

云南文山 混合型泥盆纪生物地层



□ 金善燏 等著



石油工业出版社
Petroleum Industry Press

庆祝杭州地质研究所建所 20 周年 (1984—2004)

云南文山混合型泥盆纪生物地层

金善燄 沈安江 陈子料 陆俊明 魏 敏

(中国石油天然气集团公司杭州地质研究所)

王元青

(中国科学院古脊椎与古人类研究所)

谢 飞

(河北省文物局)

石油工业出版社

The 20th anniversary of the founding of Hangzhou Institute of Geology, CNPC (1984–2004)

Mixed Biostratigraphy of Devonian in Wenshan, Yunnan

Jin Shanyu Shen Anjiang Chen Ziliao Lu Junming Wei Min

Hangzhou Institute of Geology, CNPC

Wang Yuanqing

Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences

Xie Fei

Bureau of Cultural Relic, Hebei Province

Petroleum Industry Press

图书在版编目(CIP)数据

云南文山混合型泥盆纪生物地层/金善燊等著.
北京:石油工业出版社,2005.4

ISBN 7-5021-5046-3

I. 云…

II. 金…

III. 泥盆纪-地层古生物学-研究-文山壮族苗族自治州

IV. Q911.644

中国版本图书馆 CIP 数据核字 (2005) 第 027394 号

云南文山混合型泥盆纪生物地层

Yunnan Wenshan Hunhexing Nipenji Shengwu Diceng

出版发行:石油工业出版社

(北京安定门外安华里2区1号 100011)

网 址: www.petropub.cn

总 机: (010)64262233 发行部: (010)64210392

经 销: 全国新华书店

排 版: 北京乘设伟业科技排版中心

印 刷: 石油工业出版社印刷厂

2005年4月第1版 2005年4月第1次印刷

787×1092毫米 开本: 1/16 印张: 13.5 插页: 20

字数: 360千字 印数: 1—600册

定价: 50.00元

(如出现印装质量问题, 我社发行部负责调换)

版权所有, 翻印必究

序

金善燊教授 1965 年到 1989 年 8 月在北京大学任教，是著名的古生物专家，尤其在珊瑚化石的研究上有很高的造诣。1989 年 9 月调到我所后，潜心研究南方古生物地层。

《云南文山混合型泥盆纪生物地层》是金善燊教授以他在北京大学工作时期的研究成果为基础、结合后来在杭州地质研究所他为首的课题组多年辛勤劳动的成果而完成的专著，是集体智慧的结晶。

《云南文山混合型泥盆纪生物地层》是一部综合型的研究成果，主要是以板块构造观点论述了区域地质特征及地质演化，以岩相古地理为背景简述了沉积类型及其岩相特征。在对三个剖面的牙形石序列及珊瑚组合特征深入研究的基础上，首次为混合型泥盆纪的地层划分与对比提供了宝贵的资料，具有重要的科学意义。

混合型泥盆纪最典型的剖面为菖蒲塘—阿车剖面，简称菖蒲塘剖面，也是本专著研究的重点。该剖面地处深山老林，人烟稀少，过去云南省地质局第二地质大队和第二区测队及中国科学院南京地质古生物研究所等，曾简要报道过该剖面，但均未做详细的研究。本专著这次对混合型泥盆纪的深入系统研究，在国内尚属首次。而且混合型泥盆纪剖面在国内外也极为少见。本书的出版将会引起国内外学者的重视。

古木纸厂及菖蒲塘剖面除了上述特色外，在化石门类上，古植物学家已发现了大量新属新种，并指出该剖面出现了地球上最早具有叶子的植物及世界上最早的异珊瑚化石（1986 年已经有文章发表）。通过这次对深水相和浅水相珊瑚的深入研究，又有新的进展，总计发现 2 个新属 17 个新种。这些重要的科研成果将引起国内外瞩目。

2004 年是杭州地质研究所建所 20 周年，20 年来我所在沉积、储层、海相油气地质等领域形成了自己的技术特色，取得了很多理论研究成果。本专著是金善燊教授及我所四名年轻科研骨干为建所 20 周年献出的一份礼物。特写此序，以示庆贺！

中国石油天然气集团公司 杭州地质研究所所长



PREFACE

Professor Jin Shanyu is a noted paleontologist and of high attainments on coral research. He was a teacher in Beijing University from 1965 to August of 1989 and since then transferred to Hangzhou Institute of Petroleum Geology to devote himself to the study on biostratigraphy in Southern China.

