Special Publication, No. 5

Andean Copper Deposits:
New Discoveries, Mineralization, Styles and Metallogeny

Editors
F. Camus, R.M. Sillitoe, and R. Petersen
Patricia Sheahan, Series Editor

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Series Preface

Andean copper deposits: new discoveries, mineralization, styles and metallogeny is the fifth in the *Special Publication Series* for the Society of Economic Geologists. We have two other successful series, *Reviews in Economic Geology* and our *Guidebook Series*.

The Society of Economic Geologists sponsored a symposium in Chile in 1994, Camus and Sillitoe have worked diligently to provide these twelve papers from this symposium. The papers reflect the practical interest in Andean deposits. Many of the deposits are described in considerable detail.

On behalf of the Society of Economic Geologists, we would like to thank Francisco Camus, Richard Sillitoe and Richard Petersen for their efforts in organizing the original conference and providing these papers for this volume.

As the series editor, I have contributed editing and helped organize the index.

This is my last volume as series editor and there have been many supportive individuals during the seven years. In particular I would like to thank Art Barber, Tony Naldrett and Don Davidson for their kindness, interest and support. The concept and the format of the *Special Publication Series* has now changed considerably since the idea of a *fast track* information series for our members at large.

I would also like to thank the companies listed in the Acknowledgement for their financial contributions for the production of this volume. A special thank you to Bernadita Mardones, Minera Homestake Chile S.A. for co-ordinating these contributions.

*Patricia Sheahan*
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Preface

Chile and other parts of the central Andes have been an important focus for mineral exploration during the last 15 years. Since the early 1980’s, a total of approximately US $1,300 million has been devoted to exploration, of which about 60% was directed toward copper and the rest to precious metals. A total of 14 world-class deposits was discovered in Chile, two in Argentina and one each in Bolivia and Peru. Of these discoveries, 10 are copper deposits, mostly porphyry systems or associated exotic ore bodies.

Considering the importance of these exploration efforts and the wealth of up-to-date geologic knowledge that has been gained concerning these deposits, we decided (in early 1993) to propose to the SEG council the organization of a special symposium on Andean copper deposits. The proposal was presented by Richard Petersen, former SEG Regional Vice-President for South America, and received official sponsorship from the SEG.

The event was held in the city of Concepción, Chile, on October 17–20 in conjunction with the 7th. Chilean Geological Congress. The two-day symposium attracted a large audience of explorationists from throughout Chile and neighboring countries, as well as from overseas.

A total of 26 papers was presented at the symposium, 12 of which are included in this Special Publication. They summarize present knowledge of the regional tectonic setting and genesis of Andean copper deposits with emphasis on porphyry copper systems. They include detailed geologic characteristics and mineralization styles of, and exploration approaches applied to some of the newly discovered copper deposits, as well as stratabound copper deposits. Some less well known supergene processes are also considered.

All the reviewers acknowledged individually, on the following page, contributed to the papers through their experience and timely comments.

Francisco Camus
Richard H. Sillitoe
Richard Petersen
Referees

Luis Aguirre    Universidad de Chile
Harold Bonham, Jr.    Nevada Bureau of Mines & Geology
Francisco Camus    Codelco-Chile
John Dilles    Oregon State University
Steve Flint    University of Liverpool
John Guilbert    University of Arizona
Lewis Gustafson    Consultant, U.S.A.
Jeffrey Hedenquist    Geological Survey of Japan
Victor Makaev    Cambior, Chile
Donald Noble    University of Nevada
Naomi Oreskes    Dartmouth College
Francisco Ortíz    Minera BHP de Chile
José Perelló    Minera BHP de Chile
Sergio Rivera    Codelco-Chile
Arthur Rose    Penn. State University
Joaquin Ruiz    University of Arizona
Richard Sillitoe    Consultant, England
Alexandra Skewes    University of Colorado
John Thompson    MDRU, University of British Columbia
Spencer Titley    University of Arizona
César Vidal    Compañía de Minas Buenaventura
Gerhard Westra    Exxon Minerals
Marcos Zentilli    Dalhousie University
FIGURE I—Location map showing the deposits and mines discussed in this publication.
# CONTENTS

