

list of contributors given, comes the first division of the subject, a consideration of "The Wood Warblers" in general. In this division are the eight headings: General Characters, Plumage, Distribution, Migration, Songs, Nesting Habits, Food, and Mortality. Of these the article on "Migration of Warblers," by Professor W. W. Cooke, that on "Food of Warblers," by Mr. Edward H. Forbush, and that on "Mortality among Warblers," are particularly interesting.

The second division, which comprises the major part of the book, is concerned with a detailed treatment of genera, species and subspecies, unfortunately following the inverted order of Mr. Ridgway's recent review of the family, without his excellent reason therefor. This portion includes for each genus its diagnosis and general characteristics; and for each species and subspecies pertinent information condensed into readily accessible form under a number of subheadings. "Distinguishing Characters" consist of the salient differential points of plumage, together with usually the measurements of total length in skin, wing, tail and bill. We are not, however, altogether satisfied that, as Mr. Chapman claims, the total length of a bird can be more accurately ascertained from a dried skin than from a fresh specimen! Descriptions of the various phases of plumage, from nestling to adult, are next given, and these seem to be full enough for most purposes of identification and comparison. "Geographical Distribution," written chiefly by Professor W. W. Cooke, follows, and is in most cases excellent and very complete, being separated under General Distribution, Summer Range, Winter Range, Spring Migration and Fall Migration—an admirable arrangement, although the General Distribution would much more logically have included the winter as well as the summer home. "The Bird and its Haunts" includes various notes on general habits—again much information in a small compass. Other captions, self-explanatory, are "Song," "Nesting Site," "Nest," "Eggs," "Nesting Dates" and "Biographical References" (to literature).

A "Hypothetical List" of two pages enumerates the species that, according to our author, have but a questionable place in the North American list, by reason of doubtful specific validity or unproved occurrence within our limits.

The book is illustrated by 24 colored plates of birds, 4 half-tones of nests and nesting sites and 4 of eggs. The half-tones, as well as the colored figures, with a few exceptions, such as the water-thrushes, ovenbird and cerulean warbler, are good.

HARRY C. OBERHOLSER

*Étude minéralogique des produits silicatés de l'éruption du Vésuve (Avril, 1906).* By A. LACROIX. Paris, Nouvelles Archives du Muséum, (4). Vol. IX. Pp. 1-172, 1907.

In this valuable and important work the foremost petrographer of France brings together many observations made by himself at eruptions of Vesuvius in 1893, 1905 and 1906, with results of great interest both for the study of volcanic eruptions from the physical side and of the petrography of their products.

In the first chapter a general sketch of the Vesuvian eruptions is given, followed by a detailed description of that of 1906. Two main types of eruption (both central) are distinguished: that of 1895, in which the effusion of lava is tranquil and extends over several months and that of 1872, in which it is violent and rapid, and lasts only a few days. The eruptions of the first type are constructive, so far as the cone is concerned, while those of the latter are destructive. A third, subsidiary type, rare at Vesuvius while the usual one at Etna, is that of 1760, characterized by eccentric outflows, the other features being intermediate between those of the first two. The eruption of 1906 belongs to the type of 1872, ending a period of moderate activity which had lasted for nearly 32 years.

In the second chapter the new lavas are described petrographically in considerable detail, two chemical analyses being given, which resemble closely earlier ones of lavas of 1631, 1872 and 1903 made by the reviewer. The leucite phenocrysts appear to have formed

prior to the effusion, but at moderate depths; while the formation of the microlites of leucite took place during the effusion. The lapilli which covered Ottajano show very decided chemical differences from these, especially in their higher magnesia and lime and lower alkalies.

In Chapter III. are described the fragments of an earlier date brought up by the last eruption, including lavas, tuffs, intrusive rocks and metamorphosed limestones. In Chapter IV. the effects of autopneumatolysis and metamorphism on these fragments at Vesuvius, and in Chapter V. the similar phenomena at the volcanoes of the Auvergne, Santorini and Martinique are discussed. Many interesting details are here given, which are too numerous for review and for which the original monograph must be consulted.

The final Chapter VI. is devoted to a general discussion and description of the eruptive rocks of Somma and Vesuvius, and is to the petrographer the one of greatest interest and value. A large number of diverse types are described, accompanied by numerous, good analyses by Pisani. Lacroix shows that the variation in composition, both mineralogical and chemical, of the Vesuvian lavas is far greater than has hitherto been thought. In the terms of the prevalent classifications the rocks described are leucite-phonolite, leucite-tephrite, trachyte, phonolite, sanidinite, microsyenite, sommaite (leucite-monzonite) and monzonite, with corresponding chemical differences, the silica, for instance, varying from 47.31 to 58.61 per cent. In terms of the quantitative classification, which, it is of interest to observe, is employed throughout the work in connection with that commonly in use, the subranges represented are beemerose, procenose (I. 6. 2. 3), miaskose, ciminose, shoshonose, borolanose, braccianose, vesuvose, shonkinose, ottajanose (III. 6. 3. 2), ourose, and an unnamed one (III. 8. 2. 3). It may be noted, however, that, while the mineralogical and chemical complexity of the mass is thus evident, yet that the predominant rocks are leucite-tephrites, belonging to the subranges borolanose and braccianose of the quan-

titative classification, the non-leucitic rocks and those belonging to the persalane and sal-femane classes being present in comparatively small amounts. From the analytical data presented Lacroix considers that the average magma of Somma-Vesuvius belongs to borolanose (II. 6. 2. 3), the Vesuvian lavas being mostly dopotassic, while the lavas and tuffs of Somma are for the most part sodipotassic. This introduction of the materials of Somma into the calculation explains the divergence from the position of braccianose (II. 7. 2. 2) previously assigned by the reviewer to the Vesuvian magma. In this final chapter is also included a brief discussion of the formation of leucite, the author laying special stress on the physical conditions, while the reviewer has recently (in the *Journal of Geology*) discussed the question chiefly from the chemical side, the results of both being in harmony with each other.

Ten plates of excellent phototypes, illustrating, the microscopic and megascopic modes and textures of the rocks, close the volume, which is a most important contribution to our knowledge of Italian volcanoes, and is an illuminating example of a modern petrographic monograph.

HENRY S. WASHINGTON

*The Royal Society: some account of the "Classified Papers" in the Archives; with an Index of Authors. Compiled by A. H. CHURCH, D.Sc., F.R.S. Oxford; printed for the author. 1907. Pp. 38. Royal 8vo.*

Professor A. H. Church, the distinguished chemist, student of colors, water, gems, and critical author, has published a most exhaustive and interesting account of the "Classified Papers" in the archives of the Royal Society of England. These papers are collected in thirty-nine guard-books, which were made up in 1740 or 1741; a few of the papers were printed, but the greater part are in manuscript. Professor Church gives a comprehensive, clear and incisive account of the formation and character of the early history of that learned institution, known for the past two and a half centuries as "The Royal