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ociability and Co-operation.

In the declaration that "Co-operation the key to universal prosperity," ere sounds the silvery note of truth. it before men can co-operate they ust know one another. They must et acquainted"; and this not merely the sense that they know one anoth- 's names, business and place of ode, and are able to greet one an- her with a cheerful "Good morning!" hen they meet; but as recognizing each other the possession of such mmon aspirations, purposes, "hu- anities," as lay the foundations for a mpathetic relationship.

The worst feature of the big farm stem, with its isolated homes, which s accompanied "the making of Amer- ," is the fact that it has hereto- re made impossible the frequent so- al contacts, and the consequent in- mate relationships to be found among e people of rural communities in actically all European nations. No- here have people lived so much apart om one another, socially, as here. he gregarious instinct, fundamental our race, has in agricultural Amer- a found its severest denials.

That in Europe the people have nown one another, while here they ve hardly been "on speaking terms." ll largely account for the rapidity th which co-operation has pro- essed in Great Britain, Germany, ance and Italy, as compared with its w acceptance here. It is evident at, if we are to experience the full nefit of the co-operative principle, must encourage all instrumental- es which make for the multiplication social contacts along wholesome es. With such allies from the realm invention as the telephone and auto- bile, with the rural free delivery, daily paper and the consolidated hool, and the Extension work of our iversities, the task is not today so ficult as it might have been twenty- e years ago.

Foremost among the instrumental- es referred to are the Farmers' Club d the Social Center. The latter—orig- ating in cities, where the big build- gs of the high and graded schools, used for the greater part of the y's twenty-four hours, stood invit- gly ready as auxiliaries for social en- avor—has proved even better adapt- to the needs of rural communities, herever a school building of suffi- nt size exists; and the rapid multi- cation of "consolidated school" edi- es is being attended by a corre- onding utilization of the opportuni- s they afford for social gatherings. ten, one of the functions of the So- l Center is the furnishing of a place the meetings of a Farmers' Club; t the most popular, and probably the st immediately effective, form of e latter organization is one where a all number of families meet at the me of each member in succession. So effective has been the appeal of e social development idea to the best stincts of the people, that the legis- tures of two States—Wisconsin and rginia—have already established a reau of Social Centers in connection th the Extension work of their Uni- rsities; and they have passed laws thorizing the use of school build- gs everywhere as Social Centers; us "heading off" the conservatives, school boards, who might otherwise ve "blocked" the new movement. her States are certain to follow with e enactments.

So it would appear that our Nation now really entering upon a new era social development—"social" in the nse of drawing out the brotherliness d sisterliness in people; of empha- zing among men the democratic and truistic principles which make for e noblest growth, and among women e fact, which no artificiality of life n cover up, that "the Colonel's lady d Judy O'Grady are sisters under e skin."

And when, through the Farmers' ub and the Social Center, we shall ve come to know one another as we ght, how smooth will be the path- y of Co-operation to its highest de- lopment!—C. R. Barns, Extension v. Minn. Col. of Agriculture.

Traction Engineering.

A Short Course in Traction Engin- ring will be given at University rm, St. Paul, beginning May 14th d ending June 17th, 1912. The in- uction will be similar to that offered several years past. The entire r weeks will be devoted to the study traction engines, both steam and soline, as applied to general farm rk. The entire staff and equipment the Division of Agricultural Engin- ring are at the disposal of the urse, and a splendid opportunity is vided for pursuing this line of study. e Course is in the immediate charge J. L. Mowry. For bulletins describ- g the Course in detail, address J. M. ew, University Farm, St. Paul, Minn.

The Garden — Preparation of the Soil and What to Plant.

