地质公园科学解说——理论与实践

SCIENTIFIC INTERPRETATION FOR GEOPARK

——THEORY AND PRACTICE

张忠慧 著

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·北 京·

内容提要

本书概述了地质公园及解说现状，全面介绍了作者十余年来在地质公园建设及科学解说方面的研究成果，系统阐述了地质公园景前区、标志碑、地质博物馆、地质科普线路和地质景观科学解说的组织、方法和要点，同时对地质公园的出版物、音像制品和电子信息化解说进行了探讨，并提出了地质公园的发展方向。

本书是一本论述全面、方法明确、图文并茂、案例丰富的地质公园解说工具书。可供相关大中专院校师生、从事旅游地学的研究人员和地质公园建设的技术人员、管理人员以及地学爱好者参考使用。

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地质是山水之灵魂，解说是旅游之灵魂，

地质解说是山水旅游（地质公园）之灵魂。

As geology is the soul of landscape and interpretation is the soul of tourism, geological interpretation is the soul of landscape tourism (Geopark).

地质遗迹/景观内涵是地质公园立园之本，

地质科学解说是地质公园可持续发展之魂。

Geological heritages/ landscape connotation is the base of Geopark, geological interpretation is the soul of Geopark's sustainable development.

旅游地学思想的体现　地质旅游灵魂的展示

（代序）

地质公园建设已经走过了十多年的辉煌历程，成为科学旅游的品牌。但是，当前地质公园（包含有地质遗迹的一切公园、风景名胜区、森林公园、旅游区等）普遍存在的问题是科学解说环节比较薄弱。这个问题虽然已经引起了高度重视，并在旅游地学年会和世界地质公园年会上多次研讨，然而改进很少、推进很慢，关键是在地球科学和地学科普之间，横亘着理性与感性、逻辑思维与形象思维几道看似不可逾越的鸿沟，任何人想要一跃而过，都不是一件容易的事情，因此，少有人能够对此从理论和实践的高度进行系统的总结。

张忠慧是我国地质公园领域近年来涌现出的优秀的旅游地学家之一，十多年来一直坚持在旅游地学和地质公园建设的第一线，他毕十余年从事地质公园之功，成就这一部《地质公园科学解说——理论与实践》。作者遵循地质公园建立全面的、完善的、系统的科学解说系统，对地质公园解说提出了系统、深入、独到的见解，并将十多年实践中获得的第一手实际材料完整地体现在书中，在某些方面，已经超越了已有解说的理论和实践，它符合旅游地学“从实践到理论，再实践提高理论、完善理论”的学科发展原则。

《地质公园科学解说——理论与实践》是我见到的第一部关于地质公园解说的著作，他填补了我国旅游地学服务地质公园和地质旅游的空白。对于地质公园来说，它开通了地学科普的新途径。由此，《地质公园科学解说——理论与实践》的出版获得了一种存在的意义。是为序。

中国地质科学院研究员，中国地质学会
旅游地学与地质公园研究分会副会长 陈安泽

2014年4月11日于北京

An Expression of Geotourism Thought and a Show of Geotourism soul

—— Preface by Anze Chen

With more than ten years outstanding development, Geopark has become a brand of scientific tourism. However, the weak scientific interpretation is the biggest problem of present Geoparks, including all parks, tourist attractions, forest parks that have geoheritages,. Although this problem has aroused great attention, and was discussed many times in both geotourism annual meetings and Global Geopark annual conferences, the improvement is still very little, and is promoted in a very slow speed. Between geosciences and popularization of geosciences, there seems to be an unbridgeable gap with sense and logical thinking on one side and sensibility and imagery thinking on the other side, and it is a difficult work to build a bridge between them. So far scientific interpretation has not been summarized theoretically and practically by anybody.

