population; it will consist of 10 or 12 acres, part of it woodland, native woodland if possible; it will be well cared for; there will be an open field in it, if possible a little brook, a lake or one of those wonderful bits of natural scenery that Wisconsin is noted for. We will try to have in the park all that we can of Nature in order to enjoy it; we will have, if necessary, a shoot-the-chutes and a merry-go-round, and the things the children will enjoy playing with; we will have a ball ground for the young men; and we will have the picnic grounds for the people who can bring their dinner, and we will have a hitching post for the people who still drive the old black horse. We will have some other things in the park, however. We will have a place where we can test out some things. Where the county agent can show in some of these northern counties how alfalfa grows, what it looks like, where he can have a few test

plots and interest the people in that part or the state.

We will have a place in the park where farmers can gather for their big picnic and have their Old Settlers' picnic and New Settlers' picnic. Let us have a building in the park, let us have a big one, with a big basement, one with a kitchen where the good cooks of the community can prepare their chicken dinners or oyster stew or something of that kind, let us have a table where 200 or 300 people can comfortably sit—no one has said anything about eating yet—let us have a big community hall with a nice floor, where, if the young people want to dance, they can do it under the best conditions, do it in a community spirit, instead of in the dancing hall over the saloon, a spirit that we have had in years gone by, but perhaps never to return.

Let us have in that hall upstairs a stage at one end; young people all have a liking for dressing up and acting on the stage; it is fun not only for those who are looking on, but for those who are acting. Let us have our own movie and let us get on the circuit of the slides that the university will send out to you every week, and let us have a gathering in this hall every week. Let us have all the outdoor meetings we can, but let us have a lot of indoor meetings; let us have this indoor hall and attract the whole community.

Now, since I warned you at the beginning that I was going to keep an eye on the children while I talked, I want to tell you that between the top floor that I have just spoken of, and the basement to be fitted up for the public eating place, I am going to have the middle story, and in that story there are to be rooms, a series of rooms each with a blackboard and some desks, and I am going to have school rooms in there, between the top and the bottom floor, a community building, in fact; I am talking about the consolidated or centralized school that is on its way very fast, and I am going to have this country school right there, off in one corner of the park. I am going to have another building, it is going to be the home of the teacher, it is going to be a home large enough so that he and his wife and little children can live there, he is going to be hired by the year and he is going to live there all the year around; he will take an interest in the boy and girl club, take an interest in the poultry and calf club, take an interest in all their projects, take an interest in baseball, perhaps. He may not do all these things, but he will be there, and I honestly believe that one of the finest parks is the 10 or 12 or 15 acre park containing the schoolhouse and the home for the teacher and the principal of the school, and a place where the young people from the time they are of kindergarten age up to the oldest gray-haired member of the community may gather together with the community interest. I do not want it in the town, I want it in the open, in God's country. It will cost a whole lot, but you remember this little poem that I want to read:

GIVE THEM A PLACE TO PLAY

Plenty of room for dives and dens,
(glitter and glare and sin!)
Plenty of room for prison pens,
(gather the criminals in!)
Plenty of room for jails and courts,
(willing enough to pay)
But never a place for the lads to
race, no, never a place to play!

Plenty of rooms for shops and stores,
(mammon must have the best!)
Plenty of room for the running sores
that rot in the city's breast!
Plenty of room for the lurees that
lead the hearts of our youth
astray,
But never a cent on a playground
spent, no never a place to play!

Give them a chance for innocent
sport, give them a chance for
fun—
Better a playground plot than a court
and a jail when the harm is
done!
Give them a chance—if you stint
them now, tomorrow you'll have
to pay
A larger bill for a darker ill, so give
them a place to play!

Denis A. McCarthy.

Mrs. Rasmussen: Evidently there are differences of opinion in this matter. Some people think the idea of the country park is the coming thing, and others think perhaps it is not necessary. It seems to me that each community would have to work this out to fit its own particular needs. I can see why the gentleman living in the vicinity of Oregon, a small town, should not favor the country parks, particularly because that village could be the community center, but any one who lives near a large town, even the size of our town, Oshkosh, I think will find that some sort of community center is necessary. While we have no country park, nor as yet a real community center, a great many of us in our little neighborhood feel the need of a community center, and I am going to tell you about something that we have done in our neighborhood, and that we are hoping to continue in the good work. Years ago there was a little church in our neighborhood dedicated as a Methodist church. Since that time the older members have passed away, and there

was no one to keep up the little church, we could not afford to engage a minister, and we were so near Oshkosh and Omro, that most of us went to either one or the other and heard a much better speaker than at the country church. So the neighborhood bought the church to use as a community center, and we find that this church is very inadequate to use as a community center, because it has not the upstairs that Miss McDonald spoke about, nor the kitchen and dining room, but having lived in this neighborhood all my life, I have built air castles, but I hope to see this church put on a foundation containing kitchen and dining room, so we can have our little country gatherings in our own immediate neighborhood.

Now, so far as the city parks are concerned, we country people all enjoy going to the city parks, and if the city people will come out to the country they will probably enjoy it. We have had several cattle breeders' associations who have had picnics and invited the merchants to come out and in almost every instance the merchants have enjoyed it. But we have no public picnic grounds; we must ask of some particular person the privilege of going to his grove and have the picnic at that place, and it seems to me if we had some public ground as a park, as we might call it, we would always know where we could go without trespassing, or without asking favors of any one. In our particular neighborhood we have a place—perhaps most of you have heard of it—called Leonard's point, the only place that I can think of in our neighborhood that we could use as a picnic ground. It is private property, and no doubt it could be purchased for not so great an amount but that the different townships, by getting together, could acquire this tract of land. It would seem to me that most of us in our neighborhood would favor acquiring that land as public property of either the townships or the county. Of course the country boys and girls all like to go to the city for band concerts and movies and all that, but at the same time, in our particular neighborhood we find that they are very much contented to stay at home to attend the local affairs. Neighbors in our locality open up their homes to the young people and also barns for dancing and games and we never yet had a country picnic and dances but what they have been very well patronized.

Mr. L. L. Oldham: I have in mind the good wishes of the good merchants and the leading progressive farmers in Walworth county, and I do not know just how this idea of getting people away from the city and out into the country to country parks would appeal to our merchants. We have in our county some 31 organizations, community organizations we call them, in which there are farmers as well as city folks listed as members. We are trying all we possibly can, and all the time we can, to get our people to think of the terms town and country and rural and city people as we would ordinarily think of the Siamese twins, we like to regard one as the other and the other as one.

I am wondering if we should think of the idea of a country park which will keep the rural people in the country. I do not believe that we would get very far in our county if we carried that idea very far. Now then, the history of parks in the country is as old as the cities themselves. We go back and we think of the first thought in the minds of those men that set aside parks, and we naturally think of the seaside walk as the first park, and I believe the Battery of New York, Boston Commons and the Bay Park in Charleston, South Carolina were the first park ideas that were put forth by any people.

Later on the City Hall Park in New York, which was set aside exclusively for the use of the boys and the men employed in the city hall and the office administration of the city of New York. Later on we come to see the first park established in the country as Central Park in New York City, and that was established by legislative action, established with the idea that it was recreation grounds for all people. That idea is what led to the establishment of Prospect Park in Brooklyn and Independence, Washington, Logan and all the other beautiful parks in the East. The experience in the East led to the establishment, no doubt, of the parking systems in Chicago, St. Louis, Minneapolis, St. Paul and all our big cities.

Mr. Ames made mention of the thing that I said, I do not think our merchants would like the idea of getting people from the country to stay in the country. Then we have the idea of Miss McDonald, who wants hers out in the country, if you please. I am wondering whether it is not in line with the duties of a county

agent to see whether a compromise is in order. That is what we generally do, a lot of us anyway, we have to compromise on a lot of different questions.