This book, *Mixed Biostratigraphy of Devonian in Wenshan, Yunnan*, is a scientific achievement of collective wisdom which was based on Professor Jin Shanyu's research results during his working in Beijing University and project team's research work leading by Professor Jin in Hangzhou Institute of Petroleum Geology. It is a comprehensive study book with 300 000 words and 40 plates. The authors discussed the regional geological situation and evolution by the view of plate tectonics and described briefly the sedimentary types and facies characteristics according to the lithofacies and paleogeography background. It is the first time to provide the valuable data for mixed Devonian biostratigraphy division and correlation, and of important scientific significance.

The most typical profile was Changputang-Ache profile (called Changputang profile for short) which was put the focal research area of the book. It was located in remote thickly forested mountains and sparsely populated region. The Second Geological Brigade and the Second Regional Survey Brigade, Yunnan Bureau of Geology, and Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences made some reports but no detailed research work on it. It created a precedent to make a thorough and systematic study on mixed Devonian at home. Also it is rarely seen in the world and will be paid attention to by its publishing.

In addition to the characteristics mentioned above, paleobotanists discovered a lot of new species and genera of plant fossils in Gumu paper-factory and Changputang profiles and indicated the earliest leaf plant and the earliest tetraphyllia fossil on the earth (reported in 1986). This further study on the profundal facies and shallow-sea facies, the authors found 2 genera and 17 species again. All research results will catch world's eyes.

This year is the 20th anniversary of the founding of Hangzhou Institute of Geology. In the past

twenty years, HIG acquired many new theories and research results and formed a series of advanced technique in sedimentation, reservoir research and marine petroleum geology domains. This monography is a gift to be presented by Professor Jin and four young scientists for celebrating the 20th anniversary of the founding of HIG. It is hereby written to congratulation!

A handwritten signature in black ink, appearing to read 'Wang Genhai' in a stylized, cursive script.

Director: Wang Genhai

Hangzhou Institute of Geology, CNPC

前 言

本专著涉及的工作区位于南盘江以南、红河以东的滇东南地区（见图 1-1），为华南板块的一部分。我们研究的重点为文山古木（镇）村（过去公社所在地，距文山市约为 12km）及邻近地区，包括古木村东北的纸厂和古木村西约 10km 的菖蒲塘—阿车剖面，后者简称菖蒲塘剖面（见图 1-2）。该区泥盆系发育良好、沉积类型齐全、化石丰富。20 世纪 70—80 年代云南省地质局第二地质大队、地质部第八石油普查勘探大队及中国科学院南京地质古生物研究所的很多专家对该区做了大量的研究工作，特别是云南省的方润生、王祖英、江能人等专家对云南泥盆纪做了初步总结，为本区泥盆系的研究，奠定了重要的基础。

