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Guido N. Poliwoda. *Aus Katastrophen lernen: Sachsen im Kampf gegen die Fluten der Elbe 1784 bis 1845.* Cologne: Böhlau Verlag, 2007. 295 pp. EUR 37.90, cloth, ISBN 978-3-412-13406-8.

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Beginning with and frequently returning to reflections on the great flood of the Elbe River in 2002 that affected the Czech Republic, Germany, and Austria, Guido Poliwoda has written a book that is both a history of one form of natural catastrophe and simultaneously a discussion of public policy that seeks to evaluate what we can learn from research into natural catastrophes. While the focus of the research underpinning the book, therefore, is the flooding of the Elbe between 1784 and 1845, the recurring theme of learning from the past by analyzing social responses (prevention of catastrophes, coordination of aid, administrative reforms, and technical innovations) gives the volume a residual grounding in policy studies. Poliwoda examines a wide range of historical sources, including various newspapers, archival material, and scientific writings of the eighteenth and nineteenth centuries dealing with such topics as meteorology and climatology. In addition to studies on natural catastrophes, Poliwoda also reviews a range of scholarship on collective learning and communications, asking how a society is able to learn and whether history and the concept of a learning process can be connected. In this sense, Poliwoda considers the extent to which natural disaster can serve as an agent of social change.

Poliwoda begins with an evaluation of research on the notion of natural catastrophes in history, asserting that the term "catastrophe" was used in connection with flooding in Europe probably for the first time with the great flood of 1784. Poliwoda provides a brief climatological history for the period from 1783 until 1845, utilizing various studies of temperatures, flooding, and solar activity (referencing, for example, the "Dalton Minimum" of 1790-1830) and volcanic activity. The first major natural catastrophe subjected to examination is the high water of 1784, which Poliwoda locates as the beginning of the first "learning phase" (1784-99), one which he characterizes as developing from chaos to variable measures.

Poliwoda reviews the appearance of "mountain smoke" associated with a volcanic eruption in

early summer 1783, as well as subsequent steep decreases in winter temperatures (detailed with the use of various journals, newspapers, and meteorological studies) that led to the freezing of many rivers. The situation was compounded by changes from cold to warm periods, which led to the buildup of ice on the Elbe and rising water levels by late February and early March. Poliwoda next details effects of the floods, especially throughout Saxony, where five floods ravaged the land between 1784 and 1799, as well as the rescue and aid efforts mounted in different locations. Elector Friedrich August III of Saxony, for example, organized a commission to assess the damages, directing selected financial assistance to key communities, economic enterprises, and industries. The responses revealed that the state was not really prepared to address resulting epidemics. Some subsequent measures, however, were implemented in 1785 to help prevent the icing over of the Elbe and establish rescue networks and precautions against sickness. To explain better the development of the learning process, Poliwoda presents a case study, tracking the events and responses in places such as Ihleburg (a village on the Saxon border to the kingdom of Prussia), where he discusses in particular the politics surrounding financing of dams.

The first significant test of the measures implemented after 1784 came in the extreme winter of 1798/99, when preventative steps, such as the use of cannons to break up ice, were taken. Again, Poliwoda details the floods, the resulting damages, and the various responses to the disaster, including the provision of foodstuffs. Poliwoda concedes that the flood of 1799 was less traumatic, but observes that preventive measures and crisis management skills learned in 1784 had a positive impact on the response to this later catastrophe. Poliwoda locates the second learning phase between 1800 and 1820. In this period, he sees, in particular, a shift to local management of catastrophes and a new effort to address rising waters in a more permanent way. Here Poliwoda focuses on the floods of 1804, 1805, and 1819, with observations presented broadly and through individual case studies. Throughout, Poliwoda notes variations in responses in different communities and under local conditions.

The third learning phase (1820-45) moves society further in a more positive direction, and marks the beginning of broader systematization in coping with catastrophes, especially with the new bank and dam ordinances for the Elbe established in 1819. In this context, Poliwoda notes both scientific advancements in prevention as well as quicker evacuation of people from areas of rising water. Other changes resulted from a significant report of the *Wasserbaudirektor* in 1820, which Poliwoda discusses in detail. These changes included inspection of dams, appointment of local officials and teams to oversee matters, and more effective means of communication. After detailing events in the 1820s, Poliwoda presents the preventive measures of 1830 and the responses to the catastrophe of 1830, in what he calls the strengthening of the systematization phase. This phase culminated in 1845, with successes and growing optimism in the ability to prepare for and respond to such events with technological, medical, and financial resources.

The book includes a very helpful conclusion that summarizes key preventive measures and responses and characteristics of the learning processes discussed throughout the book. This conclusion also affords the opportunity for broader comparison and analysis. In the earliest phase, from 1784 until 1799, countermeasures were more or less simply defensive. In the second phase, with increasing state involvement, communication and official oversight were expanded, a situation that was further systematized and improved until 1845. The volume ends with an interesting comparison of the learning process from 1785 to 1845 with the German Committee for Catastrophe Provision's "Lessons Learned" (2002).

In many way, this is an intriguing volume. It contributes to the growing literature on environmental history at the same time that it consciously grounds itself in the contemporary world of applied policy study. It asks repeatedly how Germans responded to particular natural catastrophes in the past, what they learned, and how those lessons contributed to later responses and might be of value even today. Poliwoda provides rich discussion of the actual catastrophes and along the way he unveils important state and local ordinances and responses. The book is enriched by the use of a range of local examples. Given the multiple agendas of the volume, however, readers interested in very particular themes or issues will not always find a discussion that is as extensive as they might like. Poliwoda does not always develop the context of the catastrophes fully, nor does he always place regulatory measures in a broader historical or political context. On the other hand, the combination of themes and approaches results in a historical study that is rich and also relevant to contemporary concerns. This is a volume in a sense conceived in response to recent historical events. It treats history ripped from the headlines, but, one hopes, will also help to affect those headlines positively in the future.

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