

Preface

This book is meant for the young geoscientist, but can also serve as a useful reminder for many experienced geoscientists of the need for carefully thinking about hydrocarbon shows in a migration and trap context. The science of petroleum exploration and production evolves at a rapid pace, but some fundamentals will always remain that must be adhered to. Finding oil and gas has never been easy and never risk-free. The techniques and examples in this book should help reinforce the most fundamental need of any petroleum geologist—the ability to understand hydrocarbon shows quantitatively and turn that knowledge into drillable prospects.

This book has evolved over a lifetime of chasing oil and gas prospects around the world, first in the Denver Basin of Colorado and later in Egypt, Russia, and India, along with many other basins. Like many young geoscientists, I spent years honing my ability to make stratigraphic and structural maps, but often neglecting to build them in such a way that I could explain where the oil and gas shows were. As I became more experienced, and learned the value of understanding the petrophysical properties of rocks, my ability to find oil and gas increased. Along the way, I have had many successes and a number of regrettable, and avoidable failures. Fortunately, when we learn from the failures, it makes us better explorers later on.

The book is an outgrowth of courses taught years ago by Larry Meckel and Tim Schowalter, and championed by Dan Hartmann. My introduction to hydrodynamics was from discussions and workshops with Eric Dahlberg, who has published one of the best summary textbooks in the industry. Since the early 1990s I have been teaching workshops on shows and seals and have always found it interesting how even attendees with 25–30 years of experience leave the class with a renewed sense of appreciation for thinking quantitatively about basic test and show data.

In recent years, a common complaint I hear from senior management in all companies is a sense of frustration that many basic principles are not being used by many of their younger staff. A fixation on 3D seismic imaging or computer models far too often moves ahead of the basic task of actually looking at well logs, reports, sample and core data to see where the hydrocarbons have migrated and been trapped. This kind of work, often less glamorous than a 3D seismic display or computer graphic, remains essential to make sense out of those beautiful computer

images. Ironically, when I hear that complaint, I can hear my early bosses telling me the same thing: ‘you need to pay more attention to the shows data’. Some things, I think, simply don’t change and only firm insistence by technical and managerial leaders that shows information is incorporated in every analysis will cause that situation to change.

This is an exciting business to work in. The opportunities to travel and interact with many fine people grappling with difficult problems are always stimulating. I hope that for those reading this book it might cut the critical learning curve to finding oil and gas by many years.

I wish I had been exposed to materials like this the first day on the job, rather than learning it piecemeal over a decade or more.

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