本专著作者中最早（1981）前去该区工作的是谢飞（乐森珥教授的研究生，本人当时为北京大学教员，协助乐森珥教授辅导研究生）。当时在云南省地质局第二地质大队王致仁同志及地质部第八石油普查勘探大队李振铎同志的协助下，踏勘了菖蒲塘剖面，绘了信手剖面图，实测了古木（村）及古木纸厂剖面，初步发现菖蒲塘剖面在生物群落及沉积类型上具有特殊性。其后本专著第一作者于 1982 年至 1984 年先后两次带领本科毕业生 9 人、研究生王元青（金善燊的研究生，后因金善燊生病住院改为乐森珥教授的研究生）1 人，对该区进行了深入系统的研究，实测了菖蒲塘和古木纸厂剖面，补采了古木剖面的样品，收集了大量的大古和微古化石，本专著就是在此基础上撰写而成。因菖蒲塘剖面比较特殊，为国内外所罕见，是本专著研究的重点。其主要特色是浮游动物群牙形石、竹节石、菊石与底栖生物、珊瑚、腕足类等混生。沉积类型上是深水相的硅质岩、燧石结核、燧石条带灰岩、页岩与生物碎屑灰岩、泥晶灰岩等间互出现，说明海水时深时浅，这种类型的剖面，目前在国内外极为少见，特别是对该剖面牙形石及珊瑚动物群的深入系统研究在国内外尚属首次。廖卫华（1978）、侯鸿飞、王士涛等（1985），也曾提到了这种类型的沉积，同时也提到了混生型主要是早泥盆世晚期及中泥盆世早期，但对岩相及生物群落未做深入的研究。他们在 1988 年总结中国的泥盆系时（《中国地层》之七，金善燊是华南区的作者之一），指出华南区是研究全球泥盆纪地质历史的重要地区，具有极为重要的意义。提出华南区泥盆系可识别出四种不同的类型，即象州型（底栖相）、南丹型（浮游相）、过渡相（混合相）及曲靖型（下部为陆相石英砂岩，上部为碳酸盐岩，以植物及鱼类化石为主，上统产小型单体珊瑚），在过渡相类型中也提到了古木剖面，但未做深入研究，对菖蒲塘剖面更未提及。

吴诒（1982，1992）在研究广西崇左那艺剖面时也发现极少量的珊瑚，对浮游生物做了较多的研究。俞昌民（2000）对华南泥盆纪提出四种主要类型：即象州型（底栖生物为主），

南丹型（浮游生物为主），北流型（底栖生物为主，具少量浮游生物），及崇左型（主要指崇左那艺剖面，浮游生物为主，某些层段有无鳞板小型单体珊瑚，多系原地生长，部分是经过搬运异地埋藏）。俞昌民认为崇左型是我国华南区最符合建阶条件的剖面，那艺剖面虽与我们有些相似，但缺乏底栖型动物群的研究。本专著对古木及菖蒲塘剖面的研究对解决底栖型和浮游型两种不同相区的地层对比问题具有重大的意义。

古木及菖蒲塘剖面除了上述特色外，在早泥盆世晚期沉积的坡松冲组中，我国很多植物学家发现了极为丰富的植物化石，发表了大量的新种、新属为国内外所瞩目。特别是郝守刚（1988）发表了“早泥盆世始叶蕨（新属）及叶子起源的讨论”一文。展示了地球上最早的具叶子的植物。另外，在早泥盆世晚期的坡折落组中，乐森珥、金善燏等（1986）发现了世界上最早的异珊瑚化石。

通过这次系统研究古木（村）、古木纸厂和菖蒲塘三个剖面，总计发现 2 个新属 17 个新种。说明本区具有极大的独特性，由于上述特色的存在，如果今后进行更深入的研究，则有可能成为我国泥盆纪建阶的理想剖面。

本专著第一作者于 1989 年调到杭州石油地质研究所，实现了多年来想研究石油地质的愿望。来杭州所后因承担“八五”国家及部级两个攻关项目的研究，对云南文山的研究工作暂被搁置。退休后，为使这一研究工作画上圆满的句号，萌生了出版专著的想法。这样，在过去 9 个大学毕业论文、2 个研究生论文及本人研究工作的基础上，于 2003 年初着手进行专著编写，并聘请中国科学院南京地质古生物研究所珊瑚专家廖卫华、牙形石专家夏凤生两位研究员对本专著全部珊瑚和牙形石化石重新进行审核和修改，有的重新定名，大大提高了本专著的学术水平。最后由杭州地质研究所提供了本专著出版所需费用，王根海所长还为本专著写了序，作者对此表示深切的感谢！

