# Introduction

This manual is a working source book of procedures, equipment, and standards currently being used to solve industrial testing and control problems. It is intended as a guide to those in university and government, as well as in industrial laboratories, who are faced with combatting corrosion problems or developing more corrosion resistant materials. The aim throughout is to combine a brief discussion of fundamental principles with clear descriptions of concomitant techniques and methods as well as the types of problems to which these have been and are being applied.

Although corrosion problems are common to all industries, the test methods and control procedures that have been developed to deal with them are diverse. By combining descriptions of major corrosion problem areas together with discussions of the approaches that have been evolved for controlling them, more effective means for reducing corrosion losses may be fostered. Thus, this manual is organized so that the first chapter provides a concise introduction to basic corrosion science, while subsequent chapters, each written by a leader in his field, review the application of these principles in practice. Emphasis is placed on the explanation of proven methods and standards, as well as on suggestions for procedures which might well become standards in the future. These chapters are followed by two appendices. The first provides abstracts and sources for existing corrosion standards, while the second appendix includes six ASTM standards referred to most frequently in the text.

Within the past decade it has become clear to an increasing number of diverse scientific and industrial groups that more emphasis on the standardization of corrosion tests and the means for interpreting data derived from them is both necessary and valuable. It is often difficult, however, when faced with a specific corrosion problem, to know which of several different testing procedures and standards should be utilized or where information directly relevant to a particular situation might be obtained. It is hoped that this manual will assist in resolving this difficulty.

*Franklin H. Cocks*
Duke University
School of Engineering
Durham, N.C. 27706