As one of the excellent geotourism experts in Geopark field in recent years, Zhonghui Zhang has dedicated himself to the front line of geotourism and geopark for more than ten years. He has engaged in Geopark for more than 10 years and written this *Scientific Interpretation for Geopark.* Zhang keeps to the rule that Geopark should build a comprehensive, complete and scientific interpretation system, and puts forward some scientific, insightful and unique opinions. He presents all the practical materials he's got during the last decades in this book. This, in some respects, has surpassed existing theory and practice, which conforms to the principle of geotourism's development-from theory to practice, then from practice to theory, and perfect the theory at last.

Scientific Interpretation for Geopark is the first work I read on Geopark's interpretation. It fills a vacancy on geotourism's service on geopark in China. *Scientific Interpretation for Geopark* has great significance to open up a new approach for Geopark.

April 11th, 2014 at Beijing

(Anze Chen, a researcher of Chinese Academy of Geological Sciences, vice-chairman of Geotourim and Geopark Branch of Geological Society of China)

前言

地质公园是自然公园的一种，是广大地学工作者为保护地质遗产、实现人与自然和谐共存而创建的一种公园形式。联合国教科文组织将世界地质公园定义为：有明确的边界线并且能为当地经济发展服务的一定范围的区域。它是由一系列具有特殊科学意义、稀有性和美学价值的，能够代表某一地区的地质历史、地质事件和地质作用的地质遗址或者拼合成一体的多个地质遗址所组成，它不仅具有地质研究意义，还有考古、生态、历史和文化价值。

建立地质公园的主要目的有三个：一是保护地质遗迹及其环境；二是促进科普教育和科学研究的开展；三是合理开发地质遗迹资源，促进所在地区社会经济的可持续发展。地质公园的建立一方面实现了对地质遗迹的保护，另一方面凭借其优美的地质生态环境和引人入胜的自然景观及不可再生的稀世遗迹、通过合理的规划建设而形成的旅游区，成功地推动了当地旅游业发展，增强了地方经济实力，增加了当地居民的就业机会，实现了地方环境、经济、文化的协调发展。

地质公园因其浓厚的地学背景特色，展示出了奇特景观背后蕴藏着的地学科普知识，然而因地质知识的专业性、地质景观的古老性、旅游解说系统功能的辅助性、服务的隐蔽性等特点，旅游者在实际游览过程中借助现有的旅游解说系统并未明显提高游览质量。鉴于此，本书在全面分析地质公园存在的主要问题的基础上，制订了相应的对策措施。并综合了作者十多年从事地质公园建设工作的实践，选用了大量的案例，对地质公园如何解说进行了全面系统的剖析，并在此基础上，形成了一套科学、系统、通俗、易懂、生动、活泼的解说体系，为地质公园的科普和解说水平的提升提供了基础，对指导地质公园的管理和建设具有实践意义。

本书共分为十一章。第一章：地质公园，主要介绍地质公园建设和地质遗迹保护的概念、现状及发展历程；第二章：地质公园解说，主要介绍解说的基本概念、理论基础、研究起源、发展现状等，在此基础上，系统分析了地质公园科学解说的现状和存在的问题，针对这些问题制定了相应的对策措施，建立了分类体系和架构，为科学解说奠定了基础；第三章：景前区解说，主要介绍了景前区解说的要点和方法，并以云台山世界地质公园、嵩山世界地质公园、王屋山—黛眉山世界地质公园等实例进行了分析；第四章：标志碑解说，主要介绍了标志碑解说的要点和方法，并以云台山世界地质公园、嵩山世界地质公园为例，对标志碑的主题解说、碑文解说和大型宣传栏解说进行了系统的分析；第五章：博物馆解说，主要介绍了博物馆的选址、建筑设计、布展设计、展品设计及其策划要点和解说顺序，并结合嵩山、云台山、王屋山、黛眉山、黄河、金刚台、桐柏、武安和芒砀山等博物馆布展设计案例，对博物馆功能、环境、特色、效果等进行了剖析；第六章：地质科普线路解说，以王屋山、海南石火山和嵩山为例，从整合地质遗迹资源、提升资源价值等方面阐述了科普线路解说的必要性和解说的方法、要点；第七章：地质景观解说，在全面分析地质景观解说的现状和存在的主要问题的基础上，针对地质景观解说专业化、解说形式呆板等问题，创新性地提出了地质景观解说“十法”，对推进我国地质公园科学解说起到极大的推动作用；第八章：地质科普图书解说，在广泛总结和全面分析多家地质公园出版物的现状和存在的问题的基础上，吸取先进经验，提出了出版物应重点向地质故事类出版物、地质导游类出版物和地质卡通类出版物方面发展，旨在推进出版物向景观故事化、旅游功能化、形式多样化、读者大众化方面发展，并以《带你游玩张家界》《在地质与人文的世界里徜徉》和《岩石学校》为例，提出了三种科普读物的编写提纲，使出版物更加通俗化、人性化、体验化，更加易为公众所接受；此外，还对科学导游图和科学解说词的编写提出了作者的见解；第九章：地质音像制品（光盘）解说，选取了大量的案例，总结了音像制品脚本的编写结构；第十章：电子信息化，中国地质大学（北京）的田明中教授在系统分析香港和内蒙古阿拉善沙漠世界地质公园两个世界地质公园电子信息化建设成果的基础上，对中国地质公园电子信息化的发展进行了总结；第十一章：地质旅游发展展望，在解说系统的规划基础上，提出了地质旅游的发展展望。

