Alexander Soifer

The Scholar and the State

In Search of Van der Waerden

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Forewords by
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James W. Fernandez
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Small front cover photographs depict, from the upper left clockwise, Bartel L. van der Waerden, Werner Heisenberg, Niels Bohr, and Albert Einstein. The larger photograph depicts Bartel L. van der Waerden.

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This book is dedicated to my parents, Yuri and Rebecca Soifer, who gave me the gift of life, and from the early childhood on greatly influenced my moral principles and aesthetic taste; and to my daughter Isabelle Soulay Soifer, a fellow poet at heart.

Forewords

Foreword by Dirk van Dalen

In 1950 I was a freshman at the University of Amsterdam. Its Mathematics Department had a reputation for excellent professors, albeit that the curriculum was somewhat outdated. One of the outstanding professors was a middle-aged, enthusiastic man, Bartel Leendert van der Waerden. At the time he taught the analysis course for beginners. Coming straight from high school I took this course, which struck me as a miracle of elegance offering glimpses of treasures that were still beyond our grasp. Van der Waerden not only taught us the routine techniques, but managed to instill in the perceptive student a sense of intrinsic beauty. It was a real disappointment when at the end of the year he left for Zurich. Strangely enough, this man, who was known around the world for his contributions to algebra, did not teach algebra. In fact, the algebra course was assigned to a well-known number theorist, who safely stuck to a late nineteenth-century tradition. We had to thank Van der Waerden, who offered his students the latest version of his *Moderne Algebra* in a paperback edition at a discount, for the opportunity to become familiar with the more recent views on algebra.

As I was more interested in mathematics than in politics (and also because there was little information on uncomfortable topics) I was not aware of the fact that Van de Waerden's appointment in Amsterdam had its history. Only much later I was told that the appointment was not a routine matter because Van der Waerden had been teaching in Germany before and during the war. And there it stopped until Alexander Soifer made me familiar with the fact that Van der Waerden's German career was not at all that unproblematic.

Soifer's journey through a long list of archives, combined with an intensive correspondence, had uncovered numerous details of Van der Waerden's German intermezzo that raised serious questions and reproaches. He deserves credit for sorting out the often contradicting evidence about a number of scientists who were active in Nazi Germany. The reader may draw his own conclusions from the present book. It is a merit of Soifer's book that the main character is not a notorious Nazi, or a despicable manipulator, but an ordinary, honest, hardworking mathematician who ran into problems that he had not foreseen.

The question remains, how could such a brilliant scholar make such unfortunate choices? The mathematical side seems clear enough; for an algebraist Germany was far superior to Holland. The political side is much harder to understand. One thing should be clear: Van der Waerden was not evil; looking back at the story of his life, one is tempted to accept the explanation that he was far too clever. Like his fictional colleague, Dr. Faust, he was convinced that his outstanding intelligence could outwit the despicable opponents in the bastion of darkness. But he forgot that the latter-day followers of Mephistopheles did not play the game by the rules; logic, so to speak, was no object.

As a former student I feel sad about the role Van der Waerden played on the social-political stage, but I cannot give up my admiration and sympathy for the man who opened the doors of the mathematics mansion to a class of freshmen, and showed us the beauty and profundity of our subject, the man who saw that each student, after Napoleon's words, carried a marshal's baton in his knapsack.

Utrecht, The Netherlands Dirk van Dalen

Foreword by James W. Fernandez: On Acquiescence in the "Tribal Evil"

There are many reasons why this so impressively researched biography merits our attention. I would like to consider and briefly point out its vital importance from an anthropological point of view. That is to say that Professor Soifer's book implicates the anthropologists' and culture historians' core interest in the evolution of culture and in the progress of human evolution itself on this small contested planet. It also implicates anthropology's core interest in a broadly thriving evolution of our humanity and of our cultural creativity over long periods of time, Millennia is our measure. There are many important and pressing reasons to be anxious about our human future on this small planet over these long periods of time. This book gives us insight into one of the sources of the threats to the safekeeping of our humanity: the acquiescence of intelligent men and women to the return of barbaric practices among their leaders, a return to what we can call the "tribal evil" as happened in Germany and Western Europe in the thirties and forties.

