

Preface

Since the advent of the first submarine telegraph cable in 1851, world undersea communications have undergone 160 years of development history. The invention and development of undersea communication, the crystallization of human wisdom and science and technology, especially the application of optical communication technology, have led to revolutionary changes in the field of communication and information. In 1988, the world's first interocean submarine cable system (TAT-8) was built, marking a new, historic period in international communications. Submarine cable, with its large capacity, high-communication quality, low cost, and safe and reliable advantages, not only will completely replace the submarine coaxial cable but also has gradually replaced the original satellite communication and quickly become the world's most important means of communication. According to incomplete statistics, so far, in the operation of international submarine cable, the world has more than 230 systems, with a total length of more than 105×10^4 km. At present, submarine cable communication accounts for more than 90% of the global communication service and has become the most important means of communication and information transmission between the countries in the world today, contributing to the prosperity of the world economy, cultural exchanges and social development, and as an immeasurable driving force.

China's first international submarine optical cable, China-Japan submarine cable system, was built and first used in December 1993. After more than 20 years of development, China's international submarine optical cable communication system gradually formed the submarine optical cable communication network that today connects the world's major countries. It provides a reliable foundation network to meet the rapid development of international communication. China has become an important member of the international submarine cable communication network family.

This book is a summary and extension of the author's practical experience for decades in the construction of submarine optical fiber cable, and it introduces the basic concepts of submarine optical cable communication and the related natural geographic marine environment and knowledge of marine law, reviews the process of the invention and development of submarine communication, analyzes the general layout and characteristics of the submarine cable system in China, and gives a comprehensive exposition of the latest developments and achievements in engineering site selection, submarine cable route survey, system construction and maintenance, operation safety and information management, etc. The technical developments and market prospects of submarine optical cable engineering are also discussed. The author hopes that the publication of this book will play a positive role in promoting the long-term development and scientific and technological progress in this field.

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