TALKS ABOUT THE SOIL IN ITS RELATION TO PLANTS AND BUSINESS: A BOOK OF OBSERVATIONS AND EXPERIMENTS FOR THE USE OF SCHOOLS, STUDENTS, AND FARMERS, PP. 1-126

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CHARLES BARNARD

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TALKS ABOUT THE SOIL

IN ITS RELATION TO

PLANTS AND BUSINESS.

A BOOK OF OBSERVATIONS AND EXPERIMENTS FOR THE USE OF SCHOOLS, STUDENTS, AND FARMERS.

BY

CHARLES BARNARD,

AUTHOR OF "TALKS ABOUT THE WEATHER," ETC.

The success or failure of our farmers affects the price of bread on all our tables, and we cannot say we do not care for these things. Whatever is good for the farmer to know is good for all to know.

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PREFATORY NOTE.

THE three books forming this series and entitled, "Chautauqua Talks," were originally prepared for the use of the students of the Chautauqua Town and Country Club at Houghton Farm, Mountainville, New York. They are now re-published in the hope that they may prove of value to other students of nature elsewhere. The fact of their preparation for the use of the members of the C. T. C. C. will explain the references in the books to both the Club and to Houghton Farm, which was at one time the head-quarters of the school.

CHARLES BARNARD,

STAMFORD, CONN., MARCH, 1889.

INTRODUCTION.

THE world is a great book, and he who walks or rides may read. We cannot get inside the earth; and so it happens we do not know positively how it looks within the thin crust on which we live, nor can we, except in a very uncertain way, know of what the interior is made or in what condition it may be. This is not of much consequence; because the outside of the world, the part we call the ground, and the things upon it, are quite enough to take all our attention. Upon the surface of the world are the great seas, the mountains, the plains and rivers; and among these things we spend our lives. It is not very convenient to get off the ground, except for a few hours in a balloon: so it happens we must at all times remain on the surface of this great and wonderful book called the Earth or the World. We might board a steamer, and sail upon the sea, and soon lose sight of the land, and yet all the time we would be comparatively near the ground. Beneath the deepest seas is still the solid ground; and the ship merely floats above the crust of the earth, upon the water. In a few places, men in