It has often been said that of all the animals of creation the most dangerous is the human animal itself. Once this dictum applied only to the hunter's craftiness of mind and the power of his toolkit over the other animals he pursued. But it now applies to the dreadful tools we humans now possess for possible use in our ongoing, so often reptilian, contests with each other. Very simply put, humans now have such power in our hands as to make worrisomely easy the use of that power in mutual destruction. This possibility was raised agonizingly during the recent Cold War in the policy of Mutually Assured Destruction, a carelessly and indeed mad and inhumane slogan in and of itself. That we could even think of that as a political possibility should engage any mind with the possibility that the unthinkable, in this and in future days and ages, may indeed be too easily actionable. . .makes us think of the possibility of an ultimately angry end to human evolution. It is true that this Cold War doctrine may have acted prohibitively against the cataclysm it described. But that is hardly a perpetual guarantee especially in the presence of the so frequent self-righteous sense of religious or racial mandate and the salvational sense of ultimate rewards when that mandate exercised by those who consider themselves as more human and more preferred and, hence, ever ready to dehumanize others.

The reader may be puzzled by the suggestion that this richly documented, insightful but low keyed biographical study of a brilliant if mild-mannered Dutch mathematician can be linked to such ultimate ponderings. But the

career experiences and choices, in the war-torn Europe of the thirties and forties, of Bartel van der Waerden were also a test not only of his own career but the relation of that career to a retrograde regime by any evolutionary measure. The linkage occurs because this mild-mannered mathematician was living through those years in which a cataclysm was occurring for a particular set of people whose humanity was denied and the most cold-spirited and inhumane destruction was being brought down upon them.

Van der Waerden, as we see, was never an active agent of the gangster regime that had taken power over the nation where he chose to live. Indeed his first and natural instinct was to protest mildly against its racist doctrines and strictures. But over time, preoccupied with his professorial career and the continuance of his mathematical investigations he acquiesced or, perhaps, put from his mind the excrescence that had grown upon the German nation and people in and among which he continued to live and, as far as possible for a wartime situation, professionally prosper. His eminence of mind must have easily enabled him to perceive and actively deny to the gangster regime his presence and acquiescence. He had many opportunities to emigrate. But instead, for a set of reasons largely tied up with stabilities in family life, most likely, reasons of everyday life which any family person can perhaps understand, he continued to be a very small feather in the cap of a strutting party of megalomaniacs. Of such daily and familial acquiescence are retrograde barbarian regimes constructed in the modern world, long past the time that the barbarism and the barbarian condition they sought to recreate once flourished in human evolution.

I am being more strident here in this short preface, perhaps, than Professor Soifer who quietly if from time to time ironically details and reveals through his exceptional research of many years, Van der Waerden's slow decline into acquiescence and eventual tortured self-justification. After the war Soifer follows Van der Waerden in the eventual, if partial, self-reckonings he was forced to make with his wartime choices or lack of principled choices during those terrible years. We follow his toying both before the war and after with his offers from America, or the possibilities of a less regime-acquiescent professional life in Switzerland. And after the war we follow his struggles, because of his years of acquiescence, to recover his position of eminence in the Netherlands and more broadly in the mathematical world. In its way despite the brilliance of the protagonist this is a biography of an everyman confronted with uncomfortable choices which in their small way surely discourage or encourage the possibilities of the presence of evil around him. The unhappy vicissitudes of Van der Waerden's life become thereby a lesson to us all, and the everyman we all are, in the not altogether unlikely event that barbarism and the "tribal evil" rise again amongst us!!

