



Spring Beauty

WHEN a small child scampers back to its mother, after its first adventurous sally into the Great Big Woods, it is sure to have, among the flowers clutched tight in its chubby fist, a generous proportion of spring beauties. These pretty little starshaped flowers are so abundant, so widely distributed, so persistent in spring blossoming, that they shine brightly in the early memories of all of us, in whatever part of the land we were bred.

Spring beauties are peculiarly adapted to childish flower-gathering. To many of our wildflowers a small child is really a destructive ogre, for its innocent technique is to take hold and pull, usually uprooting and killing the plant. But the spring beauty is deeply anchored to a round, thickened underground stem or corm, from which its slender, two-leaved aerial stem climbs upward its few inches to end in its little cluster of stars. So when the stem is pulled at it simply lets go of the corm and comes up, leaving the stored food below with perhaps another chance of life. No one has ever yet pulled a spring beauty up by the roots. Little though the plant is, if you want it roots and all you have to use a spade.

There are three species of spring beauty, though they all look so much alike that the ordinary observer will see no difference between them. One of the three is a Rocky Mountain flower, and does not come east, but the other two range from the prairies, or even the great plains, eastward to the Atlantic, and south to the Gulf. No child anywhere east of the Rockies need be without the privilege of acquaintance with the spring beauty.

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PLANT PHYSIOLOGY

Submarines May Carry Tomato Plants to Detect Gas Leaks

CREWS of submarines may in future carry potted tomato plants with them, as sailors on bigger ships have parrots and goats. Only these green mascots will not be merely pets; like everything else in the crowded interior of a "sub," they will have to pay their way. And they can do it by giving warning of gas leaks, long before even that most sensitive of animal detectives, the canary, could detect them.

This is one of the possible uses for the peculiar behavior of plants in the presence of ethylene gas that was suggested by Dr. William Crocker of the Boyce Thompson Institute for Plant Research, speaking at American Philosophical Society's meeting in Philadelphia.

Plants could also be used to detect dangerous gases in garages and other closed spaces where men are at work, Dr. Crocker suggested.

The value of many plants, and especially the tomato plant, for this purpose depends on the curious behavior of their petioles or leaf-stems in the presence of very dilute quantities of ethylene gas, which is a common ingredient of illuminating gas and is also invariably present when the poisonous carbon monoxide is being generated. Dilutions of ethylene as low as one part in ten million of air will cause tomato leaf-stems to begin growing on the upper sides where they did not

grow before, thus causing them to bend downward instead of up. This effect was first demonstrated several years ago by Sarah L. Doubt, and has since been the subject of much research by Dr. Crocker and other plant physiologists.

Curiously enough, if a potted plant is turned upside down and then exposed to ethylene, it does not react. It behaves as though it were confused, not knowing which way to turn. The secret of this lies in the fact that the growth direction of the leaves is really a response to the pull of gravity, and the ethylene, by anesthetizing the plant, destroys its ability to respond normally to this stimulus.

Not all plants are sensitive to ethylene, however. Dr. Crocker mentioned the common Boston fern, which remained unaffected by the gas in atmospheres containing 90 per cent of it. On plants sensitive to its action, ethylene has a whole series of effects, which Dr. Crocker and his associates have studied. Among other effects, it produced a slowing down in the rate of growth in length, it brought about a destruction of chlorophyll in rose leaves, it caused leaves to fall off from many plant species. In smaller concentrations it has been used commercially for a number of years in the artificial ripening of many fruits and vegetables.

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