

# 地质力学的方法与实践

## 第二篇

# 构造体系各论

(中国典型构造体系分论)

王治顺 等 编著



地质出版社

地质矿产部“八五”重要基础研究项目

# 地质力学的方法与实践

## 第 二 篇

# 构造体系各论 (中国典型构造体系分论)

王治顺 朱大岗 熊成云  
赵剑畏 蒋镇亚 李锦蓉 梁云海 等 编著

地 质 出 版 社

· 北 京 ·

## 内 容 提 要

本书是继李四光教授的《地质力学概论》的续篇之一,是对地质力学几十年研究实践成果的重要总结。本书以中国典型构造体系的实际资料为基础,从建造与改造的依存关系、陆壳结构演化与构造体系形成发展关系入手,结合模拟实验和构造应力场分析,全面系统地论述了各类构造体系(包括经向、纬向、直剪扭动、旋转扭动和复杂扭动体系等)的基本特征、分布规律、形成机制、发展演化及其对成岩成矿的制约作用,也阐述了中国陆壳结构演化与主要地壳运动等对建造的控制作用。

本书对地质工作者和有关科研人员有重要参考价值,也是地质院校教师和高年级学生、研究生教学的重要参考书。

## 图书在版编目(CIP)数据

地质力学的方法与实践 第二篇:构造体系各论(中国典型构造体系分论)/王治顺等编著.-北京:地质出版社,1999.11

ISBN 7-116-02898-6

I. 地… I. 王… II. ①地质力学②地质构造-构造体系-中国 IV.P55

中国版本图书馆 CIP 数据核字(1999)第 43974 号

## 地质出版社出版发行

(100083 北京海淀区学院路 29 号)

责任编辑:谭惠静 祁向雷 刘浩龙

责任校对:李 玫

\*

北京印刷学院实习工厂印刷 新华书店总店科技发行所经销

开本:787×1092<sup>1</sup>/<sub>16</sub> 印张:24.75 字数:565500

1999 年 11 月北京第一版·1999 年 11 月北京第一次印刷

印数:1—400 册 定价:60.00 元

ISBN 7-116-02898-6

P·2052

(凡购买地质出版社的图书,如有缺页、倒页、脱页者,本社发行处负责调换)

# 序

与地质力学密切相关的第一篇文章“地球表面形象变迁之主因”发表于1926年。构造型式和构造体系的概念是在本世纪20年代末期提出的(Lee, 1929)。结合中国大陆及东亚地区的地质实际,根据地球表面实际见到的不同型式的构造体系来论断地壳运动的是1939年出版的《中国地质学》(英文版)一书。地质力学作为一门学科是1941年秋冬之际,李四光教授应厦门大学校长萨本栋教授之邀为该校数学力学和物理系(当时由于抗战该校迁至福建长汀)的同学讲演时提出的。之后,李先生开始写《地质力学之基础与方法》,并于1945年完稿。该书稿曾由重庆大学地质系油印。当时,在重庆的中国地质学会同仁还举行过多次学术报告会。该书于1947年春由中华书局正式出版。

1949年10月1日中华人民共和国成立后,为了适应国家经济建设需要,开展了大量地质工作,包括矿产勘探、工程地质、水文地质以及国家建设中出现的其他各种地质问题。地质力学在李四光教授亲自领导和参与下投入到国家建设洪流之中,与其他地质科学一样取得了迅速的进展。60年代初,内部出版了《地质力学概论》。1970年,内部刊印了《天文、地质、古生物资料摘要(初稿)》一书。上述两本书均由李先生亲自执笔。书中不少的地质实际资料是由各方面的地质工作者提供的。

李四光教授在他早年和晚年的著作中均曾提出过:地质力学的主要目的是研究地壳构造和地壳运动的规律,探索地球运动的起源;研究各种矿产在地壳中的分布规律以及现代地壳运动的程式,借以指导矿产资源预测以及地壳稳定性评价,防治可能发生的各种自然灾害。

李四光教授在其遗著中曾提示我们:研究地球科学,要从地球看宇宙,要以事物的生因、发展和系统联系的观点,从事实现象追寻本质的要求,来研究地壳运动所产生的各种地质现象发生、发展的规律。

从李四光教授1926年发表第一篇文章起至1971年4月底他逝世这45年间,他为地质力学学科的建立及应用,做了大量的实际工作,开辟了地壳运动研究的一条新途径,为发展地球科学作出了重要贡献。从李四光教授逝世到现在,许多地质工作者沿着他开拓的道路又进行了21年的工作。从1926年到现在这68年间,在国家经济建设和人类社会生活需要的各种自然资源的寻找以及与人类生存相关的各种自然灾害的斗争中,地质力学伴同其他地球科学做了大量的有益工作。《地质力学的方法与实践》丛书,就是这项工作的一种记录。今后,我们将把这项工作继续下去,为认识自然和改造自然作出新的贡献。

