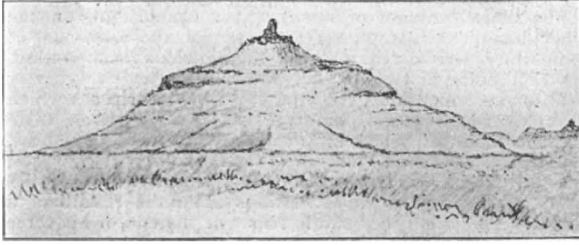


reminds me of similar columns of ancient lava not uncommon among the trap rocks of the Deccan, and I enclose a copy of a sketch I made of one of these in 1839, the re-



markable similarity of which to the column on Mont. Pelée seems to be worthy of notice. A second similar column is seen in the distance on the right. RICHARD STRACHEY, 69 Lancaster Gate, W.

"Lessons on Country Life."

IN your issue of September 24 you published a review of "Lessons on Country Life," by Messrs. Buchanan and Gregory, but may I ask, with all deference, if your reviewer has not omitted to read an important part of this useful little book? He refers to Mr. Buchanan's earlier works, "Country Readers," Nos. 1 and 2, as "most excellent books for children," but had he read the *preface* to the "Lessons" he would have found that these were intended, not for children, but for teachers. Your reviewer truly says:—"Country life is a vast subject, so vast that no child can learn during his school life even a fraction of the information it may be desirable he should possess," and the same remark may be equally well applied to teachers. This book travels over much the same ground as "Reader" No. 1, but the matter is differently treated. In one case simplicity of language is aimed at, in the other the information is condensed, with a view, as it appears to me, of leaving it to the discretion of individual teachers to use such lessons, or portions of each lesson, as are most suitable to their own districts.

I do not wish wrongly to attribute ideas to the joint authors, but I fancy their intention is to put before rural teachers (many of whom have had little or no country training) as complete a summary as possible, taking it for granted that they would be able to pick out and study the essential parts.

This series of agricultural Readers and Lessons will, I think, do much to create a love of country life, may even help to counteract the attractions of town life. Rural depopulation is one of the most serious problems of the day, and if these books will assist, in only a small way, to arrest this migration, I feel sure you will not detract from their value by a few words which were probably due to a pardonable oversight.

A. H. H. MATTHEWS, Secretary.

Central Chamber of Agriculture, Broad Sanctuary
Chambers, 20 Tothill Street, Westminster, S.W.,
September 30.

MR. MATTHEWS has hardly grasped the point of our notice—that Messrs. Buchanan and Gregory's book approaches the subject in the wrong spirit. The teacher is provided with a mass of indifferently selected information about farming matters, which he will pass on to his class instead of trying to lead it to observe and reason on its own account. The latter process is more difficult, but it happens to be education. We have of late had only too many occasions to deplore the "rural teachers with little or no country training" who hand out "condensed information" from little books about the country. It is this kind of instruction which offends both farmers and educationists, and if Mr. Matthews imagines it is going to counteract the attractions of town life and arrest rural depopulation, we can only hope that on this occasion he does not represent the opinion of the Central Chamber of Agriculture.

THE REVIEWER.

NO. 1772, VOL. 68]

CRATER LAKE IN OREGON.¹

TWENTY years ago, as Mr. Diller informs us, this picturesque record of a strange episode in volcanic history was unknown to any but the Indians. It is still not very accessible, for it lies in an unfrequented region, deep set in the summit of the Cascade Range, some sixty-five miles north of the California line, but the United States Government, "recognising its worth as an educational feature," has already wisely secured it from the speculator and spoiler by making it a national park. An area of two hundred and fifty square miles is thus protected, of which we find a description in the present memoir. The first part, by Mr. Diller, deals with the geology and physical history of the great volcano, named after a local society Mount Mazama, which was shattered to form Crater Lake, and the second, by Mr. Patton, discusses the petrography of its rocks. It was virtually discovered by Captain Dutton, by whom and by Mr. Diller it has already been noticed; the U.S. Geological Survey has also published a special map, but the story is now completed in this excellently illustrated memoir.

The Cascade Range is largely, if not wholly, built up of volcanic material. In Cretaceous times it had no existence, "there flowed the sea"; this retreated during the Eocene, when vents opened in the Coast Range region, possibly also, though that is not yet quite certain, on the site of the Cascade. Here, however, volcanoes were in full activity during the Miocene, and built up a large part of the Range, where eruptions have continued almost to the present time. Post-Glacial outbursts occurred in some places, but seem to have ceased before history began, though hot springs and fumaroles show that the subterranean hearths are not yet cold. Some of the peaks rise above 10,000 feet, Mount Rainier even attaining 14,525 feet, and the surface of Crater Lake is rather more than 6200 feet above sea-level. It is an oval basin between twenty and twenty-one square miles in area, surrounded by cliffs which range from more than 500 to nearly 2000 feet in height, the ground falling more gradually from their rim to the present upland level. This great sheet of blue water, in places almost 2000 feet deep, is interrupted near its western margin by a pyramidal rocky mass, called Wizard Island, itself evidently a volcanic vent, and a study of the enclosing walls of the great caldera proves them to be built up in the usual way by ash-beds and lava-flows, dipping outwards from its axis, and riven by occasional dykes. The exterior slopes are dotted by parasitic cones, and exhibit occasionally moraines and Glacial striæ; they are also furrowed by valleys, which in some cases run up to and actually notch the edge of the cone, so that they evidently cannot have been formed on Mount Mazama as it now exists. They, like it, have been truncated, and the bowl occupied by Crater Lake has been formed by the destruction of a volcanic cone which must once have risen some six thousand feet above its present rim. Of this there can be no doubt; it is substantiated by numerous facts cited in this memoir, and we have only to study the geological map which it contains to see that the present lava streams are merely remnants of those discharged from sources at a greater elevation and nearer the central axis of the cone.

But the precise mode in which the upper part of the original Mount Mazama was destroyed, and Crater Lake formed among its ruins, is not quite so certain. Two explanations are possible. All the upper part of the mountain may have been hurled in shattered fragments through the air by a series

¹ "The Geology and Petrography of Crater Lake, National Park." By Joseph Silas Diller and Horace Bushnell Patton (U.S. Geological Survey). Pp. 168. Plates i-xix. (Washington, 1902.)