To be sure it has long been said of mathematicians, so often men and women of a special "bent" of mind, that as a consequence of that "bent" they enjoy what the Germans call "*narrenfreiheit*," the freedom to a certain irresponsibility of self, if not totally so at least to an eccentricity in many of the responsibilities of social life. Perhaps there was something of that "*narrenfreiheit*" in Van der Waerden. But Alexander Soifer, a mathematician himself, does not buy such privileged freedom from moral choice of the brilliant. The author does not extend that eccentricity of mathematicians to the kind of evasion and acquiescence so evident in Van der Waerden's choices. One of the great values of this book is that it is a mathematician seeing and understanding, as only a mathematician himself can, beyond *narrenfreiheit* to the responsibility that all men and women have not only to the humanity of their own culture but also and by extension to the humanity of other cultures and peoples, with whom they live cohabiting together this small and endangered planet. One might say that it is on the acquiescence of mild-mannered men of privileged mind but of only tentative principle that gangster regimes vaingloriously built their megalomanias.

The great German-American sociologist Alfred Schutz makes an insightful distinction between Mitmenschen and Nebenmenschen, those whom we live with and share intimately our life cycles, our "family" in the largest sense as it were, and those who we live next to, our neighbors in the largest sense, who as contemporaries are co-participants, though often on different cultural terms in one way or another, with us. Our constant human struggle, as Schutz well realized, was to be able to treat our Nebenmenschen as we would our Mitmenschen.

Let me return here finally to the anthropologist's interest in all this. And let me employ two terms of anthropological character: the tribal evil and transcendent humanization implicit in our prefatory remarks. Whatever satisfactions of solidarity and the security of self-interested culture the tribal and barbarian stage of human evolution brought to evolving humankind, it also brought the senses of exclusivity and imperious self-righteousness of category. These were senses consistent with the denials of humanity to "the others" to the point, often enough carelessly, or with evil intent allowing or actively advocating and accomplishing their extermination. This we must recognize as "the tribal evil writ large," any retrograde return to the tribal stage of group exclusivity, a dehumanizing rather than humanizing movement in human evolution.

One fears, reasonably I feel, that the long-run result of such returns to the tribal evil, returns so often accompanied by a false nostalgia, would be the MAD world we so recently contemplated and which it is so imperative we transcend. What human evolution is above all about, one might argue, is

"transcendent humanization" in which the other, the Nebenmenschen, comes to be treated as a Mitmenschen in the grand evolutionary journey of humankind in a small planet. My feelings about Professor Soifer's book are that it is an inspiring instance of "transcendent humanization." It offers an important enabling experience, an insight by which we contemporaries can together fortify and humanize an evolving rather than a devolving condition.

Chicago, IL James W. Fernandez

Foreword by Branko Grünbaum

The fact that this book is about the story of the life of a prominent mathematician and the history of an important result he was the first to prove may be enough to lead a potential reader to abandon the idea of reading it. "I never liked mathematics" or "I was always poor in mathematics" are some of the excuses or justifications that may be given. However, they do not apply to this book. True, Bartel Leendert van der Waerden was a mathematician, and his result discussed here deals with somewhat abstract mathematics. However, the book does not dwell on mathematics—formulas are not a part of the text. Instead, concerning the star of the book we are given a detailed and thoroughly documented story of his life that spanned most of the twentieth century. That story reminds us of the (purported Chinese) curse "May you have an interesting life." Van der Waerden's life was indeed interesting—but beyond that it suggests the great moral quandaries that many of us have been confronting, or may have to do so in the future.

Soifer has spent many years and much effort to tease out the facts concerning the life of Van der Waerden and his contemporaries. He dug out from archives, museums, and other depositories, documents that were forgotten for more than half a century. He also interviewed or corresponded with many of the personages that were relevant to the main topic of the book. This is particularly significant in view of the fact that many of these people have since passed away.

To summarize the story: Born Dutch, Van der Waerden came to prominence in the 1930s as a mathematician in Germany, at the time of ascent to power of Hitler and his Nazis. Despite professional possibilities and offers of positions outside Germany, he remained a professor in Germany, mainly at Leipzig University, till the end of World War II in 1945. In the early years of Hitler's rule Van der Waerden did object to some of the outrages committed against Jews and others by the Nazis, but when his position in Leipzig was threatened, he agreed to stop any public protests. After the end of the war, he wished to return to the Netherlands at a high professional position; in this he was supported by many, but strongly opposed by others who did not forgive him his activities during the war years. Finally, in the early 1950s he became a Professor at the University of Zurich; there the behavior of a candidate during the war was deemed less important than his professional standing. Details about all these events form the core of "The Scholar and the State," enriched by comments of varied length concerning people around Van der Waerden. Without taking an explicit stand regarding the morality of the actions involved, Soifer urges the reader to reach his or her conclusions independently.