I firmly believe we may be able, some of us—I have some good friends here who camp around Lake Geneva,—and I believe we may, in the future, be able to get together and suggest for Walworth county a kind of park. That idea has come to me since this morning's discussion, and although I came here with another set of ideas, at the same time I think that it is a natural thing to think about right now, is to think about the compromise idea, and that is that it would be in the form of a county park; at least it would seem to me to be a mighty good place, to start on a county basis, and then if it works out, on the town committee basis, we may bring that out. In our community we have what we call a kind of picnic, it is a kind of fair, we held it last Thursday. Some five or six thousand people gathered together, brought their baskets, and very incidentally all members of the commercial, anl of the community or farmers' club, listened to talks, watched the boys and girls' outdoor sports, watched an airplane do stunts in the air. If we are going to make that permanent, and do those stunts, we have got to change our ideas and get abreast of the times. Anyway, we had a good ball game and it all turned out very nicely, but it all works in with this idea of setting some place aside for the use of the people, maybe in a park, call it a park if you will. But I am wondering if we cannot go home, some of us that are here from that county, put it over as a park idea, a park for the county people, and then we will not be confronted with the thing that I was confronted with, and the thing that every one in our county is more or less confronted with, when we wanted to have a little picnic supper on one of our beautiful lakes, we found invariably we trespassed on somebody's property, all the land was taken up by personal property and the people do not like to have us picnic. Now, friends, a good reason for that is that the careless person that does not think, does a lot of damage on private property, leaves a lot of paper, starts a fire, cuts his initials in the trees and the property owner does not like that, at the same time it is a pretty hard thing to warn off some of us who are residents of a county, but somebody has the claim of the land, we are not allowed to trespass; so it may be a good idea, and I think this thing has got to be worked out. I am inclined to believe that in the northern part of the state this question may develop into county parks for the rural people. In our county in the southern part of the state, in Walworth, I do not know whether that will hold good. When the good old Yankee settlers came and settled in our county they had the idea of parks and the beauty of trees, and in every one of our cities we have a pretty good sized park. For instance, in Delavan tonight there will be a band concert, tomorrow night in Elkhorn there will be a band concert, Thursday night at Lake Geneva there will be a band concert, Saturday night in East Troy. I do not know whether we want the country park idea to go out; I think the merchant does not want the country people kept in the country, and the country boy wants the city amusement, and so it is a compromise, you see, and which idea will suit you is a question, and which idea will suit us is a question. The idea of having a recreation ground is a mighty good idea. I for one am mighty glad that Wisconsin State Horticultural Society has decided to set aside a half day's time for this discussion, and I hope the day will come when we can have a country park. I do not want it for the country people, I want the country park for all the people. I want the man in the city to come outside and enjoy the country parks, but I also want the country people to come in and enjoy the things the city people have to offer them in the city parks. Certainly we want to preserve all the good we have got and we want to march in the line of progress.

Leaves of endive should be tied up about the plant if white, tender growth is wanted.

Iris may be set out in September and October. There are many fine varieties to choose from now-a-days.

Few plants either for cut flowers or border plantings are prettier than wild tiger lilies.

Keep the lawn green and strong by putting on some sort of fertilizer occasionally.

Horticulture in France

By W. T. Tapley, Instructor in Veg. Gardening Minn. College of Agriculture.

His friends and colleagues up at the Minnesota College of Agriculture call him "Tap." He is much like our Dr. Kiett in many respects, both of quiet and unassuming demeanor which conceals at first glance remarkable force and the ability to do things. Tapley stood it as long as he was able then went to France in August 1917; served in the Mallet Reserve, a French Automobile Transportation organization. Enlisted in American Army at Soissons, France, Oct. 1, 1917. Attended French Sergeant School and French Officers School Dec. 1917; Jan. 1918; Feb. 1918; returning to active duty in March. Commissioned 2nd Lt., later promoted to 1st Lt. and returned to the U. S. in command of Truck Co. 360, June 19, 1919.

In taking up the subject "Horticulture in France" it may be of value to mention briefly some of the features of the geography and climate of the country. France is slightly smaller than the combined areas of Minnesota and the Dakotas or about one-third the area of Texas; has an average mean temperature ranging from 51 at Paris to 58 in the Southern part compared to about 41 at Minneapolis; an average annual rainfall of about 24 in. compared to 27 in. in Minn.; in addition she has, with the exception of our prairie regions, areas which compare topographically with any in our country and can grow commercially with the exception of cotton and corn all our agricultural crops. In regard to position North and South; if the map of France could be placed over that of Minn. it would be found that the Southern border of France would overlap some 30 miles into Iowa while her Northern border would fall 400 miles into Canada, the city of Paris coming directly on the Canadian border line. This means that France has long days and short nights during the growing season, this feature combined with a higher mean temperature, yet a temperature which rarely goes over 90, provides ideal growing conditions.

A study of the statistics of agriculture in France shows that of each 1000 acres 379 are occupied by woods, buildings, grazing grounds, mountains, etc. and 621 acres are cultivated. Of the latter 130 are under meadows, 257 under cereal crops, 33 in vineyards and 83 acres in orchards or vegetables. In all France some 1,075,000 acres are given over to market gardening and intensive fruit culture.

It was my privilege to travel considerably over France and observe in a general way her agricultural practices. A summary of observations would include; the intensive use of the land devoted to agriculture; the great variety of crops grown commercially and the high development of the specialized agricultural industries; the smallness of the individual farms and fields; the neatness of the gardens and vineyards; and the great care and skill shown in growing the various crops.

Of all the Horticultural crops the grape is most commonly grown and is cultivated in nearly every section of France from the level river bottoms to the terraced vineyards in the hilly regions. There are several centers for the industry, the Bordeaux, Normandy, or Burgundy sections, and the upper valley of the Marne taking first rank. However every part of France produces the so-called native wines from grapes grown in that vicinity. In seeing the vineyards one cannot help notice the skill shown in growing and training the vines. In the small home gardens the grapes are usually trained against a wall but in the large vineyards the vines are trained to wire trellises of the same form as can be found in this country.

In France instead of finding the tree fruits grown under the extensive system there are areas where a special fruit industry has been developed under forcing and intensive methods. Within 30 miles of Paris there are nearly 2000 acres raising peaches alone. One section contains about 750 acres where peaches and pears are grown by training against stone walls, the estimated total length of these stone walls is over 400 miles. Other sections specialize in apricots and cherries while between the rows early vegetables are grown. The valley of the Rhone for a 100 mile stretch is a rich garden where these crops are grown along the river land and on the hills sloping down into the valley. The bulk of the fruit crop is produced in these special sections where every artifice is used to force the crop to early maturity.

In the small towns and cities one must notice the home gardens and how well they are arranged, the various fruits are trained against the walls, the bush fruits coming next and the vegetable garden in the center. It is a rare thing to see a single weed growing in the majority of these gardens. From a general survey it is easy to see that the owner is very much interested in his possession, he is always ready to

show the visitor and usually has some section or specimens of which he is especially proud.

The larger cities as in this country take considerable pride in their parks. The visitor to Paris everywhere has his attention called to the beautiful public gardens and to one acquainted with such work the question comes up as to where all the plants come from that are put out each year. The Paris gardens are of two classes, State and City gardens. In the case of the city gardens all the plants are grown in central nurseries. These are separated into the nursery for tender plants, which are raised under glass, one of about 50 acres for trees, shrubs and hardy flowers, 20 acres devoted to herbaceous plants and 20 acres for conifers and rhododendrons. The entire establishment is really an enormous garden and contains a remarkable collection of Horticultural plant specimens. About 3,000,000 of the tender plants are grown each year for planting in the parks. The equipment for handling the plants is up to date and the sections arranged so as to utilize both labor and space to the best advantage. A large number of the laborers are students studying horticulture and learning plant materials and the methods of propagating and handling.

Another industry which is both unique and interesting is the perfume industry. This is centered in the southern part of France near the city of Grasse which is about 12 miles from the Mediterranean and which has an altitude about 1000 feet above sea level. The character of the ground is very hilly and most of the flowers are raised on terraced land. Flowers are raised both for shipment to the northern markets and also for the local perfume factories. Some 50,000 acres are cultivated annually from which about $5,000,000 worth of flowers are raised.

