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tions of material from the base to the summit of the lacustrine deposit. These collections which exhibit the whole series of layers in the deposit, from the Saxicava or Macoma sand upward, have since been examined in a general way, and a synopsis of the results obtained, in so far as they relate to the Land vegetation, and the fresh-water plants of the order *Characeae*, are given in the following pages, together with valuable notes on the Characeae from the pen of Dr. T. F. Allen of New York, a celebrated writer on these low forms of vegetable life.

As the investigation of the deposit of the lake is not yet completed, I shall only give at present a brief outline of the physical aspect of the formation, chiefly to elucidate Dr. Allen's notes on the Characeæ.

Before my examination of the lake deposit it was not suspected that any lacustrine beds other than the marls existed there, the underlying clays being supposed to be marine; but it was found that the pure shell-marl formed relatively less than a half of the whole lacustrine deposit, where it is accessible along the present margin of the lake. Several pits were sunk through the fresh-water deposit, and the most complete series of beds observed is that given in the following section. The numbers indicate groups of beds which have a common physical aspect, and the letters a thickness in each case, with a few exceptions, of about 3 inches of the deposit.

No. 1 a Marine sandy clay (Saxicava or Macoma sand) with marine molluscous remains of species found in the Upper Leda-clay and Saxicava (Macoma) sand.

$ \left. \begin{array}{c} \text{No. 1 } b \\ \text{No. 2 } a \ b \ c \\ \text{No. 3 } a \ b \\ \text{No. 4 } a \ b \end{array} \right\} \text{Lacustrine clay,17} $	inches.
No. 5 a b Lacustrine peat,	"
No. 6 a b c d) Parts and	
No. 7 $a b c d e$ freaty mari,	"
No. 8 a b c d e Pune man	
No. 9 $a b c d e f g$ frure mari,	"
The second s	
81	

The whole lacustrine deposit rests everywhere upon the Saxicava sand which owing to the sheltered position in which it was accumulated is largely mixed with clay, to this cause probably is to be

Lac

attr.buted Hameri and which are a lacustrine cl the fresh-wa be detected 1 will be found of a continu water origin marine clay l to be only tw in the clay is forms of vege after the exc cellular tissue of the clay; b seen by compa reddish clays which is only large addition the clay has b specific gravit one quarter les upper part is n full difference : parts of the de quarter of its The shrinkage which these de the weight of alternating bed but I have no appreciable deg basin of modera

Div. 5 marks at this period the lake was arrest

* The weights give

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