

through the cooling surface, and a great loss of body-heat is entailed. Not only so, but the current of chilled blood passes inwards to the right heart and the lungs. Inflammations of the lungs are common along with severe colds, and this is possibly the explanation. Such inflammation is specially liable to occur if at the same time cold air be inspired. The cold respired air and the current of chilled blood together produce those vaso-motor disturbances in the lungs which, in the graver aspects, are known as pneumonia.

The practical considerations which are the outcomes of this review of the pathology of cold are these. Never to wear wet clothes after active muscular exertion has ceased, but to change them at once; to meet the loss of the body-heat by warm fluids and dry clothes, to avoid long sustained loss of heat which is not met by increased production of heat; to increase the tonicity of the vessels of the skin by cold baths, &c., so educating them to contract readily on exposure — by a partial adoption, indeed, of the "hardening" plan; to avoid too warm and debilitating rooms and temperatures, to take especial care against too great a loss of heat when the skin is glowing; and to prevent the inspiration of cold air by the mouth by some protecting agent, as a respirator. We can readily understand how a respirator should be an effective protection against winter bronchitis in those so disposed.

### THE FALL OF THE LEAF.

The phenomenon of the "fall of the leaf," common as it is, is very difficult to explain satisfactorily. The following, according to the *Farmer*, are the facts so far as we understand them, which are exceedingly interesting and instructive. It seems that Nature begins the provision for separation almost as soon as the leaf is born in spring. When first put forth into the atmosphere the stalk of the leaf, supposing one to be present, is continuous with the stem. As the leaf and its stem grow, however, an interruption between their tissues (fibrous and cellular) occurs at the base of the leaf-stalk, by means of which a more or less complete articulation or joint is gradually and ultimately formed. This articulation is produced by the continuation of the growth of the stem after the leaf has attained its full growth, which it generally does in a few weeks. The growth of the leaf being completed, the base of its petiole, or foot-stalk, is no longer able to adapt itself to the increasing diameter of the stem, and a fracture between the base and the stem necessarily ensues; the excision advances from without inwards, until it finally reaches the bundles of woody fibre, which form the main support of the leaf. While, however, Nature is forming a wound, she is at the same time making provisions to heal it, for the cuticle or epidermis of the stem is seen to grow over the surface of the scar, so that, when the leaf is detached, the tree does not suffer from the effects of an open wound. The provision for separation being thus completed, the leaf is parted from the stem by the growth of the bud at the base, the force of the wind, or even by its own weight. Therefore, as soon as the glorious colours of the autumn leaves begin to fade, this provision for separation is completed, and the winds sing their death dirge as they carry them away from their summer's home on the branches of the trees, and scatter them in countless numbers upon the ground. The fall of the leaf is, therefore, the result of a regular vital process, which commences with the first formation of the leaf, and is only completed when it is no longer useful to the tree. There is no denying, however, that the frosts of autumn, by suddenly contracting the tissues at the base of the leaf-stalk, accelerate the fall of the leaves. All must have noticed, on a frosty morning in autumn, that the slightest breath of air moving among the decayed and drying leaves will bring them in complete showers from the trees to the ground. The leaves of the beech, hornbeam, and oak die in autumn, but frequently remain attached to these trees throughout the winter months, provided that the trees are not so situated as to be exposed to violent winds. Such leaves, when examined, will be found to be continuous with the stem, and therefore without that articulation or joint which so naturally assists in the separation of the leaf from the tree. These dead leaves fall off when the new leaves are put forth in spring, they are, in fact, pushed off by the expansion of the stem when the growth of the season commences. The leaves of evergreen trees and shrubs, and of coniferous plants, as the pine and fir, do not fall in autumn, but in spring, when the growth of the season is

proceeding, and as this annual leaf-fall is only partial, consisting of one-half or one third at a time, there is always a sufficient number of leaves left on such trees to keep them clothed with perpetual verdure. Hence it is that their foliage consists of leaves which have been attached to the stem from one to three or five successive years.

### RECIPES.

**REMOVING INK STAINS FROM MAHOGANY.**—Put a few drops of spirits of niter in a teaspoonful of water, touch the spots with a feather dipped in the mixture, and on the ink disappearing rub it over immediately with a rag wetted in cold water, or there will be a white mark which will not be easily effaced.

**ADHESIVE LABELS.**—Dissolve  $1\frac{1}{2}$  ozs common glue, which has lain a day in cold water, with some candy sugar and  $\frac{3}{4}$  oz. gum arabic, in 6 ozs. hot water, stirring constantly until the whole is homogeneous. If this paste is applied to labels with a brush and allowed to dry, they will then be ready for use on merely moistening with the tongue.

**NEW METHOD OF CLEANING WOOLLEN GOODS.**—It is well known that wool, when first taken from the sheep, contains an unctuous secretion from the skin of the sheep called "yolk." This soapy substance contains potash, and can be washed out with water, with which it forms a sort of lather. In Ellouf this yolk is employed with advantage as a substitute for fullers-earth in cleaning woollens. The raw wool is put in a large vat, and covered with water. Here it is left for three hours; then the water is let out into a second vat, and afterwards pumped back into the first vat for two hours longer. The operation is repeated two or three times, and then the wool is taken out of the vat freed of water. New wool is now put in the vat and manipulated as above, until the water is sufficiently soapy. The cloth is put in the fulling-machine with a sufficient quantity of this liquor, and fullled for two or three hours. After washing it is found to be perfectly clean.

**PAINTING OLD BUILDINGS.**—An inexpensive but durable method of painting old buildings is as follows. First give them a coat of crude petroleum which is the oil as it comes from the wells, and which can be procured for four or five dollars per barrel. Then mix one pound of "metallic paint," which is brown or red hematite iron finely ground, to one quart of linseed oil, and apply this over the petroleum coat. The petroleum sinks into the wood and makes a ground work for the iron and oil paint. The color of the iron paint is a dark red-brown and is not at all disagreeable, it is very durable, and is fire-proof.

**PRESERVATION OF FRUIT.**—The following method for the preservation of fruit has been patented in England. The fruit is placed in a vertical vessel in layers, separated by layers of pulverized white sugar, and is then covered with alcohol of 80° Gay Lussac. After twelve hours the closed vessel is inverted and the maceration allowed to continue from twelve to twenty-two hours, according to the nature of the fruit, which is then removed and allowed to drain and dry. About two pounds of sugar and two pounds of alcohol are recommended for ten pounds of fruit.

**TO KEEP MEAT FRESH.**—As soon as the animal heat is out of the meat, slice it up ready for cooking. Prepare a large jar by scalding it well with hot salt and water. Mix salt and pulverized saltpetre. Cover the bottom of the jar with a sprinkling of salt and pepper. Put down a layer of meat, sprinkle with salt and pepper the same as if it was just going to the table, and continue in this manner until the jar is full. Fold a cloth or towel and wet it in strong salt and water in which a little of the saltpetre is dissolved. Press the cloth closely over the meat and set it in a cool place. Be sure and press the cloth in tightly as each layer is removed, and your meat will keep for months. Then drain off all the blood that oozes from it. It will be necessary to change the cloth occasionally, or take it off and wash it first in cold water, then scald in salt and water as at first. In this way farmers can have fresh meat all the year round. Beef that was killed the 12th of Feb. and has been kept thus packed in the same way kept six weeks during the dog days.