

中国南方早中三叠世

岩相古地理

冯增昭 鲍志东 李尚武 等著

石油工业出版社

内 容 提 要

本书是作者 11 年来对中国南方早、中三叠世岩相古地理研究成果的总结。

全书共分二部分。第一部分为中国南方早、中三叠世岩相古地理，作者以沉积学和岩相古地理学的理论为指导，用单因素分析综合作图法编制了定量的中国南方早、中三叠世各期的岩相古地理图；最后分析了岩相古地理与油气的关系。第二部分提供了研究区的五条基干剖面的研究成果。

本书可供地质勘探的各专业技术人员参考，也可作为大专院校相关专业师生的辅助教材。

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序

1985年开始“中国南方二叠纪及三叠纪岩相古地理研究及编图”，至今已11年。

在此11年中，我和校内外众多的志同道合者以及我的一届又一届的学生们，包括大学生、硕士生、博士生和博士后研究人员，同心同德，风雨同舟，患难与共，成果与共；先后完成了原石油工业部及中国石油天然气总公司的3个重点科研项目，即“下扬子地区中、下三叠统青龙群岩相古地理研究及编图”（（85）油科油字第19号）、“扬子地台二叠系及中、下三叠统岩相古地理研究及编图”（（87）油科计字第53号）和“中国南方二叠纪及早中三叠世岩相古地理研究及编图”（（91）科字第110号），均取得了良好的成果，并通过了原石油工业部及中国石油天然气总公司的验收评审鉴定。在最后一轮的验收评审会上，评委们一致认为我们的最终成果是一份有特色、有重要理论及实际意义的优秀报告，在岩相古地理研究及编图方面已达国际先进水平。

在此11年中，已先后出版了4本专著即1988年云南科技出版社出版的《下扬子地区中下三叠统青龙群岩相古地理研究》、1991年地质出版社出版的《中下扬子地区二叠纪岩相古地理》、1994年地质出版社出版的《滇黔桂地区二叠纪岩相古地理》和1994年石油大学出版社出版的《滇黔桂地区早中三叠世岩相古地理》。

第五本专著是《中国南方二叠纪岩相古地理》，由石油大学出版社出版。第六本专著《中国南方早中三叠世岩相古地理》，即本书，由石油工业出版社出版。这两本专著是笔者等近11年中对我国南方二叠纪及三叠纪岩相古地理研究及编图的最终科研成果。

在此11年中，通过这3个重点科研项目的完成，还培养出了博士后一名（李永铁），博士5名（金振奎、何幼斌、鲍志东、辛文杰和杨玉卿），硕士5名（吴胜和、何幼斌、袁志华、张学文和周明辉），还有许多学士。这是人才成果，是比科研成果更为重要的成果。

总之，经过这11年的艰苦奋斗，取得了科研成果和人才成果双丰收。真是不易。

今后应在我们开创的定量岩相古地理学的前沿阵地上，制定规划，组织队伍，继续向多年以来为之奋斗的“第三里程碑”进军。

现在，正在酝酿新的战役，即按此“五叠”样板，开展“中国南方石炭纪、泥盆纪和志留纪的定量地层剖面的建立和定量岩相古地理图的编制”，争取三年完成任务。其它地区的进军亦在运筹中。果能如此，则又向“第三里程”迈出了重要的一步。

忆此11年南国之风雨，看今朝“五叠”之硕果，谢多方之援助，幸困境之解脱。执笔为序，感慨万端。成小诗一首，以述怀言志。今择其主要内容连同本书一并献于读者，愿共享“五叠”之成果，共分困脱之忧乐。如蒙赐教，甚谢。

风雨十一年，
磨成五叠剑，
定量古地理，
地学新前沿，
找油找气竞奉献。
功未成，
业未就，
今年不庆七十寿，
自强不息迎激流。
待到两千零二年，
五十周年献大典，
祖国添荣誉，
学科有发展，
后继有高足，
慰我平生愿。
届时自摆双七宴，
谢天谢地谢人助，
同开颜。

冯增昭

1996年4月于北京

Preface

In 1985, “the study and mapping of lithofacies paleogeography of the Permian and Triassic of South China” was started, and by now it has been 11 years.

In the past 11 years, I worked together with many colleagues both in and outside our university, and with my students, including undergraduate students, master students, doctor students and post – doctors. We were of one heart and one mind, stood together through thick and thin, and shared together hardships and achievements. Successively, we accomplished 3 key scientific research projects, i. e. the “study and mapping of lithofacies paleogeography of Lower and Middle Triassic Qinglong Group of Lower Yangtze Region”, the “study and mapping of lithofacies paleogeography of Permian and Lower and Middle Triassic of Yangtze Platform”, and the “study and mapping of lithofacies paleogeography of Permian and Early and Middle Triassic of South China” . All these projects were well done, and passed the examination and appraisal by the Ministry of Petroleum Industry and the China National Petroleum Corporation. During the final appraisal, all appraisers considered unanimously that the final study report was a characteristic and excellent one of important theoretical and practical significance, and reached the international advanced level.

In the past 11 years, 4 monographs were published, i. e. , *Study of Lithofacies Paleogeography of Lower and Middle Triassic Qinglong Group of Lower Yangtze Region* by the Yunnan Science and Technology Press in 1988, *Lithofacies Paleogeography of Permian of Middle and Lower Yangtze Region* by the Geology Press in 1991, *Lithofacies Paleogeography of Permian of Yunnan-Guizhou-Guangxi Region* by the Geology Press in 1994, and *Lithofacies Paleogeography of Early and Middle Triassic of Yunnan-Guizhou-Guangxi Region* by the Petroleum University Press in 1994.

