

## THE RELATION OF THE ATMOSPHERE TO AGRICULTURE.\*

By FRANK T. SHUTT, M.A., F.I.C., Chief Chemist, Dominion Experimental Farm

The fundamental principle to realize in the consideration of this question is that plants are living organisms, and as such, in order to develop and multiply, require food. Their requirements may be ascertained by several methods, chief among which is chemical analysis, by which also we arrive at the proximate and ultimate composition of plant constituents.

A preliminary analysis of a plant, as for example the Indian Corn, enables us to arrange its constituents under one or another of the following classes :

WATER,  
ORGANIC MATTER,  
MINERAL MATTER OR ASH.

Taking as an illustration the Indian Corn plant, when approaching maturity, we find that it is made up of,

WATER . . . . .	72.0 lbs.
ORGANIC MATTER . . . . .	26.6 "
MINERAL MATTER OR ASH . . . . .	1.4 "
	100.0 "

These materials have been derived and assimilated by the plant from two sources, the atmosphere and the soil.

With respect to the water contained in a plant, it is only necessary to point out that its source is soil-moisture, derived by the deposition of atmospheric aqueous vapour (chiefly rain), and that it has been taken up by the plant roots.

The mineral constituents are also soil-derived. To be assimilated they must be in solution, and to this end atmospheric agencies and small quantities of acid exuded by the plant rootlets, assist.

The organic matter of plants is composed of varying quantities of

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\*NOTE.—This is a condensed report of an address delivered before the Central Experimental Farm Club, March 27th, 1895.