Underground fieldwork – A cultural and social history of cave cartography and surveying instruments in the 19th and at the beginning of the 20th century

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Abstract

At the turn of the 20th century, the practical examination of caves went through a radical change. Governmental organizations and private clubs were founded in an attempt to establish speleology as an independent academic subject. In contrast to earlier cave visitors, travelers began entering underground areas and attributing the names of “explorers” or “researchers” to themselves. Fieldwork—especially cave surveying and cartography—became common practice in speleology and such work provided important clues on speleogenesis, which was a controversial issue in the first half of the 20th century. Due to the fact that speleologists began separating themselves from ordinary cave visitors and tourists, tools and instruments for cave exploration and mapping, such as carbide lamps, ropes, compasses, clinometers, and drawing boards, became the emblems of speleology.

Through historical discourse analysis, this paper examines whether this change in the status and practice of underground fieldwork had an effect on the self-perception of speleology and led to new forms of social cooperation and control between speleologists. Further questions address the manner in which the usage of new surveying instruments and the relevance of cave mapping modified the scientific research parameters and the cultural perceptions of the subterranean world. As a contribution to speleo-history, this approach opens a new perspective on the social and cultural dimensions of speleological fieldwork as well as the historical, scientific, and political dynamics in which they were involved. Sources for this research comprised historical scientific papers on cave mapping, textbooks, and archive materials from the Austrian National Library, the Natural History Museum in Vienna, and the Austrian Speleological Association.

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The history of the London Underground began in the 19th century with the construction of the Metropolitan Railway, the world's first underground railway. The Metropolitan Railway, which opened in 1863 using gas-lit wooden carriages hauled by steam locomotives, worked with the District Railway to complete London's Circle line in 1884. Both railways expanded, the Metropolitan eventually extending as far as Verney Junction in Buckinghamshire, more than 50 miles (80 km) from Baker Street and the centre of History of Cartography, the history of cartography (map-making) and the study of how maps have influenced human affairs in the past. It describes not only the technical process used to make maps but also observes the motives for their making and their role in forming society's views of space and place. All humans possess a complex spatial knowledge of their environment. Reconstructions of the world map of Anaximander of Miletus or Hecataeus (both in the 6th century BC) usually follow this form. Around 500 BC the concept of a spherical Earth is traditionally associated with the authority of the school of Pythagoras. About this time, there is also some evidence that even the public began to be aware of the idea of a map of the Earth as an instrument for measuring land. Fieldwork—especially cave surveying and cartography—became common practice in speleology and such work provided important clues on speleogenesis, which was a controversial issue in the first half of the 20th century. Due to the fact that speleologists began separating themselves from ordinary cave visitors and tourists, tools and instruments for cave exploration and mapping, such as carbide lamps, ropes, compasses, clinometers, and drawing boards, became the emblems of speleology. Through historical discourse analysis, this paper examines whether this change in the status and practice of under...