

Leaf Mould

By R. VANDER BEKEN

NEXT to farmyard manure, leaf-mould is one of the chief agents by means of which the gardener improves the soil. Whenever he has reason to know that specially congenial conditions must be established for the roots of his plants, the gardener incorporates leaf-mould with his compost. If possible he selects the decayed remains of Oak or Beech, but if these are unobtainable he takes what he can get in the way of decayed leaves. The wise greenkeeper does not, however, wait upon Nature to set up decay. He collects the leaves as they fall, and, pressing them down into close heaps, prepares his own stock of leaf-mould, or gets sufficient for a layer of about a foot in thickness for his compost heap in the making.

It is evident that the changes which the leaves undergo in becoming mould are several and various. The heap develops a considerable temperature—the sure sign of bacterial and fungus activity. The closer the leaves are packed the higher the temperature rises.

Of the orderly series of changes which set up leaf-decay and lead to its consummation in mould, little is known. Nevertheless, the broad features are clear. For decay to be complete, and to result in a sweet humus suitable for grasses, a certain amount of moisture is necessary. Otherwise decay is arrested, and a sour peat-like mass not at all conducive to healthy plant growth is produced. Lime is also necessary, whether it be applied in light dustings of agricultural lime while making the heap, or whether it be applied by the leaves themselves. It may come as a surprise to some to learn that leaves contain a considerable amount of lime, but it is a fact.

Thus in their content of lime, the leaves bear, as it were, the seeds of their decay. One part, and perhaps the most important, which is played by lime in helping decay, consists in

the neutralization of the acids contained in leaves, for, as is well-known, fresh leaves contain considerable quantities of acid—enough to give to incompletely decayed leaves a distinct acid reaction. Hence, unless the decay has proceeded far enough, leaf-mould used in large quantities may produce an initial ill-effect on grasses, especially those still in their tender stages of growth. However, if the dressing is applied in the form of compost, that is the leaf-mould mixed with soil or other ingredients any acidity may be quickly neutralised. Nevertheless, the wise greenkeeper adheres to his general rule of choosing for his composts the nice well-decayed débris, feeling kindly to his skilled fingers.

One may notice in woodlands, that only certain kinds of plants thrive, and this is due to the acidity remaining in the decaying leaves, and is most noticeable where rainfall and lime are deficient. On the other hand under proper conditions the acidity is lost, and the mould becomes alkaline in reaction in the course of a few months. Many greenkeepers are often inclined to be too much on their guard against using leaf-mould from such situations, but they need have no fear; let them collect this partially rotted mould, dust it with lime, and expose it to the weather, and in the course of a year or less they will have an admirable material for dressings.

In the Fall of the year dead leaves can be gathered in large quantities on most of our golf courses, and their value should not be under-estimated; but as it takes a year or so to turn them into suitable material for top-dressing the greens and "approaches," etc., I cannot do better than recommend Rex Humus, which is an admirable substitute. I had occasion to see some greens in Canada, apparently very deficient in organic manure treated with this "Yeast of the Earth," and within one month from the first dressing, those greens showed such a good recovery

that it was applied to each green of this particular course with the same results. The effect of humus on the mechanical conditions of the soil are well-known. Clay is flocculated by it, and, in consequence, becomes more open; sandy soil, on the other hand, becomes more retentive of water. The chemical value of humus is understood in a general way only, and no special importance should be attached to an analysis. Humus contains more or less nitrogen and small quantities of other elements, but its principal effects in the soil are mechanical and bacterial. Be careful that the humus you use is not allowed to get too dry and be especially careful of material that is mechanically dried. The heating process kills the bacteria and no amount of after-innoculation is of any avail. This can be easily proven by a comparative test. The moist, natural product will give better results every time. Bacteria have been found by careful research to thrive best in humus when the moisture content is between 35% and 40%. Even natural humus is ruined by the heat necessary to drive off the moisture. The biological effect of humus is no less, and perhaps more, important; for that substance serves as a store of food for bacteria, and the latter in the process of living, break down the humus into compounds which are capable of being absorbed by the roots of the grass plants.

The main conclusion is clear: organic manure in one form or another is essential. If sufficient dung cannot be obtained for incorporating in the compost heap, recourse must be had to other forms of organic manures.

Finally, since the difference between organic and inorganic manure lies in the fact that the former contains humus and that the latter does not, the superior results due to the organic manures must be attributed to the beneficent action of the humus.

TREES

Little, and very often no attention is paid to some of the beautiful trees

on the courses, although sometimes but a single tree might give a much finer character to a hole if it were in proper order; therefore, a little "doctoring" in time will help to make that piece of the fairway or approach and green have its dominating landscape note. Since trees take so many years to mature, take every care to preserve and safeguard them sufficiently to give singularity and character. The beginner or poor player has sometimes opportunity to admire the surrounding scenery, as he it is who often forgets to keep his head down and his eye on the ball.

Greenkeeping Notes

A large percentage of the complaints received by seedsmen regarding weed-seeds in their seed may be traced to the fact that top-soil has been used in the top-dressings. Top-soil very frequently seems to be of good quality in every way and is therefore used on a golf course either as a dressing or in building a new green. Nearly all top-soil contains a large number of weed-seeds, which may have been there for years in a dormant state. As soon as the soil is disturbed in order to move it, these seeds are moved into more favorable growing conditions and at once sprout. This naturally results in the trouble being blamed on the seedsmen. No matter if the source of the soil is carefully inspected and found to be free from weeds, a large number are nearly always buried in it and are just waiting for a chance to grow. Probably the only way to remove them is to burn the soil, unless the ground can be allowed to lie fallow for a long time and the plants which grow removed. The burning will greatly improve a heavy clay soil, but it removes nearly all the fertilizing properties of the soil. Soil which has been burnt should be carefully manured with a combination of artificial manures and natural humus. This treatment will be found to restore the ground to good heart almost at once and seeding may be carried on without fear of much trouble from weeds.