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Contemporary Reviews of Mine Water Studies in Europe

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Introduction

Europe has a long tradition of mining activity, dating back almost as far as records of human settlement in Europe with the development of flint mines in France over 10,000 years ago. By the Bronze Age, copper, silver, and gold were being mined by the Phoenicians in Spain. During the same time, gold placers were worked in the Black Sea area and probably formed the basis of the legend of the Golden Fleece for Jason and the Argonauts.

The first gold coins were produced in the area of Bulgaria-Greece-Turkey around 700 BC, and the earliest records of metal refining are preserved from around 560 BC. The Roman Empire expanded throughout Europe with a great thirst for metals, and the Romans advanced techniques of underground mining, processing and even dewatering. In AD 79, Pliny the Elder produced the oldest preserved accounts of mine dewatering based on his experiences in the metal mines of southern Italy (Temple 1972).

The birthplace of modern mining or at least the first recording of modern mining occurred during the 16th century in the German Erzgebirge area and the Eastern Alps. Georg Bauer, or as you more likely know him by his Latin name, Georgius Agricola, a local physician, recorded methods of mining, including dewatering, the environmental impacts of mining, and mineral dressing in his classic thesis, *De re metallica libri XII* (Agricola 1556).

During the following three centuries, mining in Europe was set to reach its pinnacle and form the basis for scientific and engineering development that would spread throughout the world as European colonization occurred. By the middle of the nineteenth century, the mature ore fields of Europe started to be abandoned in preference to the rich untapped wealth of the "New World".

This trend continued, with minor resurgences, during the twentieth century. At the start of the third millennium, some mining has survived in Europe but the majority of orefields are now abandoned and the emphasis is now on control of environmental impact and remediation of the historic legacy of Europe's mining heritage.

This issue of "Mine Water and the Environment" features the first papers reviewing the current status of mine water studies in Europe. It had been hoped that all the papers would be ready in time for this issue of the journal, but this proved impossible, and so the reviews will be presented over two editions.

In this publication, mine water topics in Austria, Estonia, Hungary, Italy, the Netherlands, Slovakia, and the UK are presented (the countries in the following text are ordered from North to South), along with a brief summary of European mine water policy (as determined by the European Union). We also include information on a new research initiative for Europe focused on mine water issues, the PADRE program. This program, a component of IMWA and a partner of the International Network for Acid Prevention (INAP), hopes to promote greater understanding of mine water issues in Europe and European mine water systems. It is hoped that these reviews will serve as a useful summary of the status of mine water issues in Europe, that they will stimulate further research on the complex and multifaceted issues associated with mine waters in Europe, and result in further collaboration from within and outside Europe amongst "Mine Water and the Environment" readers.

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