Variations in Seedling Plants.

The variations which occur in seedling plants of our cultivated varieties of vegetables may, or may not have much significance, and yet these variations can not but be noted with some interest. Thus, in tomato seedlings young plants quite frequently show three and even four seed leaves instead of the normal two; egg plants, in varieties, occasionally show three seed leaves; in parsley and in capsicums the occurrence of three seed leaves is not rare. In cabbage and in cauliflower instances of single seed leaf, of the two seed leaves united so as to form a perfect cup, and three seed leaves, are not wanting. In beans we have observed two cases of the plant being tricotyledonous, and in these cases the first leaves were also three in number. In maize we have noted two and even three cotyledons, but these were probably produced by twin, or by triplet embryos.

In wild plants interesting variations are also occasionally noted. Thus *Sanguinaria Canadensis*, L., the blood-root, grows abundantly in the vicinity of the station. The flowers have petals varying in number from eight to twelve, and more in exceptional instances. A peculiar variation, however, which has been observed this year is where the plant's petals are so arranged as to form a flower or square outline, thus forming a uniquely curious appearing clump of bloom. In passing we may note that transplanted clumps of Sanguinaria equal for beauty many of our spring cultivated flowers, and excel, in our opinion, many.

The tomato is a plant that has long been cultivated, and consequently presents numerous variations in its growth. The species to which our garden varieties are referred by authors appears to be the same, but yet we believe that some of the types may be sufficiently distinct to be classed as separate species, or sub-species. The appearance of the young plants of the tomato De Laye of the French, the Upright tomato of the English, and the Tree tomato of American gardens, is as distinct from the ordinary varieties in the seedling plant as can well be imagined. The young plant is upright, short and stubbed; the seed leaves short and broad, the first leaves oval and comparatively entire. In Keyes' Early Prolific, again, while the variation is not at first sight as great from the common tomato as in the case with the De Laye, yet the first leaves are obovate and entire. In the ordinary tomato the young plant is elongated, the seed leaves lanceolate, and the first leaves notched and deeply divided. The tree tomato is of a dark green color, while the ordinary tomato is of a lighter and different shade.

In tomato plants we often find variations in the fruit upon the same plant and upon the same clusters. Thus, the petals and sepals vary from five to seven, and even from four in cases where two of the sepals have become confluent. The cells of the fruit may be two, three or more, even from fruit gathered from the same plant.

Among other variations in the tomato fruit may be noted that of shape, which is familiar to all who are acquainted with the tomato in its varieties. It is only within recent years that the tomato has become smooth. Formerly it was ribbed, and in shape quite distorted. One of the most marked variations obtained by culture seems to have been in the diminution of the seed, and variations are also to be noted between varieties in the manner in which the seeds are arranged, as also in the thickening of the core and the size of the various cells and partitions which contain the seed. There seems to be also a considerable variation in the vitality of seeds as between different varieties, as there certainly is between the strength of the young plants. We have not, however, as yet collected sufficient data to assign this variability to other than accidental causes. It is an interesting subject of inquiry whether the tendency to seedlessness and quality be not correlated, and also whether there be not a correlation between the vitality of seed and the quality, as also between the vigor of the plant and quality.

E L. STURTEVANT, N.Y. Experiment Station.

You cannot make a better use of your soap suds and other slops than to pour them around young trees, grape vines and rose bushes. They are first-class fertilizers for all.

It is proposed to hold an International Forestry Exhibition at Edinburgh in 1884. The objects intended by holding such an exhibition are not only to stimulate a deeper interest in scientific forestry in the public mind, but to illustrate the importance and value of woods to a country.

Farmers' Clubs.

BY W. F. BROWN.

I think there is no calling in which there is as great need of organization as that of the farmer. In his work on the farm he is not brought in contact with men, and the social and intellectual part of his being needs the stimulus which comes from contact with other minds. It makes little difference whether the organization is a grange or farmers' club, so that it is conducted properly. I am a member of both organizations, and find great help and benefit from them. As there is a large class of farmers who on account of the secrecy and ritualism of the grange will not become members of it, I will describe briefly our plan of organizing and conducting a farmers' club.

We have two very successful ones in this township, one of which is now in its eighth and the other in its second year. These clubs consist of twelve families each, and meet at the farms monthly, so as to get round each year. We have also in our own and several adjoining counties county clubs, that often have an attendance of 100 or more. These clubs meet on the farms through the summer, and in some town or village where they can secure a hall and stabling for their horses in winter. I very much prefer the small club for several reasons. In a small club it is easy to get every member to take a part, while in the larger one a few of the best talkers are almost sure to monopolize the time. In a club of twelve the members are more certain to attend promptly and more regularly, as every absentee will be missed, while in the larger club a large proportion attend irregularly. In the small club the family where we meet provides the dinner or supper—for we meet at 2 o'clock, p. m., during the months of April and September inclusive—and this is much less trouble and expense than to be obliged to pack a basket twelve times a year as is the case with the large club. I think the better way would be to organize as many of the local clubs as possible, and let them all unite and form a county club which should meet quarterly, or if this was not convenient, at least once a year, and hold an institute.

