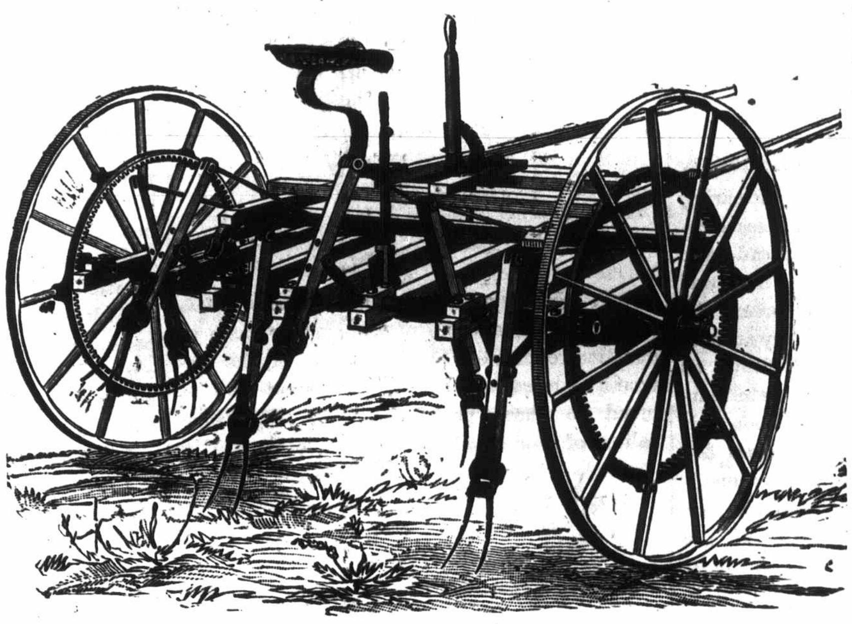
hay. It drives out the soluble and nutritious constituents, and if the hay remains long wet, fermentation, as well as washing, takes place, and the feeding value then becomes still further depreciated.

By cutting before bloom, the loss of the pollen (called "blows" by many farmers) is saved. This contains valuable feeding material. When fed to horses it produces a dustiness which is injurious to the respiratory organs of the consumers.

No implement can do greater service to the farmer than the tedder. By its use the hay can be kept constantly stirred in such a manner as to admit the air, as well as the light and heat, which has a tendency to dry the mass uniformly. Considering the extra quality of such hay, such an implement would pay its cost in one or two seasons.

Cements for Special Purposes.

The value of a cement, as the London Building News remarks, is, first, that it should become a strongly cohering medium between the substances joined; and, second, that it should withstand the action of heat, or any solvent action of water or acids. Cement often fails in regard to the last consideration. For water-proof uses, several mixtures are recommended, and the following may be mentioned: One is to mix white lead, red lead, and boiled oil, together with good size, to the consistency of putty. Another is, powdered resin, 1 ounce, dissolved in 10 ounces of strong ammonia; gelatine, 5 parts; solution of acid chromate of lime, 1 part. Exposing the article to sunlight is useful for some purposes. A waterproof paste cement is said to be made by adding to hot starch paste half its weight of turpentine and a small piece of alum. As a cement lining for cisterns, powdered brick 2, quicklime 2, wood ashes 2, made into a paste, with boiled oil, is recommended. The following are cements for steam and water joints: Ground litharge, 10 pounds; plaster of Paris, 4 pounds; yellow ochre, ½ pound; red lead, 2 pounds; hemp, cut into one-half inch lengths, ½ ounce, mixed with boiled linseed oil to the consistency of putty. White lead, 10 parts; black oxide of manganese, 3; litharge, 1. Mix with boiled linseed oil. A cement for joints to resist great heat is made thus: Asbestos powder, made into a thick paste with liquid silicate of soda. For coating acid troughs, a mixture of 1 part pitch, 1 part resin, and 1 part plaster of Paris, is melted and is said to be a good cement coating. Correspondents frequently ask for a good cement for fixing iron bars into stone in lieu of lead, and nothing better is known than a compound of equal parts of sulphur and pitch. A good cement for stoves and ranges is made of fire-clay with a solution of silicate of soda. A glue to resist damp can be prepared with boiled linseed oil and ordinary glue, or by melting 1 pound of glue in 2 quarts of skimmed milk; shellac, 4 ounces; borax, 1 ounce; boiled in a little water, and concentrated by heat to a paste. A cement to resist white heat may be usefully mentioned here: Pulverized clay, 4 parts; plumbago, 2; iron filings, free from oxide, 2; peroxide of manganese, 1; borax, ½; sea salt, ½. Mix with water to thick paste, use immediately, and heat gradually to a nearly white heat. Many of the cements used which are exposed to great heat, fail from the expansion of one or more ingredients in them, and an unequal stress is produced, or the two substances united have unequal rates of expansibility or contractibility. The chemical or galvanic action is important. The whole subject of cements has not received the attention it deserves from practical men. Only Portland cement has received anything like scientific notice; and a few experiments upon waterproof, heat resisting, and other cements, would show which cements are the best to use under certain circumstances.