孙殿卿

1994年11月14日,北京

# PREFACE

The first paper closely related to geomechanics entitled the "*Main Cause of the Changes of Superficial Features on the Earth*" was published in 1926. As for the conception about the tectonic patterns and tectonic systems, it was put forth at the end of the twentieth century (Lee, 1929). It was in the book entitled the "*Geology of China*" (in English version) published in 1939 that the crustal movement had been proved by the author with the tectonic systems of different types actually found on the surface of the Earth, and in combination of the practical geological situation in the mainland of China and East Asia. Geomechanics as a branch of sciences was established in the autumn and winter time of 1941 by Prof. Li Siguang (J. S. Lee) during his lecturing for the students from the Department of Mathematics, Mechanics and Physics of the Xiamen University (moved to Changding City, Fujian Province owing to the anti-Japanese War) at the invitation of the Dean of the University. Later on Prof. J. S. Lee began to prepare the book on "*The Basis of Geomechanics and Its Method*", which was completed and was mimeographed by the Department of the Geology of the Chongqing University, Sichuan Province in 1945, and at the same time it was then once used as lectures for the colleagues of the Geological Society of China at Chongqing City. The particular monograph was officially published by the China Publishing House in the spring of 1947.

Since the founding of the People's Republic of China on October 1, 1949, in order to meet the need of the economic construction of the country vast amounts of geological work have been conducted, including prospecting for mineral resources, engineering geology, hydrogeology and various geological problems that have been occurred during the economic construction of the country. So geomechanics has been thrown into the mighty torrent of the economic construction of the country under the direct guidance of Prof. J. S. Lee himself and his personally taking part in the work, and as other branches of geological sciences, geomechanics in this way has also gained a rapid development. At the beginning of the 60's of this century the monograph: "*An Introduction to Geomechanics*" was published as a restricted publication, and in 1970 the monograph: "*Astronomy, Geology and Palaeontology*" (first draft) was also published as a restricted publication. All the above-mentioned monographs were written by Prof. J. S. Lee himself personally, by using a big amount of practical geological data provided by vast numbers of geological workers from various fields.

In his works published in his early and late years, Prof. J. S. Lee had repeatedly remarked that the major objective of geomechanics lies in the study of the regularity of

crustal tectonics and crustal movement, in probing into the origin of the movement of the Earth, and in investigation on the regularity of distribution of various mineral resources in the earth crust, as well as on the mode of occurrence of the modern crustal movement, with the purpose of guiding the prognostication of mineral resources and making the evaluation of the stability of the earth crust, thus preventing from the possible occurrence of these and those natural hazards.

In his posthumous works, Prof. J. S. Lee used to mention to the audience that in the study of geological sciences one must view the cosmos from the Earth and investigate the regularity of occurrence and development of various geological phenomena produced by the crustal movement from the viewpoint of the origin, development and systematic relations, and in accordance with the requirement of study on any matter by probing into the essence of things judging from the phenomena of the fact.

During the forty five years of his life, starting the publication of his first paper in 1926 and being ended with his death at the end of April in 1971, Prof. J. S. Lee had completed large amounts of practical work for the establishment and application of geomechanics as a branch of sciences, and had opened up a new approach to the study of the crustal movement, thus making a great contribution to the development of geological sciences. From the time of his passing away till the present, many geological workers have conducted great amounts of work for twenty-one years along the path Prof. J. S. Lee had opened up. In the 68 years from 1926 till now, in the prospecting for natural resources needed for the economic construction of the country and social daily necessities of human beings, as well as in the struggle against various natural hazards that are closely related to the existence of human beings, together with other branches of sciences geomechanics has done a lot of useful things. The "*Method and Practice of Geomechanics*" series represents itself records of this kinds of work. In the future we will certainly keep taking this kind of records in order to make a new contribution to recognition and remaking of nature.

Sun Dianqing

November 14, 1994, in Beijing

## 《地质力学的方法与实践》编辑委员会

主任委员：孙殿卿

副主任委员：苗培实

委员：（按姓氏笔划为序）

马宗晋	邓乃恭	王小凤	王治顺
王维襄	宁崇质	刘迅	刘特音
刘瑞珣	孙叶	孙殿卿	李东旭
邵云惠	陈庆宣	苗培实	周济元
周显强	杨开庆	高庆华	徐炳川
黄庆华	崔盛芹	曾佐勋	

# 引 言

地球科学界正热烈地通过各种不同的途径研究岩石圈和全球动力学。地质力学工作者也积极地按照自己多年来形成的途径，即将地质学、地球物理学、地球化学和力学等多种学科结合起来，通过对地壳地质构造和地壳运动的研究，以深化地球动力学和运动学的研究。

