Miscellaneous.

The White Pine Weevil (Pissodes Strobi.—Peck).

Among what are usually termed "Snout Beetles" (*Curculionidæ*) there are many species destructive to plants such for instance, as the Plum Curculio (*Conotrachelus Nenuphar*) and the Apple Curculio (*Anthonomus Cratægi*), but there are others which attack and breed in the stems of herbaceous and woody plants. One of the most destructive of the latter is the well-known White Pine Weevil, which breeds in the young branches or leading shoots of the white pine and several other kinds of ever greens. This insect was described by Professor Peck many years ago, and a very minute description of its habits given, still we fear that few of those persons most interested in its operations would be able to recognize it from the many other closely-allied species.

This pest has probably been a denizen of our forest since pine trees came into existence, but it is only when it attacks our cultivated trees that we are likely to notice its depredations. In nurseries it is frequently very destructive, the female depositing her eggs on the terminal shoots during the spring and early summer, and the larvæ, or grubs, penetrate the soft wood, working downward, the stems dying as they progress. Trees of six to eight years old will frequently be killed to the very ground in a single season, and we have to-day cut down and burned some twenty or more white pines, the stems of which were completely honey-combed by the larvæ of this snout beetle.

The grubs and pupæ can usually be found in the stems during the last of July and first of August in the latitude of New York City, the beetles commencing to appear the latter part of August, and continuing to come out through September. Whenever the leaves on leading shoots or branches of the White Pine, Norway Spruce, and closely allied evergreens begin to assume a yellow color during August, it is a pretty sure sign of the presence of this insect, and all such should be cut off and burned with their contents. The beetles hide away under old dead leaves and rubbish during the winter, coming out in spring ready for an attack upon our pines and spruce; hence it is quite necessary that all infected shoots should be removed and burned if this pest is to be kept in check. While this "borer" seldom kills the tree, like those which attack the main stem or more solid wood portions, still, by constantly destroying the leading shoot, trees become dwarfed and deformed, being rendered worthless for ornament or any practical purpose.

These pine weevils are more or less abundant throughout the country, and our nurserymen, as well as others who have infested evergreens upon their grounds, should not neglect to make a close examination of every dead shoot and branch to be found at this season. If the pine weevil is present, it will be found in or upon the dead shoots. It is a small, oblong, oval beetle, rather slender and of a brownish color, thickly punctured and variegated with small brown rust-colored and whitish scales. There are two whitish dots on the thorax and a white transverse band a little behind the middle of the wing covers. Its short, blunt snout projecting in front of the thorax will enable the novice to readily identify it as a member of the great *Curculio* or *ground* beetle family.—*Rural New Yorker.*

How Plants Feed.

The old idea that humus or vegetable matter is necessary for the aliment of plants seems to be untenable in the light of our present knowledge, which shows that plants feed on mineral matter. In a paper read at a recent meeting in England Dr. A. Voelcker said, in reference to this subject:

It is a very important question whether vegetable life is sustained by organic or mineral food. At one time humus, or the organic matter in soils, was regarded as the sole source of terrestrial food of plants, but the humus theory, which has done so much mischief in retarding agricultural progress, he thought, had received the final death-blow by the wonderfully clear and most conclusive argumentative writings of Baron Liebig, and he quite agreed with the great German chemist; but the luxuriant development of the crops usually grown on the farm depended mainly upon the available mineral food present in the soil, and not on its organic matter—indeed, he did not know a single fact which supported the view according to which plants live and grow vigorously upon the organic matters of the soil or manure, and not upon the mineral portion of the soil or the saline and mineral constituents of the manure. It had been established beyond controversy that the really essential elements of plant-food were mineral and not organic substances; and he was decidedly of opinion that the constituents of sewage had to become mineralized before they could benefit the growing crops. In porous and well-drained soils, and in land readily permeated by atmospheric air, the conversion of organic animal refuse matters into purely mineral compounds proceeded with great rapidity; and this, by the way, was one of the causes why sewage farming succeeded better on light land resting on a porous subsoil than upon stiff clay soils upon imperfectly drained subsoils.

