

important plants. This group has been eulogized of late as being responsible for most of the recent good work in home beautification.

Our most recent work with perennials has been to test them for their effect under certain conditions. All the best of these flowers previously tested for other information, are now grown in a border 12 feet wide and 450 feet long, prepared specially for the purpose in 1911. In this border the five or six great seasonal groups of perennials are well represented. Such being the bulbs as tulips, narcissi, etc., for the first effect in spring, then the Irises, then the paeonies, after which come the first bulk of bloom, which is followed by the phloxes for late summer effect, and the asters for autumn effects.

It should be mentioned here perhaps that there are certain times during the summer when the amount of bloom in a perennial border is very small. One of these periods is that which occurs just after the bulk of the early summer plants have bloomed. Since this is a time of the year when a large number of people are expecting the flowers to look at their best, we are just now working to find suitable flowers to fill in these gaps in the floral year.

The Newer Work.—Having then briefly indicated that in the older work there are at least three lines of effort which we hope have met with a permanent success, and are proving of value, namely, the work with ornamental trees, shrubs and perennial flowers, I think it will be well to come to the second division of the paper, and tell you a little about work more recently commenced.

First of all, with regard to annual flowers. Annuals were of course grown at the Central Experimental Farm in past years, but no systematic attempt was made to record data relating to them, such as was done by Mr. Macoun with regard to the perennials grown in the arboretum.

Since 1911, however, the seed of several hundred different varieties of annual flowers has been obtained each year from various seedsmen in this and other countries. Details are not possible here, but results have been obtained which are suggestive and encouraging. Some results have suggested other lines of experiment, for instance, the seed of a number of annual plants left over from previous years and saved for a test as germinability, was sowed just before the period of drought of last June and July. A certain number of the young plants which came up did not succumb to the heat and drought, but survived under the most adverse conditions and gave bloom late in the year after those

of the regular test were over. As a point of interest it may be stated that they bloomed with us at Ottawa up till the end of October. From this we conclude that it may be well for us to try out most annuals under similar conditions, in order to know what can be recommended to people who wish to raise flowers under conditions that would make a weed blush to do well. There are, of course, people like this who write to us for information, some unfortunately who would willingly stint the care and yet accept the results; others there are, alas, who in arid sections can offer to the flowers but scant courtesy while doing so most unwillingly.

One very interesting point of general interest which we have noticed and which has been called to our attention by visitors from the old world in connection with these annuals, is that the intensity of their colors is greater with us at Ottawa, than it is, say in England. The brilliancy of the whole patch of annuals tested at Ottawa was very great this past dry season.

To tell you anything about the recent experiments, commenced in 1911, with roses, more particularly the hybrid tea varieties, other than this, that already a first edition of a pamphlet on roses has been exhausted and another edition will be ready shortly, is unnecessary perhaps, because what we have to say about the test so far will be said in that pamphlet. I must mention, however, that we started tests with sweet peas about the year 1910. So far these tests have been chiefly variety tests, but in future we are planning to make them cover in addition methods of growing, etc. We need definite information on several points, such as whether sweet peas will do well when grown under certain conditions in the same position year after year. We want more information as to the control of sweet-pea disease and troubles, reliable data regarding which cannot be given till definite observations have been carried on several years. We do know certain things about certain methods which seem to contradict certain prevailing opinions. One is that sweet peas grown in a trench did not do so well in our soil as those grown by their side which were sown in level ground. Another is that those planted from six to twelve inches apart did not do so well as those planted three inches apart, and that those planted closer than this did best during the early part of the year only.

Since the sweet pea is so popular I thought I might be pardoned more readily for mentioning these details.

How Experiments Sometimes Originate.—The large and increasing volume of

correspondence which falls to the lot of every officer at the Central Experimental Farm to deal with often contains questions which suggest by their frequency that experimental work should be started in new directions.

At the present time we have in mind several experiments which are in a measure to be taken up in order to enable us to give correspondents fuller information, and from a more local standpoint. In this class we include experiments which, while interesting a limited section of the public only, indicate that there are forces at work in Canada today which augur well for the culture of its people of means and their appreciation of beautiful homes. For instance, a few years ago practically no enquiries came to the farm with regard to aquatic plants, rock plants, etc. Such is not the case to-day, however, and we are preparing ourselves to give information on these and similar questions from first hand knowledge.