The fifth monograph is *Lithofacies Paleogeography of Permian of South China* and will be published by the Petroleum University Press. The sixth monograph is *Lithofacies Paleogeography of Early and Middle Triassic of South China* , i. e. this book, and will be published by the Petroleum Industry Press. These two books are the final scientific research achievements of the “study and mapping of lithofacies paleogeography of Permian and Triassic of South China” of the past 11 years.

In the past 11 years, through the completion of these 3 projects, one post-doctor (Li Yongtie), 5 doctors (Jin Zhenkui, He Youbin, Bao Zhidong, Xin Wenjie, and Yang Yuqing), 5 masters (Wu Shenghe, He Youbin, Yuan Zhihua, Zhang Xuwen, and Zhou Minghui), and a number of bachelors were cultivated. These are talent achievements, more important than scientific research achievements.

In a word, through the 11 years’ hard work, both scientific research achievements and talent achievements are harvested. This is not easy indeed.

In the future we should stand on the front of the quantitative lithofacies paleogeography that we initiated, make long-term programme, organize research teams, and continue to march toward the “third milestone”, for which we have been struggling.

Now, a new campaign is being brewed. That is, with our study of the Permian and Triassic as an example, we will start the project “establishment of quantitative stratigraphic sections and mapping of quantitative lithofacies paleogeography of the Carboniferous, Devonian and Silurian of South China”, and try to finish it within 3 years. Similar campaigns in other areas are also being considered. If such studies are done, we then make an important step toward the “third milestone”.

Recalling the past 11 years’ winds and rains in South China, looking at today’ s rich fruits of the study of the Permian and Triassic, grateful to support of many sides , and lucky to step out of hopeless situations. From this aspect, it shows that the science road is full of roughness and changfulness. When taking up the pen for this preface, all sorts of feelings welled up in my mind, and I can not help writing a poem to express my emotions and aspirations. Here I present both the book and the principal part of the poem to the readers, and wish to share the achievements of the study of the Permian and Triassic, as well as the distress and happiness of mine.

Feng Zengzhao
Beijing, April 1996

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ABSTRACTS

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第二部分

中国南方早中三叠世

岩相古地理

第一章 绪言

本书是笔者承担的中国石油天然气总公司科研项目“中国南方二叠纪和早、中三叠世岩相古地理研究及编图”(91)科字第110号)中的早、中三叠世部分的最终研究成果。

本书所指的中国南方,包括北到汉中-襄樊-天长,南至广西的北海,东到黄海和东海,西至云南的中甸-元江的广大地区,即东经 100° 到 122° ,北纬 $21^{\circ}40'$ 到 33° 的范围,涉及滇、黔、桂、川、陕、鄂、湘、赣、皖、苏、浙、闽、粤及上海等14个省市自治区,总面积约200万 km^2 。

从大地构造位置看,本区包括扬子地台和华南褶皱系的全部以及东南沿海褶皱系的一部分。北以城口-房县断裂和襄樊-广济断裂与秦岭褶皱系为界,东北以郟城-庐江断裂与华北地台为邻,西北以龙门山断裂与松潘-甘孜褶皱系为邻,西南以金沙江-元江断裂与三江褶皱系为界。本区大致相当于黄汲清(1959)^[1]所称的“南华准地台”。

早、中三叠世地层在本区发育较好,尤其是在滇黔桂地区发育较完全,岩石类型多样。本区早、中三叠世的岩石在扬子地区以碳酸盐岩为主,在东南部地区以碎屑岩为主。本区下、中三叠统厚度变化很大,一般为300~4000m,最厚近6000m。生物化石门类众多,其中以瓣鳃类、菊石和牙形石对地层的划分与对比较为重要。

本区三叠系的研究工作可追溯到近一百年前一些国外学者的零星工作。本世纪初,中外地质学家刘季辰、葛利普、谢家荣、赵亚曾、乐森寻、徐瑞林、李四光、张席提、许德佑和赵金科等,陆续在本区开展三叠系研究工作,取得了一些开拓性成果^[2-10]。

建国后,尤其是在50年代至60年代,对本区三叠系研究更加深入,其成果^[11-15]为后期的三叠系研究工作奠定了良好的基础。随后开展的1:20万区域地质调查工作使本区三叠系的划分与对比方案初步明朗化。

70年代以后,西南三省区地层表和西南地区碳酸盐生物地层研究总结等^[16-20]的陆续出版,中国南方三叠纪生物地层以及二叠系和三叠系界线地层研究成果^[21-54]的大量涌现,南方14个省市自治区的区域地质志^[55-67]的陆续出版,使本区三叠系的划分与对比有了较统一的认识。

本区三叠纪的古地理研究始于50年代。刘鸿允主要以古生物地层学的理论为指导勾绘出了包括本区在内的全国三叠纪的古地理图^[68]。

70年代以来,由于沉积学尤其是碳酸盐沉积学新理论^[69-72]的引入,极大地推动了本区沉积学、岩石学及岩相古地理学研究的进展。关士聪等和王鸿祯等分别编制出了包括本区在内的全国三叠纪的古地理图^[73-74]。黔滇桂石油勘探局、地质矿产部西南石油地质局、西南石油学院、江汉石油学院、中国科学院地质研究所、地质矿产部地质科学研究所、地质矿产部成都地质矿产研究所、石油大学(北京)以及本区的14个省市自治区的地质矿产局等单位,对本区三叠系的沉积学、岩石学、构造地质学及古地理学等开展了富有成效的工作,取得了许多成果^[75-94]。这些工作为本次研究奠定了基础。

但仍有一些问题尚待进一步研究。如在岩石学方面,还有一些岩石的成因问题待研究解决;在古地理学方面,前人对本区作出的各种古地理图件大都是定性的,尚无定量的图件;