Soft cover. $19.95.

“I only hope that the snowpacks will understand that I have read these chapters
and will spare me from the avalanche”

At last we have a major revision to *The Avalanche Handbook*, not written
this time by the US Forest Service, but by Canadian authors. After four years
of no handbook (out of print), David McClung and Peter Shaerer came up with
a revision that will be the textbook for avalanche courses perhaps for decades
to come. This new handbook is a very comprehensive treatment of the subject,
following in the tradition of the earlier handbooks (the USFS Handbook #194
by LaChapelle, 1961 and the USFS Handbook #489 by Perla and Martinelli,
1976).

First of all, as field avalanche people we view the new *Avalanche Handbook*
as a logical development from the previous versions and in many ways a much
needed improvement, updated with some of the latest information. It has better
layout and design. The cited literature is current. It does a good job discussing
and emphasizing snowpack tests: such as the hand hardness test, the Rutsch-
block, and the shovel shear test. (However, it would have been better to mention
that since the Rutschblock must be done on a slope of at least 25° to be
effective, whereas the shovel shear can be meaningful even on level ground, the
shovel shear is a potentially safer test to perform.) Since the authors are
engineers and geophysicists they do an especially good job when discussing
engineering problems such as guidelines for design in the run-out zone. The
Canadians finally set the record straight on avalanche size and classification.
The USFS system for sizing avalanches was illogical and ignored by field
people.

The book has a Canadian accent and uses the metric system with no
exceptions. This will be a problem for those in the USA who still measure snow
in inches and temperature in degrees Fahrenheit. Some may find the text rather
textbook-like. The authors tried to liven things up with well-chosen quotes at
the head of each chapter. Misprints are few, although on page 64, figure 4.5,
there is a reversal of the top arrow on the tension illustration.

This new handbook is not as current as it could be. It has not kept up with
technology in Little Cottonwood Canyon (Alta, Snowbird, UDOT), Utah, the
site that heavily influenced the earlier handbooks. Visitation in the Canyon has
increased many fold, and Canyon personnel have responded with innovative
safety logistics supported by new forecasting, control and communication
procedures. The other front lines that are not covered are the avalanche warning
centers and their technology and forecasting systems (i.e. Utah Avalanche
Forecast Center, Northwest Avalanche Forecast Center, Colorado Center), and
most important, technologies and forecasting at heliski operations, which are
certainly significant in the larger view, especially in British Columbia, the
authors’ home base.
Chapter 3 presents snow metamorphism in non-technical terms with up-to-date concepts. Appendix C “Advanced Snow Crystal Classification Systems” is of particular value to the avalanche worker. However, for the terms used to describe the metamorphic processes in dry snow, McClung opted not to use the terminology used by the International Commission on Snow and Ice (of which McClung is a member) and uses the terminology common in Canada. As a result, we again have a change in terminology to describe the evolution of snow on the ground to depth hoar as the Temperature Gradient Process (TG), to Kinetic Growth Form, and McClung’s preferred Faceted Forms. All these mean the same thing, whether the process takes place north or south of the Canadian border.

The three classes of “stability factors” presented in Chapter 6 are interesting. Unfortunately the very close interrelatedness of the three factors seems to be only indirectly stressed. This interrelatedness, rather than any one factor, is fundamental to both stability evaluation and forecasting. A more misleading suggestion is that Class II Snowpack Factors are superior to Class III Meteorological Factors (because Class II Factors involve less random data, presumably). In fact, a snowpit (a leading Class II data gathering technique) is only one hole (or two) on an expanse of slope to say nothing of a whole mountain range. Snowpit data by itself is limited and more than one ski guide has released deadly avalanches during or after digging a snowpit. To suggest the Class III Factors are less important than the Class II Factors could be misleading (page 126, right column, “Which Observations Have Priority”). At any one time, any given “Factor” may be the all-important one, or all of them, which is often the case. In fairness, a reader reading the entire handbook will realize the authors intend the concept of “Factor” interrelatedness to be implicit.

In Chapter 7, avalanche prediction will certainly be of interest to most people who use this book. The discussion of the traditional ten contributory factors (with the worthwhile addition of relative humidity and solar radiation) is well-done and concise. However, it seems the authors don’t have much to say about putting them all together in an organized forecasting system using storm plots and forecast graphs, as are in use from Little Cottonwood Canyon to Rogers Pass to the Canadian heliski operations. In fact, “conventional forecasting” seems to be dismissed in a very short section indeed (page 164); the future apparently being with numerical or expert systems computer programs. The fact is that nobody has been able to make these programs work. Consequently forecasters, guides and backcountry skiers/mountaineers with skill for abstract reasoning capabilities and common sense are still in demand.

In summary, we feel that the authors are showing their science-engineering training bias when it comes to dealing with the more abstract subjects of stability evaluation and forecasting. At the same time this background adds strength to many of the other chapters. All in all it is a good job, one that needed to be done, so just taking it on is highly commendable.

A final note. There has been only one permanent and essential contributor to both the 1976 USFS handbook and this 1993 McClung and Shaerer
handbook; Alexis Kelner, the illustrator. McClung and Shaerer have used and copyrighted 72 illustrations and 12 photos originally prepared in 1976 almost as a labor of love by Alexis Kelner. In many respects, Kelner's illustrations remain the strongest and most lasting contribution to the handbook preparation.

**Tom Kimbrogh, Peter Lev and Ron Perla**


This will be a useful atlas for anyone interested in travel. Not many people have health problems that prevent them from going higher than 4000 feet, but for those who do, it is difficult to plan a trip. The author, born with a heart defect that seriously threatens his life at altitudes which don't affect most of us, spent five years collecting information about all the towns, cities, lakes, parks one might like to visit. He lists their elevation, medical facilities, airports and more, and has keyed them to maps of all parts of the United States. This resource is preceded by a summary of medical problems which may cause trouble at altitude, a good glossary, index and helpful hints about traveling when medically compromised. I use the atlas often to check locations and altitudes.

**Charles S. Houston, M.D.**