The vegetable gardening industry in France is most highly developed in the region of greatest production, near Paris, where some 50,000 acres are used for the field culture and about 25,000 for the forced culture of vegetables. However as in our country every city has its section devoted to market gardening. The truck growing side has not been developed to the extent found in this country altho a large acreage in Britany near the coast raises vegetables for shipment to London and other English ports. Some 5,000 tons also reach the Paris market annually. In the truck growing areas the farms are typical of French gardens in that small stone walls are erected everywhere to protect against the cold winds. The crops grown are early potatoes, cauliflower, brussels sprouts, cabbage, melons, peas, onions, beans and strawberries. This area also contains the factories for preserving, and peas grown on a large scale for canning. Much of this coastal area has been reclaimed from the sea by building dykes and walls.

In the Paris section at first inspection one notices the extreme small size of the gardens, usually from one to three acres; the large amount of equipment used; the thoroughness and care given to the cultural operations and the amount produced on a given area. In order to gain a reasonable profit from such a small garden either special crops must be grown out of season when prices are high or a large yield must be secured by systems of intercropping and succession plantings. The French gardener combines a carefully worked out system of intercropping and succession planting, a warm rich soil supplied with abundant moisture and equipment to give as much shelter and protection to his plants as possible. The vegetable farms are commonly surrounded by stone walls from 5 to 10 feet high, they keep out the cold winds and reflect light and heat. They are also used to produce a crop of fruit, as grapevines, peach trees, etc. are trained in various ways against their surface. The natural soil of the region would not be considered especially adapted to market gardening but that is no handicap as the French gardener realizes that the most fertile soils are not necessarily those of great natural fertility but rather those that have been built up by the hand of man. The soil then is really an artificial soil that is to say it has been so changed by continuous applications of manure that it has been entirely built over, is a black rich porous soil, what we might call a fine leaf mold. Large quantities of manure are used yearly not so much to further enrich the soil as to increase the soil temperature. Where manure is scarce some of the gardeners use pipes under the beds to furnish additional heat. The garden area is divided up into sections, for hot beds, cold frames, beds for bell jars, and sections for the ordinary field plantings. From year to year the hot beds, etc., are changed to different sections so that there is a regular rotation practiced, a new section being enriched each year by turn-

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Wisconsin Horticulture

Published Monthly by the
Wisconsin State Horticultural Society
12 N. Carroll St.
Official organ of the Society.

FREDERIC CRANEFIELD, Editor.
Secretary W. S. H. S., Madison, Wis.

Entered as second-class matter May 13, 1912, at the postoffice at Madison, Wisconsin, under the Act of March 3, 1879.
Advertising rates made known on application.

SUMMER MEETING

Racine, Wednesday and Thursday Aug. 18th and 19th. Hotel Headquarters, Hotel George. Make reservations early.

Convention Hall and exhibit rooms, the Commercial Club.

Program

THE MORNING

Many people claim that they cannot grow outdoor roses. It's a mistake, they merely think they can't. A successful amateur grower will tell just how it is done.

Up in Minnesota peony and iris enthusiasts have a society, the Northwest Peony and Iris Society. One of their officers will come to Racine to tell us about their flowers.

There is a nursery firm in, not near, but in Chicago which grows acres of peonies. The man who knows the most about the business will talk to us.

An anonymous writer in Wisconsin Horticulture has held the interest of hundreds of our readers since January with descriptions of his Neighbor's Garden. Either he or his neighbor will be at the meeting. You will be pleased to meet him,—or his neighbor, they are much alike.

There are hundreds of women in Racine who are flower lovers and successful flower gardeners: two of them will tell us about their gardens.

That's enough for the forenoon.

THE AFTERNOON

The afternoon session will be devoted to fruits. A general discussion about varieties, culture and crops of strawberries, raspberries, currants etc. will be led by a competent person. This hour is for the amateur rather than the market growers. Come with questions.

Once upon a time Sparta was the leading small fruit center in the state. Then again it wasn't. Now the local papers speak of strawberries by the car-load. Is Sparta Coming Back? A gentleman who knows will tell.

There are beasts that crawl and others that fly; there are various "humours and maladies" that affect our plants. There are those who live somewhat apart from common men and devote their days to a study of their enemies. They will also come.

It's getting to be so very, very dry these days we need to know more about irrigation, the sprinkle kind. There will be some talk on that subject.

That's sufficient.

THE EVENING

Masque: Ageless Beauty of The Wild.

THE SECOND DAY

It is said that economical housewives in Racine plan their menus according to the direction of the wind, if they desire dishes with an onion flavor these are prepared when the wind is south or west. However that may be there are some onions near Racine, one hundred and fifteen acres in one field! There are other fields somewhat smaller.

Onions are grown for sets as well as for table use. There are buildings for drying and sorting, storage buildings for onions and for sets. There are also cabbage fields. A garden tractor demonstration is assured with three and possibly six different kinds of tractors.

A few years ago the cabbage raising industry was practically wiped out by the Yellows, a bacterial disease. A disease resistant strain, the Wisconsin Hollander, has been developed by Prof. L. R. Jones and his assistants on grounds near Racine. We will be told about it. There will be other things to see and we will see them.

Attendance at the summer meeting has grown steadily during the past ten years until it equals if not exceeds that of the winter meeting. Let's make it bigger than ever this year. There will be much of interest to the amateur as well as the professional gardener. Plan to come for one day, the first and we are sure you will stay all thru.

My Neighbor's Garden

My neighbor used to be a school teacher, and although, as he says, he reformed many years ago, some of the habits of the pedagogue cling to him still. Like most school teachers he likes to hear himself talk and he seems to like to underrate his subjects to what sometimes seems to others, unnecessary lengths. We were out riding last spring and were passing a field in which a farmer was plowing.

"There!" exclaimed my neighbor, "That illustrates what I was saying. There's no use of talking a man can't succeed in anything unless he takes pains. If he is careless and slip-shod he can't succeed."

I didn't see anything which should have caused such an outburst and I said so as mildly as I knew how.

"You didn't see anything out of the way? Look at those furrows! Why a snake would get dizzy trying to follow them!"

My attention being drawn to the furrows I was bound to admit that they did seem a little bit crooked. I noticed too that the furrow was not of uniform depth, here it was shallow, there it was deep; here the cut was so narrow that the sod was not turned, and there it was so wide there was an unturned strip. Inexperienced as I am in farming I could see that the work was being carelessly done.

My companion was fairly started and I looked for a discourse from him upon the general subject of taking pains. I wasn't disappointed.

"I can tell you as well now as I can six months from now that that farmer won't have more than fifty per cent of a crop. Come back here in July and you will see that his cornfield will look as badly as his plowed field looks now. The rows will be crooked, hills will be missing, weeds will be more in evidence than the crop."

To keep him going I asked him what the advantage was of straight rows, suggesting that the crookeder they were, the longer they were, and the more hills. My companion evidently thought me flippant.

"The length of the row hasn't anything to do with it. It's the mental condition of which the crooked row is only a symptom that is at the bottom of the difficulty. The man has no capacity for taking pains, and lacking that he will never succeed. If that's his place ahead of us I can tell you just what you'll find. You'll find the house unpainted. Some of his barn doors will be off the track or lack a hinge. His machinery will be out of doors exposed to the weather, possibly just where he used it last, last summer. His water tank will be leaky, and things generally will be at sixes and sevens. Probably he is on a rented farm, if not it is surely mortgaged."

He was now fairly started and I didn't need to prod him to keep him going.

