work of Frederic Clements, portrayed as a botanist living in a midwestern world of rapid agricultural expansion and change and seeing change as a strong and vital process in natural plant communities. Next is a study of Aldo Leopold, whose ideas on wildlife management show a strong shift from an early emphasis on control over nature to a final eloquent position of "ecological conscience." This personal evolution is in tune with societal changes since the days of Teddy Roosevelt.

The book closes with brief reviews of two sequences. One begins with the philosophy of A. N. Whitehead and continues with the "superorganism" approach to populations and communities fostered by W. M. Wheeler at Harvard and a large group led by W. C. Allee at Chicago. With Allee's retirement in 1950 this organicist movement disappeared, an event Worster finds consistent with changes in other sciences and in society.

The other sequence gives rise to present-day ecology. It begins with Charles Elton's emphasis on general principles governing the dynamics of populations and continues with A. G. Tansley's formalizations of ecosystems as systems of exchanges of energy and matter. Meanwhile, others began to measure energy efficiencies in communities, and in 1942 Raymond Lindeman put it all together. The author shows how the present dominance of this approach mirrors many recent changes in other sciences and in society. Therein he finds both strengths and weaknesses in modern ecology.

Worster's style is warm, intellectually strong, and eloquent without sentimentality. I found the work stimulating and constructive, offering new perceptions about ecology and ecologists, including myself.

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Alkaline Rocks

Carbonatite-Nephelinite Volcanism. An African Case History. MICHAEL JOHN LE BAS. Wiley-Interscience, New York, 1977. xiv, 348 pp., illus. $48.

This book aims at a contemporary statement of the "carbonatite problem" using an area in Kenya as a type locality. The area shows an association of intrusive and extrusive alkaline rocks and a rich variety of rock types, including melilite- and wollastonite-rich types, the melteigite-ijolite-urtite suite, nepheline syenite, and several varieties of carbonatites and associated fenites. The bulk of the book is of memoir style, commencing with a concise treatment of the Precambrian basement. The alkaline rocks are divided into ten complexes plus a problematic maar-type crater, each of which is treated in one or more chapters. Each chapter commences with a one-paragraph summary and a table of contents, so particular facts and descriptions can be found with exceptional ease. Petrography and field relations are given compendious treatment, and large amounts of material on mineral chemistry, whole rock chemistry, and age determinations are also included. Numerous line drawings illustrate the field relations, and photographs, all collected at the end of the book, are effectively used to demonstrate rock textures at field and microscopic scales. Casual readers may find the accumulation of detail overpowering, but the book fulfills an archival function characteristic of geological survey memoirs. It will be the definitive description of these rocks for years to come.

The book does not deliver a general treatment of carbonatite-nephelinite volcanism. The first chapter gives a confused and confusing account of occurrences of alkaline rocks that is notable for an apparently random selection of occurrences and references. The third chapter, entitled "The nomenclature of alkaline igneous rocks," refers only to the Kenyan rocks and, except for a simplified nomenclature for carbonatites, makes no new contribution to this difficult subject. Toward the end of the chapter, nomenclature is simply dropped and a description of the Precambrian rocks is commenced. The book concludes with two chapters on the magmatic and metasomatic processes involved in the petrogenesis of the carbonatite-nephelinite suite. These chapters are the least satisfying in the book, for they only recapitulate the (often conflicting) theoretical and experimental work on the subject. The significant conclusions of the book stem directly from the fieldwork, for example, the origin of melilite-rich rocks by metasomatism of pyroxenite, the distinction of sodium and potassium fenitization on the basis of magma type and temperature, and the spiral structure of some cone-sheet complexes.

Thirty years ago von Eckermann's classic memoir "The Alkaline District of Alno Island" (*Sver. Geol. Unders. Ser. C*, No. 36 [1948]) established the question of the origin of carbonatite as an important petrologic question. Le Bas's book shows that a contemporary discussion of this question cannot be contained within a discussion of a single area because of the enormous literature on the subject. (Over 300 references are cited, and the literature search is reasonably complete only to about 1972.) The exorbitant price of the volume will surely confine this solid memoir on west Kenyan alkaline rocks to larger geological libraries.

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Plant Conservation

Extinction Is Forever. Threatened and Endangered Species of Plants in the Americas and Their Significance in Ecosystems Today and in the Future. Proceedings of a symposium, Bronx, N.Y., May 1976. GHILLEAN T. PRANCE and THOMAS S. ELIAS, Eds. New York Botanical Garden, Bronx, N.Y., 1977. vi, 438 pp., illus. Paper, $20.

This attractively printed volume is a stimulating if uneven collection of some 38 papers and a panel discussion presented at the New York Botanical Garden. The majority of the papers are focused on Latin America, a vast region inhabited by well over a third of the world's species of flowering plants. Perhaps an eighth of these have yet to be catalogued and given scientific names, and we know the uses of only a very few. More than a third of the forests of Latin America have been cut since 1800, and considering the rate of growth of human populations in the region the continued existence of the remainder beyond the next half-century is extremely doubtful.

Owing to our lack of knowledge, it is difficult to specify particular endangered species of plants in Latin America. Kubitzki makes an interesting case in this volume that in *Davilla* (Dilleniaceae) the species with the more primitive characteristics may be the rarest. The wide dispersal of individual plants in tropical forest means that many will be rediscovered hundreds of kilometers from their known localities. It is therefore inappropriate and largely impossible to focus conservation efforts in the tropics on individual species of plants. In this vast region whole ecosystems, the richest on earth in numbers of species of plants and animals, are being destroyed to satisfy the needs of a rapidly growing human population. Consequently, the focus