

## BOOK REVIEW

**Book Review: *Formation of Gold Deposits*.** (2022) By Neil Phillips. Springer Singapore. ISBN: 978-981-16-3081-1. eBook price \$69.99.

*Formation of Gold Deposits* is a remarkable exploration into the world of gold formation, methodically crafted (including high-quality illustrations, figures, and instructive tables) by an author who has devoted many years of his life to the study of key gold deposits, such as the Golden Mile and Witwatersrand, among others. This book caters to a wide audience, from novices with an interest in geology to seasoned exploration geologists and even professors seeking a deeper understanding of the complexities of gold mineralization.

One of the book's most commendable qualities is its accessibility. The author's capacity to distil complex geological concepts into understandable language ensures that readers of all backgrounds can grasp the intricate processes behind gold formation. Whether you are just starting your journey into geology or possess years of experience in the field, *Formation of Gold Deposits* has something to offer the reader.

The author's spotlight on key aspects of gold formation, including provinciality, enrichment, segregation, timing, and ore fluid types, is both telling and instructive. By digging into these aspects, readers gain insights into the multifaceted nature of gold deposits, enabling a natural appreciation of their complexity.

One of the notable features of this book is the author's unwavering conviction regarding his favored genetic model for gold deposition. His preference for a single H<sub>2</sub>O-CO<sub>2</sub> pH-buffered (near-neutral) fluid through metamorphic devolatilization, with the destabilization of Au-bisulfide complexes triggered by reactions with Fe-rich wall rocks, is presented with compelling arguments. This model serves as a pillar throughout the book, providing readers with a coherent framework for understanding the genesis of gold deposits.

Additionally, the author explores gold-plus deposits, those containing both gold and base metals, offering an unorthodox model to explain their Cl-rich characteristics. The suggestion that these ligands may be derived from evaporites, rather than magmatic sources, challenges conventional wisdom and motivates readers to think critically about the origins of these systems.

While *Formation of Gold Deposits* provides a thorough overview of various aspects of gold formation, there are a few areas that warrant consideration. Notably, the book touches on stable and radiogenic isotopes in Chapter 12. However, it falls short of discussing research on  $\Delta^{33}\text{S}$  in Archean systems, which, when combined with  $\delta^{34}\text{S}$  systematics, can provide crucial insights

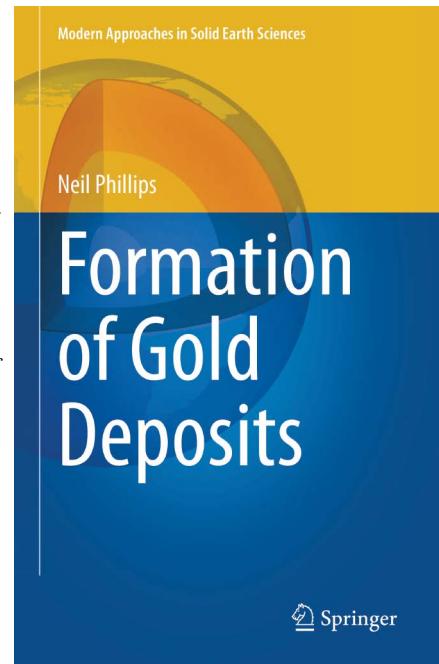
into sources and processes controlling sulfur in Archean systems. This omission leaves out some important gaps in the discussion of sulfur and its role in forming gold mineralization.

In conclusion, *Formation of Gold Deposits* is an invaluable resource for anyone fascinated by the intricate processes governing the formation of gold deposits. The author's extensive experience and passionate dedication to the

field shine through in the book's accessible language and in-depth exploration of key topics. Whether you are a novice geology enthusiast or a seasoned professional, this book offers a journey into the Earth's mysteries.

The emphasis on provinciality, enrichment, segregation, timing, and ore fluid types, along with the strong conviction regarding the favored genetic model, makes this book a standout reference in the field of gold geology. The unorthodox approach to explaining gold-plus deposits challenges established norms and promotes critical thinking.

While there are minor areas that could benefit from further discussion, such as the omission of  $\Delta^{33}\text{S}$  in Archean systems, *Formation of Gold Deposits* is still a highly valuable and informative resource. It is a testament to the author's expertise and dedication that serves as an important contribution to our understanding of Earth's geological treasures.



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