"There isn't anything so necessary to success as taking pains, and this is particularly true when you are growing anything in the earth. If you work with nature you have a wonderful ally, but she's a jeaous mistress and you've got to take as much pains to please her as an impressario has to keep on the right side of a prima donna. You can't do anything in a slipshod way. If you are preparing the soil you must go down deep, you can't fool nature by sticking your spading fork in two or three inches even if you smooth the surface. Nature is lavish and wasteful. To perpetuate itself a plant would need to have but one seed, if there were no waste and no accidents. Nature makes each plant produce hundreds or thousands and she can take a chance. The farmer or gardener must know the conditions under which the seed of each particular plant will germinate, and must furnish them, or he looses his seed and his time. It takes little or no more time to do a thing well than to half do it. So whatever you do at all you should do well. Prepare your soil in the best possible manner. Sow your seeds carefully. If the plant is a tender one or the native of a hot climate, don't sow the seed till the weather is warm. If the young plant in natural conditions of germination needs shade, shade it. When your seed is up, care for the plant. In this way its plant and insect enemies do not get the better of it. If you let it die you have lost seed and time and perhaps the use of the soil for a season. Fungi and most insects can be destroyed by spraying. Weeds are injurious because they use up moisture and food. You stir the soil to conserve the moisture. If you have one weed you have diminished the moisture that is available for your crop. You have probably stirred the soil about the weed so that it grows more vigorously than it would otherwise have done, and so takes more food and more moisture from the soil. Never knowingly leave a weed. You have spent time and money on your crop, don't fail to get the benefit of what you have heretofore done by neglecting it. Taking pains is what makes a farmer or gardener successful, and the

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AMONG WISCONSIN BEEKEEPERS

Devoted to The Interests of The Wisconsin State Beekeepers' Association
H. F. Wilson, Editor

COUNTY ASSOCIATIONS HAVING 20 OR MORE MEMBERS

A few new members in several counties will place them in the honor division.

1.	Dane Co.	56 members
2.	Fond du Lac Co. ..	47 members
3.	Milwaukee Co.	44 members
4.	Waukesha Co.	40 members
5.	Sheboygan Co.	37 members
6.	Winnebago Co.	33 members
7.	Chippewa Co.	31 members
8.	Marathon Co.	35 members
9.	Langlade Co.	28 members
10.	Richland Co.	28 members
11.	Grant Co.	27 members
12.	Brown Co.	25 members
13.	Shawano Co.	25 members
14.	Manitowoc Co.	23 members
15.	Jefferson Co.	20 members
16.	Price Co.	20 members
17.	Sauk Co	20 members
18.	Wood Co.	20 members

BEEKEEPERS' FIELD MEET

Arrangements are being made to have a field meet of the beekeepers visiting the state fair on Thursday, September 2, in the vicinity of the bee and honey building. Beekeepers, who are planning to spend but a single day at the State Fair should try and make arrangements to be present at that time. This is going to be a very important meeting because of the marketing and price questions.

WISCONSIN STATE BEEKEEPERS' CONVENTION, DECEMBER 1, 2 AND 3, 1920.

BEEKEEPERS' SCHOOL AND CHAUTAUQUA WILL BE HELD AUGUST 16-21

Complete arrangements have been made for the beekeepers' chautauqua to be held at Madison on the above dates. If you have not already done so, you should immediately make application for camping space or for room and board. Information concerning the chautauqua will be furnished on application to the secretary. Do not forget that we will have **swimming, boat trips, fishing** and other things which make for a profitable vacation.

Winter Losses and Disease: The important part of practically every report from local associations concerns winter losses of bees and losses by disease. Spring dwindling is also noticeably brought out. This means that our beekeepers have not been giving as careful consideration to winter care of their bees as they should, although we know that it is necessary to have good stores, plenty of young bees and a young queen for successful wintering.

Requeen Every Year: Requeen every year. This may be done any time after the honey flow begins but it is best done between July 15 and August 15. Young queens will produce enough bees during August and September to provide the colony with sufficient force to carry it over until next spring if the winter stores are good. Queenless colonies are probably brought about thru the death of old queens during the winter months. Queens more than one year old as a rule do not keep up the colony strength as well as the young queens.

Winter Stores: During the average winter in Wisconsin bees are compelled to go for a very long period without a cleansing flight. It is therefore necessary to provide the best possible kind of stores in order to avoid dysentery. The digestive system of the bee is such that it can only digest pure sugars and any foreign substance such as gums or dextrins cannot be digested and cannot be thrown off while the bees are in confinement. These substances collect in the intestines and when too much has accummulated, the bees become restless and fly out of the hives. It is therefore necessary that the bees have pure honey of which clover is the best, or, pure sugar syrup made up with one part of warm water to three parts of sugar. Sugar syrup must be fed early in the fall. Do not wait until after the 15th of October because the bees may not have an opportunity to ripen it up thoroughly and if they do not, it will probably sour and is almost sure to cause dysentery.

Bees Must Be Protected: In order to winter bees well, they must have proper winter protection. Just what this protection should be when the bees are wintered out-of-doors, we will not attempt to say at this time. However, where bees are kept in the cellar, a cellar should be provided in which the temperature can be kept at 45 to 50 degrees for the entire period of confinement. Where the temperature is less than 45 degrees the cellar is too cold and the bees are bound to suffer. A cellar in which vegetables will keep well is very likely to be too cold for bees and a cellar that is right for bees cannot be used successfully as a vegetable cellar. The cellar must also be thoroughly darkened. It does not make a great deal of difference if a cellar is damp if the temperature is in the neighborhood of 50 degrees. A cool cellar is always a damp one. If frost or ice develops, in the cellar, then the cellar is entirely too cold and the bees must use up their energy in keeping up the temperature of the cluster.

Putting the Bees in the Cellar: It is much better to put bees into the able, the excess of drone comb and a week late. It is better that they be put in before the 15th of November unless the weather is unusually warm so that the bees can fly. It does not pay to wait for a flight if cold weather develops after the middle of November.

Taking the Bees Out in the Spring: Unless the bees become restless and need a flight, they should not be set out during the warm spell which ordinarily occurs in March. They should not be taken out before April 15 in the average season.

Spring Protection: From the time bees are set out in the spring until May first, they should be protected with outside covers and should have an abundance of room and stores for the building up of the colony.

H. F. Wilson.

MONTHLY NEWS REPORTS FROM LOCAL ASSOCIATIONS

July 7.—Condition of bees about 90 per cent normal. Condition of nectar secreting plants about 80 per cent normal. A very successful field meet was held at the home of Conrad Kruse, Loganville. Twenty beekeepers attended.

Reporter, J. E. Cooke, Baraboo Valley Bee. Assn.

July 3.—Bees doing fairly well with prospects of average crop. Have been having too much rain up in this section for bees to gather honey.

Reporter, E. A. Barlament, Brown Co. Bee. Assn.

July 7.—Condition of bees good. Condition of nectar secreting plants good. Spirit of beekeepers very much depressed. This section of the country is receiving too much rain for bees to store much honey. This association held a meeting June 22 for the purpose of discussing a honey advertising campaign, and decided to institute a Honey cooking, baking,

candy making, etc., contest to be held at Chippewa Falls a little later in the season.

Reporter, Emma L. Bartz, Chippewa Valley Bee. Assn.

July 5.—There are not many colonies of bees in this section due to heavy winter and spring losses. Condition of nectar secreting plants not in good condition because there has been too much rain.

Reporter, J. S. Sloniker, Clark Co. Bee. Assn.

July 14.—Colonies in strong condition where swarm control has been successful. Nuclei building up in excellent condition. Diseased conditions greatly improved as compared with July 1919. Extensive increase being made locally. White clover still yielding plentifully and Basswood yield rather light. Sweet clover coming on fine, also the second bloom of Alsike looks very favorable at the present time. The July 5th meeting at W. D. Williamson's was a genuine "Bee Meeting." State and county exhibits were planned and committees appointed to carry out the work. The next field meet will be held at G. M. Ranum's Apiary near Mt. Horeb. Everyone welcome. The stamps for Honey grades are ready for delivery at Wisconsin Division of Markets, B. Jones in charge of Standardization. If you have not placed your order do so at once. Prospects for a normal honey crop seem good but do not forget to leave a great plenty of stores for the bees. SUGAR is SCARCE.

Reporter, Robert L. Siebecker, Dane Co. Bee. Assn.

July 5.—Bees in excellent condition and condition of nectar secreting plants very good. No honey yet removed but indications are that there will be a very good crop.

Reporter, J. H. Ridgeway, Fond du Lac Co. Bee. Assn.

July 5.—80 per cent of the colonies up to normal strength for this season of the year. Condition of nectar secreting plants 30 per cent better than the average season.

