

## REVIEWS

CRYOPÉDOLOGIE, ÉTUDE DES SOLS GELÉS. ANDRÉ CAILLEUX *and* GÉRALD TAYLOR. Actualités Scientifiques et Industrielles 1203, Missions Paul-Émile Victor, No. IV. Paris, Hermann & Cie, 1954. 219 pages, 115 illustrations (12 plates).

STUDIES of frozen ground phenomena, their diverse scientific and practical aspects, are appearing at an accelerated rate because of present interest in regions of high latitude and altitude. Polar and subpolar explorations by such groups as the Expéditions Polaires Françaises have aided materially in focusing attention on this important field, encompassed under the name *Cryopedology* (coined by the late Kirk Bryan in 1946), and in accumulating pertinent data for interpretation of its genesis, dynamics, and its geomorphic and practical rôle as an environmental factor. Publications in many countries and many languages have led to a chaos of terminology and descriptions. Because of the general lack of statistical data and detailed observations over a period of time, most older studies have been largely descriptive with primarily subjective explanations, based on a minimum of quantitative data. Through detailed data now being provided by field and laboratory studies, understanding of many cryopedologic problems will be clarified. At this time, comprehensive reviews are desirable to assemble the scattered information and provide a clear-cut point of departure for future investigations of the diverse aspects of cryopedology and its interrelation to many branches of natural and physical science.

The handsome volume by Cailleux and Taylor, one of the most ambitious compilations and reviews of cryopedology, is an attempt to synthesize existing information on the basis of their own field observations and on the published work of others. Well aware of the difficulties, some of which are stressed, they have presented a broad general summary in which they include evidences of ancient cryopedologic phenomena in areas now outside its major sphere of activity. The text is divided into four parts: *Mécanismes Physiques*, *Sols Proprement Dits*, *Formations Superficielles*, and *Applications Pratiques*. The book is, however, primarily concerned with features of the mollisol (active layer of seasonal freezing and thawing) and not with the relatively stable pergelisol (perennially frozen ground, or permafrost), whose genesis and physical characteristics are little known, but which is of signal importance in an understanding of particular phases of earth history. In each part, the more elementary information has been assembled; unfortunately, there is little real critical analysis of the available data and of the many divergent opinions. Few statements are so documented that it is possible to refer readily to the original source material for details; in many places it is pointed out that further study is essential to real understanding. Elsewhere, the reader may be misled into the belief that all are in agreement with the facts presented. Despite many omissions, which disappoint the serious student, and the casual treatment of many physical principles and interrelations of cryopedology to other fields of natural science, this volume presents a valuable, if somewhat elementary, summary outline of the subject. No attempt has been made to evaluate the rôle of cryopedology as one of the dominant factors in the geomorphic development of the landscape in regions of high latitude and altitude.

Students will find the bibliography of more than 1500 titles valuable, especially in revealing papers in which data of interest to cryopedologists are not the main subjects treated. As with all bibliographies, it should not be considered complete; moreover, many references are incomplete, misspellings are common, and some errors in earlier bibliographies have been perpetuated. The bibliography is so loosely tied to the text that much of its significance as part of the treatise is lost.

Twelve excellent plates at the end of the volume make one regret that there could not have been more photographic reproductions and fewer line drawings from photographs.

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