Poland, and Austria is even worse; for the tools of the serf who cultivates a few acres, and pays a share of the raw produce, will be of the roughest character, and often of his own making; and where the serf has to labor a certain number of days on his lord's domain, he will only be able to use the same implements that he has been accustomed to on his own.

These remarks will, perhaps, account for the fact that there is no foreign agricultural machinery shown in direct competition with the English, and that almost the only agricultural implements in the foreign compartments are a few ploughs, mingled with the other articles.

Belgium exhibits some ploughs with a single stilt or handle, whence probably our Suffolk one-handled plough may have originated; France a few with cast-iron mould-boards, but keeping to their own ideas in form, and to the short beam and handle, which, by lessening the power of leverage, increases the difficulty of keeping a straight furrow. This is also particularly noticeable in the American ploughs, which, with the exception of the varnish and high finish, remind us of the prints in agricultural works intended to represent ploughs that were used several hundred years ago. They also show us, the Americans must either have a very friable soil to cultivate, or that their tillage operations are executed in a very imperfect manner."

ANALYSIS AND APPLICATION OF SOOT.

The most neglected of all the valuable manures, available to every householder, is *soot*. In most cases the chimney sweeper is allowed to carry it away, rather than that he shall have a few more pence given to him for leaving the black treasure behind; for a treasure it is, and its value is shown by the fact, that the sweep has to be paid for leaving it, instead of for taking upon himself the trouble of removing it. The reason for this is, that the farmer knows well the value of soot as a top-dressing, even for his wheat; though applying it on the surface is the most wasteful of all modes of adding it to the soil. The value of soot, as a manure, principally arises from the salts of ammonia which it contains, and a large portion of these are lost by exposing it to the sun and wind. The best time for applying soot, as a top-dressing, is during rainy weather, for the rain washes the ammoniacal salts into the soil before the sun and wind can drive them off.

Soot is that part of common coal which is driven off by the heat of the fire without being burnt: and, as the air which bears it along is cooled, it is deposited on the sides of the chimney. Soot is composed, therefore, of the most volatile parts of the coal, and of some of its most solid parts, in a state of very fine division. It has been analyzed, and 1,000 lbs. found to be composed as follows:—

Charcoal (very fine)	371	lbs.
Salts of ammonia	426	"
" potash and soda	24	"
Oxide (or rust) of iron	50	"
Silica (flinty and very fine)	65	"
Alumina (pure clay, very fine)	31	"
Sulphate of lime (gypsum, or plaster of Paris)	31	"
Magnesia (carbonate of)	2	"
	1,000	

Now, every one of the above constituents of soot are constituents also of our garden plants. The charcoal buried in the soil is gradually converted into carbonic acid gas, and in that form is sucked in both by the roots and leaves of plants; and all the other constituents are more or less soluble in rain water, and, consequently, are also taken in by the roots as food for their parent plants.

Having thus shown that soot might be recommended confidently as a valuable manure, even from a mere knowledge of the substances it contains, let us now see what practical men say, who have tried it in their gardens.

Strawberries.—Mr. Cuthill, of Denmark hill, Camberwell, who grows this fruit extensively in pots, puts a large handful of soot over the crock at the bottom of every pot. The roots of the plants, he says, delight in it, and it keeps out worms. He entertains a very high opinion of soot as a manure for all plants, thinking it both beneficial to them as a food, and as a protection against insects. He uses it largely as a manure for *tulips*, *carnations*, *picotees*, and indeed *all his crops*, with the most marked success.

Potatoes.—So beneficial has soot been found, when dug into the ground at the time of planting, by Mr. Barnes, Mr. Morton, and others, that some persons have been so sanguine as to think it a preventive of the potato murrain. Although we do not entertain this opinion, yet we know it to be a capital manure for the potato. On a light soil, without any manure, the late Rev. E. Cartwright