The systematic experiment

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A guide for engineers and industrial scientists

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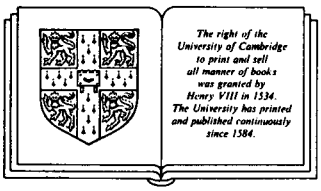

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Preface

Experimenting in science is an exploration, a search into the unknown: this is what makes it so enjoyable. Even more, when it results in the researcher pushing forward the frontiers of knowledge, though to a modest degree, it also gives a sense of achievement.

At seats of learning, instruction in the great majority of branches of engineering and science places a large emphasis upon skill in experiment: and examiners set much import on this ability in the total assessment of the student. And yet, commonly, the student has very limited instruction in the principles of experiment compared with that in what might be called scientific knowledge. We look to the use of this book as a way to correct this marked imbalance.

Though the thrill of discovery may be largely absent from the routine undergraduate experiment, the student can gain, from skilled instruction, an appreciation of the wealth of detail that can be involved in the ordering of an experiment. To assist that understanding this book introduces the totality of the experimental method. It is a distillation of the practical experience of the authors in industry, research establishment and university. It is based on the theme that experiment is logical deduction from observation of a real event and like all logic should be planned and performed in a systematic manner.

This book aims to provide instruction for the undergraduate and to be a reference text for the graduate. Though the applications that it considers make it most suitable for students of engineering, it covers matters of general application for both students and teachers in all branches of science. It is based very largely upon a previous one written mostly by the present

authors and planned and edited by Professor R. K. Penny; his original initiative and effort is the foundation upon which the present book rests.

J. C. Gibbings
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