

rounding deciduous trees, and of the landscape generally.

A row of Norway maples along a private way is worthy of attention. This variety of maple naturally forms a compact mass of foliage, shaped like a spinning top inverted, admirable for a shade. It is very hardy, retains its foliage quite late in the season, and turns to a beautiful yellow color in many shades as the season advances. This row of trees, with their uniform shape and dense foliage, helps to make a walk to the railroad station a luxury rather than an annoyance.

Along Atlantic avenue and the approach to the railroad station, and on each side of the railroad, Mr. Ware has planted white ash, sycamore, maple, Norway maple, rock maple, and horse chestnut trees, thirty feet apart. These are all in a thrifty condition, varying from five to ten inches in diameter and from twelve to twenty-five feet in height. These varieties have proved hardy and well adapted to that location and to the object desired in planting. No variety will excel or, perhaps, equal the native elm for majestic grandeur and beautiful proportions.

Nearly all of the ornamental as well as fruit trees are subject to attacks of disease or insects, which mar the beauty, check the growth, and even cause death unless protected. Diligent watchfulness is the price of success here, as well as elsewhere on the farm. The elm is subject to the ravages of the canker worm in this section. Mr. Ware's linden trees were last year badly eaten by the same or a similar worm, and had he not sprayed them in Paris green in solution, they would have been stripped of all foliage. The white ash is subject to a blight in the early season, causing black spots on the leaves, though later growth seems to overcome it.

Mr. Ware thinks the Norway maple a very desirable tree, though it is liable to be affected unfavorably by atmospheric influences. One side of his had a brownish appearance, which came on suddenly from this cause. The Norway maple is in danger, more than other varieties, of splitting down where there are crotches of large limbs. When young, care should be taken in pruning to have a main central trunk, instead of cutting it off, and thereby causing several main limbs to branch out.

The horse chestnut is a beautiful tree in form, foliage, and especially in flower. It is a rapid grower after it is well established, but a heavy wind, while the foliage is tender in the early season, will seriously mar its beauty for the rest of the season. The balm of Gilead is a very hardy, rapid growing tree, and will probably bear exposure to the storms better than any other variety, and is valuable on that account. It also has valuable medicinal properties that with many persons are the cure-all of the family and neighbors. It has been found of great service on exposed places at Nahant in forming windbreaks for the protection of more tender trees. Parties were enabled to grow fruit quite successfully with this tree as a protection. The tree is, however, subject to a borer that will seriously injure, if not totally destroy it, unless protected.

The black poplar, introduced from Japan, is a rival to the balm of Gilead for hardiness to ocean exposure, rapid growth, and symmetrical proportion. It can be easily propagated by cuttings, and has been fully tested in this country for some fifteen years. Mr. Ware knows of no serious objections to it. It does not sucker, like the balm of Gilead, silver poplar, or the Lombardy poplar that was so famous seventy-five years ago. Take it all in all, Mr. Ware thinks the black poplar a valuable acquisition to our list of ornamental trees.

The sycamore maple proves hardy with Mr. Ware, and a rapid grower, with beautiful leaves. It grows very shapely, has pretty and abundant blossoms, and produces an abundance of clusters of winged seed that add to the beauty of the tree in the autumn. This variety is not subject to attacks of any disease or insects.

Mr. Ware also has in his collection of ornamental trees Wier's cut leaved maple, which, as its name indicates, has a beautiful double serrated leaf, attractive by its oddity. This tree is a rapid grower, with an abundance of long, slender branches, with a drooping habit quite desirable in a collection. Also the cut leaved, weeping birch, with its beautiful pyramidal form, very white bark on the trunk and large limbs, and dark colored on the smaller branches, which droop, and so fine, not larger than a knitting needle, that a gentle breeze will cause them to wave in a gentle undulating manner, making this one of the most beautiful and attractive trees. It is propagated by grafting on some strong growing birch of another variety.

#### FORCED LILY OF THE VALLEY.

AMONG hardy subjects forced in winter none are held in greater estimation than this charming little native plant, but when induced to come into bloom toward the end of the old year or the beginning of the new one success is not always achieved, for though most growers experienced in flower forcing are able to get valley lilies to bloom, still oftener than not the flowers forced so early are drawn and weak, and so far wanting in size and substance that they are much inferior to those that come later on, when less forcing is needed. One of the defects which the earliest forced lily of the valley often presents is the absence of leaves in sufficient numbers to set off the flowers to advantage. When required in a cut state only, this deficiency is often met by forcing some of the thin crowns that have no flowers in them, and which at once push up leaves when placed in heat. But when plants of this lily are wanted for ordinary purposes, the want of leaves obviously cannot be met in this way. The accompanying illustration, prepared from a photograph, represents a valley lily sent to *The Garden* office by Mr. Elphinstone, Shipley Hall, Derby, early in January, and which occupied only twenty-one days from the time when the crowns were put in heat to their arriving at the condition here shown. As will be seen, many of the spikes had nearly all their bells open. The individual flowers, too, were of unusual size and substance. In short, the plant taken altogether presented no more of the weak, drawn appearance that usually follows hard forcing than if it had been flowered in the open air, while the leaves were sufficient to give the requisite relief to the flowers. The