本专著作者分工如下：前言、结论 金善燏；第一章 陆俊明、沈安江、陈子料；第二章 陈子料、金善燏、谢飞、王元青、陆俊明；第三章 金善燏、王元青、谢飞、沈安江；第四章 金善燏、谢飞、王元青；第五章 沈安江、陈子料、陆俊明。全文由金善燏统稿，沈安江、王元青协助。

本专著的书名、前言、序、章节目录、结论的英文稿由魏敏翻译。

全部牙形石标本均由王元青研究生期间负责处理、挑样并做了初步鉴定，为本专著牙形石图版提供了重要的资料，珊瑚薄片全部由金善燏提供，总计 1300 余片，碳酸盐岩薄片鉴定由陈子料、陆俊明完成。本专著的不足之处，是在野外采集的大量竹节石标本（已做了初步鉴定），在杭州地质研究所办公室搬迁时遗失，使本专著缺失了一个很重要的门类，这有待于今后地质工作者加以补充、发展。

FOREWORD

The work region of the book is a part of South China Plate and located in Wenshan County of the southeast of Yunnan Province that is to south of Nanpan River and to east of Red River (Fig.1-1). Gumu Village and its adjacent areas, about 12km from Wenshan downtown, are put the major research location including Gumu profile and Paper-factory profile in the northeast of the village and Changputang-Ache profile (called Changputang profile for short below, Fig.1-2) in west of the village. There were well developed strata of Devonian at the region with many types of sedimentary and abundant fossils. From 1970s to 1980s, many geologists and paleontologists from Yunnan Bureau of Geology, the Second Geological Brigade of Yunnan, the Eighth Petroleum Survey Brigade, Ministry of Geology and Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences made a lot of research work in there, especially Fang Runsheng, Wang Zuying, Jiang Nenren & al. had a primary summarization and laid an important groundwork on research Devonian stratigraphy about the region.

In 1981, Xie Fei, being a postgraduate student of Professor Yue Senxun's and assisted by Jin Shanyu in Beijing University at that time, was the first person to go to work in these areas. He made a reconnaissance survey on Changputang profile, drew the profile sketch map and measured Gumu and Paper-factory profiles with the help of Wang Zhiren from the Second Geology Brigade of Yunnan and Li Zhenyi from the Eighth Petroleum Survey Brigade, Ministry of Geology. Based on his research he found the particularity on biology community and sedimentary types in Changputang profile. Then from 1982 to 1984, Jin Shanyu, the first author of this book made a research systematically and thoroughly with 9 graduate students and 1 postgraduate student (Wang Yuanqing, who was a postgraduate student of Jin Shanyu's and afterward transferred to be as one postgraduate students of Professor Yue Senxun's due to Jin's disease). They measured Changputang and Paper-factory profiles, had the additional sampling from Gumu profile and collected a lot of fossils and microfossils. The monograph was compiled based on gathering and reviewing all available geological and paleontological data mainly from these profiles. That Changputang profile is regarded as the focus research of the book is due to its particularity and its infrequency in the world. The obvious characteristics revealed that zooplankton (conodont, tentaculites and ammonites) and benthon (coral and brachiopoda) were mixed community. The

interbedding of the profundal facies (silica rock, flint nodule, banding limestone and shale) and shallow-sea facies (biodetritus rock and micritic limestone) indicated the fluctuation of the sea level. This kind of the profile is rarely seen, and especially it was the first time to be made a thorough and systematic study on conodont and coral fauna at home and abroad. Hou Hongfei, Wang Shitao *et al.* (1985) put forward that the mixed fauna existed mainly in late Early Devonian and early Middle Devonian, but no work done further on the lithofacies and the biotic community. Hou Hongfei *et al.* (1988, *Stratigraphy of China* 7, Jin Shanyu is one of the authors also) pointed out that the southern China was a significant place for the world to make research on the global geological history of Devonian. Four different types of Devonian were identified out in the southern China: Xiangzhou-type (benthon facies), Nandan-type (plankton facies), transitional-type (hybrid facies) and Qujin-type (lower part was quartz sandstone of continental facies, the upper part was carbonate rocks with bearing mainly plant and fish fossils, yielding minor solitary coral in Late Devonian). Gumu profile was referred to be transitional-type but it was not done more research work. Changputang profile was not mentioned.