本书的主要成果认识和创新性概括如下：①本书是作者十多年从事地质公

园申报、规划、设计、建设的心得体会，所采用的案例涉及5家世界地质公园、21家国家地质公园和多家省级地质公园，具有很强的实践意义。②解说组织是解说系统构建的保障，本书试图突破传统的从传播学角度构建的“资源、媒介、受众”的旅游解说系统，从系统学角度构建地质公园旅游解说系统，提出了一套完整的解说系统分类，将地质公园的解说系统分为6大类27个类型。③在详细分析各类解说存在的问题的基础上，选准了解说的要点，制定了解说的办法，使地质公园解说集科学性、科普性、系统性、完整性、文学性、艺术性、生动性、活泼型、互动性、体验性等多重功能于一体，既照顾了科研人员、地质工作者、大中专学生，更照顾了公众的消费需求，尤其侧重于中小学生的教育。④地质公园的地质遗迹解说既要突出典型性，又要具有系统性和完整性；既要突出地质景点的解说，更要从整体的高度对地质遗迹进行总体解说。书中提出了景前区解说、科普线路解说和地质景观解说三种解说方法，使游客通过解说对地质公园、核心科普线路、典型地质景观有一个全面的认识和了解，既了解了公园的地质特点，又了解了公园形成这些地质特点的原因，更了解了典型地质景观的成因。观赏欲、体验欲、求知欲、好奇欲都得到极大的满足。⑤本书突出了地质景观的价值和意义，为公众了解地质公园的特色和地质景观的保存意义提供了一个宣传平台，极大地提高了地质景观对公众的吸引力和号召力，提高了公众对地质公园、地质景观的认知度，为公园开展环境教育、科普教育奠定了基础。⑥在地质景观解说方面，本书创新性地提出了地质景观解说“十法”，即故事法、事件法、拟人法、问答法、图解法、层次法、比喻法、研究法、警示法和互动法，使地质公园解说更加生动，更加具有吸引力，使旅游者体验到“寓教于乐，寓教于游”的旅游新方式。⑦把地质公园保护的重点放在如何利用解说系统正面引导游客，通过旅游解说系统的科学规划，深入挖掘其中蕴藏的科学内涵、美学价值，从而加深游客对资源和设施的保护意识，激发其自觉的保护行为。

本书论述范围广、系统性强、实践案例丰富，可作为旅游地学专业的参考教材和地质公园管理人员、技术人员、导游人员的培训教材，也可作为旅游爱好者的地学科普读物。

地质公园建设已经走过了十三年的历程，各地质公园在管理、规划、设计、建设、解说等方面都取得了一定的经验，对解说的认识和见解可以说是仁者见仁、智者见智，不当之处，还请大家批评指正。