A club may be started with only four or five families, and gradually increase, and often this will be better than to start full. If you expect success you must impress upon every member the importance of always attending the meetings. You must also prepare a programme so that the members will know what is required of them. It is best to get out a printed programme at the beginning of the year. Our club has such an one in which the place of each meeting is designated, the topic to be discussed and a number of sub-topics under each question. It contains ulso the constitution and by-laws, and costs us $5.50 per 100 copies, and this is about all the cash outlay our club makes during the year. In addition to a regular question for discussion at each meeting, we have an essay and a selection. The President appoints members for this duty a month beforehand, and also some one to open the discussion of each sub-topic. A part of the time at each meeting is spent socially, and the men usually inspect the farm and stock. In making the appointments for the year, care should be taken to meet in winter when there is plenty of stable room for the horses, and the spring meetings when the roads are likely to be bad, should be as central as possible, and located on a turnpike if possible. I think it hard to over-estimate the good that such meetings may do, and think that such a club should be started in every township.

Reports from St. John, N. B., say that the potato bug is more plentiful this season than ever before at the same time of the year. Much fear and anxiety is manifested that the ravages of the pest will be very injurious, if not almost fatal, to the potato product.

The process by means of which planks are made from straw is undergoing a practical test in Chicago, where a large building is under construction as a home for a new industry. If these planks can be depended on as building material the discovery is an important one for the great North-west on both sides of the line. Lumber is there very scarce and dear, and straw is so abundant as to be looked on as a nuisance, to be got rid of by burning in the field. If the farmer can convert his straw into lumber, as he converts his wool into cloth, the conditions of life in the North-west will be greatly ameliorated.

The Apiary.

Bee-Keeping.

At the present day the bee-keeping world are agitating the production of the *Apis-Americana*, or the "coming bee," that it is hoped will be able to reach the nectar in our deepest flowers—such as red clover, thistles, etc., and will produce one, two or three hundred pounds of honey per colony.—The idea of stripes of color has passed away with specialists, and now they breed for business. Occasionally we have an apiarian who still sticks to the common black bee, warmly defending their excellences, while we all have to agree that they do produce the whitest of comb honey. I think I can safely say that nine tenths of the bee-keepers of today would prefer the Italians, for they possess more excellence than any other strain that has been introduced yet; they being more docile than the blacks, also much larger, and can carry heavier loads against our strong winds, and breed faster—keeping their hives full of workers. My advice to all bee-keepers would be to get the Italians, and Italianze all of the bees in their neighborhood, and then they can be sure of keeping their bees pure. But if they allow any black colonies to be kept within two or three miles of them, they will have to be very watchful if they get any purely-mated queens, because the queen goes out in the air to mate, and the black drones being smaller and swifter, outstrip the heavy Italian; and the consequence is you have what is termed a hybrid queen, or a queen producing hybrid bees. This can be prevented by a judicious apiarian to a large extent, by raising drones from their best Italian colonies, and cutting all drone comb out of the black colonies, and not allowing them to raise any drones at all.

The hybrid bee has had admirers, too, for they produce beautiful comb honey, and are very industrious, very often storing more than either the blacks or pure Italians; but they are more irascible than the pure of blacks or Italians, often being very annoying to everybody and everything that moves. But anyone can put up with considerable trouble to be rewarded with a lot of choice honey, for they are indefatigable workers. They, too, are larger than the blacks, although they do not all have stripes. Some of them are pure black, while others have stripes across their abdomen; and, in fact, are pure Italians. Yet queens raised from these will have hybrid drones—the drones being what the mother is. If she is pure Italian, her drones will be pure Italian; and if she is black, the drones will be black; or hybrid, the drones will be hybrid.

While many of our best apiarians advocate breeding from the swarms that store the most honey, irrespective of color of queens or drones, others recommend selecting a pure colony to raise drones from. As for my part, I have never raised any queens only for my own use, and I have always selected good, large bees, and as near pure as possible, to breed queens from; taking my second best for drones, and preventing any others from raising drones by removing all drone combs, or cutting the drones' heads off just before they are ready to hatch; and I have a strain of bees now that winter well, and store as large an average as any in this county. My average for 1882 was 82 pounds per colony, the yard through, although my best went 120 to 140 per hive. One-third of my surplus was made in small sections, weighing from one to one and a half and two pounds each. Honey put up in such packages sells readily, when compared with the surplus boxes that were formerly used.—[Kansas Board of Agriculture.

Although the oleander is a flower of but little merit, and partakes more of the nature of a tree than a shrub, certain people will have the unwieldy plant in their houses, notwithstanding that it is of a highly poisonous nature. A small quantity of the leaves have been known to kill a horse. Its flowers have killed people who carelessly put them in their mouths and chewed them. On one occasion, when skewers were made of its branches, they poisoned the roasted meat with which they came in contact; and, on one occasion, out of twelve persons who partook of roast-beef thus skewered, seven died. Such being the nature of this shrub, it should be entirely dispensed with, as no one can tell how soon it may bring harm into a family, especially where there are children.