

Preface

THE PRESENT WORK is intended to be an introduction to the philosophy of atomic physics. Its somewhat unusual structure is due to its method, as will be explained at length in the first chapter. In this prefatory note it may suffice to point out that this method has been adopted after much reflection. It is the result of discussions with scientists and philosophers conducted in several universities over a considerable number of years. In particular, the way this work was begun gives the reason for my appending a certain number of scientific figures and tables to a philosophical investigation. I feel that a philosophical discussion must deal with concrete facts. I want the reader to judge for himself about the interpretations and conclusions presented in the text.

The genesis of this study shows how much I am indebted for its completion to the assistance of other people. However, the very number of them, and the variety of their help, make it impossible to acknowledge their contributions in detail. Insights and perspectives can hardly be traced back to those who first caused them to arise in my mind. Thus I shall limit myself here to mentioning the names of those people whose contributions can be most easily identified. First of all I thank Professor Giovanni Zin of the Physics Faculty of the University of Turin (Italy) for having originally encouraged and supported this research. In addition I am beholden to all those persons who read my manuscript and offered suggestions for its improvement. They are Professor Filippo Selvaggi, Gregorian University, Rome; Professor Mario Viganò, Philosophical Institute, Gallarate (Italy); Professor Melba Phillips, University of Chicago; Professor Robert Palter, University of Texas, Austin; Professor Joseph Mulligan, Fordham University, New York; Dr. Bernard Burdick, Case-Western Reserve University, Cleveland. A special mention has to be made here of Professor Donald Merrifield of the University of San Francisco and Jet Propulsion Laboratory, Pasadena. To his never-failing understanding and persistent criticism

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this book owes much, both in clarity of content and precision of expression. Above all, I am indebted to Professor Werner Heisenberg. He not only read the manuscript and gave valuable suggestions, but he generously assisted this writer in many practical ways, concerning both the publication of this work and the promotion of the scientific-philosophical dialogue. Without his encouragement and assistance it would not have been possible to me to overcome the many difficulties which threatened repeatedly to destroy my courage.

In sum, I wish to express here my most sincere thanks to everyone—teacher, benefactor, friend and pupil—whose help has been responsible for whatever positive worth this book may have. As for its defects, it is clear that no one else but the author has to be held accountable for them.

The object, which has justified in my eyes the considerable amount of time and effort that went into the present work, has been the hope of bringing some contribution toward the understanding between the humanist and scientific cultures. I confidently submit the fruit of my labors to the benevolent consideration of those scientists and philosophers who are concerned with the profound issues raised by modern science. In particular I wish to speak to the young college graduates with some knowledge of modern physics. They are in the enviable position of being open to wonder and are courageous enough to ask basic questions. If this book can succeed in making the educated public more aware of the need and method for a new synthesis between the two cultures, I shall certainly feel amply rewarded for all my efforts.

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Enrico Cantore