Chapter 1

Introduction

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The success of Memoir 14 and the worldwide interest shown for data on giant fields prompted AAPG to schedule a symposium on giant fields at the end of each subsequent decade. The 1968-78 symposium was held in Houston, Texas, April 1-4, 1979, and the papers were published in AAPG Memoir 30, December 1980.

The Stavanger Conference "Giant Oil and Gas Fields of the Decade: 1978-1988" was held in Stavanger, Norway, September 9-12, 1990, and is a continuation of the Giants of the Decade series.

Scientific studies and projections of future world energy demand indicate that although alternative-energy fuel sources must be actively pursued and developed, there also must be adequate petroleum supplies to bridge the gap. For the international petroleum industry, the years covered by this conference, 1978-88, were complex. They were years of boom and bust. The world's energy consciousness was boosted sharply by the effects of the 1979 Iranian revolution and the resulting embargo, which sent world oil prices to record heights. Global petroleum exploration soon surged, leading to the industry's all-time drilling high in 1981. Then came the oil price collapse in 1985, and the following years were characterized by falling oil prices and drastic budget cuts for exploration and development.

Although exploration dropped sharply during the latter part of the decade, there was a steady flow of giant oil and gas field discoveries. Using the giant field designation criteria of 500 million bbl of oil recoverable for fields in Asiatic Russia, North Africa, and the Middle East, 100 million bbl of oil recoverable for the fields in the remainder of the world, and 3 tcf and 1 tcf of gas reserves recoverable for the same areas respectively, (these definitions exclude heavy oil sands and tar deposits, as well as pervasive ultralight and other nonconventional gas accumulations), it is estimated that at least 182 giant oil and gas fields containing an estimated 140 billion BOE (barrels of oil equivalent) were discovered in 46 countries during the years covered by this conference. Of this number, 33 fields in 17 countries were selected for presentation at the Stavanger Conference.

It is interesting to note that, in the decade 1978-88, 288 giant fields, containing an estimated 330 billion BOE, were found worldwide. Comparison of these figures with those of the preceding decade show that there was an appreciable decline in giant discoveries. It should also be noted that there were more exploratory wells drilled in the latter decade than in the former. The exploratory well totals for the 1978-88 period are misleading, however, because of the great increase in exploratory well drilling in the United States (41,342 more exploratory wells were drilled in the United States than in the 1968-78 decade), where a predominance of small prospects were drilled with relatively small reserves.

The yo-yo fluctuations in oil prices accompanied by a recession in worldwide exploration during the latter part of the last decade added to the drop in giant discoveries.

The majority of the world's prospective petroleum-producing areas currently are nonproductive. Each year a portion of this potential is explored, and it is in these areas that the majority of the future giants of the world will be found.

The papers in this volume discuss the accumulations of vast reserves of oil and gas in, on, and around various types of geological traps. In each case, the type of trap is identified, followed by a discussion of how the trap was formed and found, the age of the reservoir rocks, and, most important, the significance of all these factors to one another and how they were applied to discover the giant field.

During this international symposium, geoscientists from the global petroleum industry described some of the most significant giant field discoveries of the decade and disseminated information of inestimable value, which should be used in searching for the giants yet to be discovered. The presentations covered a selection of giant fields that were found in Venezuela, Brazil, the United States, Canada, Mexico, Colombia, Angola, Cameroon, Egypt, France, Italy, the United Kingdom North Sea, the Norwegian North Sea, Kazakhstan, China, Australia, and Papua New Guinea. The papers focused on how these giant accumulations of petroleum were formed as well as the equally fascinating story of how they were found.

This conference substantiates the importance of giant fields to the global petroleum industry and the world