

INTRODUCTION.

Since the First International Congress of Soil Science held at Washington in 1927 with the attendant recognition of the valuable work done by the late Dr. Glinka and C.F. Marbut, considerable attention has been devoted to the study of soil profiles in different parts of the world; but most of these studies, carried out in Russia, Europe and the United States have been on a purely pedological basis.

So far as it is known to the authors of this paper, no work on these lines has been carried out in Trinidad. This paper therefore has had two objects in view: firstly, the presentation of soil profile data of Trinidad soils, and secondly, an attempt to correlate the data obtained with some of the problems of tropical soils.

One of the main problems of the tropics at the moment is that of the deterioration of forest soils. Owing to the luxurious growth of tropical forests, it is often presumed that these soils have a natural high fertility: yet when forest lands are opened up and planted, after a very few years the yields decrease rapidly and in many cases total failure of crops occurs.

Trinidad has a very diversified geological structure and soils lying upon many of the formations support, or have supported, tropical forests. In cases where the forest no longer exists, the regions have been adapted to the growth of cacao; this adaptation necessitates very little beyond the clearing of undergrowth and the construction of surface drains.

We have here the opportunity of research along two lines;-

- (1) along pedological lines - the formation of different soil types, (from different geological formations), under the prevailing climatic conditions:

(2) the

(2) the degradation or otherwise of forest soils of known original types under cacao cultivation.

From this second line we may expect to get some bearing on the question of what constitutes a good cacao soil and from what manurial treatments diverse soil types would benefit. With these objects in view, therefore, soil profiles have been examined in forests, in good yielding and in bad yielding cacao areas.

Considerable attention has been devoted to the geological aspect of these soil profile studies, and it has been treated in considerable detail for the following reasons:-

It is evidently highly desirable that at some time in the near future the soils of Trinidad should be the object of a scientific publication. Recently there has appeared an excellent book on the Soils of Cuba, by Bennett and Allison.⁽¹⁾ This book is interesting in two ways. Primarily it is the first endeavour to classify and arrange a variety of tropical soils on a strictly scientific basis, and to correlate profile characteristics with sugar cane yields; as such, it should be regarded as a pioneer work on the subject of Soil Science. Secondly, the classification of soils adopted is based on a scheme which in its present final form has originated from C.F. Marbut- the leading soil scientist in the United States of America and head of their Soil Survey Department. His system of classification has been evolved from extensive work in the United States, combined with that of Russian workers on European Soils: while, as in all other scientific classifications, his presentation will doubtless, in the future, be subjected to amendment and revision, it seems probable that the fundamental principles will remain unaltered; this applies particularly to his system of mapping soils, based on the division of soils of similar broad groups into soil series and soil classes

classes or units. It is not necessary here to go into details as regards these divisions, but merely to state that the nature of the parent rock is concerned where differentiation of soil series occurs.

If the soils of Trinidad are to be classified in the future, therefore, on similar principles to those adopted in the United States, which would seem a possible occurrence, the efforts of subsequent workers will be considerably simplified if the data concerning these few profiles here examined is presented in a form calculated to express the difference arising from variation in the parent rock. This will then require the minimum of change when the results are required to be incorporated with those of a larger and more comprehensive survey.

Seeing therefore that the data now available is not of itself sufficient to attempt a classification based on the probable future lines, these results are presented on a geological basis as being the nearest approach to the desideratum, the authors realising however that this form is merely temporary.