Reporter, Edward Hassinger, Jr., Fox River Valley Bee. Assn.

July 1.—In most cases there has been a large increase in the condition of the bees. Several members report lots of swarming. Weaker colonies have strengthened wonderfully with prospects for two or four weeks of heavy flow. White clover never more abundant than at present. Basswood showing a heavy bloom. Spirit of beekeepers aroused and requests were made for a field meet for the latter part of the month. No arrangements as yet. Have had some visits from N. E. France of Platteville, Wis. doing inspection work. Amount of honey can not be estimated at this time in this locality.

Reporter, E. A. Huffman, Green Co. Bee. Assn.

July 2.—Condition of bees since settled weather very good. Most of the bees wintered very well but owing to a few days of mild sunshine, many beekeepers got their bees out of their winter quarters and thereby suffered some bad losses on account of a spell of bad weather. Condition of nectar secreting plants very good. Somewhat later than usual. A meeting was held at the home of Hiram Wirth, town of Norwood, July 29.

Reporter, C. L. Leykom, Langlade Co. Bee. Assn.

July 12.—Condition of bees exceptionally good. Condition of nectar secreting plants never better. Much clover and basswood just beginning and very promising if weather remains suitable. Annual meeting of our association with a basket picnic for beekeepers and families was held at apiary of Lewis Francisco, Mosinee. H. L. McMurry and F. G. Swoboda were with us.

Reporter, I. C. Painter, Marathon Co. Bee. Assn.

July 14.—Condition of bees unusually good, what remains from spring dwindling. More swarming than usual. Foul brood still found in many yards. White and alsike bloom good. Sweet clover the best for years, though it is not abundant in some parts of the county. Beekeepers very enthusiastic about crop and future. Strong determination to overcome foul brood. Some Beekeepers are forced to extract already to make room for sweet clover crop.

Reporter, C. D. Adams, Milwaukee Co. Bee. Assn.

July 8.—Most colonies are in fair shape at this date. Alsike and white clover are yielding fair, but weather conditions for the last week have been such that bees could not work much. Field meet and picnic held July 22. Outlook for honey crop is good. Prices asked for honey 30c. for extracted and 40c. for comb. This is to hold good till July 22. These prices were set by the Board of Directors and shall be subject to change at Field Meet.

Reporter, Martin Krueger, North East Wis. Bee. Assn.

June 28.—Bees getting very strong. Seem to be doing very good. Condition of nectar secreting plants good so far. Price County claims the highest percentage of Up to Date beekeepers in the state, using standard hives and modern equipment. About 90 per cent.

Reporter, H. J. Rahmow, Price Co. Bee. Assn.

July 6.—Condition of bees just fair. Doing better. Bad spring lessened their number. Condition of nectar secreting plants good. Beekeepers are short of help and are doing two men's work.

Reporter, Jas. Gwin, Richland Co. Bee. Assn.

July 13.—Condition of bees fair. Beekeepers are mostly building up their colonies to replace the heavy loss of the winter. Clover in full bloom and basswood just commencing to blossom. Honey secretion is not abundant on account of too much rainy weather. Beekeepers are building up colonies as fast as possible for the fall honey flow.

Reporter, John H. Pember, Rusk Co. Bee. Assn.

July 3.—Condition of bees fair. A full crop of honey is not expected in this locality. Condition of nectar secreting plants good. A meeting was held June 16, very few attended. Beekeepers are working to get strong colonies for wintering as a great many were in very poor condition this spring. Now they are in fair condition and are working quite heavily on the clover. Quite a few members plan on making an exhibit at the State Fair. Members decided to retail extracted honey at 30c. per pound. Very little comb honey is made, so no price was set.

Reporter, Wm. Hanneman, Shawano Co. Bee. Assn.

June 29.—Condition of bees about normal so far as I can find by talking with other beekeepers. Some say they are a little weaker, others say a little stronger. White clover is in full bloom and plenty of it with fair weather will mean a large honey supply. The beekeeper who does not get a good honey crop can blame himself.

Reporter, L. E. Cass, Vernon Co. Bee. Assn.

July 5.—Condition of bees about 90 per cent normal. Condition of nectar secreting plants very good.

Reporter, W. T. Sherman, Walworth Co. Bee Assn.

July 5.—Condition of bees good at present, having built up in good shape. This applies to the bees in this county as a whole. My own bees wintered 100 per cent thanks to the U. S. Weather Bureau, having put them in the cellar before the cold weather filled them up on feces. Condition of nectar secreting plants good, but clover is not yielding as well as last year. Very little bloom on the basswood this year if compared to last year. A meeting and basket picnic was held at the apiary of W. M. Mayhew at Merton on July 30. H. F. Wilson of the University attended

Reporter, C. W. Aeppler, Waukesha Co. Bee. Assn.

July 14.—Condition of bees good. Some European foul brood in nearly every apiary, but serious in very few cases. White clover still yielding. I believe extracted honey will retail readily at 30c.

Reporter, H. E. Greenwood, Winnebago Co. Bee. Assn.

ECONOMICAL INCREASE AND INTRODUCTION OF QUEENS

By Arthur C. Allen, Portage, Wis.

Shall we keep more bees? This question may be answered by both yes and no. If we will keep our bees in good movable frame hives, and care for them according to the latest approved methods, it is well that we increase our holdings in apiculture: but if on the other hand, we hive them in any old box that we hastily pick up at swarming time, and without frames or even in the best of movable frame hives, allowing the combs to be built crosswise of the frames, as I often find them among the careless beekeepers, the less bees we keep the better.

In view of the fact that diseased bees cannot be treated for a cure and in the case of buying and selling bees, no correct price for them can be ascertained unless the frames are movable, the excess of drone come and other reasons places strong emphasis on the need of a law which prohibits the keeping of bees in such contraptions.

Present conditions such as scarcity and high price of sugar, as well as the high price of and unprecentedented consumption of honey should stimulate the professional apiarist as well as all who will adopt the approved systems of production to put forth their best efforts now, but we strongly condemn a shiftless let-alone plan.

There are scores of methods of increase, many of which are good, and it is well that we become acquainted with several of them for there are very few, who because of the varied conditions under which we live and labor, as well as crop and weather conditions will wish to confine themselves to one and only one way of increase.

The following described methods of increase which have been followed in my apiaries for several years, I consider among the best.

Any plan which deprives the newly made colony of enough nurse bees to care for unsealed brood, if there be any, and maintain sufficient heat is to be discouraged.

We can learn much from nature, and in natural swarming if allowed to follow their own course fully, it is the older bees, those strong enough to care for themselves that make the new colony. By the following methods full or nearly full sized colonies may be made at once and where one wishes to make up for winter losses only, usually the required number may be made in one day.

No. 1. This is my favorite, and is accomplished as follows. When increase is wanted at the outyard, the required number of hives are prepared at the home yard by placing four empty combs, and one containing a little honey, in one side of each hive, spacing and wedging so they cannot swing while hauling, and placing a division board which does not quite reach the bottom of hive up close to the combs fastened securely with nails. Cover with a cloth tacked to the division board so it may be turned back from the vacant part of the hive into which you will shake the bees. Tack screen over all entrances and all is now ready. Some time between nine and twelve o'clock in the forenoon go to strong colonies and from the upper stories which are above excluders, shake two or three quarts of bees, or more if you wish a very strong colony, into each prepared hive. These bees may be taken from one or more colonies to make one new one for they are in such a demoralized condition that there will be no fighting. Turn the cloth back over the vacant space and fasten the cover down securely, and after all your new colonies are made, set them down cellar until sundown when any kind of a queen may be run in, and 99 out of 100 will be accepted. Next morning take all to your outyard and remove the entrance screens. They will work just like new swarms and having no brood to care for will devote all their energy to honey gathering and it is surprising how quickly they will become the equal of your strongest colonies.

If increase is wanted at home yard make at outyard and move them home. If you have only one yard, move them one or two miles away and leave a week or ten days and then return them. In this case shake in some of your best drones if you use virgin queens.

