quate conservation policy with reference to the harvesting of the native crop is immediately imperative, and that it will also doubtless avail more for the perpetuity of this resource than any attempts at plantation methods.

It is to be regretted that the author has not considered in this connection the cost of the operations, upon which must depend, of course, the practicability of propagation. Since field seeding seems impracticable, except under the most extraordinary conditions, the procedure must take the form of nursery methods, involving considerable outlay in labor and equipment. Without discussing the details, for which space can not be taken here, it may suffice to say that the cost involved in these operations, computed on the basis of conditions at Cedros, seems quite prohibitive.

In conclusion, the admirable quality of this contribution should be recognized. Though lacking completeness in parts, as the author himself admits, there are in this work, nevertheless, the abundant results of careful and painstaking research. The magnitude of the accomplishment is the more apparent to the reviewer, as one familiar with the difficulties and discouragements which beset its author during the year upon the hacienda.

J. E. KIRKWOOD

Les syénites néphéliniques de l'Archipel de Los et leurs minéraux. By A. LACROIX. Extrait des nouvelles archives du Museum, Series 5, Vol. III. Paris. 1911. 4to. Pp. 132, 10 plates and text illustrations.

In any work from the fertile pen of M. A. Lacroix we are accustomed to expect the thoroughness and accuracy that distinguish the present petrographic study on the nephelinic syenites of the Isles of Los off the coast of Guinea. This group of islands was ceded to France by the Anglo-French convocation of 1904.

M. Lacroix signalizes the interesting fact that the geological formations of the Guinea coast differ radically in their chemical composition from those of the nearby Isles of Los (p. 8). In the nephelinic syenites constituting Rouma (Crawford) Island, lavenite and astrophyllite are constant constituents, often present in as great quantity as ægyrite, all being distinguishable without the aid of the microscope; sometimes one and sometimes the other of these constituent minerals predominating. When these rocks contain arfvedsonite, occasionally accompanied by a little biotite, this amphibole forms crystals which may attain a length of several centimeters. In addition to the elements above noted, villiamite may also be found as well as fluorite and pyrochlore, both in microscopic quantities; more rarely eudialite is observable. To them may be added several secondary minerals. The author finds in the fact that the låvenite is often formed after the feldspars a typical quality of these rocks, this constituent being usually a primitive constituent in rocks of this kind, although analogous conditions have been observed in nephelinic syenite from the Ord Range in Texas.

The syenites of the Isles of Los are divided by the author into the principal petrographic groups, whose close relation to one another is brought out by chemical examination. One of them, more alkaline and containing little or no lime or magnesia, is constituted by the syenites with ægyrite; the other, but a trifle more calciferous, includes the syenites with black amphibole and augite, and the alkaline monzonites where plagioclase exists.

The characteristics of these two groups and those of the minerals found in the syenites are very fully described. Among the minerals found in the first group are the following: feldspars, either sodium orthoclase (Rouma, Kassa), or microcline (Rouma, Robané); they especially abound in the pegmatites of Rouma; nepheline occasionally occurring in crystals five centimeters in length; sodalite, a light yellow shade of this mineral, abounds in the normal syenite of Rouma Island; in the pegmatites the soldalite occurs in crystals three centimeters long and of a light yellow, or a lavender blue color, greenish in places, ægyrite-acmite; the ægyrite sometimes approaches to acmite, while in some specimens of syenite from the northern part of Kassa Island only acmite is found; asfredsonite, oc-

casionally appearing in small acicular crystals with or without biotite, resembling those found in Norway and Greenland; låvenite, one of the most constant minerals of these rocks, and the most notable colored mineral of the rocks at Rofare, the small crystals being remarkably well defined, with intense polychroism; the author believes that these nephelinic syenites of the Isles of Los are those in which låvenite occurs most abundantly; rinkite; astrophyllite, constant in the syenite of Rouma Island, but only exceptionally found in that of Kassa Island; biotite, not often met with, sometimes perpendicularly impaled on the surface of crystals of magnetite; eudialyte, occasionally showing metamorphosis into catapleiite; villiamite, named by M. Lacroix after his faithful collaborator, M. Villiaume, a mineral characterized by an intense polychroism; fluorite, colorless, pink or light violet; pyrochlore, particularly abundant in the normal syenites of Rouma Island; galena; analcite, which the author regards as formed in a pneumolithic phase and not a product of decomposition; hydrophyllite; mesotype; losite and a number of other minerals. Many of these are present in the second group of syenites in addition to zircon, titanite, titanomagnetite, woehlerite, etc.

Chemical analyses of a number of specimens of the syenite are given and the examples shown in the plates are very fully elucidated. We have only been able to note a few of the more important data contained in this stately, valuable contribution to petrography by France's greatest petrographic geologist.

George F. Kunz

Ka hana kapa: The Making of Bark Cloth in Hawaii. By W. T. Brigham, A.M., Sc.D. Memoirs of the Bishop Memorial Museum of Polynesian Ethnology, III. Honolulu, Museum Press. 1911. 4to. Pp. 273; 48 plates and atlas of 26 colored plates.

It is well known to ethnologists that among the few living men having personal and scientific knowledge of the ethnology of the Hawaiian Islands, the director of the Bishop Museum stands unrivalled. During the period in which that museum has engaged in publication a succession of memoirs has proceeded from his pen, in which a vast amount of otherwise unwritten Polynesian lore is fortunately preserved. The present volume is devoted to the history and description of the bark cloth, tapa or kapa, of the Polynesians, a manufacture which reached its greatest perfection in Hawaii, and which, on the coming of the white man, with woven cloth and figured calico, deteriorated and soon practically ceased. Museum specimens alone preserve for us the actual material, on which Hawaiian art and fancy were so lavishly expended.

Dr. Brigham gives us first the history of its manufacture as described by the earliest voyagers, from Hawaii to Madagascar, the Philippines, and even Africa; then an account of the dyes and tools used; botanical descriptions and figures of most of the plants and trees from which the raw material was obtained; the uses of the finished product; the designs used in its ornamentation; a vocabulary of kapa terms, lists of the material studied in the various museums and in his own private collection, with numerous illustrations in the text; and finally an atlas of beautifully executed plates in color, reproducing the exact designs, with many black and white plates illustrating simpler variations, both from Hawaii and other regions where the art was practised.

Dr. Brigham and the trustees of the museum are to be congratulated on the appearance of this splendid monograph which preserves for posterity a wealth of information, much of which might, and indeed probably would, otherwise have been lost to the world in the course of a few years.

Wm. H. Dall

ANNUAL REPORT OF THE SMITHSONIAN INSTITUTION

The Smithsonian Report for the year 1910 has just been published by the institution. Besides the report of the regents and the secretary, the volume contains, as usual, a "General Appendix" consisting this year of