本书的编写得到了中国地质学会旅游地学与地质公园研究分会副会长陈安

泽先生、中国地质大学（北京）田明中教授、中国地质调查局南京地调中心陶奎元研究员、中国科学院广州地球化学研究所赵太平研究员的悉心指导。引用的大量案例是由河南省地质调查院和河南省山水地质旅游资源开发有限公司策划；华中科技大学城市建筑与规划学院和河南深宏环境艺术工程有限公司设计的；王建平教授级高工、张良教授级高工和华中科技大学的李保锋教授以及本书作者张忠慧教授级高工是这些项目策划和设计的主要负责人；华中科技大学的丁建民、华伟教授，河南省地质调查院的刘成社教授级高工、章秉辰教授级高工、王凤云教授级高工、方建华高工、梁会娟高工和河南深宏环境艺术工程有限公司的陈彦军总经理等参与了部分项目的策划和设计；河南省地矿局第二地质矿产调查院的罗自新高工，河南省地质调查院的石晨霞、任利平工程师，河南省地矿局第四地质矿产勘查院的张睿助工，河南省山水地质旅游资源开发有限公司的杜开元、危红梅、甄莎工程师，江吉喆助工等参与了部分案例的资料整理；河南省地矿局第四地质矿产勘查院的渠玉冰助工、河南省山水地质旅游资源开发有限公司的井燕工程师和河南省地矿局第二地质矿产调查院的张晓丽助工等参与了其中的英文翻译；河南省山水地质旅游资源开发有限公司的尚伟丽工程师、牛娜、张金、陈曦雯设计师和河南深宏环境艺术工程有限公司的黄金辉、张伟、徐晓磊、邢文贤设计师等参与了部分图件制作；罗自新、石晨霞、张睿参与了本书的修改和校对；书中所附的照片为各个地质公园管理机构和赵洪山等摄影家提供。在此一并表示感谢。

张忠慧

2013年9月于郑州

Foreword

As a member of nature parks, Geopark is built for geologists to protect geological heritage and realizes the harmony between man and nature. UNESC defines "Geopark" a certain area with clear boundary to serve the local economic development. Geopark is composed of specially scientific, rare and aesthetic geoheritages representative of local geohistory, geoevents and geological processes. Geopark has not only the geological research significance, but also archaeological, ecological, historical and cultural value.

There are three main purposes to build geopark: the first is to protect geoheritages and environment, the second one is to promote science education and research, the last one is to develop geoheritages reasonably and promote sustainable development of local economic. The establishment of geoparks on the one hand realizes the protection of geoheritages, on the other hand, with geoparks' beautiful geo-ecological environment, graceful and fascinating natural landscape and non-renewable rare sites, they successfully promote the development of local tourism and enhance the local economy by reasonably planning, increasing the local employment opportunities, realizing the coordinated development of local environment, economy and culture.

Because of Geopark's strong geological background, it shows popular geoscience behind the peculiar landscape, however, due to the speciality of geoscience, the antiquity of geological landscape, the auxiliary function of tourism interpretation system and the invisibility of service, tourist interpretation system does not significantly improve the quality of tour as travelers are sightseeing. In view of this, some corresponding countermeasures are formulated based on the comprehensive analysis of geopark's main problems. With more than ten-year's practical work on geopark, the author chooses a large number of cases, and comprehensively analyzes how to interpretate geopark. And on this basis, a set of scientific, popular, understandable, vivid,

and lively interpretation system is formed, which improves the level of interpretation with great practical significance to guide the management and construction on geopark.