Location and Soil.—The garden should be located as near the house as possible. Any good land will produce a vegetable crop of some sort. Early crops, such as radishes, lettuce and onions, should be planted on a southern slope, and on soil that is light, rich, and that warms up quickly. This soil is not as good for late crops, because it dries out very quickly in the summer. For the late crops, or vegetables such as cabbage, potatoes, etc., that do not mature until late in summer or fall, a somewhat heavier soil may be used, and where possible a northern slope is preferable, as this is protected from the south winds, which are usually very drying.

Manuring.—The land should be thoroughly manured with well-rotted manure. Commercial fertilizers, such as nitrate of soda or some similar fertilizer, may be added to the soil in some cases to advantage. This is especially true in the cultivation of the leaf crops, such as spinach and Swiss chard.

Plowing.—Plowing is one of the important steps in cultivation. The care and thoroughness with which a lot is plowed means much when we come to work it. The land should be plowed from 4 to 8 inches deep, depending on the soil. Usually we would prefer to plow in the fall, as this rids the land of insects, opens the soil for the action of the weather, and buries weeds and other trash that may be on the land. The next best thing is to plow or spade the land very early in the spring, the earlier the better, to enable the ground to settle before the crop is to be planted.

Harrowing.—After plowing, the land must be harrowed thoroughly. The more work that is done before a garden is planted, the easier it will be to take care of afterward. If the garden was plowed in the fall, nothing further should be done to it until spring, when it should be harrowed.

Raking.—In a small garden lot, where all the work is done by hand, it is often an advantage to go over the land with a garden rake and get it perfectly clear of sticks, clods, stones, etc., before planting. These things are always a nuisance and it pays to remove them, especially from the part of the garden in which the roots and small vegetables are to be planted. Where the garden is large enough, in place of the rake we may use a planker or a very fine-toothed harrow.

Planting.—After getting the land thoroughly prepared, the next thing is to line it out and plant. The rows should be straight; and, if the garden is to be cultivated by a horse, they should run the long way of the garden. Where hand tools are used, it is very often more desirable to run the rows the narrow way of the garden. Do not ridge nor hill any garden crops. This is extra labor, and in many cases is a detriment to the planting. All garden plants may be sown on level land. Seed should always be sown in freshly-stirred soil. This gives it an even chance with the weeds. If the land is loose and a little dry, firm well over the seed. The seed-drill does this; or, when the planting is done by hand, the soil may be firmed by the feet. It is important that any seed or plant be well firmed in the soil, if the soil is sandy or a little dry. In clay soil, care must be taken not to pack the clay over the seed if it is wet, as this shuts out the air and makes it difficult for the seedlings to break through.

Seed.—It is important to get the very best seed possible. Seed is cheaper than labor, and very often the high-priced pure seed is cheaper than inferior grades. It is well to test the seed before planting, if very much is to be used.

Varieties to Plant.—Each gardener has his own ideas of what vegetables and flowers he wants, and the quantity. I may want a large quantity of sweet corn and tomatoes, while my neighbor may prefer cabbage and onions. That is his privilege. Then again, the varieties of cabbage, sweet corn or onions may interest us.

There is no reason why the city man should not have a garden as well as the man in the country. It is not necessary to have a large area of land to get good returns. Often the 5 or 10-acre farm returns as much as one of 40 or 60; good results are often obtained from the city lot 50x150. It depends very much on the man, as well as on the crop raised.

The average value of garden stuff per acre is between $100 and $150 per acre, while grain brings about $11 to $14. A home garden may pay even better than this. If it is to be made a success, considerable thought, planning, and labor must be expended on it. Do not attempt a garden with the idea that it is easy—that all you have to do is to scatter the seed and reap a bountiful harvest. If you go at it that way, you may be very much disappointed in your returns. It is pretty hard to get things easy; we must put forth an effort if we get anything of value; and the garden is no exception. Drouth, insects and bad weather may apparently combine against us, but it is a source of great satisfaction to us if we learn to surmount these difficulties. Then, too, the satisfaction of seeing plants grow, and of occasionally getting something fresh from the garden, makes up for the extra labor. Don't, however, expect too much from your efforts the first year.

