PREFACE TO FIRST EDITION

THIS research monograph is about elasto-hydrodynamic lubrication, the name given to the lubrication regime in operation over the small areas where machine components are in nominal point or line contact. The lubrication mechanism is fundamentally the same as in a journal bearing, where the area of the lubricated surfaces is large, but the conditions are much more severe; in particular the pressure which must be generated in the lubricant is very much higher.

Gears and rolling-contact bearings, and no doubt many other contacting machine elements, have enjoyed hydrodynamic lubrication for very many years, but only during the last fifteen or so has this been recognized, and only during the last few years has the classical lubrication theory been sufficiently modified to be reconciled with practical observations in this field. The theory still has far to go to become anything like complete, but recent experiments have shown that it has already advanced far enough to be of some use to engineering designers.

This monograph has been written by four men who, although at the time the work was done were two pairs, at the time of writing were in four different places. They have tried to produce a unified document, but they apologize in advance for any discontinuities which the reader may detect.

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