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"THE PROFESSION WHICH I HAVE EMBRACED REQUIRES A KNOWLEDGE OF EVERYTHING"

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Root Room.

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ON his broad acres the Baron of the fields is not troubled for elbow room. He realizes the disadvantage of crowds when he comes to Farmers' Club or attends other meetings with his fellow men. He looks at his relative in the city and declares that to be cooped up in a small house in such thickly populated streets is anything but pleasing to his tastes. "Not on your life," he declares, "I wouldn't be cooped up in your city residence or live in your fashionable apartments."

What is it our hero desires?

It is room to live and move so that, while dwelling among his fellows, he can advance to the best of his ability.

The same principle applies to his crops, although some corn-growers, potato men and wheat producers do not always recognize the fact.

"Root Room," is a term that comes from English agriculture. It is very expressive. In hundreds of cases the lack of root room has been one important reason for low yields. Plants, like people, must reach out to live—but the animals have the advantage of the plants. Animals may shift from place to place, but plants are relatively stationary. If anything formidable gets in the way of the expanding root, its possibility to reach out is seriously handicapped. Many things may get in the way.

In some soils, water stands so near the surface that air is shut out.

Strange as it may seem, the tiny plant roots require air very much the same as does the human being. Changes that take place in the soil, breaking it down and rendering it into such condition that soil waters may dissolve it, are dependent to no small extent upon the amount of air which can reach the mineral or organic matter of the soil. Moreover, the millions of microscopic forms of soil life are depending upon air so that they may thrive and carry on their work in making over the soil material for plant-food. Hence, lack of air is the first great stumbling block to root expansion. The cure is obvious. Soil drainage is not only a paying proposition, but it is an absolutely essential practice if the soil is to be brought into its best yielding capacity.

Some soils are underlaid with a hard impervious clay which is so stiff and close-in its nature that the tiny rootlets—even though they are thread-like cannot find a crevice in which to expand, in their search for food. The only cure for soils underlaid by an impervious subsoil is found in breaking up the subsoil. Explosives are being used, to good effect in some places. In others, deep subsoiling is giving profitable returns. The application of air-slaked lime tends to draw the particles of hard impervious clay into coarser crumbs, thereby helping air circulation.

The third stumbling block to root development is found in soil toxins.