MARK STEPHEN MONMONIER

Technological Transition in Cartography

TECHNOLOGICAL TRANSITION IN CARTOGRAPHY

Mark Stephen Monmonier

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FOR MY PARENTS
John Carroll Monmonier
and Martha Mason Monmonier

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Preface

This book was conceived to explain to students why my introductory course in cartography pays little attention to drafting maps with pen and ink. Many undergraduate students have heard that people skilled in drawing maps have found jobs even in tight recessions, and they become worried when laboratory exercises focus on critiquing design and using computers rather than inking lines and lettering labels. For these readers the book should offer insight on the extent to which computers and other electronic technology will alter the form of the map, increase map use, and reduce the skill and training required to obtain a decent-looking, convincing cartographic display. Because of what I call the Electronic Transition in Cartography, the ability merely to plot a "good looking" map will become as commonplace as the ability to type a "good looking" letter. The good student ought not be discouraged by a lack of drawing ability, and the forward-looking student must plan for change and appreciate the role in mapping of public policy and management as well as design. Cartography, after all, is no more drafting than journalism is typing or chemistry is cooking.

In these essays I explore the changes that electronic technology has made, is making, and probably will make in all principal phases of mapping and map use: navigation, surveying, land information systems, decision support systems, and map publishing. I examine previous technological transitions to assess the extent to which significant inventions can radically transform the content, appearance, use, and worth of maps. Cartography's Electronic Transition will render the map as much the outcome of a political process as it traditionally has been the product of explo-

ration and craftsmanship. The cartographer, the geographer, the social scientist interested in regional patterns, and the earth scientist must be aware of the complex linkages among the many producers, distributors, and users of geographic information. This book is intended to provide much of the general technical background needed to appreciate the range of problems that mapping policy ultimately must confront.

The book should also interest educators and humanists. It predicts that the digital map will replace the paper map as the principal medium of cartographic storage and analysis, and it forecasts an era in which the immediate user rather than a distant map author/publisher will compose most cartographic displays. Yet it also recognizes that modern telecommunications could foster an increased appreciation and use of maps by journalists and geographers, and thus expand the market for cogent, well-planned presentational cartography. But whether an increased exploitation of the map will serve knowledge and understanding more than hype and glitter is uncertain, for without a graphically literate and geographically astute public, maps may become little more than pleasurable icons employed to seduce and entertain rather than to inform and enlighten.

At a time of increased concern for human survival, parts of this book might anger some readers, as they did one reader of the manuscript who was alienated by my frequent and sometimes enthusiastic mention of military contributions to cartographic innovation. But whatever our politics and social conscience, we cannot deny the strong historical bond between map and soldier, nor can we dispute that much of the present digital cartographic effort is inspired or sustained by a concern for national defense. I cannot convincingly explain and condemn the cruise missile in the same breath, and I choose not to weave into these chapters the uncertain and highly pessimistic threads of my personal doubts about the ability of the world's governments to resist the temptations and threats of nuclear war.

I owe several people a debt of gratitude. Guthrie Birkhead, Dean of the Maxwell School of Citizenship and Public Affairs at Syracuse University, granted me a semester leave to plan and organize this book. Many colleagues graciously read and pro-

vided helpful comments on early drafts of individual chapters: Gregory Bass, Lee Bender, John Bossler, Vinton Cerf, Richard Dahlberg, Andrew Douglas, John Jensen, Jon Leverenz, Robert McMaster, Judy Olson, Timothy Petersen, George Schnell, Anthony Williams, and David Woodward. Michael Kirchoff, Maureen Devey, Andrew Bratton, Michelle Kermes, Ann Perry, Marcia Harrington, Sean Cassidy, David Flinn, and Janet Saxon at the Syracuse University Cartographic Laboratory prepared the artwork for most of the illustrations. Michael Peterson, Joel Morrison, Jon Kimerling, and Barbara Petchenik provided useful suggestions on the complete manuscript. David Woodward was a source of much appreciated encouragement and counsel. My wife Margaret gave me the tolerance and nourishment that makes writing both possible and purposeful.

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