

Introduction

It has been over 30 years since the development of the low cycle fatigue (LCF) law. This symposium was organized to commemorate this technological advance and to honor the pioneers in this very important field. The symposium was not, however, organized only to look backward at past accomplishments but also to look forward. We were fortunate in having Dr. L. F. Coffin, Jr., and Professor S. S. Manson give us their perspectives on low cycle fatigue and their opinions on the future directions of its study.

Indeed, their presence at the symposium was most fitting, since they are two of the most important pioneers in the field, having independently developed the LCF law which bears their names. Their papers were presented at a banquet held in their honor and are given at the beginning of this volume.

Following Coffin's and Manson's papers are those in the order in which they were presented. The first sessions were on cyclic deformation and LCF damage. These were followed by papers on crack propagation, led off with a review of this field by R. P. Skelton. Next came sessions on high temperature LCF and thermal and thermomechanical fatigue. (It is clear from the large number of papers in these two sessions that the bulk of LCF work is for elevated temperature applications.) Microstructural effects, with a review by J. Wareing, were considered next, followed by a session on multiaxial and variable amplitude loading. The penultimate session was on notches. The final session on life prediction tried to tie together LCF and fatigue life prediction.

It is clear from this enumeration of session topics that low cycle fatigue is a complex field with numerous aspects. This has led to a large symposium and a formidably sized publication (72 papers out of over 140 submitted abstracts). It is hoped that these papers will aid in the understanding of low cycle fatigue and will have a role in charting its future directions.

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