On stiff clay lands the decomposition of the animal refuse matter proceeded much more slowly than upon porous, light, and sandy soils. Hence it was that heavy clay land was generally manured in Autumn, while light land was more beneficially manured in Spring; for if ordinary farm-yard manure were applied to the land in Spring on stiff clay lands, there would not be sufficient time to convert the manure into mineral elements of plant-food, and a bad harvest would be the result. He would further state, in support of this view, that on soils not readily penetrated by air, organic matters were positively injurious, and the healthy and vigorous growth of all agricultural produce, and the destruction of organic matter, and the production of available mineral plant-food in porous soils, proceeded with great rapidity. He would quote in proof of this the interesting experiments of Boussingault and Léwy, who had shown that the air in a cultivated soil invariably contains less oxygen than the air above it. A portion of the oxygen, in fact, was consumed by the organic matter in the soil, and its place was taken by carbonic acid, resulting from the combination of the carbon of the organic matter with the oxygen of the air. According to the nature of the soil and the time of the year, and the way it had been treated as regards manure, the amount of carbonic acid in the air of the soil may increase to over eight per cent., and that of oxygen recede to less than twelve per cent., and invariably it is less than twenty-one per cent. by volume. For instance, on analyzing the air present in a light sandy soil, recently manured and after rain, Boussingault and Léwy found:

	By Volume.		By Volume.
Carbonic acid	9 74	Nitrogen	79 91
Oxygen	10 35		
Total			100 00

In another sandy soil, unmanured, the air contained:

	By Volume.		By Volume.
Carbonic acid	0 93	Nitrogen	79 57
Oxygen	19 50		
Total			100 00

These experiments show plainly that common dung and similar refuse matters are really burned up or oxidized in porous soils with great energy, and rapidly converted into mineral plant-food. In another experiment the same chemists found in the air in a stiff clay soil:

	By Volume		By Volume
Carbonic acid	0 6	Nitrogen	79 30
Oxygen	20 01		
Total			100 00

Showing that here the combustion of the organic matters in the land proceeded more sluggishly, and, I may add, on such land the produce of our farm crops is generally more scanty than on a porous, well-aerated soil, plentifully supplied with mineral food, among which I include nitrates. He would make one other remark, and it was this: A large proportion of nitrogen in grass or other farm crops was not a sign of superior feeding quality, but the very reverse, as it indicated immaturity. Sewage grass was richer in nitrogen than the produce of permanent meadow land; but it was well known to all practical men that sewage grass was more watery, and although very useful as a food for milch cows, produced abundance of milk, but of a rather watery character.

Using Hard Water for Steam.—When boilers are ordinarily fed with hard water, it is worth while to save the drippings of the exhaust pipe, the condensation of the safety valve blow-off, and that from the cylinder, and use the water thus obtained to fill the boiler after blowing off. The result will be surprising in effect in loosening scale. So says the *Scientific American.*

A New System of Plastering.—Builders, owners and tenants of city houses will doubtless view with interest a new system of plastering, which is claimed to prevent the sudden and disastrous downfall of ceilings, so frequently occasioned by defects in the water pipes and consequent leakage and overflow. The invention consists of replacing the scratch coat and brown coat used in ordinary work by the combination of fibro-ligneous sheets with a cement composed of lime, sand and plaster. The sheets are of a fabric resembling coarse bagging which is secured to the lathing, and the cement is supplied in the ordinary way. A hard finish coating completes the work.

Typhoid Poison in Wells.—The *Journal of Chemistry* warns the drinkers of water of wells near dwellings to beware of the typhoid poison, sure to be found sooner or later in those reservoirs, if any of the house drainage can percolate them. The gelatinous matter often found upon the stones of a well is a poison to the human system, probably causing by its spores a fermentation of the blood, with abnormal heat or fever. Wholesome untainted water is always free from all color and odor. To test it thoroughly, place half a pint in a clear bottle, with a few grains of lump sugar, and expose it, stoppered, to sunlight in a window. If, even after an exposure of eight or ten days, the water becomes turbid, be sure that the water has been contaminated by sewage of some kind. If it remains perfectly clear, it is pure and safe.

To Prevent Stacks from Leaning.

