

## The Low Plant Food Value of Peat

By K. F. Kellerman

The question of the suitability of peat for top-dressing is frequently raised, sometimes with the suggestion that the peat be combined with manure or compost. The widespread interest in peat and the rather general belief that it has unusual value for plant food is due, in part at least, to apparent analogies that are not real. For example, the areas resulting from the drainage of ponds or lakes frequently have a high productivity. River bottoms ordinarily are regarded as the richest lands in a given region, and these conditions naturally suggest that water-borne materials or materials decomposing under water contain rich plant foods. A distinction should be made, however, between silt or muck deposits, and peat.

Although peat deposits are usually dark in color, frequently as black as any muck or river bottom land would be, they contain practically no mineral plant food. Pure peat is the residue of plant material decayed under water or near water level, and the characteristics of any particular deposit of peat will vary depending upon the kind of plant growth that has been accumulating and decaying, as well as upon the conditions of the bog or swamp in which the deposit has developed. If considerable quantities of clay or silt have been washed in and deposited with the peat, the deposit can not be regarded as a true peat. It is these silty peats that ordinarily are found most satisfactory for truck gardening or other forms of intensive crop production.

In considering the use of peat it is important to remember that peat deposits represent only the remains of a very complete decay and disintegration of the plant materials. A peat deposit may be black in appearance, very much like well-rotted manure, but when we speak of thoroughly rotted manure we are dealing with a condition entirely different. Well-rotted manure is, after all, manure only partially decayed. It is full of bacteria, molds, and other organisms, and the chemical plant foods contained in manure are being changed more or less rapidly and being made available for absorption by plant roots. This condition does not exist in peat. Very few bacteria are present; and, although plant food elements may be found in the peat by chemical analysis, unfortunately these elements are not in available form for plant roots to absorb them. There are some peat deposits that show a percentage of nitrogen, for example, as high as four per cent, yet that nitrogen is not available and therefore of no benefit and has no food value for a growing plant. The nitrogen in manure or commercial fertilizers, however, can be readily and completely used.

In the same way that an analogy apparently has existed in the minds of people between well-rotted manure and peat, there has existed a somewhat similar analogy between humus and peat. The importance of having humus in a rich soil has been frequently commented upon, and in color and general appearance and in some chemical peculiarities humus and peat are similar. The humus that we are interested in in a fertile soil, however, is again comparable to the rotted manure. In other words, it is not completely decayed but is vegetable matter in the process of continuing decay.

Undoubtedly there are conditions where peat can be made to serve a very useful purpose; as a conditioner for fertilizers, as a material to mix with compost or soil to provide a convenient potting soil for greenhouse

use, for diluting a compost heap in order to make it possible to apply a light compost dressing over an extensive area, and possibly for numerous other purposes peat of good quality may have a considerable value. There are peat deposits, however, that because of infiltration with bog iron or other materials may be actually injurious to plants. In using any peat deposit, therefore, it is important to learn something of that particular deposit. It is doubtful if the use of peat on clay soils, either as a top-dressing or as a mixture in an effort to improve the physical condition of the surface, is ever advantageous.



A compost and soil sifting machine which was tried out during the season of 1924. It is claimed that this machine in one case screened more top soil at a labor cost of \$15.50 than was screened through a rotary screen by 5 men over a period of 3 weeks, at a labor cost of \$455.

## Destroying Pocket Gophers

By W. B. Bell, U. S. Biological Survey

Pocket gophers are readily caught in any one of several makes of special traps commonly on the market, and a few traps will be all that are necessary to keep small areas free of these pests. For larger areas, such as fairways, a very successful and much more practical method is to poison the rodents by use of baits of vegetables or grain. Either the vegetable or the grain bait gives splendid results, but some gophers will not eat a poison bait, and these individuals must be trapped.

The following formulas for preparing poison baits have been developed by the Biological Survey of the Department of Agriculture and have been found to be very effective:

For a vegetable bait, cut carrots, sweet potatoes, or parsnips about 2 inches long and  $\frac{1}{2}$  inch square, and wash and drain the cuttings. From a pepper box sift slowly a mixture of  $\frac{1}{8}$  ounce of powdered strychnine alkaloid and  $\frac{1}{10}$  ounce of saccharin over about 4 quarts of the dampened baits, stirring the baits to distribute the poison evenly.