The second theme of the book concerns Van der Waerden's establishing in the late 1920s a result in "Ramsey Theory before Ramsey." The weakest nontrivial case can be stated as follows: There is a number n such that whenever n or more consecutive numbers are tagged with one of two tags ("colors") then there is a triplet of numbers of the same color that form an arithmetic progression. (That is, the difference between the first of the numbers and the second is the same as the difference between the second and the third.) The actual result of Van der Waerden allows for any number of colors, and for arithmetic progressions of any length; naturally, n depends on these numbers. The fascination with this result is caused by the difficulty of proving it, as well as with the history of its generalizations and simplifications of the proofs. Most intriguingly, Soifer discovers the quite involved *prehistory* of the result, which involves detective work in several countries.

As a perusal on any of the chapters will show, Soifer is a great storyteller, engaging the reader in many ways. Reading this book may possibly overcome the math phobia of some of the readers.

Seattle, WA Branko Grünbaum

Foreword by Peter D. Johnson, Jr

Freeman Dyson divided mathematicians into two classes, *frogs* and *birds*. The frogs, in whose ranks Dyson counted himself and almost every mathematician who ever lived, struggle toward understanding in a manner evocative of the progress of a frog through a swamp, while the very rare birds, having achieved flight, can look down on what they are trying to understand from above, and so achieve a more profound understanding.

I am a frog mathematician who cannot imagine what might be in the mind of a bird mathematician. Perhaps I am missing a faculty, like a color-blind person who cannot imagine what the non-color-blind see, but it seems to me that mathematics by its nature requires froggishness for its study. Frankly, I am skeptical of the existence of bird mathematicians. Those counted as birds are more likely, in my view, to be just very talented frogs, able to leap higher than their peers from time to time.

Whether or not bird mathematicians exist, clearly frogs predominate in mathematics. In *history* scholarship, it seems to me (I rank amateur, an outsider) that the situation is quite different, and that the difference arises from the nature of the subject. Consider this contrast:

Most children will, by age 10 or so, have noticed that whole numbers whose decimal representation ends in 5 are divisible by 5. A significant fraction will have noticed that odd + odd = even, etc. On the other hand, an elderly gentleman of my acquaintance tells me that when he was 5 years old, in 1926, he had concluded that all wars last 4 years, because the only two wars he had heard of, the Civil War and World War I, had each lasted 4 years. (I will not bore the reader by drawing out the point of this contrast—but it is worth noting that the mathematical observations cited are true, while the 5-year-old's hypothesis about wars is not.)

History comes to us in bits and pieces, which we make into stories, sometimes with lessons attached. The whole field is a call to festival for the human propensities for gossip, conjecture, storytelling. Every amateur historian (and I am one) starts as a bird and remains a bird. In mathematics there are infallible standards and methods for deciding on truth—you cannot fake birdhood just by making stuff up. Among historians, that is not the case. Indeed, popular historians are popular in large measure because of the story element in their accounts. Some come to believe in their stories to the point that they are driven to grand conclusions (looking at you, Niall Ferguson!). Serious historians are constrained by their reading of original materials, or of whatever materials are available, but in many cases there are not enough of these to assure the validity of accounts based on them. The "bird"

faculties of historians are indispensable, but if we are interested in what **really** happened, we should maintain a healthy skepticism toward their tales.

It is hard to be a frog historian. We need more of them—but will what they write be interesting to read?

From the twentieth century we collect at least one great frog work of history: *The Gulag Archipelago,* by Aleksandr Solzhenitsyn. In it, events are recounted without facile assumptions about causes and motives—just the facts, with extensive documentation—and, somehow, from the relentless rhythm of the account a dramatic tapestry arises in the mind of the reader.

