

## AUSTRALIAN MINING HISTORY ASSOCIATION BOOK REVIEW

### ***The Hope Factor – Mineral Discoveries Australia Papua New Guinea and the Philippines.***

**Anthony Hope, 2011.** Anthony R. Hope, Rivervale, NSW, i-xiii, 536 pp., \$69.95 (students \$59.50).

As we continue to exploit our known ore deposits, the discovery of further mineral resources inevitably becomes increasingly difficult. In a Foreword to *The Hope Factor*, Professor Ross Large observes that: "Exploring for minerals has become a high-powered scientific discipline, with added elements of risk and luck." Many examples of this are evident in Tony Hope's account of his experiences from almost five decades involvement in mineral exploration in Eastern Australia, Papua New Guinea and the Philippines. The author's summaries of the history of discovery, investigation and development of the various deposits are enhanced by contributions and anecdotes by others who were associated with the projects. Technical detail is kept to a minimum in the main body of the individual chapters; extensive bibliographies are provided and further geological information and technical data can be found in the appendices.

Hope's book begins with a lengthy chapter devoted to the Mount Morgan copper-gold mine, where the author began his career as a geologist with Enterprise Exploration (a subsidiary of Consolidated Zinc Corporation) on a joint venture project with Mount Morgan Limited. In this and subsequent chapters the picture emerges of a versatile geologist with experience in a wide variety of projects and commodities, both metallic and non-metallic. Two chapters are devoted to heavy mineral sands in contrasting environments: modern beach sand deposits in Eastern Queensland and the Gingko Mine in the Murray Basin in New South Wales, an example of an ancient beach sand deposit.

The Browns Creek gold mine in central western New South Wales attracted the attention of "prospectors, syndicates, geologists, entrepreneurs and small and large companies" - the entrepreneur Michael Hickey developed the mine before selling it to BHP Gold. A detailed history of the mine is told by geologist Peter Toedter who was first involved with the project at the age of 22 and continued to be associated with it at various intervals for the next 32 years. Hope was Exploration Director of Browns Creek Gold NL during part of this time and acknowledges the heavy load carried by Toedter not only in geological investigations but also in the development of mining operations from the late 1970s to the early 1980s. A contribution by John Holliday, who was based at the Browns Creek mine while in charge of exploration for BHP Gold in central western New South Wales, provides an interesting link between the Browns Creek and Cadia mines.

Holliday was impressed by the potential of the nearby Cadia site and, after protracted negotiations, BHP Gold purchased the property and Browns Creek became the exploration base for the major discoveries of copper and gold that led to the development of one of Australia's biggest mining operations by Newcrest (following the merger of BHP Gold and Newmont). Holliday comments: "It is nice to think that this resulted from such small beginnings at Browns Creek".

The Arumpo and Filmag bentonite mines are further examples of Hope's involvement in non-metallic mineral resources. CRA Exploration discovered the Arumpo deposit during a drilling program for heavy minerals in the Murray Basin in New South Wales, but after preliminary testing decided not to proceed with development. A report of the discovery attracted Hope's interest - at that time he was Exploration Director of Browns Creek Gold, but had previous experience with bentonite at the Filmag mine in the Philippines. He applied for an exploration licence on behalf of BCG who proceeded to evaluate and develop Arumpo, the largest known bentonite deposit in Australia. The product is used in a wide variety of civil engineering, environmental and agricultural applications.

The chapters describing the Panguna and Ok Tedi porphyry copper-gold mines and Lihir gold mine in Papua New Guinea provide comprehensive accounts of the discovery and development of these deposits. The inclusion of Panguna and Ok Tedi in this book could be queried, since Hope was apparently not involved in either of those projects; but the accounts by Ken Phillips and Doug Fishburn of the discoveries of Panguna and Ok Tedi, respectively, are fascinating and are testament to the fortitude and perseverance of the exploration teams working under arduous tropical conditions to prove up these outstanding ore bodies. Phillips' review of Panguna also gives some interesting insights into the background to the discovery. Gavin Thomas' story of the discovery of the Ladolam epithermal gold deposit on Lihir serves as an outstanding example of the application of geological theory in exploration, and the hazards of developing a mine in an active geothermal system are revealed in the accounts by Hope and others. A final chapter describes some of the author's encounters with less-than-friendly wildlife – including a near-fatal sting from a box jellyfish in the Philippines.

The book is lavishly illustrated with photographs and maps. The photographs tend to be somewhat repetitious and although the author could have been more selective, for those who worked on the projects the photographs will no doubt bring back memories. The book would have benefited from more careful editing: the text suffers from some typographical/spelling and grammatical errors, as well as some repetition of material between chapters. But these are not sufficient to seriously detract from the entertaining and informative stories by Tony Hope and other contributors. The author has achieved his aim of producing a book that should appeal to a broad spectrum of readers.

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Journal of Australasian Mining History, Vol. 10, 2012