Preface

The boundary was marked by a black, red and gold wooden post bearing a metal plaque with the country's seal. Running along the far side of a double barbed-wire fence beyond the post was a sand track checked daily for footprints. For 500 meters behind the track, all trees and shrubs had been cleared. In the distance stood a concrete control tower manned by guards with automatic weapons. On that side of the fence, non-residents were not allowed within a five-kilometer *Sperrzone* (prohibited area). It was November 1988, and I was visiting the University of Bamberg in northern Bavaria. My host, Ulrich Blum, had taken me to inspect the border of the German Federal Republic with the German Democratic Republic, on the boundary between Bavaria and Thuringia.

That evening, at 7:30 p.m., we tuned in to the East German television news, broadcast in black and white from East Berlin. An announcer with jacket, tie and horn-rimmed glasses sat at a desk in a bare studio reading from sheets of paper with few visual embellishments. We heard about the travels of party secretary Erich Honecker and the latest government projects. Heavily filtered news of events in the West completed the broadcast. Finally, when we could bear to watch no longer, we turned to ARD, one of the West German channels. There, in brilliant color, were commercials for cars, clothing and prepared foods that were unavailable in the East. Then at 8:00 p.m. came the West German news broadcast, *Die Tagesschau*, from Hamburg. A smartly-dressed young woman presented a report of discussions between the government and the opposition parties on the latest labor legislation followed by color film clips of events from around the world.

It was obvious to any viewer – whether in West Germany or in East Germany, where most residents had access to these same channels – that the discrepancies between the two systems of social organization were becoming too great to be blocked by barbed wire alone. Indeed, barely a year later, on 9 November 1989, the Berlin Wall was opened. Soon after, the fences disappeared, and the metal border plaques became collectors' items. The East German economy was about to be exposed to the winds of competition from the outside world. The question then arose in my mind: were the momentous political and economic developments of 9 November, somehow related to the changes in communications media? If so, what was the nature of the relationship?

The idea of a chain of causality linking communication technologies and human behavior dates back at least to Francis Bacon. In *Novum Organum* (1620), he observed that printing, gunpowder and the magnet had ‘changed the whole face and state of things throughout the world’.¹ However, Bacon did not have at his disposal the data or statistical tools that would have allowed him to test this hypothesis. More recently, the Canadian economic historian Harold A. Innis delivered a set of lectures at Oxford University that was published in 1950 under the title, *Empire and Communications*.² In these talks, he sought to explain the extension of the world’s great empires over space and time by the characteristics of the communications technologies they used. In particular, Innis emphasized the importance of the Caroline Minuscule script for the circulation of knowledge across state borders in the Middle Ages. Even as popularized by Marshall McLuhan, however, Innis’s research lacked the theoretical and statistical underpinnings to convince many of his academic colleagues.³

Yet another source of inspiration for this book is Elizabeth Eisenstein’s seminal study on the impact of the printing press and its influence on the spread of literacy in the vernacular.⁴ Chapters 3 and 4 below, pick up her story a bit earlier than the invention of movable type with the career of Cardinal Nicholas of Cusa. In addition, the tale is carried beyond the Reformation to the English Civil War and the Glorious Revolution of 1688. The surrounding chapters show that Ms Eisenstein’s analysis may be generalized to other media in other periods. Her approach complements Jack Goldstone’s hypothesis that revolution is a reaction to a fall in real incomes. The economic crises he describes may trigger the release of tectonic stress that has been building up because of technical change.⁵

Since its publication in 1990, Joel Mokyr’s *The Lever of Riches* has generated a burst of theoretical and empirical research on the economic impact of new technologies. To separate those innovations with important spill-overs from more run-of-the-mill fare, Timothy Besnahan, Elhanan Helpman and Richard Lipsey and their collaborators have popularized the concept of General Purpose Technologies.⁶ Although I do not disagree with their analysis, I nevertheless believe that communications media are somehow more basic than the steam engine and electricity.

As I suggest in the conclusion, changes in the relative importance of two key dimensions in information technologies have led to the restructuring of social networks. Indeed, this book may be viewed as a set of variations on a theme proposed recently by Mokyr in *The Gifts of Athena*: ‘The inventions of writing, paper, and printing not only reduced access costs but also materially affected human cognition, including the way that people thought about their environment’.⁷ In particular, I suggest that we need to examine

the impact of information technologies on our propensity to cooperate with one another.⁸

This volume is not intended as a text book. Rather it offers a set of case studies designed to provide the reader with detailed information on some of the crucial moments in the history of the West over the past millennium. The text brings together the results of a number of academic papers in what I hope is a more accessible form.⁹ I am grateful to my co-authors on several of these papers – Ulrich Blum, Johannes Moenius and Ulrich Witt – for their cooperation and for their permission to use jointly developed material.

A word of explanation is perhaps in order. The introduction and the first nine chapters are essentially descriptive, concentrating on the origin and diffusion of a series of new information technologies. Each of the five key innovations to be studied will be shown to have been the unforeseen consequence of an attempt to solve a relatively minor social, political or management problem. The concluding chapter combines the results of experimental psychology, network theory and economic history to suggest *why* the information revolutions of the past millennium have triggered very different types of ruptures in social structure – and are continuing to do so.

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NOTES

1. Novum Organum, Aphorism 129.
2. Innis (1950).
3. McLuhan (1962).
4. Eisenstein (1979).
5. Goldstone (1991).
6. Bresnahan and Trajtenberg (1995), Helpman (1998), Lipsey, Carlaw and Bekar (2006).
7. Mokyr (2002, p. 8).
8. Mokyr (2002).
9. See the Epilogue for the studies in question.