if good enough, may be a self-confirming prediction. He outlines methods which have been used—analytical, inductive, deductive, comparative, "scientific"—but does not indicate whether any or all of them have actually produced reliable results of either practical or theoretical utility. The book is, as the title indicates, a philosophical analysis rather than an exposition of scientific method in the field of politics. It has a good index, gives access to recent literature in the field, and should be useful to political scientists; it will at the same time give natural scientists some insight into the way political scientists think.

QUINCY WRIGHT
Woodrow Wilson Department of Foreign Affairs, University of Virginia

Hybrid Flora

Flora of New Zealand. vol. 1. *Indigenous Tracheophyta: Psilopsida, Lycopsida, Filicopsida, Gymnospermae, Dicotyledones*. H. H. Allan (deceased 29 October 1957). Government Printer, Wellington, 1961. liv + 1085 pp. Illus. $14.70.

This excellent volume, an original work, is nevertheless a lineal descendant of Cheeseman's *Manual* (1906; rev. ed., 1925). The unavailability of the latter, to bend a phrase from Cheeseman's preface in the first edition, "has long been a serious hindrance to the study of the indigenous vegetation, and a bar to inquiries of any kind connected therewith."

The long-awaited *Flora* was written by the late H. H. Allan, ably assisted by Lucy B. Moore, who completed the work. Compact owing to the use of thin paper, the book contains abundant dichotomous keys and descriptions of 116 families, 290 genera, 1457 species, and 272 varieties. Synonymy, distribution, and often critical notes are provided for each taxon; the numerous invaluable discussions of hybridism, polymorphism, and plasticity are tempting invitations to further study. All measurements are metric. In addition there are a chronological account of plant-taxonomic research in New Zealand from 1769 to 1958, a brief account of ecological and floristic conditions, a list of author abbreviations and dates, and a glossary of Maori plant names.

An estimated 80 percent of the species and 40 genera are endemic; 40 other genera but few identical species occur also in Australia. New Zealand offers a natural laboratory for the study of hybridization largely resulting from human disturbance. Most of the larger genera are suspected of having been affected, and some described varieties may owe their existence to this phenomenon.

A North American is struck by the fact that the families with most genera are Compositae, Umbelliferae, Scrophulariaceae, Papilionaceae, and Cruciferae. Among the largest genera are *Epilobium, Ranunculus, Senecio, Myosotis,* and *Gentiana*. Problems of bipolar distribution at once come to mind.

Of especial interest is the subantarctic element in the flora: "a whole vegetation type may be said to show 'disjunct' distribution across the South Pacific. . . . The acceptance of an evolutionary hypothesis forces one also to accept that the ancestors of these now widely separated plants . . . were once in genetic, if not geographical, contact. The biogeographer's task is to explain how this contact was achieved, and how it gave rise to the present pattern of distribution" [M. Holdgate in *New Scientist* **10**, 636 (1961)].

Exploration of these and many other problems will be greatly aided by the timely appearance of the *Flora*. The New Zealand Department of Scientific and Industrial Research, which sponsored the preparation and publication of the work, deserves congratulations.

LINCOLN CONSTANCE
Department of Botany, University of California, Berkeley

Moon Maps

Orthographic Atlas of the Moon. Supplement 1 to the *Photographic Lunar Atlas*. (Contributions, Lunar and Planetary Laboratory, No. 1). Compiled by D. W. G. Arthur and E. A. Whitaker. Gerard P. Kuiper, Ed. University of Arizona Press, Tucson, 1960.

The *Orthographic Atlas* is a very useful tool to be used in conjunction with the magnificent *Lunar Atlas* which was reviewed in the 29 July 1960 issue of *Science*. It is Supplement 1 of the *Lunar Atlas* and has been issued in two editions: (i) Edition A, on a high-grade coated paper, showing only the standard othographic grid and (ii) Edition B, on a washable, tear-resistant, heavy-duty, coated plastic showing, in addition to the orthographic grid, a latitude-longitude grid overprinted in blue, spaced by 2-degree intervals, giving approximate selenocentric coordinates. Edition B will be useful when the charts are to be used regularly at the telescope. The review copy is Edition A.

The supplement is being published in two parts. Part 1, "The Central Area of the Moon," is the portion now available. Part 2, covering the limb regions of the moon, has been announced for publication in the near future. The hard cover binder supplied with Part 1 will also accomomodate Part 2.

D. W. G. Arthur and E. A. Whitaker are skilled cartographers with expert knowledge of the lunar literature and of the problems of lunar cartography. They worked in close collaboration with the Aeronautical Chart and Information Center (ACIC) at St. Louis.

The grid lines shown on the maps have an interval of 0.01 lunar radius. They correspond to the intersects with the lunar surface of two sets of parallel planes, normal to each other, one set being parallel to the plane of the lunar equator and the other to the plane of the prime meridian. The point (0,0) corresponds to the center of the lunar disk as seen at zero libration in both latitude and longitude. The distance between consecutive grid lines at the center of the lunar disk is 10.8 miles or 17.4 kilometers.

Lohrmann (1824), Mädler (1837), and Schmidt (1878) produced remarkably accurate charts of the lunar surface before the advent of effective lunar photography. After 1900 it was possible to base lunar maps on the photographic triangulations of Franz and Saunder. Their triangulations were about 10 times more accurate than the prephotographic positions used by Schmidt and his predecessors. The present atlas is based on more control points than the work of Franz and Saunder, and for that reason it achieves much greater accuracy.

Two government agencies provided financial support: the National Aeronautics and Space Administration and the Geophysics Research Directorate, Air Force Cambridge Research Laboratories.

FRANK K. EDMONDSON
Goethe Link Observatory, Indiana University