

FOREWORD

This report consists of a series of lectures prepared for the annual educational Series of the Dayton Chapter of the American Society for Metals by personnel from the Directorate of Materials and Processes, Aeronautical Systems Division, Battelle Memorial Institute, and The Ohio State University. The lecture series was presented on March 1, 8, 22, and 29 at the National Cash Register Company, Dayton, Ohio with Mr. Walter Luce of the Duriron Company acting as Chairman of the ASM Educational Committee. The cooperation of all personnel involved in this lecture series is greatly appreciated by the American Society for Metals, and especially Col. Lee Standifer of the Directorate of Materials and Processes, ASD, for his efforts in publishing the lecture papers. This publication is published under Project No. 7381, "Materials Application" and was administered under the direction of the Technical Operations Branch, Directorate of Materials and Processes, Aeronautical Systems Division, with H. L. Gegel acting as project engineer.

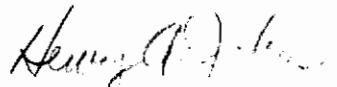
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ABSTRACT

This report consists of a series of lectures on failure analysis. Causes, cures, and preventive measures of corrosion are discussed. The general types of elevated-temperature service failure are described and the influence of static and dynamic loading, thermal cycling, corrosion, and inert environments are discussed herein. The sensitivity of present high strength structural alloys to brittle failure under various environmental and state of stress conditions is included. Present Air Force research efforts on the characteristic behavior of high strength materials are reviewed. This includes the relationship between mechanical wear and lubrication. A description of the interaction between two contacting solids causing wear and the basic principles of lubrication and lubrication techniques are given.

PUBLICATION REVIEW

This technical documentary report has been reviewed and is approved.



HENRY A. JOHNSON
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TABLE OF CONTENTS

	Page
1. CORROSION FAILURES Mars G. Fontana, The Ohio State University	1
2. PROBLEMS IN USING METALLIC MATERIALS AT ELEVATED TEMPERATURES A. M. Hall, Battelle Memorial Institute	13
3. MECHANICAL WEAR AND LUBRICATION Tung Liu, Directorate of Materials and Processes B. D. McConnell, Directorate of Materials and Processes	31
4. SERVICE FAILURE ANALYSIS INVOLVING BRITTLE CRACKING MECHANISMS Lt. W. F. Payne, Directorate of Materials and Processes	53