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Geology and paleontology of the Ellsworth Mountains

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Coordination continued in 1987 on the production of a volume on the geology and paleontology of the Ellsworth Mountains. Final versions of a few outstanding chapters were completed by the authors in 1987, after which all 22 chapters planned for the volume were given a final reading by the editors (Webers, Craddock, and Spletstoesser) and submitted to the Geological Society of America (GSA). A highlight of the volume will be the colored geologic map (scale 1:250,000) of the entire range, which was printed on one sheet by Williams and Heintz Map Corporation in 1986. The map is also available separately as GSA Map and Chart MC-57 (Craddock et al. 1986). An additional plate in the volume will be the map of "Selected glacial geologic features," compiled by Denton et al. as part of their studies in the 1979–1980 field season. This plate is part of a chapter in the volume entitled *Glacial history of the Ellsworth Mountains, West Antarctica* by Denton et al., listed below. The map shows serrated rock crests, trimline elevations, striations, and localities of soil pits. The map was printed in two colors at a scale of 1:500,000, using the U.S. Geological Survey (1976) satellite image map as a base.

The wealth of rock and fossil material collected will continue to be studied by many of the investigators who participated in the 1979–1980 field season under the direction of G.F. Webers and also by other specialists. Further field studies are contemplated to sample fossil faunas, in particular, and additional studies of the structure, sedimentology, stratigraphy, and paleomagnetism are needed to establish with certainty the relationship between the Ellsworth Mountains and the region of West Antarctica and the Antarctic Peninsula.

The annotated bibliography of the Ellsworth Mountains (Webers and Spletstoesser 1982), which is being compiled on a continuing basis, included about 175 citations as of June 1987.

The bibliography is stored on a word processor disk at the Minnesota Geological Survey. A copy is available from the authors on request. The contents list of chapters is given below.

Geology and Paleontology of the Ellsworth Mountains, Antarctica.
G.F. Webers, C. Craddock, and J.F. Spletstoesser, Editors.
Geological Society of America Memoir, no. 170.

- Webers, G.F., C. Craddock, and J.F. Spletstoesser. History of exploration and geologic history of the Ellsworth Mountains.
- Webers, G.F., R.L. Bauer, J.M. Anderson, W. Buggisch, R.W. Ojakangas, and K.B. Spörli. Geology of the Heritage Group of the Ellsworth Mountains.
- Spörli, K.B. The crashsite Group of the Ellsworth Mountains, West Antarctica.
- Matsch, C.L., and R.W. Ojakangas. Stratigraphy and sedimentology of the Whiteout Conglomerate—A late Paleozoic glacial sequence in the Ellsworth Mountains, West Antarctica.
- Collinson, J.W., C.L. Vavra, and J.M. Zawiskie. Sedimentology of the Polarstar Formation, Permian, Ellsworth Mountains, Antarctica.
- Jago, J.B., and G.F. Webers. Middle Cambrian trilobites from the Ellsworth Mountains, West Antarctica.
- Shergold, J.H., and G.F. Webers. Late Dresbachian (Idamean) trilobite faunas from the Heritage Range, Ellsworth Mountains, West Antarctica.
- Webers, G.F., J. Pojeta, Jr., and E.L. Yochelson. Cambrian Mollusca from the Minaret Formation, Ellsworth Mountains, West Antarctica.
- Henderson, R.A., F. Debrenne, A.J. Rowell, and G.F. Webers. Brachiopods, Archaeocyathids, and Pelmatozoa from the Minaret Formation of the Ellsworth Mountains, West Antarctica.
- Buggisch, W., G.F. Webers, J.E. Repetski, and L. Glenister. Cambrian conodonts from the Ellsworth Mountains, West Antarctica.
- Webers, G.F., B. Glenister, J. Pojeta, Jr., and G. Young. Devonian fossils from the Ellsworth Mountains, West Antarctica.
- Debrenne, F. The Archaeocyathan fauna from the Whiteout Conglomerate, Ellsworth Mountains, West Antarctica.
- Taylor, T.N., and E.L. Smoot. The *Glossopteris* flora of the Sentinel Range of the Ellsworth Mountains, West Antarctica.
- Spörli, K.B., and C. Craddock. The structure of the Ellsworth Mountains, West Antarctica.
- Spörli, K.B., C. Craddock, and J.M. Anderson. Stratigraphy and structure of the Marble, Independence, and Patriot Hills, Ellsworth Mountains, West Antarctica.
- Denton, G.H., J.G. Bockheim, R.H. Rutford, and B.G. Andersen. Glacial history of the Ellsworth Mountains, West Antarctica.
- Spörli, K.B., C. Craddock, and R.H. Rutford. Breccia bodies of the Heritage Range, West Antarctica.

