ASD TECHNICAL REPORT 61-322

MATERIALS SYMPOSIUM

13-15 SEPTEMBER 1961

HOTEL WESTWARD HO

Phoenix, Arizona

JULY 1961

Directorate of Materials and Processes

AERONAUTICAL SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

McGregor & Werner, Inc., Dayton, O.
3000-September 1961 / 1-1

FOREWORD

The increasingly rapid pace of modern technology throughout the world makes it imperative that our Air Force research programs be daringly imaginative and that our efforts include high risk items in order to accelerate progress. Weapon systems for the space ages of the future will be totally different from past and present types and will of necessity involve fantastically complex structures and components with greatly increased operational lifetimes and extremely high reliability. At the same time many more immediate problems must be solved. Such things as creep and fatigue in applications calling for long operational lifetimes, light weight structures for vertical takeoff or landing aircraft and high temperature tires must receive careful attention. These requirements cannot be met until materials scientists and engineers provide the essential ingredients for them. In order to meet the bare essentials of our programs,greatly accelerated progress in materials will be needed.

At the NATO Symposium on Materials Research which was held last June, it was pointed out that such efforts should follow two paths. First, somewhat empirical engineering will have to be continued with its attacks aimed at solving specialized and specific problems encountered in particular applications. Secondly, expanded use must be made of more fundamental studies involving chemistry and physics and other sciences and especially interdisciplinary research. All these efforts must be closely integrated to avoid delays.

The two previous meetings of this type were most helpful in providing the free exchange of ideas which can accelerate progress. It is expected that the papers presented here will be even more useful in conveying Air Force requirements to materials engineers and scientists throughout the defense community.

W.A. DAVIS
Major General, USAF
Commander

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

TABLE OF CONTENTS (Cont'd)

TABLE OF CONTENTS (Cont'd)