We have also in variety tests of certain large groups of plants, such for instance as the perennial phlox, the paeony, the iris, etc., a very large field for persistent effort, for this reason: we have in all such groups too many inferior varieties, and too many varieties of ordinary merit duplicating each other, some of which should be eliminated. This question is, however, one for a trade meeting rather than one such as this.

Our effort to improve things in these connections, which of course have not been superhuman in the past, would be greatly strengthened, (I believe if I may say so personally and on the side), if those efforts could be prosecuted in co-operation with the actual growers in Canada and elsewhere.

Lastly I should like to say that in all our experimental work at Ottawa we wish to keep in mind at least two things, one is improvement, that is, in the widest meaning of that word. Improvement is sought by selection, by introducing new things and discarding old, by rearranging old and new, by modern technique, by methods of culture, of control of insects and diseases, by the cultivation of that taste and knowledge of the best which leads to the improvement of those things that make better home surroundings possible. Improvement, that is, in things themselves and in the way of doing things. This must be the *raison d'être*, the basis of our experimental work.

The other thing is this, bringing us back to the point where I remarked that it seemed to be true that the number of successes in the work at the experimental farm is perhaps greater than indicated in other connection, and for this reason we do not seek the new

things so often as the slight improvement of the old and therefore our chances of success are greater, and at the same time tremendously potent by accumulative force in the course of years. Even as much as is the advent of one new thing occasionally. The balance of the success of the experimental farm system is a creditable one we believe, and so long as we remember not to do work which other people—other experimental stations in the States and elsewhere have already done; so long as we do not do duplicate work, but remember to do work called for by local conditions, and know how to fit it into its place in life, and do it without deviation by discouragement of season or events, even so long will the experimental work be of a quality and quantity justifying, we hope its continuance and increase.

Good Hardy Perennials for Canadian Gardens.

(By E. I. Farrington.)

With perennials alone, it is possible to have a gay garden the whole summer through. There are many reasons, too, why perennials are particularly well worth growing, chief among them being the fact that once started, they require comparatively little attention. They must be started in good soil, carefully prepared, however, if they are to have a long life and prove the success the gardener has a right to expect.

The soil where they are to stand should be dug over to a depth of at least a foot, and made fine with hoe and rake. Unless naturally rich, a bountiful supply of well-rotted barnyard manure or pulverized sheep manure or, lacking either, a ready-mixed commercial fertilizer, should be added.

When planting perennials, the gardener must be careful to allow for space enough between the plants after they have become well established. As some kinds grow tall and straight, while others are low and bushy, the habits of the plants must naturally be taken into consideration.

In the fall, the perennial bed may be protected by covering it with leaves or straw to a depth of several inches, but it is best not to do this until the ground has become first frozen. It is the alternate freezing and thawing which does the mischief.

There is no better perennial for the garden than the hardy phlox, which is very easily managed, asks only a moderate amount of attention, and will flower freely even if deprived of direct sunlight a portion of the day. After two or three years the old plants may be divided, so that in a comparatively short time a large bed of phlox may be obtained from a small beginning. These flowers naturally cover a long season, which may be extended several weeks by trimming some of the plants early in the season so that blossoming will be delayed. Phlox comes in a variety of colors, and the large heads or trusses are equally attractive when they appear in a mass or distributed through the border.

Gaillardia, or Blanket Flower, has many admirers, and in its improved forms is exceedingly attractive. The variety known as *Grandiflora* will blossom from July until freezing weather, and its bright colors are delicate enough so that the blossoms are useful for decorative purposes indoors. Gaillardia will grow almost anywhere, and in any soil.

Monkshood is an old-time favorite, and a new variety now on the market will commend itself to all lovers of this flower. It is called *Aconitum Wilsoni*, and is named for "Chinese" Wilson, of the Arnold Arboretum, in Boston, Mass., who discovered the parent plant on one of his journeys into the remote parts of the Celestial Empire. It has large, pale-blue trusses, which remain well through the month of October. The Marsh Mallows may be expected to do well in many Canadian gardens with a little winter protection. They are very attractive with their huge, hollyhock-like flowers. Probably the favorite variety is *Crimson Eye*, which grows four feet tall, and is pure white, with a crimson center.

Of the later flowering perennials, few are more satisfactory than the *Rudbeckia*, known as *Golden Glow*. In some gardens this plant grows so rank



This view shows part of the main lawn at the Central Experimental Farm, Ottawa, with the beds and borders in which flowers are tested grouped around its boundaries.