

with wax, and cover the wax with paper, to prevent the sun from melting it. After a few hours the bottle will be dim with moisture. After a few days it will be half full of water.

NOTE 11.—*Porosity of Bodies—Condensation of air within their pores.*—Put a piece of dry pine charcoal into a wide-mouthed bottle; fill the bottle with cold water, and immerse it with the mouth downwards in a pan or other vessel; place on a stove or fire. Care must be taken in immersing the bottle that no air gets into it—(see Note 3). As the water warms observe the effect. The air contained within the pores of the charcoal will expand, and issue from them in the form of a minute stream of bubbles, which, collecting at the top of the bottle, will show what a large quantity was contained within the pores of the charcoal. When the charcoal is taken out of the bottle, after cooling, it will be found much heavier than before, having absorbed water in place of air. It is thus that soils, when well drained, contain large quantities of air; when undrained their pores are filled with stagnant water, prejudicial to the growth of the roots of vegetables.

NOTE 12.—Shade a leaf, or an entire plant with a common flower-pot: it will become white. In the absence of light, the leaves cannot decompose the carbonic acid they absorb, consequently no colouring matter is formed. The brilliant colours of different kinds of roses are produced by a constitutional inability to decompose carbonic acid. If the petals of the flowers decomposed as much as the leaves, they would be green. When potatoes are exposed to the light of the sun, the rind absorbs carbonic acid—decomposes it, and forms green colouring matter.

NOTE 13.—Procure from a chemist a solution of nitrate of silver, nitrate of baryta, oxalate of ammonia, and spirit of hartshorn or ammonia. Pour pure rain water upon a small portion of any soil, stir well, and let it remain over night; filter the water through clean filtering paper, and pour a small quantity of the clear liquid into six or eight glasses. Introduce a drop of nitrate of silver; if a white cloudy appearance is produced, the presence of salt is most probably indicated, especially if the white appearance turns purple in the sun. If a few drops of nitrate of baryta produce a precipitate which is not dissolved when a little oil of vitriol is introduced into the water, it contains sulphur, most probably in the form of sulphate of lime or

gypsu
brown
amm
pearl
botto
of th
place
water
when
salt
again
siste
does
alum
whic
table
cont
The
subs
of w
sess
tedic
shon
quer
may
cult