Flowers.—No garden is complete without a few flowers. Among these easy to raise are the:

Aster,	Bachelor's Button,
Cosmos,	Coxcomb,
Nasturtium,	Coreopsis,
Sweet Alyssum,	Scabiosa,
Sweet Peas,	Phlox,
Calliopsis,	Salpiglossis.
Candytuft Rocket,	**Bulbs—**
Mignonette-	Gladiolus,
Machet,	Dahlia.
Marigold,	**Vines—**
Pansy,	Morning Glory,
Single Petunia,	Wild Cucumber,
Portulaca,	Flowering Bean,
Stocks,	Gourds,
Zinnia,	Melons,
Lobelia,	Canary Bird Flower.

Poppy—California, Shirley, Kochia triophylia (Summer Cypress) Hedge.

—Le Roy Cady, Horticulturist, Minn. University Farm.

Choice and Vitality of Garden Seeds.

At this time of the year, seedsmen's catalogues are beginning to come in, and the annual problem of picking out and ordering the seeds for the season's garden is worrying the farmer. With the professional gardener or trucker, the problem is a trifling one, for he usually knows so definitely what he wants, and from whom he will buy it, that it is the work of but a few minutes to choose and order. Very often his order is placed months ahead. There is nothing to lose and everything to gain by this practice, even on the ordinary farm. Order early!

Standard sorts should be chosen. As a general rule, the practical farmer or grower has no time to waste on highly-pictured, untried novelties. The farm garden cannot be satisfactorily made into an experimental testing-plot.

With many growers, the question of using left-over seeds from last year's operations will arise. Such may be used with perfect satisfaction in many cases. In fact, where a strain has proved especially good in one season's trial, it is often much better to use old seeds rather than to risk buying a new strain. Even if several years old, seeds may be tested for germination; and, if they give a high per cent of strong germination, they should be used.

To test such seeds is a simple matter. Secure two large dinner-plates and some pieces of blotting paper of about the same size as the plates. Place a blotter in one plate and place one hundred of the seeds upon it. Over them lay another blotter. Pour water into the edge of the plate until it rises high enough to soak the blotters thoroughly. Turn the second plate upside down on top of the first, covering the blotters, to prevent the evaporation of the moisture. Set the improvised tester in a room at about 70 degrees F. Supply moisture as needed, and within a week the germinated seeds can be counted and the value of the sample ascertained.

Seed tests both for purity and power of germination, may also be obtained by sending samples to the Seed Laboratory, Min. Agr. Exp. Sta., University Farm, St. Paul.

If seeds have ideal storage, i. e., a dark, cool, airy place, they will retain their germinating power longer than where they are stored in a close, warm or moist place. The conditions under which the seeds were grown, and their stock of original vitality, also determine the length of time for which the seed will remain viable. Oily and starchy seeds usually deteriorate more quickly than those of an albuminous character. With good conditions, the following may be roughly stated as the dependable length of life for the various garden seeds:

Kohlrabi, 3 to 4 yrs.	Asparagus, 1 yr.
Muskmelon, 4 to 6 yrs.	Beet, 3 to 4 yrs.
Cabbage, 3 to 4 yrs.	Carrot, 1 yr.
Cauliflower, 3 to 4 yrs.	Celery, 2 yrs.
Cucumber, 3 to 4 yrs.	Eggplant, 1 yr.
Kale, 3 to 4 yrs.	Onion, 2 yrs.
Lettuce, 3 to 4 yrs.	Parsnip, 1 yr.
Watermelon, 4 to 6 yrs.	Pepper, 2 yrs.
Radish, 3 to 4 yrs.	Bean, 2 yrs.
Tomato, 4 to 10 yrs.	Parsley, 1 yr.
Sweet Corn, 2 yrs.	Pea, 2 yrs.
Squash, 3 to 4 yrs.	Salsify, 2 yrs.
Turnip, 3 to 4 yrs.	

