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An Environmental History of the Danube

Nature is dynamic: even mountain ranges change over time. But rivers are highly dynamic, even at timescales within human experience. Processes of sedimentation and erosion can transform the shape of riverine landscapes during only one flood event, and a river's discharge can rise or fall within minutes. Human societies never gain total control over these natural dynamics and must organize themselves in ways that deal with or to influence them, protect human bodies and infrastructures from riverine threats, and use the rivers' dynamics for human purposes such as transportation.

Riverscapes are socio-natural sites. They result from the long-term co-evolution of human practices with biophysical arrangements. The concept of socio-natural sites emphasizes legacies in river history. Human practices in the past changed material arrangements in riverscapes, and these changed arrangements have become constraints for later practices even today.

With a length of more than 2,800 kilometers, the Danube is the second longest stream in Europe. Its basin is the most international river basin in the world. It covers circa 817,000 square kilometers, comprising parts of about twenty states. The stream itself crosses or borders ten states. The Danube is the only major European river that runs eastwards. This makes the Danube's recent history special. The Cold War affected the river's transformation for navigation, electricity generation, and flood protection differently as compared with streams that were either completely part of the Western world, like the Rhine, or part of the eastern block, like the Oder.

There was no pristine "natural" river in Europe before 1800. I aim at providing a long-term perspective on the Danube, emphasizing the legacies of human uses from a more distant past. Peaceful and wartime uses of the river stand in stark contrast. During the early modern era, Danubian landscapes were almost continuously theaters of military operation.

From the early 1800s onwards, we observe a new quality of reshaping and reinventing rivers in Europe and worldwide, with drastic and often irreversible consequences for humans and other species. A major reason for this is the gradual change in metabolic regimes during industrialization. Large-scale rectifications of rivers would have been impossible without the relative abundance of (fossil) energy. In stark contrast to the multifunctionality of pre-modern riverscapes, only a handful of human purposes drove the transformation of the Danube into the often-monotonous riverscapes we are confronted with today.

The current state of rivers like the Danube cannot be explained without identifying historical legacies of human interventions to riverscapes before their major transformation.