

Hans Albert Einstein

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Hans Albert Einstein

His Life as a Pioneering Engineer

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Hans Albert Einstein

Dedicated to John Fisher Kennedy (1933–1991)
Student and statesman of hydraulic engineering

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Preface

This book is the result of a long-standing project to examine the life of Hans Albert Einstein and the importance of his work to our understanding of rivers. Elements of his life story, which was strongly influenced by his father Albert Einstein, are interwoven with technical aspects of his chosen research field—transport of alluvial sediment by flowing water—and with discussions of how that transport affects rivers and the interaction of humans with rivers. Whereas these technical aspects of the book will engage engineers, this is not a book for engineers alone; scientific information is written in a style that should appeal equally well to lay readers. The book is meant to intrigue, educate, and entertain—and above all to be a thoroughly good read.

Its narrative is a chronological exploration of Hans Albert's life and work, encompassing approximately the first three-quarters of the twentieth century. Many of the chapters include both family and technical content, although these two types of information are restricted to larger sections of each chapter. A timeline of major life events (Appendix A) should help readers place major characters and events in context. Appendix B, a glossary, can assist readers with deciphering technical terms. Extensive endnotes and citations for each chapter provide additional information. The book's Prologue and Epilogue

stretch the book's time frame by looking more broadly at the historic understanding of rivers and considering sediment transport research and its modern accomplishments.

This book makes two major claims. First, it is one of few current treatises offering a historical perspective on how twentieth-century engineers and scientists came to better understand river flow and transport of alluvial sediment. Second, Hans Albert's story is based in part on a large number of heretofore-unpublished original sources—personal and professional documents and interviews with Hans Albert's family members, colleagues, students, and friends. At present, it is the only treatise accurately placing Hans Albert within the larger Einstein family and considering his complex relationship with his father Albert. Because many of the sources of firsthand information are now deceased, this book may remain the only such treatise.

The seeds of this book date back to 1990. They were first planted at IIHR—Hydroscience & Engineering, a research and teaching institute within the University of Iowa's College of Engineering. Then-director Professor John Fisher (Jack) Kennedy, like his predecessors at IIHR, was drawn to the history of hydraulic engineering and enjoyed recording the life stories of several of his professional colleagues who had shaped this field. Thus, when Hans Albert's widow Elizabeth asked Kennedy if he might publish her memoir (which focused largely on her late husband), he eagerly accepted the challenge. Elizabeth's memoir, *Hans Albert Einstein: Reminiscences of His Life and Our Life Together*, was published in 1991 by IIHR and the University of Iowa.

Preparing Elizabeth's memoir for publication was more of a task than Kennedy had anticipated. Hence he hired Cornelia Mutel, who had authored several science-based books, to edit Elizabeth's manuscript. As Mutel dove more deeply into Hans Albert's life story, she was required to learn a great deal about the Einstein family. She quickly realized that there was a far larger story to be told and that she was rapidly gathering the information necessary to tell it. Thus Kennedy and Mutel planned to follow Elizabeth's memoir with a more scholarly book on Hans Albert's life and contributions. Mutel would write the personal and family elements, and Kennedy would write the scientific information.

This is that second book. Like the rivers that Hans Albert Einstein and Jack Kennedy studied, it has meandered extensively, taking its time to reach its eventual destination. Jack tragically died in 1991, at age 57, before having the opportunity to work on the book. His leadership at IIHR was adopted until mid-1994 by Professor Robert Ettema, who had served as associate director during the last years of Jack's tenure. Ettema agreed to

step into Kennedy's place as this book's coauthor, and, like his predecessor, he too was soon drawn to the history of hydraulic engineering and river systems; he has since published a number of articles on these subjects.

Since 1991, both Ettema and Mutel have channeled their professional lives into a diversity of efforts. However, they simultaneously continued research and writing for this book, which in the interim has gone through numerous iterations that have improved its organization and readability. Now, at last, with the publication of this book, the Hans Albert Einstein project has reached its culmination.

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Acknowledgments

A project of this duration and breadth necessarily involves the assistance of many people and institutions. First and foremost, we recognize IIHR–Hydrosience & Engineering, including Jack Kennedy and IIHR’s directors since 1994, Professors V. C. Patel and Larry Weber, whose support has never faltered. Our colleagues at the Universities of Iowa and Wyoming and friends at Colorado State University likewise deserve our thanks for their ongoing interest and support.

The book’s richness and detail were greatly enhanced by Einstein family members Elizabeth (Hans Albert’s widow), Bernhard and Evelyn (Hans Albert’s children), and Thomas (his grandson), all of whom were both gracious and generous when meeting with Mutel and providing her with personal and written information. The collection of professional and personal materials in Elizabeth’s home, collectively called the “Hans Albert Einstein papers” (HAE papers), was especially crucial for understanding Hans Albert’s work and life. We are grateful that, when Elizabeth died in 1995, Elizabeth’s executor, Professor John Block, continued to allow us access to this collection.

Details of Hans Albert’s life are based primarily on these HAE papers and on recollections and professional assessments from Hans Albert’s former colleagues and friends, graduate students, and students who took his classes. Those who were interviewed in person or answered detailed written questionnaires included (but were not limited to) Robert Banks, Calvin Clyde, James Harder, Mabel Iwamoto, Joe Johnson, Ray Krone, Pete Lagasse, Marian Otwell, Ernest Pemberton, Hsieh Wen Shen, Vito

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Barbara Wolff with the Albert Einstein Archives (AEA), at the Hebrew University of Jerusalem, was extremely instrumental in helping us understand Hans Albert's family life and in providing information about letters in the AEA. She also generously reviewed and corrected manuscript sections on family life. Robert Schulman, former director of the Einstein Papers Project, was helpful in the early stages of this writing effort. Many thanks to him and to that project and to Princeton University Press (PUP), Einstein family members, and all others cited in the book for allowing us to reproduce their quotations and photographs. Quotes from family correspondence include both material published in a volume of the *Collected Papers of Albert Einstein* (CPAE) and cited as such and material not yet published and cited as coming from the AEA. We provided translations for the latter; permission to reprint both has been granted by PUP.

We also would like to thank Gertrud G. Champe, Marc Linder, Tamara Schoenbaum, and Burkhard Zimmerman for translating German materials and letters; Katherine Kennedy (U.S. Army Corps of Engineers) for assistance with assembling Hans Albert's bibliography; Jessica Bristow (IIHR) for her artistry in drawing maps and preparing photographs for publication; ASCE's Betsy Kulamer, Donna Dickert, and others for their assistance with publication; and ASCE's several reviewers for their encouraging comments on the book manuscript. The legal counsel of Patricia Acton, Sheldon Kurtz, Julia Mears, and Gay Pelzer, all at the University of Iowa, was invaluable. And many thanks to our spouses, Susan Ettema and Robert Mutel, for comments on draft chapters and for their patient support.

To all these many individuals and institutions, to the many additional persons cited in the book, and to the many more who contributed necessary content but are not specifically cited, our heartfelt thanks. The book would have been far less complete and accurate without each and every contribution. We remain forever indebted for the extensive help received, but we accept the responsibility for any errors and apologize for any misinterpretations.