THE DECOMPOSITION OF ORGANIC MATTER IN SOILS.1

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INTRODUCTION.

OCCURRENCE OF CARBON COMPOUNDS.

Carbon compounds are universally distributed in all agricultural soils. They are ever being produced and consumed in the natural cycle of the element. The sources of gain in relation to soils are:

1. By bacteria;
2. By green plants;
3. By rains and snows;
4. Absorption of the gas;
5. Rise of carbon dioxide from below.

1. Bacteria are usually regarded as liberators rather than fixers of the element carbon, yet species have been isolated which perform the latter function. Kaserer (15)2 demonstrated the production of organic matter by bacteria growing in inorganic media in an atmosphere containing carbon and hydrogen. The work was confirmed by Nabokish and Lebendeff (28), who showed the disappearance of hydrogen and carbon accompanying their fixation.

2. It is generally, not universally, assumed that green plants take all their carbon from the air. Thus a green crop plowed under will add 300 to 1,000 pounds of organic matter per acre (dry basis) or

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2 Numbers in parentheses refer to “Literature cited,” p. 300.