No. 2. Fill as many hives as desired for increase with combs of sealed brood having placed these over excluders a week previous so all brood will be sealed. Shake most of the bees from these combs when making up your new colonies, and be sure to have some honey in a part of them. Place over strong colonies with excluder between, and leave two or three hours, when enough young bees will go above to care for the brood when the new colony may be removed and placed on a new stand and a queen given.

No. 3. When a colony is getting to be so strong that it is likely to swarm, remove all the brood except one comb from the lower story, and shake the bees and queen in front; place a queen excluder on and then a super of empty combs, and above this place the brood in a third story and leave it here for ten days during which time all the brood will be sealed and it is then ready to be removed to a new location and a queen given.

In all of the above plans no brood is lost. There is no nursing of weak nuclei, and in a few days the newly made colonies are nearly equal to any in the apiary.

Introducing Queens

Requeening should be done whenever a queen is found not doing satisfactory work whether it be in April or September, notwithstanding some of the instruction given by the present "bee masters" that it should not be done while the colony is producing bees for the harvest and for the winter cluster. As we can now safely introduce laying queens and have them doing good business the next day I can see no consistency in such advice.

Below are given two ways of introducing queens which are as near 100 per cent sure as any thing known if directions are carefully followed and it pays well to go to the extra work in order to insure success.

No. 1. The Honey Bath Method. This may be done at any time of day at the home yard but it is better to do it at evening at the outyard if you return home that night for the reason that if done at evening the entrance will not have to be contracted to exclude robbers, as you would not want to leave so small an entrance until your next visit.

With a spoon dig out about one half cup of honey from the hive you wish to introduce your new queen to, catch and cage the old queen and lay the cage on top of the frames. Do this with each colony you are going to requeen using a separate cup for each hive, then the bath will give each queen the colony odor of that hive. See that the honey is as warm as the hive cluster, and if weather is cool, a little warm water should be added to the bath so it will not be too sticky. Now completely immerse the new queen in this honey bath, and after removing the caged queen from the hive gently pour the honey and queen over the top of the frames being careful to distribute the honey well over all the frames. Close the hive and should you examine it the next day you would likely find the queen laying.

No. 2. Between 9 to 12 A. M. remove the old queen and shake the bees from all the combs of the colony you wish to requeen into the hive, placing the brood on the adjoining hive to be cared for one week. Tack screen over entrance and top of hive containing the queenless and broodless bees and set them down cellar until sundown and then run in the new queen. That evening or next morning replace the hive on its old stand and at the end of a week if the queen is found laying the brood may be returned. This last is the safest way of introducing that I know of.

BEEKEEPER'S FIELD MEET AT FOND DU LAC

The Fond du Lac B. K. A. held one of the most enthusiastic and best attended meetings of any organization this year at the home of Mr. William Sass.

The host and his family and the committee in charge had every thing in readiness and there was not a hitch nor an idle moment from the time of the first arrival until chore time when many were compelled to leave.

In the forenoon some interesting discussions were had on foul brood. A frame containing diseased larvae was passed around and after all had examined it each gave his opinion as to what it was. The answers included all of the diseases known and even chilled brood and wax moth were included so some were bound to be correct. The committee brought along wiring devices and electrical embedders and these were demonstrated.

A splendid meal was served by the "queens", and the "drones" lived up to their reputation. Those who came without their breakfasts and hard feelings in their systems soon had all wrinkles of discontent smoothly ironed out.

The association at this meeting made tentative arrangements about holding a display at the county and state fair. It was also decided to apply for an area clean up, and a request was made for another 3 day bee school to be held this fall and planned for a second field meet to discuss the fall management of bees.

Fond du Lac County beekeepers are going to give the other counties a cloes run for first honors. They are determined to place beekeeping on a firm basis. Everyone has the interests of the association at heart and with such spirit they are bound to succeed.

MY NEIGHBOR'S GARDEN

(Continued from page 217)

habit of taking pains reveals itself in the crop and in the surroundings generally."

And so my neighbor went on. He practices what he preaches. He never plants anything without using a line. He spaces his rows evenly. His bean poles are set plumb and are in line. His corn is so evenly spaced that he can run the cultivator through it diagonally. He keeps his tools under cover. His spade, hoe and trowel are cleaned before he puts them away and shine like silver. He keeps them sharp. He takes pains and his garden shows it.

Head lettuce must be given plenty of room to develop in. It thrives best in cool moist weather.

HORTICULTURE IN FRANCE

(Continued from page 215)

ing under of the old hot bed soil. Each section will hold the same number of frames or bell jars.

The French gardener considers water one of his chief aids in maturing a crop. There usually is sufficient moisture in his soil for the early spring crops but those grown during dry weather are given daily soaking showers. The pipes are laid under ground and hydrants located so that every part of the garden can be easily watered.

The equipment used on a market garden increases in proportion to the degree of intercropping and forcing practiced. On the best equipped French vegetable farms for each acre, about 100, 3 light frames, 300 lights, 1500 cloches or bell jars, and the usual stock of cultural tools are required. The sash or lights used are smaller than our lights, the size most commonly found being 3 ft. 11 in. by 4 ft. 3 in., very nearly square. One man can handle them easily as they are provided with handles on two sides. The hot bed and cold frames instead of being any length required are of a definite size, being built to hold three lights. The frames are permanent structures and when not in use are stored by piling in an out of the way corner. Since the frames are for three lights the size is about 11 ft. 9 in. long and 4 ft. 3 in. wide, the height varies but is generally about 9 in. high on the back and 7 in. on the front side.

In the glass bell jar the French gardener has a form of forcing equipment which is almost unknown or unused in this country. The common size is about 15 in. high and the same diameter across the bottom. This type of small forcing house is always ready for use and when handled with care breakage seldom occurs; they can be stored easily by stacking four or five high putting a small piece of wood between the jars to prevent the glass touching. A special rack holding twelve jars is made to carry them about the field. When used over the plants they must be handled the same as hot bed sash and ventilation allowed by lifting one side slightly. About 25 can be used in a 3 light frame, when used in the field the crop is planted so as to allow 3 rows of jars, the plants in the middle row coming opposite the spaces in the outside rows. A narrow path is left between every three rows.

The same kind of straw mat is used in the French gardens as can be found in our market garden sections. The mats are used to keep out the cold and also for shade in the very hot weather. When there is frost danger and during cool weather both frames and jars are covered with mats, during very severe weather straw is scattered between the frames or bell jars and mats used to cover the whole area.

Because of his more or less mild winters the French gardener can hold over hardy cauliflower, lettuce, and cabbage plants, his year then may be said to begin in the fall with the starting of these plants. The soil both on the beds and in the field is first put in the best possible condition by working it over thoroughly and adding manure. Soil for surfacing seed beds is made by screening the old hot bed manure after it has been well broken up. After the seed bed is prepared seed of a quick growing compact headed variety of cauliflower is planted, this is usually late in September. When the young plants are large enough they are pricked out and set 3 in. apart in the frames. After the plants become established water is withheld, the only care during the winter months is in furnishing the necessary ventilation and covering. In the spring the plants that have wintered over are set in the frames or set under bell jars after the early crop of lettuce has been harvested. The larger, longer growing varieties are also often wintered over for planting in the field in the spring. During a mild winter it is sometimes necessary to transplant several times in order to check the plants. If the young plants are lost during a severe cold spell the crop is replanted in January.

Hardy cos and cabbage lettuce are also wintered over, the seed being planted under the bell jars. When the plants are ready for transplanting they are pricked out 30 under each jar. These plants remain under the bells until they are needed to fill the hot beds for the early crop.

