

mountains of their respective countries. The Chilean work is the English version of an earlier Spanish edition. All three books have a common layout. Each one alternates pictures of stark rock and ice peaks and local climbers in action, with vignettes depicting sunsets, flowers and animal life. All three also offer brief data of important mountains and of main, historical ascents. All three books, too, display here and there impressive photos of unclimbed walls, mostly rock. And all persons participating in the preparation of these books can be identified as the best climbers in their respective countries. There are also some differences among these works, differences that respond to the characteristics of the mountain scenery and of the mountain sports pertaining to each of the countries involved. The Ecuadorian volume places an emphasis on lesser peaks, particularly the very little known ones of southern and eastern Ecuador. The Chilean work, as to be expected, also describes skiing, skiers, winter mountaineering and mountain tourism. The text in Oyarzún's album is clear and to the point; it intends to supply information. And the Colombian book, the most ambitious of all three, puts a greater emphasis on the portrayal of mountain people. Anhalzer and the Colombians attempt to explain, by means of text and picture and with much feeling, the meaning of scenery for both the local highlanders and for mountaineers.

Of the seven Andean countries, only Bolivia and, partially, Argentina, have not seen their high mountain world portrayed in an album type of book like these. Ecuador has so far been the most favored, with no less than four such books published in the last few years. Every one of the three books listed above contains a challenge and an invitation for mountain adventures abroad.

EVELIO ECHEVARRÍA

The Mount Everest Maps

In the November 1988 issue of the *National Geographic* the most accurate map of Mount Everest (1:50,000) ever produced was published as a supplement. Also, in that same issue the map was described in an article "Surveying the Third Pole" by Bradford Washburn. This magnificent cartographic product culminated many years of effort by Bradford Washburn and his project team and it is one of the most dramatic cartographic accomplishments of this century.

In addition, there are ten large scale map manuscripts (1:10,000) and the resulting large-scale shaded relief map (1:15,000) which are superb and provide an outstanding and everlasting cartographic rendition of a significant part of the earth. In reaching that conclusion many considerations and realities are involved, including project area (terrain variances, terrain accessibility, climatic conditions, political boundaries); evaluation and utilization of critical earlier source materials (maps, ground control, ground photography and imagery); obtaining the most modern and space photographic imagery attainable; and using the most precise positioning, advanced photogrammetric and cartographic techniques possible. There are also twelve new sheets on a scale of 1:2,500 with five-meter contours of just Everest itself.

These maps of Mount Everest will not only serve as the base of many future scientific studies by geologists, glaciologists, geodesists, hydrologists, etc., but they will serve as factual proof and models of what can be accomplished over remote, desolate and barren areas of the world.

More importantly, the maps reflect what Washburn was able to accomplish utilizing a truly International team (United States, Switzerland, Nepal, People's Republic of China, Great Britain, West Germany, Sweden, Yugoslavia, Japan) of outstanding scientific and technical talent. Washburn stated early on "our new map would depend heavily on the diligent work of the heroes of the past, strengthened and expanded by the most sophisticated modern science." Washburn's dogged persistence, determination, and leadership have made maps of Mount Everest that will stand the test of time.

OWEN W. WILLIAMS

Winter Sports Medicine. Murray J. Casey, Carl Foster, and Edward G. Hixson. F.A. Davis, Philadelphia, 1989. 425 pages, illustrated. \$65.00.

This is an excellent and needed addition to the growing library of sports medicine and will be of great value to doctors, trainers and athletes involved with competitive winter sports. To my knowledge it is the first comprehensive collection of information about virtually all winter sports.

The 47 chapters are distributed in seven sections: general topics, medical problems, and injuries which are common to all winter sports, followed by special chapters on the various types of competitive skating and skiing. Except for four brief chapters on mountaineering and winter camping, the book is directed at world-class competition. Training, nutrition, physiology, biomechanics and illness and injuries peculiar to each of the ten winter sports are considered in detail—sometimes exhaustingly so. One quarter of the book discusses preparation of the athlete and his caretakers, including nutrition, over-training, and the hazards of doping. Another quarter covers all the illnesses and general injuries to which the competitor may fall victim. Finally mountaineering, altitude problems and trekking are allotted 30 pages.

Most of the chapters are clear, complete and authoritative; a few are inadequate. Only brief mention is made of snow-blindness and "fever blisters" both common and troublesome though minor. The importance of adequate fluid and electrolyte replacement for those pushing themselves to the limit in very dry cold air appears only in the chapter on nutrition. Mountaineering is given little space, and winter camping is dealt with in a few paragraphs in an excellent chapter on trekking and camping abroad. Almost nothing is said about motivation—the spur that drives the world-class athlete to super-human effort. Despite a few shortcomings, this is an exceptionally useful and helpful book for those who feel compelled to compete in the cold.

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