

The Professional Geologist

Volume 61 Number 1

JAN.FEB.MAR 2024

INSIDE THIS ISSUE

FEATURES

5 The Hidden Geology of Walt Disney World

Robert P. Blauvelt, CPG-6508

10 *Peer-Reviewed* Gold and Silver Vein Deposits in the Sierra Madre Occidental, Mexico

Francisco Pedro Cruz Frisby, CPG-11977

16 AIPG Wants Your Unwanted Geology Textbooks, Geology Maps and Other Books About Science and Nature

Dawn H. Garcia, CPG-8313

17 Minimizing Risk and Uncertainty in Humanitarian Efforts

Robert K. Merrill, CPG-4984

22 Stormwater Infiltration System Design Regulation Flaws Due to Simplistic Assumptions Regarding Site Hydrogeology

Andrew M. Koenigsberg, CPG-7973

38 The Perseverance Rover: An Exciting Camp Towards Summiting the Red Planet

Isaac Pope, SA-9950

47 New York State Education Department Approves AIPG as a Continuing Education Provider for Licensed State Geologists

John M. Nadeau, PG, CPG-11181

On the Cover: 2023 Photo Contest Winner Micro Geology: Under the Microscope.

Description: The reflected light image under crossed polars with 1 second exposure illustrates four minerals. Pyrite, FeS_2 , is dark gray, Gold, Au, as four massive yellow grains is enclosed by Hessite, Ag_2Te , in multiple hues of light gray, blues, browns and orange red. A late second gold (silver-rich) stage is lighter yellow with dendrites replacing hessite. Coarse red hessite contains pseudomorphic isometric twin structures in light gray and other hues. This was a consequence of ore cooling below $\sim 150^\circ\text{C}$ resulting in the dimorphic change to the monoclinic crystal system with many anisotropic hues.

The ore sample was mined by Matt Collins, Mine Manager, and Jim Smith, Mine Foreman, in 2007 on the 3rd level sill at the C-2 stope in the Cash vein, Cash Mine, Gold Hill, Boulder County, Colorado, USA. One 6-inch wide vein assay returned 366 ounces per ton silver and 27 ounces per ton gold. The ore was analyzed in 2007 and photographed in polished section by Jim A. Paschis, Senior Mine Geologist. 2023 Photo Contest: Micro Geology - Under the Microscope. Runner Up on page 51.

AIPG National Executive Committee

PRESIDENT - Shanna Schmitt, CPG
Minnesota Pollution Control Agency
O: (651) 757-2697, Minnesota Section
shanna.schmitt@state.mn.us

PRESIDENT-ELECT - Sara Pearson, CPG
Michigan Department of Environment, Great Lakes, and Energy
O: (517) 420-3219, Michigan Section
pearsons@michigan.gov

PAST PRESIDENT - Dawn Garcia, CPG
Stantec
O: (520) 545-7603, Arizona Section
dawnhgarcia@cp@gmail.com

VICE PRESIDENT - J. Todd McFarland, CPG
WSP
O: (615) 577-7157, Tennessee Section
todd.mcfarland@wsp.com

SECRETARY - Robert Andrews, CPG
City of Columbus - Department of Public Works
O: (614) 861-1690, Ohio Section
reandrews@earthlink.net

TREASURER - Mark Schaaf, CPG
Kleinfelder
O: (410) 850-0785, Capitol Section
mschaaf@kleinfelder.com

EDITOR - Adam W. Heft, CPG
WSP
O: (517) 886-7400, Michigan Section
adam.heft@wsp.com

EARLY CAREER PROFESSIONAL - Brigitte Petras, ECP
Battelle Memorial Institute
O: (330) 559-1812, Ohio Section
petras@battelle.org

ADVISORY BOARD REPRESENTATIVES

Mark J. Howell, CPG
Xenon Geosciences
O: 317-745-0002, Illinois-Indiana Section
mhowell@xenongeosci.com

Paula Leier-Engelhardt, CPG
HydroGeo Solutions LLC
(920) 737-9811, Wisconsin Section
pjeier@gmail.com

Andrew Jones, MEM
Plexus Scientific Group
O: (502) 471-7553, Colorado Section
andrew.jones.geo@gmail.com

Clint Noble, MEM
CDM Smith
O: (904) 527-6715, Florida Section
noblecc@cdmsmith.com

NATIONAL HEADQUARTERS
1333 W. 120th Avenue, Suite 211
Westminster, CO 80234
7:30 AM - 4:30 PM MDT; M-F
(303) 412-6205 • Fax (303) 253-9220
aipg@aipg.org • www.aipg.org

