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To my wife, Karin

Preface

This edition of Books IV to VII of Diophantus' *Arithmetica*, which are extant only in a recently discovered Arabic translation, is the outgrowth of a doctoral dissertation submitted to the Brown University Department of the History of Mathematics in May 1975. Early in 1973, my thesis adviser, Gerald Toomer, learned of the existence of this manuscript in A. Gulchīn-i Maʿānī's just-published catalogue of the mathematical manuscripts in the Mashhad Shrine Library, and secured a photographic copy of it. In September 1973, he proposed that the study of it be the subject of my dissertation. Since limitations of time compelled us to decide on priorities, the first objective was to establish a critical text and to translate it. For this reason, the Arabic text and the English translation appear here virtually as they did in my thesis. Major changes, however, are found in the mathematical commentary and, even more so, in the Arabic index. The discussion of Greek and Arabic interpolations is entirely new, as is the reconstruction of the history of the *Arithmetica* from Diophantine to Arabic times.

It is with the deepest gratitude that I acknowledge my great debt to Gerald Toomer for his constant encouragement and invaluable assistance. It was under his guidance that I learned how to read mediaeval mathematical manuscripts and how to establish a critical text. He spared neither his time nor his energy, abandoning his own scholarly pursuits in order to facilitate my study of the Diophantus manuscript. This generous help also continued after the completion of the thesis; virtually all new ideas or interpretations have undergone his scrutiny.

I should also like to thank my former professor at the Swiss Federal Institute of Technology in Zurich (ETHZ), Dr. Peter Huber, who first encouraged me to study the History of Mathematics and who later helped procure a grant for me from ETHZ. This, together with Brown University's waiving of tuition fees, enabled me to pursue my studies at Brown University for three years.

During my stay in Providence and since then, I have enjoyed the continuing help and encouragement of Professor emer. O. Neugebauer, Professor and Mrs. A. Sachs, and Professor D. Pingree. All contributed to my formation and offered many valuable suggestions for my work.

Special thanks are due to the curator of the Shrine Library in Mashhad, Aḥmad Gulchīn-i Maʿānī, for kindly having made available the necessary photographic reproductions to Gerald Toomer.

While preparing my thesis and this edition, I has occasion to consult a considerable amount of literature, and I should like to express my sincere thanks to the personnel of the Brown University Library and, more particularly, to the personnel of the Bibliothèque Publique et Universitaire of Geneva for their generous assistance.

Finally, I must express my gratitude to my wife, Karin, on whom devolved the delicate task of reading, polishing, and often reformulating the English text and many arguments in it. Despite family obligations, she found time to read the entire text several times and to rewrite the unsatisfactory parts of it until a coherent whole emerged. It is to her that I dedicate this, my first book.

Geneva,
Switzerland
September, 1982.

JACQUES SESIANO

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