—K. A. Kirkpatrick, Horticulturist, Extension Div., Minn. Col. of Agr.

Checking Grasshoppers.

Apparently the farmers of Minnesota have awakened to the fact that the grasshopper situation is of real importance, and demands real action to prevent further losses from this pest. Considerable interest has been shown at the various meetings this winter, at which the subject has been discussed; and farmers in many parts of the state are making definite preparations to give the "hopper" a warm reception next spring. In some localities "Grasshopper Clubs" have been organized, which plan definite and systematic work against the hopper; while in other places the Farmers' Clubs already organized are planning means of reducing the numbers of these insects. All such organized work is of greatest value, and it is to be hoped that such organization will be more general.

In this connection it should be remembered that **early action is most effective action against the hoppers.** Hence planning and organization should be taken up **soon**, before the rush of other work in spring crowds in upon us. One declaration, adherence to which would be of greatest value in each of these organizations should be the following: "We will do definite work against the grasshopper, using one or more of the recognized methods of work for this purpose, during **late May and early June.**"—M. P. Somes.

An Opportunity for Orchardists.

For the purpose of increasing its membership, and at the same time promoting the introduction of top-grafted trees, of superior hardiness, in Minnesota orchards, the Minnesota State Horticultural Society offers, to each new member paying the annual membership fee of $1, a lot of six valuable apple trees. Three of these are Hibernal or Virginia, two years old; one Delicious, one King David and one Lowland Raspberry, all one year old. The offer is limited to 200 lots—first come, first served. The Hibernal and Virginia are both hardy, and produce valuable fruit. The hardiness of two of the other varieties has not been fully tested; but if top-grafted on the Hibernal or Virginia the probabilities of success are greatly increased, as there is no question that top-grafting any variety on a hardy variety makes it hardier. Even the Wealthy, hardy as it is, will do much better top-grafted on either the Hibernal or Virginia.

Full directions for doing this grafting will be furnished by the secretary; and it is to be hoped that the full 200 orchardists will be found to take part in this interesting experiment, success in which will do much toward the increase of Minnesota's apple crop.

Thirty-five cents for express charges on the trees should be added to the $1 paid for a membership. Address A. W. Latham, Sec'y., 207 Kasota Block, Minneapolis.

A Fruit Growers' Convention.

On Feb. 9th, a committee comprising Mr. A. H. Barnard, Crystal Bay, Mr. H. U. Beebe, Lake City, Mr. Emil Sahler, Waseca, Mr. Langford W. Smith, St. Paul, and Mr. K. A. Kirkpatrick, University Farm—appointed at the recent meeting of the State Horticultural Society—met in Minneapolis and drafted the constitution for a central fruit-marketing association to be known as "The Minnesota Fruit Association." The committee decided to call a general meeting of the growers of the State, to convene at 10:30 A. M., March 11th, in the Horticultural Building, University Farm, St. Paul, to consider the constitution, elect a board of directors, and complete the organization. An interesting program has been prepared for the day, and the meeting will undoubtedly be a time of profit to all attending.

The records of the associations already formed show that organization is the only profitable solution of the marketing problem. A central marketing association, to which individual isolated growers may belong, will not only help the members, but will increase the efficiency of all local associations many fold. All Minnesota fruit-growers, and representatives of all local associations, are urged to be present at this meeting. Write the Horticultural Department, University Farm, St. Paul, for a program and further particulars of the meeting.

Bulletins and Books on "Meat Substitutes.

Because of frequent inquiry from housewives regarding meat substitutes and "vegetarian diet," I have thought perhaps a partial list of bulletins and books available in a study of the subject might be welcomed by those interested.

The bulletins below listed give the nutritive value and digestbility of some of the common food-materials, with tables showing the comparative cost and nutritive value of these food-materials and meats.