EXECUTIVE DIRECTOR - Aaron W. Johnson, MEM - awj@aipg.org
ASSISTANT DIRECTOR - Wendy J. Davidson - wjd@aipg.org
PROFESSIONAL SERVICES MGR - Cathy L. Duran - cld@aipg.org
MEMBERSHIP SERVICES MGR - Dorothy K. Combs - dkc@aipg.org
BOOKKEEPER/OFFICE ASSISTANT - Cristie J. Valero - cjv@aipg.org
OFFICE ASSISTANT - Kathy Glivar - officeadmin2@aipg.org
AWG ADVANCEGeo Program Manager - Hannah Horinek - advancegeo@awg.org
AWG ADMIN ASSISTANT - Mona Scott - office@awg.org
AASG ADMIN ASSISTANT - Karen Keeley - office.aasg@gmail.com

MEDICAL, AUTO, HOME, LIFE AND SUPPLEMENTAL INSURANCE
GeoCare Benefits Insurance Plan
Phone: 800-337-3140 or 602-870-4121
http://www.geocarebenefits.com/member.asp
E-mail: geocarebenefits@agia.com

PROFESSIONAL & GENERAL LIABILITY INSURANCE
AssuredPartners of Colorado
Phone (800) 322-9773 (303) 863-7788
http://www.assuredpartnerscolorado.com

ALAMO RENTAL CAR -
(800) 354-2322 - Member #BY-706768

AVIS RENTAL CAR -
(800) 698-5685 - Member AWD #T003300

UPS Savings Program
www.aipg.org or www.savewithups.com/aipg
Use promo code WES462

DEPARTMENTS

3	Editor's Corner
4	Letters to the Editor
29	The Foundation of the AIPG
30	Executive Director's Message
31	President's Message
32	Test Your Knowledge
33	Professional Ethics and Practices
36	AIPG Moment
37	New 2023 Certified Professional Geologists
40	Educator's Corner
45	Early Career Professional Point of View
48	2023 National Conference Photos
50	In Memoriam
51	Celebrating Member Achievements
52	AIPG Membership Totals
52	Professional Services Directory

AIPG Publication Policy, October 4, 2010. AIPG encourages submission of articles and editorials for publication in *TPG* on topics related to the science and profession of geology. Submittals shall be of interest to the members of AIPG, other professional geologists, and others interested in the earth sciences. Articles and editorials may be noted as follows at the discretion of the Editor, "The opinions, positions and conclusions presented herein are those of the author and do not necessarily reflect the opinions, positions or conclusions of the American Institute of Professional Geologists." All materials submitted for publication, including author opinions contained therein, shall include accurate and appropriate references. The Editor has the authority to solicit, edit, accept, or reject articles and editorials and other written material for publication. The Executive Committee has the authority if it so chooses to act on any particular case to support or overrule actions of the Editor regarding the solicitation, editing, acceptance, or rejection of any particular article, editorial, or other written material for publication.

American Institute of Professional Geologists (AIPG) is the only national organization that certifies the competence and ethical conduct of geological scientists in all branches of the science. It adheres to the principles of professional responsibility and public service, and is the ombudsman for the geological profession. It was founded in 1963 to promote the profession of geology and to provide certification for geologists to establish a standard of excellence for the profession. Since then, more than 12,000 individuals have demonstrated their commitment to the highest levels of competence and ethical conduct and been certified by AIPG.

The mission of the American Institute of Professional Geologists (AIPG) is to effectively advocate for the profession of geology and support members through activities and programs that advance professional growth and promote high standards of ethical conduct.



The Professional Geologist (USPS 590-810 and ISSN 0279-0521) is published quarterly by the American Institute of Professional Geologists, 1333 W. 120th Avenue, Suite 211, Westminster, CO 80234-2710. Periodicals Postage Paid at Denver, Colorado and additional mailing offices.

POSTMASTER: Send address changes to *The Professional Geologist*, AIPG, 1333 W. 120th Avenue, Suite 210, Westminster, CO 80234-2710

Subscriptions for all Members and Adjuncts in good standing are included in annual membership dues. Subscription prices are \$20.00 a year for Members' additional subscriptions and \$30.00 a year for non-members for 4 issues (for postage outside of the U.S. add \$10.00). Single copy price is \$5.00 for Members and \$8.00 for non-members. Claims for nonreceipt or for damaged copies are honored for three months.

Entire contents copyright 2024 by *The Professional Geologist*. Original material may be reprinted with permission. Deadline for articles and advertisements is eight weeks preceding publication. Advertising rates available upon request. Opinions and views expressed by the authors are their own and do not necessarily reflect those of the American Institute of Professional Geologists, its staff, or its advertisers.

Printed in U.S.A. by Modern Litho-Print Company in Jefferson City, Missouri.

For AIPG news and activities go to www.aipg.org.