

to prove very helpful in the long run. The motive is excellent, whatever the execution may be; and in the long run experience will improve the execution.

Manual training and domestic work of various kinds are also valuable, but at present tend to be too formal in their nature. Formal models of no practical value in real life have been conceived to teach the use of some particular tool. But it will soon be found that the same hand training can be got by making useful things. It is a pity that instructors from foreign countries were imported to start the movement, for they copied their home system faithfully. It will rest with native Canadians to devise a really practical course of training, which will contain any real article capable of being made with the simple tools of everyday life, and only these ought to be furnished in the school equipment. The making of a whiffle-tree is more valuable to a farm boy than the carving with a knife of an oval bread board, which will never be so useful even if it is made with beautiful inlaid work.

Sewing and knitting will be more useful and practical for school purposes than cooking, and besides they require no particular school apparatus. The sewing should, however, be confined to real garments and not be wasted on tiny useless models. The knitting likewise should be devoted to goods that will afterwards be worn by the pupils or the members of their families. There is some hope that sewing and knitting will become the manual training subjects for the girls, while wood-work occupies the attention of the boys.

All these can be accomplished even in the present rural schools, but will not solve the rural problem either. A better form of organization and management will be necessary and that can only come from the union of school districts and the consolidation of schools.

3—The School Boards and Trustees.

Here, say some critics, is the crux of the situation and attempts have been made to enlighten the trustees. Teachers' conventions have at times held special meetings for their benefit and a section of the convention is devoted to their interests. School inspectors devote some attention to them. But in hundreds of cases, the small boards of three members are hard to move in any progressive direction. They are by nature timid and conservative towards any new movement, especially if it is to cost anything. Their districts are too small for the best choice to be made. Frequently a parent is a member till his children are all educated. By the time their school days are ended, he knows the ropes and becomes an efficient member. Then he either retires in favor of another parent or remains on the board with the sole purpose of keeping down his own school taxes. The improvement of the trustee is not an infallible cure for rural school troubles.

4—Better Departmental Administration.

Legislative enactments have done much to improve school conditions. Compulsory education prevails in every province except Quebec. The school term is being gradually standardized and extended to about ten months. Even teachers' salaries are increased by grants in aid, and poor municipalities are coaxed and backward ones forced to increase the taxation to at least a minimum basis. Proper grading and more useful subjects are introduced as rapidly as possible. Control of buildings, condemnation of bad school-houses, proper hygiene and sanitary conditions and, in some provinces, even medical inspection, are being forced on school boards. All this usurpation of power by the central authorities is good even though it lessens the power of trustees, provided it does not destroy all local endeavor for improvements. Of course all this can only be done by means of money grants, and central control depends upon the financial aid given to support the demands for alterations. The man who pays the piper has a right to call the tune, and herein lies a fundamental truth which must be utilized to secure more efficient schools. Let the farmers insist on better schools, let them hand the responsibility over to the provincial experts, and let the provinces pay for the privilege. Only in this way will ideal schools be forthcoming. If it were not for the disastrous results of party politics, most educational experts would gladly transform the teaching profession and the schools into a civil service. If a government department can manage successfully a navy, a post office or a savings bank, it can also run a school system. At present our departments of education are like human gods in a cage which we must all fall down and worship.

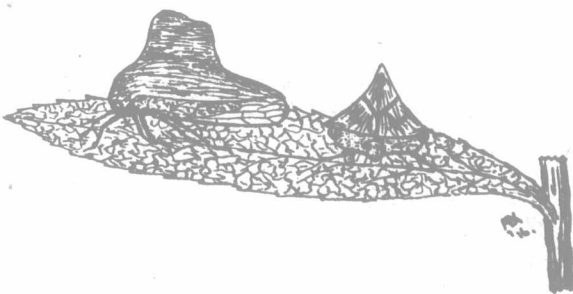
5—Consolidation of Schools.

The last expedient to be tried is the consolidation of schools and the transportation of the pupils of the tiny schools, which were abandoned, to the new union school at public expense. This movement which came last should have come first, for it is the only means whereby efficient rural schools can be secured. There is really no hope of permanent improvement in any other way. Jealousy, greed and conservatism must give way before much can be accomplished. We require to get the consent and co-operation of the farming community. This can best be secured by enlightenment. The best hopes we have are the results that can be secured by interesting farmers in combining to organize their demands and by using the agricultural journals to spread all such propaganda. The most hopeful sign of the present day is the strong leadership displayed by the prominent farm journals not only in agricultural pursuits, but also in the improvement of rural school conditions with which rural prosperity is so much bound up.

