SERIOUS GAMES
CLARK C ABT

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Serious Games

The art and science of games that simulate life—in industry, government, education, and personal relations.

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Serious Games
CLARK C. ABT

The art and science of games that simulate life—in industry, government, education, and personal relations, interpreted with examples by a leading exponent and innovator

VIKING
Serious Games

Anyone who has ever lost at Monopoly or won at bridge knows that games, in addition to being "fun," can be taken very seriously. By the same token, most of us know that many non-gaming activities—in the home, at work, in the government—can be better understood if we view them as disguised games, with rules, rewards, and carefully plotted strategies for winning and losing.

In Serious Games, Clark C. Abt explores the ways in which games can be used, not just for themselves or for pleasure, but to instruct, inform, and educate us all, uniting the experimental and emotional freedom of active play with the precision of abstract thought. For example, games have been used successfully to teach ten-year-olds about geology, to examine college students on their understanding of the Industrial Revolution, to acquaint city administrators with the many-faceted problems of urban development, and to help industrialists plan their companies' future. Dr. Abt explores all these serious uses of games, and many more, offering fascinating descriptions of games that were invented (or could be) for these and other purposes. Through the application of experimental techniques to simulated situations, games allow participants to try strategies and alter circumstances without cost in the real world. His approach is at once modest and innovative, encouraging the reader to explore, within the imaginative world of a game, many of the intellectual and social problems we face today.

CLARK C. ABT is founder and president of Abt Associates, Inc., a firm in Cambridge, Massachusetts, that has pioneered in the development of games and simulation techniques for solving problems in a wide variety of social and institutional contexts. He was graduated from M.I.T. in engineering, received an M.A. from Johns Hopkins, worked as a systems engineer for ten years, and returned to M.I.T. for a Ph.D. in social science before founding Abt Associates, Inc., in 1966. His current interest is the reform of educational and other public institutions.

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### IX. The Future of Serious Games

The serious games in this book evolved out of my long dual fascination with scientific problem-solving on the one hand and dramatic human conflicts on the other—with science and the humanities and how to combine them. I had a difficult time integrating these two life interests, both in college where only marginal alternatives were offered to the study of mostly engineering or mostly humanities, and later in jobs of systems engineering during the day and creative writing and editing at night. My first experience combining these two apparently irreconcilable interests was in the Air Force, using operations analysis and war gaming for mission planning. This work combined the writing of dramatic scenarios with mathematical analysis and the interplay of large groups.

In the late 1950s engineers and planners concerned with large systems problems such as air defense or mass transportation turned to computer simulation to gain insights into these
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...processes. The overlapping techniques of operations analysis, operations research, and systems analysis were used to develop mathematical models of these vast and complex processes. This was not exactly science, and it is not yet a science today, because so many uncertain factors must be oversimplified and simulated not by exactitudes but by probabilities—that is, with dramatic suspense. And it does require creative effort not unlike a playwright's to design problem situations with dramatic scenarios that best reveal solutions.

My colleagues and I designed computer simulations of air battles, space missions, missile exchanges, disarmament inspection systems, and international political-economic competitions in the Advanced Studies Department at the Raytheon Company Missile Systems Division, which I managed at the time. By the early 1960s our systems analyses and mathematical simulations of antiballistic-missile (ABM) defense systems convinced me that no satisfactory defense was feasible. This led directly to my working on arms control and disarmament, since advanced-weapons technology seemed to me increasingly unproductive of security.

In the arms-control work, problems of international conflict required political and economic analysis much more than they did engineering skill, so I returned to M.I.T. to learn as much as I could about the social sciences and what they could contribute to policy analysis directed toward world peace. I studied arms control problems under Professors Kissinger and Schelling at Harvard, and political science under Professors Pool, Kaufmann, and Wood at M.I.T. My doctoral dissertation was an attempt to identify effective means of terminating wars.

In the course of my political-science studies at M.I.T., the domestic social problems of education, urban and rural economic development, and technology planning and forecasting captured my interest. My inability to pursue these problems in a company oriented toward military hardware led me to found Abt Associates Inc. in 1965. My idea was to work on domestic, nonmilitary problems combining the computer-simulation and war-gaming techniques I had learned in the aerospace industry with the methods of the social sciences.

At Abt Associates I gathered together a group of young systems engineers, mathematicians, economists, political scientists, sociologists, anthropologists, historians, and psychologists who wanted to work on social problems in a less institutional atmosphere than could be found in government, the universities, or big business. Our work in educational-curriculum development, school-system planning, economic development, industrial management, and technological planning and forecasting required a technique for integrating complex interactions quickly and clearly. Simulation modeling, in game or computer model form, proved very useful for analyzing social problems of the most diverse kinds. The simulation games also turned out to be effective motivational factors in our work with managers, students, teachers, and disadvantaged groups. Although most of our one hundred and fifty man-years of applied social research has not been directly devoted to developing simulation games, we use the technique regularly and effectively for problem analysis, education, training, and planning.

I am grateful to Professors Jerome Bruner and Thomas Schelling of Harvard University, James Coleman of Johns Hopkins University, and Elting Morison of Yale University for their early encouragement of my simulation gaming work for educational purposes.

Many of the games described in this book were designed or contributed to by my colleagues at Abt Associates Inc. The creativity and social-problem solving of the following designers of serious games are recognized with particular gratitude: James Barker, John Blaxall, Stephen Bornstein, Peter Crane, Louis Cutrona, Daniel del Solar, Charles Fisher, Raymond Glazier, Elinor Gollay, Alice Kaplan Gordon, Martin Gordon, Grover Gregory, Stephen Guisinger, William Hamilton, James Hodder, Ted I, Joanna Kennedy, Holly Kinley, Emily Leonard, Peter Merrill, Peter Miller, Robert Rea, Martha Rosen, Richard Rosen.

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