The usual way of keeping a stack from leaning is to thrust one end of a rail or pole against it and set the other end on the ground. This sometimes turns up the courses so as to conduct the rain toward the middle of a stack. To avoid all difficulty from this source, let it be braced by setting one end of a plank a few inches in the ground and the upper end pressed flatly against the bulge of the stack. This plank should stand perpendicularly, so as not to turn the courses of the sheaves up sidewise. The upright plank is kept in position by a rail or pole resting against a broad stake in the ground, while a cleat upon the plank prevents the other end from sliding. Several such braces may be fitted to a stack, which will hold it in correct position while settling. This manner of bracing a stack before it has settled, when there is danger that a high wind may blow it over, will often be found very convenient. When a stack is braced in this manner, the props can be removed at pleasure; whereas, when thrust against the side, it settles so heavily on them, that it is difficult to take them away if desirable, after it has settled firmly into place.

Stacks will sometimes lean to such a degree, that all above the bulge must be pitched off, and the stack re-topped. When most of the pitching is done on one side of a stack, the opposite side does not get pressed down so firmly, and it, therefore, settles more than the side where the material was pitched on. This causes the stack to lean; and by leaning, the courses will be turned up to such a degree that on one side it will be down hill toward the middle of the stack. Another reason why stacks lean is that the bulge is laid out further from the centre on one side than the other; and as the side that is laid out the furthest will settle most, the entire stack often leans so far as to fall over.

If the tops of the stacks lean, or if they are too flat, let a portion be pitched off and a new top built before long and heavy storms come on.—*New York Herald.*

To Bleach Tallow.—In a copper boiler put half a gallon of water and one hundred pounds of rendered tallow; melt over a slow fire, and add, while stirring, one pound of oil of vitrol previously diluted with twelve pounds of water. Afterward add one-half pound of bichromate of pottassa in powder, and lastly, thirteen pints of water, after which the fire is allowed to go down, when the tallow will collect on the surface of the dark green liquid from which it has separated. It is then of a fine white with a considerable degree of hardness.

Wooden Paving for Farm-Yards.—For a wooden pavement, hemlock logs, sawed off in pieces five or six inches long, and these pieces squared to one or two uniform sizes so as to lay to advantage, are the best. They are to be placed on an end, the gravel or sand being first leveled carefully, and the joints all filled with sand or fine gravel. This will make a yard that any farmer may be proud of, and where hemlock timber is abundant, is the cheapest, easiest laid, and in every point, save durability, superior to stone. Other wood may be used, and almost any kind will be found durable enough to last a generation, if well laid at first, and extra blocks put aside to take the place of such as occasionally show signs of decay.

Consumption of Water by Crops.—In 1873, a series of experiments were made at the Observatory of Montsouris, France, for the purpose of ascertaining the quantity of water consumed by way of transpiration in producing a certain quantity of wheat. The result showed that for each pound of grain produced there was consumed from the germination of the seed up to the ripening of the grain, an average of 1,796 pounds of water. This is equivalent to the use of nearly 12 inches of water for a crop of twenty-five bushels per acre. By this it should be understood that a quantity of water equal to twelve inches in depth upon the surface of an acre of ground passes through the leaves of a wheat crop of twenty-five bushels, and is used in the process of maturing the grain and straw. This does not include the amount of water which evaporates or drains from the soil; nor does it include any portion of the rainfall which occurs between harvest and seed time.

How to Catch Woodchucks.—A New York farmer gives the following plan for exterminating woodchucks:—1. Procure a good dog. 2. Get a water turtle small enough to enter the hole; bore a hole in his shell just above his tail; procure a piece of wire about six inches long, fasten to one end of this wire cotton wick saturated with kerosene oil. Fasten the other end of the wire to the turtle, place him in the hole, light the cotton wick and in a moment the turtle will enter the hole in double quick time, and will not stop until he reaches the end of that hole, and then he retraces his steps and appears in front again, ready for another march into another camp. You can imagine the surprise of the woodchuck on the entrance of such a blazing enemy; he leaves his "fort," only to meet death at his own door by the dog sentinel. I would remark that this effective plan is the invention of the Virginia negroes. I have seen it put in practice often, and never knew it to fail. It matters not what is in the hole—woodchuck, skunk or any other animal—he must leave on the approach of this formidable torchbearer.