Nature's Diary.

A. B. KLUGH, M.A.

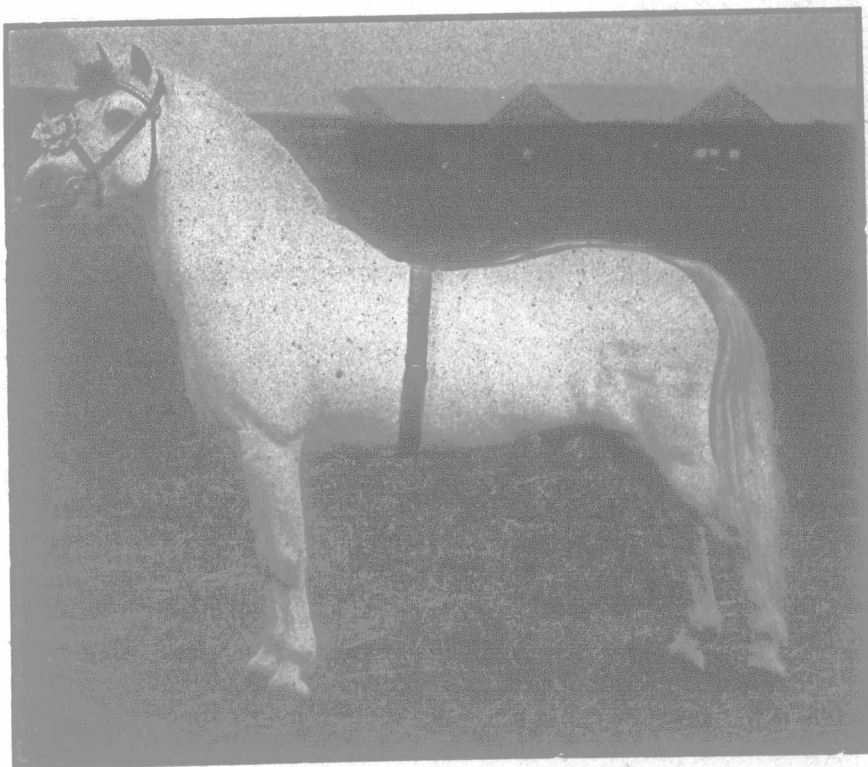
Among the many queer forms of insect life, none are more quaint than the Tree-hoppers. They are insect elves and pixies. It is the curious modification of the prothorax which gives these insects their strange and grotesque form. The prothorax is much prolonged, so that it covers the rest of the body, and is shaped into various humps, crests and spines. An idea of the peculiar appearance of one species, which is common on the Virginia Creeper, may be obtained from our illustration. In another species found on the Climbing Bittersweet, the prothorax is extended forward into a long, thorn-like projection which gives the insect the appearance of having a cap shaped like that of a pierot on its head. While the forms of these insects strike us as grotesque and comical they serve a useful purpose in the economy of the insect's life—that of protection; since they give it the appearance of a thorn or other protuberance on the stem of the plant it frequents.



A Tree-hopper (*Telamona monticola*).

Side and front views.

Of these insects the species of the greatest economic importance is the Buffalo Tree-hopper. Its name is derived from its supposed similarity in form to the male Bison, the prothorax being greatly enlarged towards the head and projecting at the side into two strong horns. This species sometimes causes considerable damage in orchards, particularly to young trees and nursery stock. The injury is produced by the cutting of the small limbs by the female with her sharp ovipositor, in which process she makes large holes through the bark. These holes are in the form of two nearly parallel or slightly curved slits, and in them the eggs are laid in compound clusters. The wounds are made in such a way as to cause a certain cessation of growth between the two rows of eggs, which prevents the eggs being crushed by the too rapid growth of the twig. Each female lays from one hundred to two hundred eggs, and the young hatch out the following spring. They moult two or three times before becoming full-grown, and feed upon the juices of the tender twigs and leaves by inserting their beaks and pumping up the sap.



A Welsh Mountain Pony Stallion.

