*radicle*, or root, shoots down into the earth, then the plume, or stem, rises through the crust, and seeks the pure air and bright sunshine. The root, by its minute fibres, draws sustenance from the moist earth, and conveys it in proper vessels along the stem to the leaves to be exposed to the air, and thus finish the process of digestion begun in the radicles. Whatever be the position of the seed in the earth, the radicle and plume each seek their appropriate sphere, even though by doing so, they are obliged to describe an angle. Plants are divided into two classes, called *monocotyledons* and *dicotyledons*. The seeds of the first have but one lobe. The grains, and grass-like plants, are examples of this class, and are known by the sheath-like envelopes in which they emerge from the ground. The second have two seed lobes, and two leaves appear simultaneously above the ground. These first leaves are the cotyledons or seed lobes, swollen and succulent. They become green by exposure to light, and take on a new function. Whereas they before eliminated carbonic acid, it now constitutes their food: which they digest, furnishing the still feeble embryo with the carbon necessary for its growth. By-and-by the embryo attains sufficient strength to obtain its own nourishment, and then the seed-leaves wither away, and the new plant stands forth perfected. Monocotyledon plants grow by depositions in their centre, which press outward the old structures, rendering them very dense and hard, as in canes. The outside of the stem is usually very dense, the internal parts more porous, the porosity increasing towards the centre, which is usually occupied by a spongy pith. This class of plants seldom attain a large size, though they sometimes grow to a great height, as the palms of torrid zones.

The Dicotyledons grow by successive layers, formed, annually, around the stem, under the bark, where the cambium or true sap circulates. The juices imbibed by the roots are carried up through the *body* of the plant to the leaves, where they undergo a change by contact with the air, and are then returned or descend between the bark and wood. This is the true blood of the plant. From it are formed, not only a new layer of both wood and bark, but the stems, leaves, and flowers, also. The age of plants can be pretty accurately determined by counting these layers near the root. Whenever, from any circumstance, this cambium is obstructed in its course, and accumulates, the buds are formed, most usually in the angles of the branches, or foot stalks of the leaves. At first, in early spring, the foliage puts forth rapidly. The first faint tinge of green upon the black forests is quickly succeeded by its full glory of many hued emerald. But in midsummer, Nature seems to rest: and maturity approaches slowly. Then are being formed the buds in which lies wrapped all the vast foliage and new groups, of the ensuing year, at the bottom of, or within the leaf stalks, of the present. So Nature,—

> "Ere one flowery season dies,
> Designs the blooming wonders of the next."

Then, too, the annual plants, having attained maturity, are engaged in perfecting the organs of fructification,—"each plant bearing seed after its kind."

BROOKLIN, June 13, 1854.

## BAD AIR.

Bad air is a slow poison. That is the trouble. People go on taking it day after day into their lungs, and night after night. They grow pale, their lungs suffer, the circulation is languid, they take colds readily, the chest, the stomach, the skin, become disordered, and a host of chronic diseases attack them. A little carbonic acid taken every day does not kill a man. It is almost a pity it don't! If a red hot stove destroyed instantly one man in every town daily for a week, there might be some salvation for the nation. If, instead of fainting away in crowded and badly-ventilated public assemblies, people occasionally died outright in convulsions, the authorities would take the matter in hand, and make it penal for owners of such buildings to open them for public use without attending to the proper condition or the preservation of health. When a thing is only a slow poison, the age is too much in a hurry to attend to it.

In such cases we must wake up the public lethargy by facts. And here is one of the kind. We have before us the history of the Dublin Lying-in Hospital. Some years ago this building, erected in the common way, without the slightest regard to ventilation, was found to exhibit a great amount of mortality among the youngest children born there. In four successive years, healthy seasons too—out of 7,250 infants brought forth in the hospital, 2,544 died within the first night after birth, of convulsions, or what the nurses call nine-day fits. These children foamed at the mouth; the faces swelled and assumed a purplish hue, as though they were choked. These last circumstances suggested to the physician that a deficiency of wholesome air was connected with the great mortality. Air-pipes were immediately contrived; the rooms were ventilated. What was the result?—That in the three following years, out of 5,358 children born in that hospital, only 165 died; in the very same rooms too, where, according to the old ratio before the ventilation took place, the number of deaths to the number of children would have been 1,682. To save the lives of more than 1,000 human beings in three years, by putting in a few pipes! Can any one say there is nothing in ventilation, after such facts as these?