- Vennum, W.R. Chemical weathering of Cu, Fe and Pb sulfides, southern Heritage Range, Ellsworth Mountains, Antarctica.
- Bauer, R.L. Burial metamorphism in the Heritage Range, southern Ellsworth Mountains, West Antarctica.
- Vennum, W.R., P. Gizycki, V.V. Samsonov, and R.J. Panthurst. Igneous petrology and geochemistry of the southern Heritage Range, Ellsworth Mountains, Antarctica.
- Buggisch, W., and G.F. Webers. Facies of carbonate rocks in the Ellsworth Mountains (Cambrian, West Antarctica).
- Dreschhoff, G.A.M., E.J. Zeller, and V. Thoste. Radioelement distribution in the sedimentary sequence of the Ellsworth Mountains, Antarctica.
- Craddock, C. The geology of the southern extensions of the Ellsworth Mountains—Nash, Martin, Pirrit, Hart and Stewart Hills, and Thiel and Whitmore Mountains.

This research was supported by National Science Foundation grant DPP 82-14212 to Macalester College (G.F. Webers, principal investigator).

References

- Craddock, C., G.F. Webers, R.H. Rutford, K.B. Spörli, and J.J. Anderson. 1986. *Geologic map of the Ellsworth Mountains, Antarctica*. (Geological Society of America, Map and Chart Series MC-57, in color, scale 1:250,000.) New York: Geological Society of America.
- U.S. Geological Survey. 1976. *Ellsworth Mountains, Antarctica*. (Satellite image map, scale 1:500,000.) Washington, D.C.: U.S. Government Printing Office.
- Webers, G.F., and J.F. Splettstoesser. 1982. Geology, paleontology, and bibliography of the Ellsworth Mountains. *Antarctic Journal of the U.S.*, 17(5), 36–38.

Geology of the central Transantarctic Mountains

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Publication has been completed on a volume of the American Geophysical Union's *Antarctic Research Series* entitled "Geology of the Central Transantarctic Mountains." The 15 chapters in the volume were published as soft-cover minibooks as editorial work and printing schedules allowed. The final chapters were printed in early 1987, and the American Geophysical Union then issued foreword material for the volume, such as title page, contents page, etc., and plates for libraries and others to bind the contents into a single volume. The pocket plates are four colored geologic maps of the U.S. Geological Survey Antarctic Geologic Map Series. The complete contents of the volume and the plates are listed below.

This volume is the culmination of field studies done primarily by geologists from the Institute of Polar Studies, Ohio State University, and others beginning in the mid-1960s and continuing into the 1970s. Major discoveries in paleobotany and vertebrate paleontology in the 1969–1970 field season are reported here in chapters by James M. Schopf and E.H. Colbert, respectively. The remote field camp located at Coalsack Bluff in that season provided a base for helicopter-supported operations over a large area (Elliot 1970). That was followed by camps on the McGregor Glacier and Amundsen Glacier in the

1970–1971 season (Elliot and Coates 1971). Some of the results of that season are also presented here, as well as studies by other investigators in earlier and later seasons. The volume is published by the American Geophysical Union as volume 36 in its *Antarctic Research Series*, a project supported by the National Science Foundation. Chapters are available individually from the American Geophysical Union as indicated in the following list, in booklets of two, three, or four chapters.

Antarctic Research Series volume 36: *Geology of the Central Transantarctic Mountains*, Mort D. Turner and John F. Splettstoesser, editors.

Booklet:

- Paper 1. Gunner, John D. Basement geology of the Beardmore Glacier region, pages 1–9.
- Paper 2. Colbert, Edwin H. Triassic vertebrates in the Transantarctic Mountains, pages 11–35.
- Paper 3. Schopf, James M. Forms and facies of *Vertebraria* in relation to Gondwana coal, pages 37–62.

Booklet:

- Paper 4. Hoffman, J., A.E.M. Nairn, and D.N. Peterson. The paleomagnetic investigation of flows and sills from the Queen Alexandra Range, Antarctica, pages 63–74.
- Paper 5. Tasch, Paul, and Edward Leighman Gafford, Jr. Central Transantarctic Mountains nonmarine deposits, pages 75–96.
- Paper 6. Collinson, James W. and David H. Elliot. Geology of Coalsack Bluff, Antarctica, pages 97–102.
- Paper 7. Collinson, James W. and David H. Elliot. Triassic stratigraphy of the Shackleton Glacier area, pages 103–117.

Booklet:

- Paper 8. Robinson, Edwin S., and John F. Splettstoesser. Structure of the Transantarctic Mountains determined from geophysical surveys, pages 119–162.
- Paper 9. LaPrade, Kerby E. Climate, geomorphology, and glaciology of the Shackleton Glacier area, Queen Maud Mountains, Transantarctic Mountains, Antarctica, pages 163–196.