HAY TEDDER.

Weeds! Weeds!!

There is no royal road to weed destruction. Farmers may with propriety inquire, How is it that science has done so much for every other department of agriculture, and yet we have to plod amongst those weeds with still greater vigilance than in our backwood days? All sorts of weeds are sent to distinguished botanists for identification, and names are given to them about as long as the weeds themselves, and yet special remedies against their ravages seem as far off as ever. Science tells us that weeds rob the soil of the identical plant food which should have nourished the crops. Every farmer who neglects to hoe a hill of potatoes, soon finds this out for himself. Science is not required to teach farmers that weeds are robbers. Weeds and thistles are the biggest mortgages on Canadian farms to-day, and every weed added from year to year is so much more interest to be paid on those mortgages. Politicians are said to be easily bought, but the trouble is, they won't stay bought; so it is with weeds—they can be easily killed, but they won't stay killed, somehow.

In bringing weeds to account we should, first of all, debit them with the nutriment they take from the ground, thereby robbing the crop thereof. It must, however, be remarked that this nutriment is restored either directly, if the weeds are killed on the field, or otherwise indirectly through the manure heap, if it is preserved from waste; but the farmer who works upon this method is always a year behind, just like the farmer who attempts to preserve his manure in the barnyard a whole year after it should be fit for application. The second debit is the labor required in their destruction. But there is an offset against this bill; the soil should be worked under any circumstance, weeds or no weeds, and is it not possible that this stirring would be entirely neglected by many farmers if the weeds were not there to urge them on? Here an important lesson can be learned from market gardeners; they find it absolutely necessary to keep the weeds out of sight, else their occupation would soon be gone. They find it saves manure and labor, and yet they spend more of these on a few acres than most farmers do on a whole farm. The nearer garden farming is approached, the greater will be the profits.

The lack of careful observation and reflection is the greatest obstacle against successful weed destruction. Many farmers think that there is a special rule for killing every variety of weeds. If such a rule exists, it can only be ascertained by special observation in each case; the times of sprouting and ripening; the feeding rooting, and seeding habits, and the modes of propagation can best be studied by each farmer in his own fields without the aid of "book farming." When this is all done the principles can easily be applied. The most vulnerable point o every victim should first be ascertained. There are two periods in the growth of all plants when they are tenderest, and hence most easily destroyed. Then are the times to prepare for the attack. The first period is just after sprouting, when a mere stirring of the surface soil will destroy them. The second period is when the seeds begin to form. Then the energies of root and stem are being exhausted in the production of seed, so that by cutting them as closely as possible to the ground, or, still better, spudding them under the ground, especially if this can be done shortly before a shower of rain, the excessive moisture will enter the hollow stems, causing them to rot. But these operations will only destroy the weeds which grew from the seeds that lay on the surface of the soil. The deeper seeds may lie for years, until an opportunity of reaching the surface is presented. How these seeds got there will be explained by what takes place if the weed-seeds are allowed to ripen and fall upon the ground. Only a portion of the seeds fall upon the soil, the remainder being conveyed to the barn or stack with the crop. Those in the soil will keep cropping up for years, unless the surface soil is kept stirred, so as to induce their germination and consequent destruction. Those find-