Wu Yi (1982, 1992) discovered a less coral and did much more research on plankton at Zuonayi profile in Guangxi Zhuang Autonomous Region. Yu Changmin (2000) proposed four major types of biocoenosis in Devonian in the southern China: Xiangzhou-type (mainly benthon), Nandan-type (mainly plankton), Beiliu-type (mainly benthon and a few of plankton) and Chongzuo-type (referred to Chongzuo-Nayi profile, mainly plankton, a few non-dissetiment minor solitary coral partly being autochthonous and partly migrated from other place). Yu Changmin pointed out that Chongzuo-type was the most qualified one for founding a stage in southern China. Although Nayi profile is of similar characteristics to Changputang profile, it is short of the benthon fauna. The research on Gumu and Changputang profiles in this monograph is of important significance to solve the stratigraphic correlation between the two different types of facies, benthon and plankton.

In addition to the characteristics mentioned above, Gumu and Changputang profiles caught world's eyes by abundant plant fossils and a lot of new species and genera in Songpo Formation of late Early Devonian which were found by many botanists from china. In particular, "Discussion on eophyllophyton (new genus) of Early Devonian and its origin" by Hao Shougang (1988) showed the earliest leaf plant on the earth. Besides, Yue Senxun, Jin Shanyu *et al.* (1986) discovered the earliest tetraphyllia fossil on the earth in Pozheluo Formation of late Early Devonian. According to

the present systematic research, 2 genera and 17 species were discovered additionally in the whole area. The characteristic of the research area will probably become the ideal profile for founding stage of Devonian by working farther hereafter.

Jin Shanyu, the first author, transferred to Hangzhou Institute of Petroleum Geology (HIPG) from Beijing University in 1989 and realized his dream for years to be at work on petroleum geology. He undertook national and CNPC key projects and was responsible for the fourth grade item and the research work on Wenshan in Yunnan had to be laid aside again. After retiring, Jin Shanyu wanted to continue his research on Wenshan and had an idea to publish a monograph for giving integrity of the work. Thus, based on the thesis of 9 graduated students and 2 post graduated students and his research, Jin Shanyu began to write the monograph at the beginning of 2003. It is a great pleasure to acknowledge the assistance from two senior researchers, Liao Weihua, an expert on Coral and Xia Fengsheng, an expert on conodont from Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences for re-examining and revising all coral and conodont fossils and renaming some species, which greatly enhanced the monograph's academic level. The authors thank sincerely HIPG for aiding financially to the book's publishing and Director Wang Genghai for writing the foreword of the monograph.

This monograph is a collective work. Following people did actual writings:

Jin Shanyu: Preface; Lu Junming, Shen Anjiang and Chen Ziliao: Chapter 1; Chen Ziliao, Jin Shanyu, Xie Fei, Wang Yuanqing and Lu Junming: Chapter 2; Jin Shanyu, Wang Yuanqing, Xie Fei and Shen Anjiang: Chapter 3; Jin Shanyu, Xie Fei and Wang Yuanqing: Chapter 4; Shen Anjiang, Chen Ziliao and Lu Junming: Chapter 5. Jin Shanyu: Conclusion. Jin Shanyu are responsible for the whole monograph. Shen Anjiang and Wang Yuanqing assist the Jin in his work.

English version of foreword, preface, content and conclusion were composed by Wei Min.

