

## SYMPOSIUM ON ATMOSPHERIC CORROSION OF NON-FERROUS METALS

### INTRODUCTION

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Most of the papers presented at this Symposium mark the close of the program of the Atmospheric Corrosion of Non-Ferrous Metal exposure tests started some twenty-seven years ago by Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys.<sup>2</sup> At that time it was, and still is to some extent, the most comprehensive test of the atmospheric corrosion properties of non-ferrous metals and alloys ever attempted. One of its objectives was to determine the correlation, if any, between tests of an accelerated laboratory type and atmospheric corrosion. Another was to evaluate the usefulness of changes in tensile properties as a measure of corrosion. Considerable attention was given to the preparation of the metals and alloys included in the test to insure their uniformity and to the collection of complete information on their chemical composition and microstructure. The report of the committee giving all of this information on the test materials is included with the papers of this Symposium. Steps were taken to secure data on the changes in properties due to simple aging as distinguished from corrosion.

The test program was well supported financially by industry. Many govern-

mental and educational institutions rendered valuable assistance. The companies supplying the test materials have given generously of the time of their laboratory staffs in making tests and compiling data.

Down through the years, the program suffered from floods and hurricanes, from the impermanence of test site locations made available by the Government and industry, and from the stupidity and vandalism of man. The validity and usefulness of the results have been questioned on the basis that the test was not planned to permit full use of statistical methods of analysis. Others have pointed out that the relatively few atmospheres represented by the nine test locations do not give a representative picture of the wide variability in the corrosiveness of atmospheres.

However, in spite of its shortcomings, its buffetings by nature and man, its critics and its detractors, the test program has been completed with some solid meat on its bones. Useful information has been collected and published that in all probability would not have developed otherwise. Much has been learned about planning similar tests, on how specimens should be exposed and tested, and the vital necessity of securing a greater degree of permanency for test site locations. The committee's difficulties with the latter were in no small way responsible for the formation of the

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<sup>2</sup> See accompanying 1955 report of Subcommittee VI on Atmospheric Corrosion, p. 3.

Society's Advisory Committee on Corrosion and its acquisition of permanent test locations and adequate exposure test facilities.

In addition to the papers primarily based upon the tests of Committee B-3 through its Subcommittee VI on Atmospheric Corrosion,<sup>2</sup> two papers are included from collaborators who ran roughly parallel tests on similar materials, and two additional papers based upon the galvanic couple tests of Subcommittee VII on Weather. These papers have been included for the purpose of broadening the base of the symposium and providing additional information on the atmospheric corrosion of non-ferrous metals.

All who find some information of use in the papers of this Symposium or the reports of the committee owe thanks to the industrial companies, the governmental and educational institutions, and the members of Committee B-3 who over the years have supported the test pro-

gram and brought it to this fitting conclusion with the admirable group of papers included in this Symposium. The results of the 10-yr. tests were included in a symposium volume issued in 1946.<sup>3</sup> This second symposium volume supplements the first without replacing it. Consequently, the first contains useful material which is not made obsolete by the second volume.

For reasons of propriety, the authors of the various papers do not mention literature of useful and advertising nature procurable from their sponsors. In matters involving the design and installation of metal roofs, gutters, drain pipes, etc., the reader may obtain information from producers and trade associations. Thus he could be assured of recommended practices that are beyond the scope of this volume for discussion.

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<sup>3</sup> Symposium on Atmospheric Weathering of Corrosion-Resistant Steels, Am. Soc. Testing Mats. (1946). (Symposium issued as separate publication, *ASTM STP No. 67*).