The book has 11 chapters: The first chapter, Geopark, which mainly introduces the construction of geopark and the concept of geoheritages protection, current situation and development; The second chapter, mainly introduces the basic concept of interpretation, theoretical basis, the research origin and current development situation. On this basis, the present situation and problems of geopark's interpretation are analyzed, and the corresponding countermeasures are formulated to solve these problems, then the classification system and framework is established, which lays a foundation for scientific interpretation; The third chapter is about interpretation at the area in front of the landscape, which mainly introduces the key points and methods of interpretation at the area in front of the landscape, and takes Yuntaishan Global Geopark, Songshan Global Geopark, Wangwushan-Daimeishan Global Geopark, etc. as examples to analyze; The fourth chapter is interpretation of the mark stele, which mainly introduces the key points and methods of interpretation, and takes Yuntaishan Global Geopark and Songshan Global Geopark as examples to scientificly analyze the theme, the inscriptions on monuments and large bulletin boards; The fifth chapter is on the interpretation of geological museum, which mainly introduces the museum's location, architecture, decoration, display design, planning tips and order of interpretation, and takes the museums in Songshan Mountain, Yuntaishan Mountain, Wangwu Mountain, Meishan Mountain, Yellow River, Jingangtai, Tongbai, Wuan and Mansangshan as examples to analyze museums' function, environment, features and effects; The sixth chapter is about the interpretation in popular science route. Taking Wangwu Mountain, Hainan volcano and Songshan Mountain as examples, it states the necessity of the interpretation in popular science route and methods of interpretation from the aspects such as integrating the geoheritages' resources and promoting the value of resources; The seventh chapter is on the interpretation of geological landscape. Based on the comprehensive analysis on present situation and the main problems of geological landscape, the "ten methods" of interpretation of geological landscape is innovatively proposed in view of the inflexible form of geological landscape's interpretation, so that to promote geopark's scientific interpretation; The eighth chapter is about interpretation of geopark books. This chapter broadly summaries and comprehensively analyze the current situation and existing problems of geopark's publications. Absorbing the advanced

experience, publications should focus on stories of landscapes, functions of tourism, variety of forms and the popularization of readers. Taking *Following me to Visit Zhangjiajie, Walking in the World between Geology and Humanity, and Stone School* as examples, three outlines of publications are proposed in order to make publications much better for the public, In addition, the author also states his opinions on tourist map in science and scientific interpretation; The ninth chapter is about interpretation of audio and video products (CD). With a large number of cases, this chapter summarizes the script structure of audio and video products; The tenth chapter is about the electronic computerization of geoparks. Based on analyzing the achievements of electronic informatization construction in two Geoparks in Hongkong and Inner Mongolia by professor Mingzhong Tian of China University of Geosciences (Beijing), this chapter summarizes the development of electronic informatization in China; The eleventh chapter is about system planning and development prospects of geotourism. On the basis of interpretation's system planning, this chapter describes the prospects of geotourism.

Main achievements of this book are summarized as follows: ①This book comes from the author's extensive experience engaged in geopark's applications, plans, designs and constructions for more than 10 years. The cases in this book involve five globe geoparks, 21 national geoparks and several provincial geoparks, which has great practical significance. ②Interpretation organization is the guarantee of interpretation system's construction. Breaking through the traditional tourism interpretation system from the perspective of communication to build the interpretation system of "resource, media, audience", this book tried to build tourism interpretation system from the perspective of systematics, and puts forward a complete interpretation system classification, which divides the geopark interpretation system into 27 types of six categories. ③On the basis of detailed analysis on all kinds of problems existing in the interpretation, this book develops methods of interpretation, making the geopark interpretation a set of scientific, educational, systematic, integrited, literary, artistic, vivid, lively, interactive, experiential, and multiple functions in one. This book satisfies not only the needs of scientists, geologists and college students, but also the needs of the public, especially primary and middle school students. ④The interpretation of the geoheritages in Geopark should highlight the typicality, systematicness and integrity, as well as highlight the interpretation of geological sites and even the whole overall interpretation of geoheritages. In the chapters of interpretation at the area in front of the landscape, interpretation