And now we have an even more purely frog experiment in history-writing, coincidentally authored by another one-time Soviet refugee with initials A.S.: *The Scholar and the State: In Search of Van der Waerden*, by Alexander Soifer, a biography of Bartel van der Waerden, a great twentieth-century mathematician, born and raised in the Netherlands, who navigated the white-water rapids of twentieth-century fascism and World War II with sometimes courageous and sometimes dubious skill and judgment from an academic post at Leipzig University, smack in the middle of eastern Nazi Germany. (Notice anything about that last sentence? The last part is glib bird writing. O.K. for a dust cover, but too much of it will make you ill.)

Anyone who has read much of Professor Soifer's previous masterpiece, *The Mathematical Coloring Book*, an historical account of certain developments in mathematics, will know that Professor Soifer does not trade in facile assumptions or reasonable-sounding guesses about how things came about. Yes, he will advance opinions as to causes and motives, but they are explicitly his opinions, advanced in proximity to quotations from letters, memoranda, or documents that support the opinion. Professor Soifer is a mathematician, and he brings a mathematical discipline to the writing of history.

This book sets the standard for the frog approach to history—even Solzhenitsyn seems like a smooth-talking con man, compared to Soifer. Yet, although the style is very different from Solzhenitsyn's, and the commitment to the unvarnished truth, or, at least, what we can know of the unvarnished truth, is even more stubborn than Solzhenitsyn's, the effect is strangely the same: from the scrupulously rigorous account arises a full mural of a life and an historical period, full of human complexity. Decisions are not perfectly framed at the time they are made. Some are regretted, others are fortuitous. Motives that seem perfectly reasonable in their time may seem dishonorable in retrospect. People reconstrue their actions to conform to the motives they wish they had had. Here I am resorting to cartoonish simplification; to get the real effect, read the book.

The book is fascinating. Professor Soifer has done a great service to the discipline of history, as well as deepening our understanding of the twentieth century. One can hope that others will be inspired to follow Professor Soifer's example, at least in writing of the recent past, but it won't be easy. The effort expended by the author in assembling a trove of primary materials, by appeal to the principals, including B.L. van der Waerden before his death, and their families, and by tracking down correspondence and documents in governmental, state, and corporate records, is monumental. This, young historians, is how hard you have to work to achieve froghood.

The biography of Van der Waerden is intriguing enough, but I must say that I found even more interesting two excursions from that life, one of great general interest, and the other probably only of interest to mathematicians. The excursion of general interest was on the subject of the collaboration of German physicists with the Nazis. This has been worked over elsewhere—there is even a play about it, *Copenhagen*. But my guess is that Alexander Soifer has provided the most reliable and thorough account on this topic that can be had. That's just a guess. I am an amateur.

In the other excursion, Soifer updates and enlarges the history of Van der Waerden's 1927 theorem, about trying to color blocks of consecutive integers so as to avoid monochromatic arithmetic sequences of prescribed lengths, that was given such a masterful treatment in *The Mathematical Coloring Book*. I predict that, barring the destruction of civilization, the day will come when humans will attempt what I would call **meme history**, the high-powered offspring of intellectual history, in which the progress of ideas through human discourse is traced. When that day comes, the hard work of Alexander Soifer in finding out just how certain mathematical ideas arose and were transmitted will, I hope, be recognized as foundational.

Professor Soifer sums up at the end of *The Scholar and the State* with an eagle's view of the unfortunate choices of Bartel L. van der Waerden and Werner Heisenberg during the years 1933–1945 of Nazi rule in Germany. His remonstrances are strong, but he never loses all sympathy with these men, great in mathematics and science, with generally honorable, and sometimes exemplary, moral qualities, who found themselves dwelling in a moral sinkhole due to a sequence of deplorable decisions. I have inveighed against birdishness in the writing of history in this foreword, but I think that Alex Soifer has very much earned the right to express his opinion in gathering the lessons of his tale, after all the evidence has been presented. And to me, as one whose father and brother have served as scientists and developers of technology in the American military-industrial complex,

Soifer's warning to mathematicians and scientists strikes home: would I, in the circumstances in which Van der Waerden and Heisenberg found themselves, have been any more morally nimble than they? Which of us can be sure of the answer to such a question?