The conodont fossils were analyzed, selected and identified by Wang Yuanqing which enriched the conodont fossils plates with important data. The 1,300 coral fossils thin sections were provided by Jin Shanyu and carbonates thin sections were identified by Chen Ziliao and Lu Junming. One of the defects of this book is the absence of an important category, tentaculites, the primarily identified samples of which were lost in an office transit in HIPG. The authors expect the complementarity and development from posterity geologists.

目 录

序

前言

第一章 区域地质概况·····	1
第一节 云南泥盆系分区·····	1
第二节 构造位置及地质演化·····	1
第三节 地层出露概况及沉积类型·····	5
一、震旦系·····	5
二、寒武系·····	5
三、奥陶系·····	6
四、泥盆系·····	7
五、石炭系·····	7
六、二叠系·····	7
第二章 剖面简介·····	9
第一节 菖蒲塘剖面·····	10
第二节 古木(村)剖面·····	15
第三节 古木纸厂剖面·····	19
第三章 化石鉴定及属种描述·····	22
第一节 菖蒲塘剖面牙形石鉴定·····	22
第二节 菖蒲塘剖面牙形石动物群属种描述·····	41
第三节 古木纸厂剖面牙形石鉴定·····	68
第四节 古木纸厂剖面牙形石动物群属种描述·····	77
第五节 菖蒲塘剖面泥盆纪珊瑚鉴定·····	78
第六节 古木纸厂剖面泥盆纪珊瑚鉴定·····	87
第七节 古木(村)剖面泥盆纪珊瑚鉴定·····	95
第八节 古木(村)、古木纸厂和菖蒲塘剖面泥盆纪珊瑚属种描述·····	106
第四章 地层划分对比·····	139
第一节 牙形石动物群序列·····	139
一、菖蒲塘剖面牙形石序列·····	139

二、菖蒲塘剖面统、阶界线·····	141
三、菖蒲塘剖面牙形石种和亚种的分布·····	142
四、古木纸厂剖面牙形石动物群序列·····	142
五、古木纸厂剖面牙形石种和亚种的分布·····	144
第二节 珊瑚动物群地层分布、生物地层分析及组合序列·····	145
一、菖蒲塘剖面·····	145
二、古木纸厂剖面·····	149
三、古木(村)剖面·····	152
第三节 古木(村)、古木纸厂和菖蒲塘剖面地层划分对比、珊瑚组合序列综合 分析以及生物地理区系·····	155
一、地层划分对比及沉积环境·····	155
二、珊瑚组合序列综合分析·····	157
三、生物地理亲缘关系·····	157
四、地层划分对比·····	157
第五章 岩相古地理·····	159
第一节 沉积相特征与划分·····	159
第二节 岩相古地理特征及演化·····	160
一、早泥盆世·····	160
二、早泥盆世晚期—中泥盆世早期·····	162
三、中泥盆世晚期·····	163
四、晚泥盆世·····	165
结论·····	167
参考文献·····	170
图版说明及图版·····	181

CONTENTS

PREFACE

FOREWORD

1 THE SUMMARY OF REGIONAL GEOLOGY	1
1.1 Devonian province of Yunnan	1
1.2 Tectonic location and geological evolution	1
1.3 The outline of stratigraphic outcrop and sedimentary types	5
1.3.1 Sinian	5
1.3.2 Cambrian	5
1.3.3 Ordovician	6
1.3.4 Devonian	7
1.3.5 Carboniferous	7
1.3.6 Permian	7
2 THE BRIEF INTRODUCTION OF PROFILES	9
2.1 Changputang profile	10
2.2 Gumu (Village) profile	15
2.3 Gumu paper-factory profile	19
3 THE FOSSIL IDENTIFICATION LIST AND GENERA-SPECIES DESCRIPTION	22
3.1 The conodont identification list of Changputang profile	22
3.2 The genera-species description of conodont fauna of Changputang profile	41
3.3 The conodont identification list of Gumu paper-factory profile	68
3.4 The genera-species description of conodont fauna of Gumu paper-factory profile	77
3.5 The coral identification list of Devonian in Changputang profile	78
3.6 The coral identification list of Devonian in Gumu paper-factory profile	87
3.7 The coral identification list of Devonian in Gumu (village) profile	95
3.8 The genera-species description of coral of Devonian in Gumu (village), Gumu paper-factory and Changputang profiles	106

