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0521257565 - High Vacuum Techniques for Chemical Syntheses and Measurements

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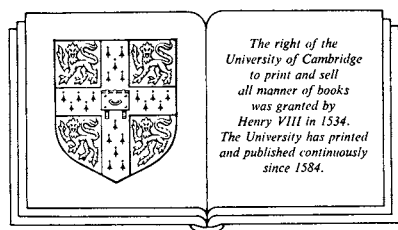
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High vacuum techniques for chemical syntheses and measurements

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Dedication

This book is lovingly dedicated to my ever-helpful wife
Traudi Plesch, MBE, to whom I owe so much.

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Preface

The first words of this book are devoted to my friend Dr Steve Pask, who had urged me to undertake its writing in collaboration with him, which I eventually did. His contributions include much of the text and some valuable constructive criticism, and it was to the great regret of both of us that circumstances forced him to withdraw from the project. Without him this book would never have come to be. However, I alone take responsibility for what it is now.

Amongst my hitherto unacknowledged debts is one to H. A. Skinner, my PhD supervisor (under the general direction of Michael Polanyi), who introduced me to, amongst many other things, the arts of glass blowing and vacuum technique when I started at Manchester in 1944. He, in turn, had learnt them from H. W. Thompson at Oxford.

In the context of practical, especially vacuum line, chemistry, it is my pleasure to express a warm appreciation of Fred Fairbrother, a big man in every way. He had a reputation of sequestering scarce apparatus in his laboratory through a 'non-return valve', but towards me he always showed the greatest generosity in sharing equipment and his incomparable store of practical experience and theoretical insight.

It would be misleading, when writing about the Manchester University Chemistry Department in the late 1940s, to omit the impact made upon our little community by that human ball-lightning, Michal Szwarc. His influence was pervasive and stimulating, not least because so many of us were devising new devices to do new things. His background in chemical engineering made him a most valuable ally in our constant fight against the 'malice of the inanimate' (*die Tuecke des Objekts*).

Last, I must acknowledge my very great debt to M. G. Evans who had succeeded Michael Polanyi in the Chair of Physical Chemistry when I moved from Manchester to Keele in January 1951. When I asked whether the Chemistry Department at the newly founded University College of North Staffordshire (later to become the University of Keele) could buy a few items of equipment from my research laboratory, he encouraged me to take away the whole content of my laboratory (which I did, in 24 tea-chests) and 'never mind any payment'. It is difficult to exaggerate the importance which this generous and understanding gesture had for the rapid establishment of my Polymer Research Group at Keele.

The techniques which my many collaborators helped me to evolve have proved their worth, and have been imitated and improved in laboratories all over the world. Inevitably, this book contains a preponderance of Keele devices and I acknowledge here my debt to all my co-workers, and to our

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ingenious and persistent glass blower, Mr C. C. Cork, who contributed to the stock. I owe a special thanks to my friends Drs R. O. Colclough and R. N. Young whose perspicacious comments have helped me to improve the original script.

Of course, I have done my best to assemble from the literature and through personal contacts as many as possible of the most useful devices and techniques developed elsewhere. Since I am hoping that this book will see a second edition (at least!), I encourage anyone who cannot find his favourite apparatus here to write to me with a drawing, a description and a reference, and the same goes for anyone who knows of a better version of something that is included. In this way the second edition should become a markedly more useful product.

Finally, I thank the Cambridge University Press for their forbearance when the production of this book was delayed excessively by the multiple upheavals accompanying my retirement.

Professor Emeritus, University of Keele,
January, 1988

P. H. Plesch

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