in popular science route and interpretation of geological landscape, the book presents triple interpretation method, by which visitors will have a comprehensive knowledge and understanding on the core popular scientific routes, typical geological landscape, so that visitors cognize the geological features of the park, understand why these geological characteristics exist, and learn more about the causes of the typical geological landscapes. The desire of visitors to know, experience and enjoy has got great satisfaction. ⑤This book highlights the value and significance of geological landscapes, provides a platform for the public to understand the characteristics of geoparks and significance to protect geological landscape, greatly improves the geological landscape's attraction to the public, and enhances the public awareness of geoparks and geological landscapes. This book lays a solid foundation for parks to carry out environmental education and popular science education. ⑥In terms of geological landscape interpretation, the "ten methods" of interpretation of geological landscape is innovatively proposed in this book, namely story method, event method, personification, question and answer method, graphic method, hierarchical method, analogy method, study method, warning method and interactive method, making the geopark interpretation more vivid and attractive. The tourists experience a new way of travel-the "education with fun" tourism. ⑦To protect the geological parks, this book focuses on how to utilize the interpretation system to positively guide tourists. And tourists will find geopark's scientific connotation and aesthetic value through scientific planning of interpretation system, thus visitors' awareness to protect the resources and facilities will be strengthened.

With a wide range state, systematicness and abundant practical cases, this book can be considered as a professional geoscience textbook and training textbook for geopark management personnel, technical personnel and tour guides, also can be used as a popular science book for travel enthusiasts.

Geoparks in china have achieved a certain experience in management, planning, design, construction and interpretation construction through a journey of 13 years. Different people have different views on interpretation, so if there are any unsuitable views, we welcome any comments and suggestions.

The writing of the book has got the guidance from Anze Chen, the vice-chairman of Geotourim and Geopark Branch of Geological Society of China, Professor Mingzhong Tian from

China University of Geosciences (Beijing), Professor Kuiyuan Tao from Nanjing Survey Center of China Geological Survey, and researcher Taiping Zhao from Guangzhou Geochemistry Institute of Chinese Academy of Sciences. The cases used in this book are planned by Henan Institute of Geological Survey and Shanshui Geotourism Recourses Development CO., LTD., and designed by Huazhong University of Science and Technology and Henan Shong Art & Trading Co., Ltd. Professor senior engineer Jianping Wang, professor senior engineer Liang Zhang, Huazhong University of Science and Technology's Professor Baofeng Li, and the author of the this book are chief executives for these planning and design. Professor Jianmin Ding and Wei Hua from Huazhong University of Science and Technology, and Henan Institute of Geological Survey's professor senior engineer Chengshe Liu, professor senior engineer Bingchen Zhang, professor senior engineer Fengyun Wang, senior engineer Jianhua Fang, senior engineer Huijuan Liang, and general manager Yanjun Chen of Henan Shong Art & Trading Co., Ltd. has worked for part of the planning and design of the project. Senior engineer Zixin Luo from No.2 Institute of Geological & Mineral Resources Survey, Henan Institute of Geological Survey's engineer Chenxia Shi, enginner Liping Ren, and assistant enginner Rui Zhang from the forth Geo-exploration Institute, Engineer Kaiyuan Du, Hongmei Wei, Sha Zhen and assistant engineer Jijie Jiang from Shanshui Geotourism Recourses Development CO., LTD. has worked on data processing of parts of the cases. The translation of this book is done by assistant engineer Yubing Qu from the forth Geo-exploration Institute, engineer Yan Jing from Shanshui Geotourism Recourses Development CO., LTD. and assistant engineer Xiaoli Zhang from No.2 Institute of Geological & Mineral Resources Survey. Engineer Weili Shang, Na Niu, Jin Zhang and Xiwen Chen from Shanshui Geotourism Recourses Development CO., LTD. and designer Jinhui Huang, Wei Zhang, Xiaolei Xu and Wenxian Xing from Henan Shong Art & Trading Co., Ltd. worked on map-making in this book. Zixin Luo, Chenxía Shi and Rui Zhang worked on proofreading of this book. Photos in this book are provided by management institutions of Geoparks mentioned in this book, Hongshan Zhao and other photographers. Thanks for all above!

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