4	STRATIGRAPHIC DIVISION AND CORRELATION	139
4.1	The sequence of conodont fauna	139
4.1.1	The sequence of conodont in Changputang profile	139
4.1.2	The boundary lines of series and stage in Changputang profile	141
4.1.3	The distribution of conodont species and subspecies in Changputang profile	142
4.1.4	The sequence of conodont fauna in Gumu paper-factory profile	142
4.1.5	The distribution of conodont species and subspecies in Gumu paper-factory profile	144
4.2	The stratigraphic distribution, biostratigraphic analysis and assemblage sequence of coral fauna	145
4.2.1	Changputang profile	145
4.2.2	Gumu paper-factory profile	149
4.2.3	Gumu (village) profile	152
4.3	The stratigraphic division and correlation, synthetic analysis of coral assemblage and biogeographic region of the three profiles	155
4.3.1	The stratigraphic division, correlation and sedimentary environment	155
4.3.2	The synthetic analysis of coral assemblage sequence	157
4.3.3	The affinity of biogeography	157
4.3.4	The stratigraphic division and correlation	157
5	THE LITHOFACIES AND PALEOGEOGRAPHY	159
5.1	The sedimentary characteristic and division	159
5.2	The characteristic and evolution of lithofacies and paleogeography	160
5.2.1	D ₁	160
5.2.2	D ₁ ³ -D ₂ ¹	162
5.2.3	D ₂ ²	163
5.2.4	D ₃	165
	CONCLUSION	167
	REFERENCES	170
	PLATES AND ILLUSTRATION	181

第一章 区域地质概况

第一节 云南泥盆系分区

云南泥盆系分布广泛,地层发育完整,沉积类型亦丰富多彩,海相、陆相和海陆交互相均有;生物化石丰富,门类众多,既有世界性属种,也有中国独特的地区性生物群;并赋存铁、磷、油页岩等矿产,是中国研究泥盆系的主要地区之一。

泥盆纪地层划分,根据沉积特征及生物群性质,按各区地层发育完整程度、各沉积类型空间分布、沉积岩相及建造特征与区域构造单元的关系,可划分为三个地层区及若干个分区、小区(图1-1)。泥盆系文山分区位于滇东南部,又划分开远小区和广南小区。

值得注意的是本专著对《云南省区域地质志》(1990)的地层分区进行了修改,将滇西北的中甸分区与滇东南及滇东在泥盆纪时放在同一大区内,理由是根据板块构造观点,罗璋、余和中等(1997)认为中甸微板块泥盆纪时仍属华南板块,二叠纪时才从华南板块中分离出去。通过本专著对云南文山古木及菖蒲塘一带生物群的研究,发现中甸分区中的丽江阿冷初一带泥盆纪的生物群与其十分相似,进一步证实罗璋等的观点是正确的。

第二节 构造位置及地质演化

文山分区地理位置与云南构造区划二级单元南盘江弧后前陆盆地区的边界基本吻合,西北侧以建水—弥勒—师宗断裂为界,西南侧以红河断裂为界,东、南侧分别以省界和国界与广西、越南为邻。

云南构造区划单元引自杭州地质研究所“南方海相含油气区区域构造特征与选区评价”^①的研究成果。其划分方案如下(图1-2):

I 三江造山带(I)

I₁ 梁河微板块

盈江中生代碰撞花岗岩(I₁¹)

高黎—贡山中生代推覆构造(I₁²)

I₂ 保山微板块

怒江缝合带(I₂¹)

^① 罗璋等,1997,“南方海相含油气区区域构造特征与选区评价”,中国石油天然气总公司南方经理部项目,杭州石油地质所承包完成,内部科研报告