On the surface of our ponds and slow-flowing streams we find little bugs known as Water-boatmen. They are mottled and of an oval shape, and swim with the back upwards, not with the ventral surface upwards as is the case with the Back-swimmers which are common in the same locations. They can descend below the surface and remain for a long time, since they carry down with them a film of air held by the fine hairs which cover the body. When cold weather comes on the Water-boatmen swim to the bottom and bury themselves in the mud where they remain until spring. Active as these insects are in the water they are slow and clumsy on land, and if the pools they inhabit dry up they

fly about in search of other aquatic haunts. They are predatory in their habits, feeding upon other water animals, and with their strong, sharp beak they can pierce the skin of one's finger.

The Huckleberries and the earlier Blueberries are now ripe, much to the gratification of the bears and also of a good many members of the human race. These two names, Huckleberry and Blueberry, are often applied indiscriminately to various species. Really the term Huckleberry should be reserved for the species of *Gaylussacia*, which have round, black, bloomless, sweet, berry-like drupes, containing ten very hard seed-like nutlets, and the name Blueberry applied to species of *Vaccinium*, which have berries, usually covered with a whitish bloom, containing numerous small seeds.

The first species of Blueberry which we find in fruit is a low bush between a foot and eighteen inches in height, which grows on hillsides, or in little pockets in the rocks of our northern country, and known as *Vaccinium pennsylvanicum*. A very closely allied species which ripens its fruit at about the same time is *V. canadense*, which differs from the preceding only in having the leaves and branchlets downy instead of smooth, and having entire instead of slightly toothed leaves. It grows in the same habitats as the former, and the fruit of the two species is identical.

In that wonderful region which lies over the Great Divide—our Pacific Coast—that berry of the contradictory name, the Red Blueberry, is now ripe. This attractive bright red fruit is decidedly acid at low altitudes, but as one goes higher up the mountains it becomes sweeter and of better flavor. I noticed this particularly in a climb of Mt. Benson on Vancouver Island; at the base the Red Blueberries were as acid as red currants, but as I ascended I found that they became more palatable, till near the summit, at the greatest altitude which the species reaches in that region, they were really good. Thinking that perhaps it was my taste and not the quality of the fruit which had changed, I tested them again on the down trip and found that they became sourer and sourer as I descended.

THE HORSE.

Ophelia—The Mare with Descendants Valued at \$2,500,000.

The New York Herald published some time ago an article by Alexander Gemmell on the great Hackney mare Ophelia. All horsemen should read it as it shows the possibilities from breeding of the right kind. We reproduce most of it, as did the Live Stock Journal, as Mr. Gemmell penned it:

I think I am correct in stating that Ophelia was bred by a farmer named William Deighton, of North Duffield, Selby, near Market Weighton, in Yorkshire, and was foaled in 1884. She is registered in the Stud Book as by Danegelt or Denmark, his sire, but she was undoubtedly by the latter horse, and was out of Jennie Bother'em by Triff's Fire-away.

Market Weighton is in the centre of the Yorkshire Wolds. What delightful memories this little village recalls, and all apropos of the Hackney, for there it was that the Yorkshire Hackney was evolved by the Ramsdals, father and son, old Bob and Philip, more than 100 years ago. And close by, Rickell and Crompton, whose names are magic to the line breeder, continued the foundation laid by them, and to-day their blood is at the back of all the best-bred Hackneys.

I never go to Market Weighton but I picture old Bob sitting in his house when more than eighty years of age and hearing the sound of Performer's hoofs coming down the village street on market-day, and the rattle not being rhythmic to his ear he buttoned on his gaiters, went outside, and said: 'Hey, lad, that ain't t'way t'ould horse goes; gimme 'im.'

And there and then he mounted the horse and rode him up and down the street at a three-minute gait to the delight of all the Tykes.

And then across the street from old Bob's house stands Londesborough Arms, which still contains pictures of all the great old Hackneys, and in the tap-room of which Mr. Burdett-Coutts bought and paid for Hackneys to Yorkshire farmers something like \$500,000.

Near this little town, Matchless of Londesborough was bred by the late Mr. Nat Brough, and when an old horse he fetched \$12,500 in America; and only two miles out on the Newbald Road the great Forest King was bred by the late Mr. Charles Hutchison, at Sancton Grange, and he was by His Majesty, a son of