
The Soil

Hall AD

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unsurveyed a field as the study of the soil still presents, must arrive at certain personal conclusions, and I have tried to steer a middle course between an over insistence on these points on the one hand, and the colourlessness that would come from their entire exclusion on the other. No great part of a text-book can pretend to be original, but in the sections dealing with the chemical analysis and the physics of the soil, I have incorporated a good many unpublished measurements and observations; for the mass of the results on which the book is based, I am chiefly indebted to the work of Lawes and Gilbert, as set out in the *Rothamsted Memoirs*, and to the writings of Warington in this country, of King, Hilgard, and Whitney in America, of Wollny in Munich.

I have to thank Professor J. Percival, of the South-Eastern Agricultural College, for notes respecting the association of plants with specific soils, and many suggestions on biological questions; Major Hanbury Brown, C.M.G., head of the Egyptian Irrigation Department, for information concerning "salted" lands in Egypt; Mr F. J. Plymen, who has been associated with me in carrying out a soil survey of the counties of Kent and Surrey, and has executed many of the observations recorded here; Mr W. H. Aston, one of my pupils, to whom I owe the observations on p. 153; and finally, Dr J. A. Voelcker, to whom I am greatly indebted for reading the proof-sheets, and making many valuable suggestions thereon.

A. D. HALL.

PREFACE TO THE SECOND EDITION

A CONSIDERABLE number of additions and alterations have been incorporated in the present edition. These include a revision of the method recommended for the mechanical analysis of soils, the method now given being that adopted by the members of the Agricultural Education Association in this country. Owing to researches which have appeared since the publication of the first edition, I have greatly modified the views I then expressed on the nature of clay, and on the part played by zeolitic silicates in the retention of ammonium and other salts by the soil. During the last six years, however, the greatest additions to our knowledge of the soil are those dealing with bacteria; in consequence, the chapter on the living organisms of the soil has been largely rewritten and added to. A number of minor corrections have been made in the text, some of which represent the removal of errors, and others modifications due to more recent research. For the mistakes which must still remain, and which will become evident in the course of time, I must ask my readers' pardon beforehand; in dealing with so complex a subject as the soil we are still far from final conclusions, many of our most trusted conclusions are only rough approximations to the truth, and by the progress of research they may at any time require remodelling until they are hardly recognisable.

A. D. HALL.

THE ROTHAMSTED EXPERIMENTAL STATION,
May 1908.

PREFACE TO THE THIRD EDITION

AFTER an interval of eleven years, even though research in Europe has been suspended for five of them, considerable revision becomes necessary in a book dealing with a subject growing so rapidly as the science of the soil. During the period in question the chief addition to our knowledge has been the extended light upon the organisms of the soil and their function that we have gained through the investigations of Russell and Hutchinson at Rothamsted. The current views upon the structure of clay and many of the reactions of the soil in which the clay takes part have been considerably modified through the development of the conception of colloids which has taken place of late years. But in many other instances I have found it necessary either to record some additional knowledge or to modify the point of view.

A. D. HALL.

LONDON, *October* 1919.



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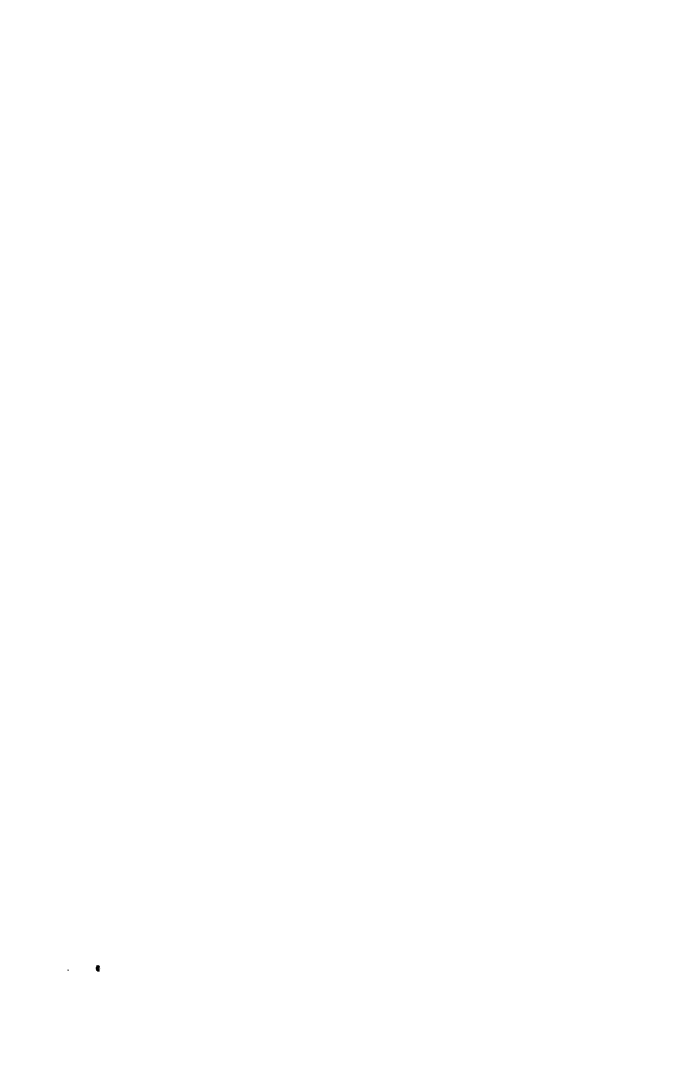
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