## GENERAL

Chapter 1 .............................................................. ·1

Magmatic and Tectonic Controls on the Nature and Distribution of Copper Deposits in Peru

*Ulrich Petersen and Cesar E. Vidal*

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>1</td>
</tr>
<tr>
<td>Deposit types and distribution</td>
<td>2</td>
</tr>
<tr>
<td>Magmatic framework</td>
<td>3</td>
</tr>
<tr>
<td>Structural framework</td>
<td>8</td>
</tr>
<tr>
<td>Lithologic framework</td>
<td>11</td>
</tr>
<tr>
<td>Summary and conclusions</td>
<td>11</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>11</td>
</tr>
<tr>
<td>References</td>
<td>11</td>
</tr>
</tbody>
</table>

Chapter 2 .......................................................... 19

The Cupriferous Province of the Coastal Range, Northern Chile

*Sergio Espinoza R. and Héctor Véliz G., Justo Esquivel L., Jaime Arias F., Aldo Moraga B.*

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>20</td>
</tr>
<tr>
<td>Tectonic Setting</td>
<td>20</td>
</tr>
<tr>
<td>Geologic Framework</td>
<td>20</td>
</tr>
<tr>
<td>Ore Deposits of the Coastal Range Cupriferous Province</td>
<td>22</td>
</tr>
<tr>
<td>Discussion</td>
<td>28</td>
</tr>
<tr>
<td>Conclusions</td>
<td>30</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>30</td>
</tr>
<tr>
<td>References</td>
<td>30</td>
</tr>
</tbody>
</table>

Chapter 3 .......................................................... 33

Late Miocene Mineralized Breccias in the Andes of Central Chile: Sr- and Nd-Isotopic Evidence for Multiple Magmatic Sources

*M. Alexandra Skewes and Charles R. Stern*

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>33</td>
</tr>
<tr>
<td>Geologic Background</td>
<td>34</td>
</tr>
<tr>
<td>Methods</td>
<td>37</td>
</tr>
<tr>
<td>Results</td>
<td>38</td>
</tr>
<tr>
<td>Discussion</td>
<td>39</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>40</td>
</tr>
<tr>
<td>References</td>
<td>40</td>
</tr>
</tbody>
</table>
Chapter 4 ........................................... 43

Exotic Deposits — Products of Lateral Migration of Supergene Solutions from Porphyry Copper Deposits

Carlos Münchmeyer

Introduction .................................................. 43
Deposit size and examples .................................. 44
Deposit types and geomorphology ......................... 51
Zoning of mineralization and alteration ................... 52
Interpretation and proposed geologic model .............. 55
Acknowledgments ........................................... 58
References .................................................. 58

Porphyry Copper Deposits

Chapter 5 .................................................... 59

Geology of the Concealed MM Porphyry Copper Deposit, Chuquicamata District, Northern Chile

Richard H. Sillitoe, Juan Carlos Marquardt, Fernando Ramírez, Hugo Becerra, and Marcelo Gómez

Introduction .................................................. 59
Geologic Setting ............................................ 60
Structural Setting .......................................... 61
Hypogene Alteration and Mineralization Characteristics 63
Supergene Oxidation and Enrichment .................... 65
Geologic History .......................................... 65
Comparison with Chuquicamata ......................... 67
Acknowledgments .......................................... 68
References .................................................. 68

Chapter 6 .................................................... 71

Chimborazo Copper Deposit, Region II, Chile; Exploration And Geology

C.R. Petersen, S.L. Rivera, M.A. Peri

Introduction .................................................. 71
Exploration ................................................... 71
Regional and District Geology ............................ 73
Geology of the Chimborazo Deposit ...................... 74
Conclusions .................................................. 79
Acknowledgments .......................................... 80
References .................................................. 80
Chapter 7 ................................................................. 81