Auburn University, AL Peter D. Johnson Jr.

Foreword by Harold W. Kuhn

In the best graduate schools of my generation, *Modern Algebra* was synonymous with Van der Waerden, the author of the text of the same name. We knew vaguely that the book was based on lectures by Emil Artin and Emmy Noether and that the author had remained in Germany during World War II.

In this masterful book, Alexander Soifer unravels the origins of the book and, with the obsessive attention of an engaged historian, uncovers many details of Van der Waerden's life. Along the way, he answers with careful documentation many questions about that long life.

I found much that was news to me in this detailed account, including his relations to Springer, to Courant, and to the many mathematicians with whom he corresponded during the war. Especially interesting to me are the details of an offer to Princeton, which Soifer discovered by dogged detective work.

Of course the central question is why did Van der Waerden stay in Germany under the Nazis until his homeland, the Netherlands, was overrun? Soifer answers this question in a convincing manner, offering along the way, many wise insights into our individual responses to tyranny.

This book is an important contribution to the history of the twentieth century, and reads like a novel with an ever-fascinating cast of characters. We owe Soifer a huge debt for his steadfast devotion to this enterprise.

Princeton, NJ Harold W. Kuhn

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My deep gratitude goes to Dirk van Dalen, James W. Fernandez, Branko Grünbaum, Peter D. Johnson, Jr., and Harold W. Kuhn, the first readers of the entire manuscript, for their referee reports that appear here as forewords, and valuable suggestions. A philosopher-historian, an ethnographer-anthropologist, a geometer-aesthete, an algebraist-graph theorist, and an economist-game theorist—they possess an incredible wisdom and intellect, and have shared it with me most generously. I was thrilled to learn that this manuscript became a family affair for James and Renate Fernandez[1]: "Renate and I have been making steady if slow progress through your ms. We discuss it in the evening after dinner." Dirk van Dalen experienced the main period of my narration as a boy in Nazi-occupied Holland, a teenager during the de-Nazification of the Netherlands, and a student of Van der Waerden at the University of Amsterdam in the fall 1950. And he shared with me his unique Dutch insight while reading the manuscript twice and providing me with the most detailed commentary over the course of several months. In his own words,[2] "Being a Dutchman I have this built-in feeling inherited from generations of farmers, fishermen, and schoolmasters for the more delicate aspects of our words and expressions." Usually I am not particularly fond of the proofreading stage, but in this case, I have immensely enjoyed the process of finishing this book in dialogs with my unique and distinguished referees.

One writes alone, and communicates only with an imaginary reader. This is why it was so satisfying to read the report of the publisher-chosen referee, Moritz Epple, Professor of History of Mathematics at Frankfurt University:

[1] James W. Fernandez, August 19, 2013, e-mail to A. Soifer.

[2] Dirk van Dalen, November 7, 2013, e-mail to A. Soifer.

someone I haven't met, so well understood this research, appreciated its literary style, and contributed valuable suggestions. It was an honor to have the past Executive Director of Springer-USA Ann Kostant as the copy editor of this book. I am grateful to both of them for deep insight and fine taste. I thank my editor Dr. Anna Mätzener for coordinating the entire process.

My parents Yuri and Rebecca Soifer, a painter and an actress, lived through the Russian Revolution of 1917, lawlessness that followed in Ukraine, and the horrific World War II. They were separated for many years, while Yuri served on the front and Rebecca worked in evacuation. They gave me the gift of life, and from the early childhood on greatly influenced my moral principles and aesthetic taste. This book about life and fate, moral triumphs and failures, hard choices that are still with us all today, is dedicated to them, and to my daughter Isabelle Soulay Soifer, a fellow poet at heart. I am grateful to my other children Mark, Julia, and Leon for playing at various times a major role in my life.

