Ores and Orogenesis: Circum-Pacific Tectonics, Geologic Evolution, and Ore Deposits

ARIZONA GEOLOGICAL SOCIETY DIGEST 22

Edited by

Jon E. Spencer
Arizona Geological Survey

and

Spencer R. Titley
University of Arizona

2008

Arizona Geological Society
P.O. Box 40952
Tucson, Arizona 85717

www.arizonageologicalsoc.org

Published by:
Arizona Geological Society
P.O. Box 40952
Tucson, Arizona 85717

Publication Manager: Claudia Stone

Design and layout by Jon Spencer using Adobe® InDesign® (CS2)
Printed in Tucson, Arizona, by Arizona Lithographers Inc.

ISSN: 0066-7412
ISBN-10: 1-891924-10-9
ISBN-13: 978-1-891924-10-1

Dedication to William R. Dickinson

The Arizona Geological Society's 2007 Symposium, "Ores and Orogenesis: Circum-Pacific Tectonics, Geologic Evolution, and Ore Deposits," is dedicated to the career of William R. Dickinson. Bill is one of the leaders in the field of plate tectonics, a member of the National Academy of Sciences, and a former Chair of the Department of Geosciences at the University of Arizona where he has been Professor Emeritus since 1991. Bill co-organized the pioneering AGS symposium in 1981 on "Relations of Tectonics to Ore Deposits in the Southern Cordillera," the proceedings of which were published as AGS Digest 14. Bill also co-edited AGS Digest 18, "Mesozoic Rocks of Southern Arizona and Adjacent Areas."

Bill was born and raised in Tennessee and moved to California as a teenager. He earned all three of his degrees from Stanford University: a B.S. in Petroleum Engineering (1952), M.S. and Ph.D. in Geology (1956, 1958). Bill served as an officer in the U.S. Air Force (1952-1954) and was a faculty member at Stanford University (1958-1979) and the University of Arizona (1979-1991). Bill was principal advisor to approximately 85 graduate students.

Appropriately, much of the circum-Pacific region has been Bill's field area. He has conducted research on a remarkably diverse array of topics, including sandstone petrofacies in general, stratigraphy and structure of forearc and intra-arc regions, especially in California, Oregon, and Fiji, global plate motions, circum-Pacific arc-trench systems, geochemistry and petrology of arc magmas, interpretation of paleomagnetic data from accreted terranes, extensional tectonics, the San Andreas transform system in California, the Ouachita flysch in the south-central United States, sedimentation during the Antler, Sevier, and Laramide orogenies, tectonic assembly of Mexico, sedimentary and structural history of Mesozoic and Cenozoic extension in the Southwest border region, sand dispersal using detrital-zircon geochronology, measurement and synthesis of South Pacific island emergence during the late Holocene, prehistoric dispersal of Pacific peoples tracked by the sand petrology of their pottery, and geoarcheology of prehistoric Pacific Island settlements.

Although Bill is best known for his papers on plate tectonics and sandstone petrology, he has interacted extensively with members of the resource industry throughout his career. He has taught professional short courses to industry and contributed papers on topics such as "Tectonic setting of the Great Basin through geologic time: Implications for metallogeny."

Bill's service to the profession has included serving as President of the Geological Society of America, initial Chair of the Geological Sciences Board of the National Research Council, and Chair of the U.S. Geodynamics Committee. His honors include a Guggenheim Fellowship in 1965, the Penrose Medal of the Geological Society of America in 1991, election to the National Academy of Sciences in 1992, the Sloss Award of the Geological Society of America in 1999, and the SEPM (Society for Sedimentary Geology) Twenhofel Medal in 2000.

Bill continues to be exceptionally active in his retirement in Tucson, Arizona, where he lives with his wife and constant companion Jacqueline (Jackie) Dickinson.


~1975


~1980

Table of Contents

SOUTHWEST PACIFIC ORES AND OROGENESIS

SOUTH AMERICAN CORDILLERA ORES AND OROGENESIS

NORTH AMERICAN CORDILLERA ORES AND OROGENESIS

Regional studies

Topical studies