Clustered, Gold-bearing Oligocene Porphyry Copper and Associated Epithermal Mineralization at La Fortuna, Vallenar Region, Northern Chile

José Perelló, Felipe Urzúa, José Cabello, and Francisco Ortiz

Introduction ......................................................... 81
Regional Geology .................................................. 82
Porphyry copper-gold mineralization .......................... 82
K-Ar ages .......................................................... 86
Fluid-inclusion characteristics .................................. 87
Discussion of a genetic model .................................... 87
Conclusions and Discussion ...................................... 89
Acknowledgments .................................................. 90
References .......................................................... 90

Chapter 8 ............................................................. 91

Porphyry and High-Sulfidation Epithermal Mineralization in the Nevados del Famatina Mining District, Argentina

A. J. Losada-Calderón, D. C. McPhail

Introduction ......................................................... 91
Porphyry-style Mineralization ..................................... 94
Epithermal-style Mineralization .................................. 102
Chemical Environments of Mineral Deposition ............... 107
Discussion ........................................................ 113
Summary and Conclusions ....................................... 115
Acknowledgments .................................................. 115
References .......................................................... 115

Chapter 9 ............................................................. 119

The Late Miocene to Early Pliocene Río Blanco-Los Bronces Copper Deposit, Central Chilean Andes

L. Serrano, R. Vargas, V. Stambuk, C. Aguilar, M. Galeb, C. Holmgren, A. Contreras, S. Godoy, I. Vela, M. A. Skewes and C. R. Stern

Introduction ......................................................... 119
Regional Geologic and Tectonic Setting ....................... 120
Breccias, Alteration, and Mineralization ....................... 122
Discussion and Conclusions ..................................... 127
Acknowledgments .................................................. 128
References .......................................................... 128
Chapter 10

Geology And Mineral Zoning of the Los Pelambres Porphyry Copper Deposit, Chile

W. W. Atkinson, Jr., Alvaro Souviron, Thomas I. Vehrs, Alejandro Faunes G.

Introduction ................................................................. 131
Geologic Setting ............................................................. 132
Intrusive Rocks .............................................................. 135
Hydrogeologic Mineralization and Alteration .......................... 138
Brecia ........................................................................... 143
Age Relations ................................................................. 145
Oxidation and Supergene Enrichment ..................................... 147
Mineral Zoning and Metal Distribution ................................ 147
Metal Reserves ................................................................ 152
Conclusions .................................................................... 152
Acknowledgments ................................................................ 153
References ...................................................................... 154

STRATABOUND COPPER DEPOSITS

Chapter 11

Geology of the Manto Verde Copper Deposit, Northern Chile: A Specularite-Rich, Hydrothermal-Tectonic Breccia Related to the Atacama Fault Zone

Tomás Vila, Nicholas Lindsay and Richard Zamora

Introduction ................................................................. 158
Regional Setting ............................................................. 158
Los Pozos District Geology ................................................ 158
Manto Verde Geology ...................................................... 158
Metasomatism and Hydrothermal Alteration ......................... 161
Rock Geochemistry ......................................................... 162
Geochemistry and Copper-gold Mineralization ....................... 163
Age of Hydrothermal Alteration-mineralization .................... 163
Reconnaissance Fluid Inclusion Studies ............................... 164
Discussion .................................................................... 166
Conclusions .................................................................... 168
Acknowledgments ................................................................ 168
References ...................................................................... 168
Chapter 12 ................................................................. 171

Copper(-Iron) Mineralization and Superposition of Alteration Events in the Punta Del Cobre Belt, Northern Chile

Robert Marschik and Lluis Fontboté

Introduction .............................................................. 171
Geologic Setting .......................................................... 173
Alteration ................................................................. 176
Mineralization ............................................................ 182
Paragenesis ............................................................... 183
Fluid Inclusion and Geochemical Data for Ore and Gangue Minerals ......................................................... 185
Mineralization Processes ............................................... 185
Comparison with other Intrusion-related Deposit Types ................................................................................. 185
Acknowledgments ......................................................... 186
References ................................................................. 187

Index ............................................................................. 191