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*“That is a good book which is opened with expectation
and closed with delight and profit.”*

—Amos Bronson Alcott

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PREFACE

“General observations drawn from particulars are the jewels of knowledge, comprehending great stored in a little room.”

—John Locke

The prime objective of petroleum-producing operations is not only to supply the modern world with crude oil and natural gas but, hopefully, to make a profit while doing so. This book is a guide to the basic economics of petroleum production as practiced throughout the world.

The process of looking at an oil company from a financial and/or accounting viewpoint may involve a different perspective than the one to which most operating people in the industry may have become accustomed. The intent of this text is to demonstrate more clearly how, when, and why an oil company makes a profit, or fails to do so. This understanding should lead to an improved grasp of the various means by which any oil company's profit can be improved.

The central theme of the text focuses on adapting basic economic analysis to increase business efficiency. The format seeks to accomplish this by:

1. Emphasizing the importance of maintaining a positive cash flow.
2. Presenting how various economic evaluations are done and why they are used.
3. Presenting those aspects of economics and decision analysis, including matters of physical risk, e.g., dry hole and acts of nature; and financial risk, e.g., price and interest, that are most important to the oil and gas producing business.
4. Providing a background of how the oil and gas producing industry functions as an economic entity within the business community.

These objectives become somewhat intertwined as the text material is presented, since each objective reinforces the others toward an improved understanding of each.

Petroleum exploration, development, and production activities do not fit conventional accounting procedures. One purpose of the text is to bring together the diverse factors, including technical, financial and accounting aspects in a manner that will assist those employed in the industry to better understand the workings of an oil company as a business.

There are many factors in the categories of finding costs, oil and gas prices and volumes, and the large investments required to develop and produce petroleum that are all exceedingly important to oil industry's profit or loss. A number of these aspects are within the direct control of the firm. A significant number, however, are beyond its influence and control. The problems of fiscal and physical (geological) risk are uniquely coupled in the oil business. Chapter VI introduces the industry's methods of dealing with these.

Throughout this text, data and examples from the U.S. are used more frequently than for any other location. This is because such data is more readily available. The U.S. dollar is also used more frequently than other currency for the same reason. Since oil is priced in terms of U.S. dollars per barrel throughout the world it is also the unofficial currency of the oil industry. Even though most of the economic principles of this book are explained in terms of U.S. dollars, all of the economic principles are equally valid in any other desired currency.

The material in this book is assembled as bricks in a wall. Each chapter uses the material presented in previous chapters as the basis for information provided in subsequent chapters. By going through the book in the order it is written, sufficient background should be developed to understand each new topic.

Symbols used throughout this text conform to those established by the Society of Petroleum Engineers as published in 1986, and the update of economic symbols printed in the August 1992 issue of the Journal of Petroleum Technology. Where a standard symbol has not been established for a term used in this text, one was selected which is compatible with the standard symbols. The symbols are defined, as used, throughout the text with the appropriate units noted. A listing of all of the nomenclature used appears at the end of the book.

Dr. Fraser H. Allen, who died in 1997, created the courses for which this book was written. His over 50 years of experience in the Petroleum Industry was the source of much of the information contained in this book and its first edition, which he co-authored. Revisions of Economics of Worldwide Petroleum Production have been prepared without the benefit of his advice, review and poignant comments, which were certainly missed.

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God helps them that help themselves

—Proverb

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