way in which Mr. Elphinstone treats his valley lilies is to plunge the pots up to their rims in a brisk temperature, the thermometer sometimes showing as much as from 100° to 110°. Each plant is covered with an inverted pot, which is kept over it until some two inches of growth have been made, and after that the inverted pots are dispensed with. The crowns are deluged with water every day, given at a temperature equal to that of the bed in which the pots are placed, so that the soil is kept constantly saturated from the time the plants are put in until the flowers open. This thoroughly wet condition of the roots is considered to be essential to success, and I think there is little doubt that it is this saturation of the soil that enables the early forced crowns to produce leaves simultaneously with the flowers. Under this treatment the average



LILY OF THE VALLEY FORCED.

time taken to force lilies of the valley is as follows: December 25 days, January 21 days, February 20 days, and March 18 days.—*The Garden*.

#### ANALYSIS OF SHOT.

By H. HARDAWAY.

SEEING that the statements made as to the amount of arsenic in the lead employed for making shot are not very definite, and are apparently not based upon any recent analyses, it appeared of interest to ascertain whether or not there is so much variation in the composition of this alloy as now made. From the brands in our market the following were selected, all being clean, well shaped bird shot:

No. 1.—Wythe Lead and Zinc Mine Co., Virginia.  
No. 2.—Merchants' Shot Tower, Baltimore.  
No. 3.—Leroy Shot and Lead Manufacturing Co., New York.  
No. 4.—Tatham Bros., New York.

A complete analysis of each of these was made, employing for each over 100 grammes, from which the lead was separated as sulphate, but estimated by difference, affording the following results:

	No. 1.	No. 2.	No. 3.	No. 4.
Arsenic.....	0.0824	0.0393	0.2725	0.1413
Iron.....	0.0986	0.0167	0.0099	0.0121
Copper.....	0.0072	trace	0.0081	0.0107
Silicon.....	0.0041	0.0050	0.0002	0.0023
Carbon.....	0.0115	0.0269	0.0041	0.0055
Lead.....	99.7962	99.9121	99.7052	99.8281

We find in Muspratt's *Chemistry*, as to the amount of arsenic present: "The limits are from 3 to 8 or 10 parts in 1,000, the lesser quantity being employed as the lead is more ductile, and the larger when it is hard." In this selection of American shot it is seen that the amount is much smaller, and the range yet wider, being from 0.4 to 3.0 parts in 1,000. It does not appear from these results that there is any special connection between the amount of arsenic and copper and iron, yet it is to be noted that the amount of arsenic increases as that of silicon diminishes.

University of Virginia, Sept., 1886.

—*Amer. Chem. Jour.*

#### KNIGHTS OF TYRANNY.

THERE is one thing that the wicked capitalists unfortunately have not a monopoly of, and that is tyranny. In fact, any one who desired to discover in this country an example of despotic action unsurpassed outside of Russia or Persia, would perhaps find the search an easier one if he should look at the record of American employes rather than at that of American employers. For example: Last month a respectable woman, the only support of a widowed mother, found work in a Delaware cotton mill. The men in the mill objected to her presence because she did not belong to the Knights of Labor, and they commanded her dismissal. She thereupon applied for admission to membership in the order, and her application was promptly refused. Then, as the wicked capitalist who owned the mill declined to dismiss her, the down-trodden slaves who worked for him promptly struck and stopped the mill. Observe: This nefarious tyrant to whom the establishment belonged did not object to Knights of Labor, as such; nor did he pay wages so low as to warrant complaint. He did not forbid the woman to join the Knights. He only declared that he would

give her a fair chance to earn her bread, whether she was a Knight or not. But the gallant Knights, whose mission it is to maintain the cause of the poor and the friendless and the oppressed against cruel and tyrannical employers, formally declared that the woman should not have a chance to earn her bread, and what they struck against was, in fact, an attempt to permit her to exercise her natural and inherent right to do that thing. It is a sorry business for "champions of the down-trodden" to be engaged in—an unheroic business to war upon a woman, and a woman, too, who was willing to comply with any conditions offered to her. If a cause, to have success, must be based on justice, what kind of success can this cause have?—*Textile Record*.

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