The systems used for intercropping and succession planting are interesting and varied. Planting for the general spring crop is begun late in January or early in February. Frames are set over an especially prepared bed really making a 3 light hot bed. One method is to plant radish, carrots, and set in lettuce plants at the same time. First radish and then carrot seed is sown thinly and evenly over the entire bed. Forcing head lettuce, the plants of which have been wintered over under the jars, are then set on the same bed about 12 in. apart each way. After the radish and let-

tuce crop has been harvested the carrots are thinned and early cauliflower plants set in, about 2 ft. apart. Four crops are therefore grown on the same bed. About the same system is followed using bell jars instead of frames. A seed bed is prepared as if for use with frames, jars are set on the bed and when the temperature is right radish or carrot seed is planted under the jars, a cos lettuce plant set in the center and 3 head lettuce plants set equidistantly around the head of cos lettuce. In addition cos lettuce plants are set in the open in the spaces between the jars. When the cos plant under the jar is harvested the jar is moved over to cover the plant set in the spaces and cauliflower or cabbage plants set where the original cos plants were grown. In addition to the crops mentioned, beans, turnips, peas, parsley, spinach, chicory, celery, and tomatoes are also forced along under various methods. Melons and cucumbers are forced on special beds, late cauliflower may sometimes be set among the vines before they are pulled up. Most of the crops grown early are planted again in Summer and forced along to maturity in late fall or early winter. Some of these gardeners grow flowers along with the vegetables. The greenhouse industry has not been developed as it has in this country. These forcing gardens however are models in respect to the arrangement of crops, care, and cultural methods used.

The secret of successful agriculture in France lies in using the land as extensively as possible and applying the highest skill possible in cultural operations. France produces food for about 170 out of her 190 inhabitants per square mile whereas England produces food for only 135 out of her 466 inhabitants per square mile. Horticulture in France is a highly specialized industry, instead of making a profit from a large acreage the French Horticulturist produces large crops on a small acreage and aims to force his product so that it reaches market ahead of or later than the bulk crop. His garden receives great care, his system essentially is to create a nutritive and porous soil, containing the necessary decaying organic and inorganic compounds, and then to keep that soil and atmosphere at a higher temperature and moisture content, superior to those of the open fields.

Feeding Plants in Pots

The judicious feeding with liquid manures and chemical fertilizers is of the highest importance during the whole of the growing period with all plants in pots. But it must be done in an intelligent way or considerably more harm than good will result. Never feed a newly potted plant, or those that have not filled with roots, and, again, take care never to exceed the strength advised by the makers of artificial fertilizers; weak and often should be the rule.

Avoid using liquid manure when the soil is dry; water with plain water first until the whole of the soil is damp through, then give a little of the liquid manure. To use it for watering in the ordinary way is both injurious and wasteful—injurious because it burns the roots, and wasteful because so much runs away through the drainage holes.

Variation of food is most beneficial, and as wide a change as possible should be afforded, say, thus: soot water, liquid natural manure, then some good artificial, with, of course, plain water between each. It is a mistake to suppose that all classes of plants absorb nutriment equally readily. A few are better without it altogether, cacti and cyclamens being notable examples in this respect. Begonias, on the other hand, are gross feeders and will take a large amount.

With more delicate rooted subjects and annuals like schinzanthus, a weaker application should be employed, as the roots easily burn, particularly with chemicals. As to how often liquid manures should be applied, we must be guided by the plant's capacity for absorbing; it is useless to overdo it, as it merely remains in the soil and causes it to become sticky and sour, the plants speedily lose foliage and fade.

Those subjects which flower all at once, so to speak, must not be fed after the color shows, but those which continue to throw up blooms in succession must be kept doing. Ferns and most foliage plants are best confined to soot water and nitrate of soda, quarter of an ounce to a gallon of water, but care must be taken not to use this oftener than once a week, and that none is spilled over the leaves.

Good deep rich soil and pure Kentucky blue grass seed make good lawns. Weedy lawns are a result of poor soil or sometimes too much shade. Spade up weedy patches, put in well rotted manure and if need new soil and resow with Kentucky blue grass; add a little clover and red top for quick growth.

THE INSECT PAGE

Conducted by the Department of Economic Entomology College of Agriculture

The Cherry Louse

This is a blackish louse which gets on the undersides of the leaves and stems of the new growth until these places are thickly covered with them. They spend the winter as shining black eggs which are attached to the bark of the smaller branches, mostly around the buds.

About the time the buds open the eggs hatch into wingless females which are called "stem-mothers." These give birth to living young, and they in turn reproduce so rapidly that within a few weeks the tips of the new growth and the undersides of the young leaves are covered with the lice. This causes the leaves to curl and the tips cease growing, and in severe cases to cause the fruit to drop. The lice are especially annoying to pickers at time of harvest. Nursery stock is especially liable to be injured.

Later in the summer winged forms appear which fly to other plants or cherries and new colonies are formed. In the fall the true sexes appear and the eggs are laid in September or October.

Control Measures

This pest can easily be checked with a spray of nicotine sulphate, using about one part of the sulphate to a thousand parts of water, adding enough soap to make the spray spread easily. If this material is added to a Bordeaux spray, no soap should be used.

Chas. L. Fluke, Jr.

The Cherry Slug

The cherry slug, so called because the young look somewhat like garden slugs have been unusually abundant this year on the foliage of cherries and are reported as doing a great deal of damage. The adult or mother insect is a black fly which lays the eggs between the two surfaces of the leaf with a sharp-saw-like laying egg apparatus called the "ovipositor." The young slugs hatch in about a week's time and crawl to the upper surface of the leaves where they begin chewing on the leaf tisue and will in time completely skeletonize a leaf.

Control measures are very simple. Arsenate of lead used at the rate of 1 pound to 100 gallons of water will give efficient control.

H. F. Wilson.

Grasshoppers Do Not Like Too Much Poison

There is no one like the farmer who, when he knows a good thing, tries to make it a little better. For instance, two pounds of paris green or white arsenic with a little lemon extract and salt added are recommended in fifty pounds of bran to kill grasshoppers. A few thought, and perfectly naturally, too, that if two pounds would kill the hoppers, four pounds would do the work just twice as quickly. But alas, this was not so; grasshoppers are rather particular and dont like the bait too strong with poison, so that those who followed directions carefully secured the best results.

Entire cooperation is the keynote to success in ridding a section of grasshoppers. See that your neighbor helps also.

Too much water in the mash makes it sloppy—it should be just damp so that it scatters easily.

Sawdust as a substitute for bran in poisoned bait has proven quite good, especially where the bran and sawdust have been mixed together, half and half.

Rainy weather only stops the hoppers from feeding while the storm is on; as soon as the sun comes out they are ready to feed with their appetites even greater than before.

Some of the dry sandy sections of Wisconsin are very severely infested with the hoppers this year. The grasshoppers at this writing, July 12, are already winged and are flying from the pasture lands into the oats, barley, and other like crops. Field peas seem to be the only crop not attacked.

Chas. L. Fluke, Jr.

Pull Wild Cucumber To Save Pickle Crop

The pickle growers of Wisconsin have lost thousands of dollars because of the white pickle or mosaic disease.

"Researches conducted by plant pathologists for the government and state have shown that the wild cucumber harbors the disease from season to season," says R. E. Vaughan, of the Wisconsin College of Agriculture.

"Pull these wild cucumbers now," urges Mr. Vaughan, "before the disease has a chance to spread to the cultivated cucumbers. The wild cucumbers may be

found on damp ground along the streams, fence rows, and in many town gardens."

Pulling the wild cucumber will remove the greatest source of infection for pickle and muskmelon vines and will reduce the heavy losses from warty and worthless fruit.

Summer Sprays For Codling Moth

Do not put your summer spray on the apples too early. Tests at Madison have shown that the eggs of the second generation of the codling moth do not begin to hatch until after the 12th of August. If you are north of Madison you should delay more or less according to the distance you live from Madison. It will vary from two or three days to three weeks.

Chas. L. Fluke, Jr.

Flowers for the Home Garden

The title chosen for this paper opens up such a wide field for discussion that it is obviously impossible to do justice to the many varieties of flowers and flowering plants that can be grown in our home gardens in this part of the county. Perhaps the best way to treat this subject would be to divide the different flowers to be considered into four classes, annual, biennial, perennial and bulbous.

Annuals, as is well known, are those plants which grow from seed, flower, produce seed and die in one season. Biennials should be sown in the spring or early summer and will flower the following season. They are supposed to be of little use after flowering, but some varieties like Sweet William and Fox Glove may flower for two or three seasons. Perennials can be grown by division, from cuttings or seed, and will flower for several seasons.