This book is a result of 20 years of historical research, and pondering on the moral and philosophical issues surrounding the place of a scholar in the society. The long years of writing have produced one immense benefit that a quickly baked book would not possess. I have had the high honor and distinct pleasure to discuss many questions of this research with senior sages, Professors Bartel L. van der Waerden (1903–1996), Paul Erdős (1913–1996), Henry Baudet II (1919–1998), Dirk J. Struik (1894–2000), Herman J. A. Duparc (1918–2002), Beno Eckmann (1917–2008), Walter Ledermann (1911–2009), and Nicolaas G. de Bruijn (1918–2012). I am in eternal debt to their knowledge, memories, and insight. In working on this book I have also learned much from Peter J. Knegtmans, Dirk van Dalen, James W. Fernandez, Renate Lelep Fernandez, Branko Grünbaum, and Harold W. Kuhn. Thank you all so very much.

My research into the life of Van der Waerden could not be based on archival material alone. I am most grateful to Bartel Leendert van der Waerden for his several letters answering my many questions, and to the family members of the personages appearing in this book, who contributed their memories and insight into this undertaking: Hans van der Waerden, Dorith van der Waerden, Theo van der Waerden, Prof. Jochen Heisenberg, Prof. Dr. Ernst Ulrich Baron von Weizsäcker, Prof. Ernest Courant, and Prof. Henry Baudet II. I thank fellow historians for their valuable contributions and feedback: Henry Baudet II, Dirk van Dalen, Moritz Epple, Charles C. Gillispie, Peter Knegtmans, Thomas Powers, Reinhard Siegmund-Schultze, Maya Soifer Irish, and Mark Walker.

I thank all those who have provided me with documents, photographs, and permission to use them. Dorith van der Waerden and Theo van der

Waerden have generously shared the family history and rare photographs of their uncle Bartel Leendert van der Waerden and the rest of their distinguished family. Henry Baudet II supplied photographs of his father P. J. H. Baudet and also of his family with the legendary World Chess Champion Dr. Emanuel Lasker. Dr. Mordecai Paldiel and Yad Vashem, The Holocaust Martyrs' and Heroes' Remembrance Authority, Jerusalem, provided documents related to granting Senta Govers Baudet the title of a "Righteous among the Nations." Humboldt University of Berlin shared documents from the personnel file of Issai Schur.

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The research quarterly *Geombinatorics* provided an opportunity to gather my thoughts and publish the first results of my research on Van der Waerden in the form of four essays. Having read these essays, Professors Charles Coulson Gillispie and Mark Walker suggested expanding my findings to a book. I am grateful to them for this idea: prior to their advice I did not think of writing an entire biographical book. On June 25, 2007, Gillispie, a Princeton Professor of History since 1947 and the founder of the Princeton Program in the History of Science, wrote a letter to Springer Executive Director Ann Kostant recommending her to contract this not-yet written book:

> I have urged Professor Soifer to gather these articles into a book, both mathematical and historical biography. They [four essays] meet the highest standards of historical scholarship and would require very little revision.

My University of Colorado bosses provided me with an opportunity to be away for long periods of time at Princeton and Rutgers Universities for which I thank my past Dean Thomas Christensen and Chancellor Pamela Shockley-Zalabak. I am grateful to my Princeton Math colleagues and friends for maintaining a unique creative atmosphere in the historic Fine Hall, and Fred Roberts for the tranquility of DIMACS Center at Rutgers University, where I spent 3 years doing research in mathematics and history.

I thank Springer Executive Directors Ann Kostant and Thomas Hempfling for inviting this work and my nine other books to the historic Springer, the same Springer that published Van der Waerden's classic *Moderne Algebra* in 1930–1931.

Finally, "What's in a name?" rhetorically asks Shakespeare. All non-Dutch authors write Van der Waerden's name in the German style:

"van der Waerden." In spite of long years spent in Germany and Switzerland, the main personage of this book was born and raised in the Netherlands and has always remained a Dutch citizen. Hence I will use the Dutch grammatical rules in writing his name, i.e., I will always use the capital "V" and write "Van der Waerden," except when the last name is preceded by the first name or the initials, in which case the Dutch rules dictate a small "v": "Bartel van der Waerden" and "B.L. van der Waerden."

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