Each of the cookbooks mentioned gives many recipes for preparing pleasing, palatable, digestible and nutritious dishes, which might well be substituted for meats if desired.

"A Fleshless Diet—Vegetarianism as a Rational Dietary" is not a book of recipes, but rather a treatise on the use of a diet in which there is no meat, and the relation of such a diet to health.

There is no question that in a large number of cases it would be better for the human family if meats appeared less often in the menu.

A study of the subject of meat substitutes might aid the housewife in supplying her table with a greater variety of nutritious, wholesome foods, and also lessen the cost of living.

U. S. Dept. of Agriculture Bulletins, Etc.

Farmers' Bul. No. 121—Beans, Peas and other Legumes as Foods.
Farmers' Bul. No. 363—Use of Milk as Food.
Farmers' Bul.—No. 332—Nuts and Their Uses as Food.
Farmers' Bul. No. 128—Eggs and Their Uses as Food.
Farmers' Bul. No. 391—Economical Uses of Meat in the Home.
O. E. S. No. 43—Composition and digestibility of Potatoes and Eggs.
B. A. I. Circular No. 166—Digestibility of Cheese.
Year Book, 1910, pp. 359-370, Meat Substitutes.

Books.

"Vegetarian Cookery," by Florence George. Edward Arnold, London.
"Cassell's Vegetarian Cookery," by Mrs. Rorer. Arnold & Co., Philadelphia.
"A Fleshless Diet—Vegetarianism as a Rational Dietary," by J. L. Buttner, M. D.—Mary L. Bull, Ext. Div. Minn. Col. of Agriculture.

The Electric Light for Farm Homes.

Taking the average of summer and winter days, artificial light is needed, in the majority of homes, not more than four hours per day. This is for the kitchen and living room; in bedrooms it is needed not more than two hours per day. For the whole house, and for the barn, an average of three hours per day for each lamp would seem to be ample, and five lamps will afford much more light than now suffices for all the purposes of the farmstead. If the householder, then, can divest himself of the idea that, if he introduces electric light at all, he must have clusters or festoons of flashing bulbs all over his premises; and if, in addition, he can—through co-operation with his neighbors or otherwise—secure "current" at a cost no greater than that at which it is supplied in most American towns, then the electric light would seem to be within his reach at a comparatively small expense. Where no power-plant or storage-battery is to be installed, the initial outlay is confined to the wiring of the premises and the purchase of bulbs, the cost of which is so small as to be within the means of almost any householder.

Recent tests at the Colorado Experiment Station, with current furnished by the Electric Light Company of Fort Collins, at a charge of 13 cents per kilowatt hour, showed the cost of burning a 20-candle power Tungsten lamp for 1,000 hours to be $3.80. This includes the cost of the lamp itself, the life of which averages 1,000 hours. The cost of burning a single lamp for a year, 3 hours per day, is thus seen to be only $4.16, or a little more than a cent a day. It is to be noted that the lamps used in the Colorado experiment were of 20-candle power; the cheaper 16-candle power is ordinarily used in cities. Five lamps would cost $20.80 a year.

Few improvements in the home are attended with so much satisfaction as that which comes from the substitution of the brilliant and convenient electric light for that afforded by the kerosene lamp. In the barn the safety and convenience of the electric bulb, as compared with the old-time lantern win instantaneous appreciation. So great are its advantages, that many well-to-do farmers have, at a cost of several hundred dollars, installed a plant for the production of the needed current for their individual use alone, and now regard the light as indispensable. What they have gained individually would seem to be within the reach of any community of farmers through co-operation.—C. R. Barns, Extension Div., Minn. Col. of Agr.

It is claimed, and with reason, that the modern steer, fattened in stall and feed-lot, is a better beef animal at 18 months than the range steer was at four years. And naturally he fetches a better price in the market. This is one of many cases wherein "the cost of living" is increased, but the "living" is bettered. Unfortunately for the consumer, the producer cannot afford to supply the better beef at the old price.