In annuals we have some of our choicest flowering plants. Many of them are quite hardy and the seed can be sown in the spring where the plants are to remain, in this way being of great value to the amateur who has no facilities for growing plants in greenhouse or hot bed. But in order to get the full value of annuals, as well as other varieties of plants, I would strongly urge everyone who has a garden to have a hotbed or cold frame. There is sometimes a great deal of objection to the beds or cold frames because they need so much attention. The amount of care they need is usually magnified a great deal, and this is perhaps the reason why we find so few in our home gardens. They certainly need a good deal of care to bring the young plants along, and have them strong and healthy at planting out time, but is there anything in this life that is worth while that does not require a good deal of thoughtful care and perseverance?

As already stated, a great many of the hardy annuals can be sown outdoors early in spring where the plants are to bloom. The ground should be well fertilized and dug in the fall so that it may be in first class shape for the sowing of seed. For flowers for cutting it is much better to sow the seed in rows rather than broadcast in beds. When sown in rows there is a saving of seed, and the weeds are more easily kept down and the ground kept cultivated. I have usually sown the seeds of

such annuals as poppies, calendulas, marigold, scabiosa, larkspur, and many other varieties in rows from sixteen (16) to eighteen (18) inches apart. If the ground is fairly rich and kept well cultivated the plants will usually grow vigorously enough fort he rows to meet, thus giving the effect of a solid bed. I usually try to get my seeds of hardy annuals in the ground early in May. They germinate well at that season when the ground is moist, and though we usually get frost the latter part of May or even early June I have rarely found it do any harm to the young plants. If the sowing of the seed is left until the ground is hot and dry a poor stand of plants will be the result, and they will not make such vigorous growth as those that get an early start, and get well rooted while the ground is cool and moist.

The varieties I have mentioned, and many others that are worthy of mention that can be grown this way, are all splendid for any purpose in the making of a garden or for cut flowers, yet there are other varieties, to get the best results from them, that require to be sown early, and it is in the growing of such varieties as Salvia, verbenas, asters, etc., that the hotbed or cold frame prove their worth. In fact all varieties of annuals that transplant well are improved by starting them in the hotbed or frame.

Salvias can be sown in a sunny window in the house about the 15th of March, and when the plants are large enough to transplant the weather will be mild enough to allow them to be put in the frame. A hotbed will not be necessary at that time of the year as a cold frame can be easily protected by banking up the outside with leaves or stable manure, and a few old rugs or anything that is handy thrown over the glass at night.

Asters can be grown in the same way, but need not be sown until about the beginning of April. In growing asters I think it is a mistake to sow the seed too early and then try to hold the plants in crowded flats until the weather is mild enough to allow them to be planted out. It is much better to delay sowing the seeds, and then keep the plants growing along vigorously without a check till the time to plant them out. Even if your plants are small at planting out time, they will start to grow right away, and be healthy and vigorous from the start, whereas if the seed has been sown too early the plants have to stand in the flats. They get drawn up, spindly and weak, making them more apt to be attacked later on by the deadly aster disease, a disease which is almost impossible to check or overcome. The only way to fight this disease is to pull up all affected plants and burn them.

Sweet Peas, for fragrance and loveliness of coloring, are incomparable and should be grown in every garden. To be successful in growing them the ground should be well manured and dug deeply in the fall. The old way of growing them was to sow the seed early in spring in a trench that had been specially prepared with plenty of manure dug in, but a much better way of growing them has been discovered, and is becoming more popular every year. There is no question that the results achieved are far ahead of the old method. Perhaps the best way to illustrate this new

method is to tell you just how I manage my own.

On the 15th of March the seed was sown in flats of light sandy soil with plenty of leaf mould. When the plants were about one inch high they were potted into 2½ inch pots, and grown in a cool greenhouse until they were large enough to pot into 4 inch pots. They were then put out in the cold frame till the weather was mild enough to plant them out. When the plants get about three inches high the tip is pinched out, this makes them branch out at the base, and at the time of potting into four inch pots a few small dry twigs from spruce trees are stuck in around the edge of the pots to keep the plants from sprawling all over. When danger of heavy frost is over the plants are planted out in well prepared trenches. In making the trenches, we dig them a foot deep and about eighteen inches wide. Several inches of well rotted manure is put in the trench and spaded in. The soil that was dug out is then put back until the trench is nearly filled, leaving a depression of tree or four inches. Stout stakes 5½ feet long are driven into the ground 18 inches, leaving four feet about the ground, at intervals of 10 feet, the end posts being well braced. Four foot wire netting is then stretched tightly and fastened to the posts with small staples. When the ground has been lightly forked up along the trench everything is ready for the plants. They should be planted alternately on each side of the wire so that they will not be closer than one foot apart, that is there should be two rows, one on each side of the wire with the plants two feet apart. The ground should be kept well cultivated, and the plants kept close up to the wire till they come into bloom. Abundance of water should then be given, and the ground along the rows mulched with coarse stable manure, not too fresh or the ammonia will injure the plants. Keep close watch for green fly, and spray once or twice a week with nicotine, two or three teaspoonsfuls to a gallon of water. Perhaps you are thinking just now that all that means work, well it does, but if you love sweet peas (and who does not love them) you will be amply rewarded for all your pains. Think of picking an abundance of these lovely, fragrant blossoms, stems from 12 to 18 inches long with four or five large gorgeous colored flowers. Just try it for yourself next year, start your seeds in the house early in March and when your plants are big enough transplant them and put them out in your cold frame. Sweet peas are quite hardy and grow splendidly in a cold frame in the early spring, care in watering and giving them plenty of air being their greatest requirements till they are planted out.

Some varieties of the biennial class can be made to flower the first season, but the seed must be sown in the early months of the year in the greenhouse. The best way to treat this class is to sow the seed in May and grow the young plants in boxes till they are large enough to plant out. Some varieties of biennials are quite hardy and stand the winters outdoors with a light protection of

coarse stable manure, but varieties like Fox Glove, Canterbury Bells and Hollyhocks are better to have the protection of a cold frame. These varieties rot off so easily at the crown that they should not be covered over with manure that packs closely over them. If a cold frame cannot be obtained a few boards can be nailed together to form a frame, and when severe weather comes this can be covered over with boards and then a covering of stable manure, leaves or other material put over these, and around the outside.

Pansies can be grown also in this way, but the seed should not be sown till July or the plants get too large. It is better to have small compact plants of pansies when winter comes, as these winter much better than plants that are over grown.

In growing perennials from seed the advice is often given to sow the seed in August. This is far too late as it is impossible to get a plant large enough to come through the winter and flower the next season. Perennials should be sown any time from April to July. The larger the plant when winter comes the better chance it has to come through and flower well. Many of the perennials sent out by commercial firms are far too small to flower the first season, and consequently are a great disappointment to the buyer.

Some varieties are very hard to raise from seed unless the seed is fresh, and even then in some cases such as the Phlox it is hard to get the seed to germinate. Where it is possible for anyone to save seeds of perennials they should do so, as they will get better results from fresh seed. Of course where quick results are wanted it is better to buy plants, as it takes, in a great many varieties, at least two years before a good sized plant can be had from seed.

The varieties of perennials that are hardy in this part of the country are almost endless, and where one has room for a perennial border there is nothing that adds to the beauty of the garden so much as a well kept perennial border. Even before the snow has entirely left the ground the snowdrops, scillias and crocus begin to show their welcome flower buds. In the words of the poet, "They lay in dust through the winter hours; They break forth in glory sweet flowers." After them come the different varieties of tulips and narcissus, and from then on we have a continued array of old, well known and well loved varieties that come and go in a lovely procession throughout the whole season. Even after the frost has nipped the tender varieties, and turned the leaves of the trees into glowing masses of color, we have the hardy chrysanthemums that still brave the chilly winds of autumn and brighten up the sheltered nooks of the garden.

In bulbous plants we have quite a variety that are hardy and add greatly to the beauty of the perennial border. Planted in clumps in rich deep soil they make a gorgeous display, and will give good results for several years. Lilium Candidum should be planted in August, as they make their foliage in the fall, which stays green all winter.