因为，地壳虽然是地球整体结构中极薄的一层，但她却记录和保存下了地球形成、发展、演化的踪迹；记录和保存下了地壳以外，诸如包围地球的大气层，围绕地球转动的月球，太阳系，以及其它各种星体对地壳发生的影响，宇宙微尘和陨星之类的坠落等（星）球外事件的遗迹；记录和保存下了地壳以下，在高温高压条件下，地球各圈层物质的物理与化学变化和运动，以及由重力、日月潮汐作用和地球自转而产生的运动，都不可避免地要集中反映到地壳中来。

由此看来，如果其它研究地球动力学途径是科学的、有成效的，那么，地质力学以地壳为对象，通过对地壳地质构造、物质的运动和分布规律、地壳运动的起源和演化等的研究，由表及里、由浅及深、由局部到地球整体，深入地研究地球各圈层的组织构造、相互作用，地球的起源、演化和运动等一系列地球动力学和运动学问题，是不无道理的。

为此，地质力学工作者经过了长期的奋斗，在她自己的努力和各相关学科、广大科学工作者的支持下，做了大量的工作，取得了很多、很有意义的成果。经常地、及时地综合分析研究、总结这些成果，不仅对发展地质力学具有重要意义，对于发展地球科学，促进地质力学更好地为社会发展和国民经济建设服务，也不会没有意义的。地质矿产部和中国地质科学院将《地质力学的方法与实践》列为“八五”重要基础研究项目，在孙殿卿院士指导下予以实施。

早在 60 年代初，地质力学的创始人李四光教授就计划组织人力，编著一套《地质力学的方法与实践》丛书，总结地质力学研究和实践成果。为此，他亲自草拟大纲，并将他自己主持撰写的《地质力学概论》专著做为该丛书的第一篇。其后，他还提出了对《地质力学概论》进行修改的意见。

这次的综合研究和总结工作，就是实现李四光教授的遗愿，修订第一篇，编著四篇六本书和一幅全球构造图，即：

- 第一篇** 地质力学概论 李四光著，孙殿卿等修订
- 第二篇** 构造体系各论（中国典型构造体系分论） 王治顺等编著
- 第三篇** 岩石力学与构造应力场分析 陈庆宣、王维襄、孙叶等编著
- 第四篇** 地壳运动问题 高庆华等编著  
现今地壳运动问题 马宗晋、杜品仁编著
- 第五篇** 地质力学在矿产资源勘查中的应用 刘迅等编著  
地质力学在环境地质中的应用 邵云惠等编著



全球构造体系纲要图 苗培实等主编

《地质力学的方法与实践》既然是在广大地质力学工作者和有关学科科学工作者科学研究与实践应用成果基础上，经过综合分析研究、总结完成的一套丛书，无疑也是大家劳动成果的结晶。因此，除《地质力学概论》一书外，其它各篇册我们都用了“编著”一词，表示这一套书中还包含了他人的成果，并在此予以致谢。如果有什么疏漏和引用上的误解，也请予以批评指正。

《地质力学的方法与实践》编辑委员会

# INTRODUCTION

The geosciences circles have now been heartily investigating the lithosphere and global dynamics in different ways. Meanwhile, the geomechanic workers have also actively deepened their investigations on the dynamics and kinematics of the Earth in a way created by themselves in the passing years, namely by combining the geology, geophysics, geochemistry and mechanics with one another, and through the study of geological structures on the earth crust and crustal movement.

So although the earth crust tends to constitute only a thin layer in the whole texture of the Earth, yet it has recorded and preserved all the features formed in the course of origin, development and evolution of the Earth; the results of the influence from the atmosphere surrounding the Earth, the moon rotating around the Earth, solar system, and the other celestial bodies upon the earth crust; as well as the traces of the outer-space events, such as the fall of the cosmic dust and meteorites. Besides, in the earth crust there must have undoubtedly been recorded and preserved in a concentrated way all the expression, under high temperature and pressure, of physical and chemical changes and motion of matter in the litho-, hydro-, air-, and bio-spheres of the Earth.

In view of this, if the other approaches of the study of geodynamics are considered to be scientific and effective, then the geomechanics with the earth crust being as its target of research should also be valid and reasonable, since it keeps to the principle of going deep into the study of geodynamic and kinematic problems concerning the structure and texture of the litho-, hydro-, air-, and bio-spheres of the Earth, mutual actions of the late, as well as the origin, evolution and motion of the Earth in a way proceeding from the outside to the inside, from the simple to the profound, and from the part to the totality through the study of the geological structures of the earth crust, the motion and regularity of distribution of matter in the earth crust, and the origin and evolution of the crustal movement.

For this reason, the geomechanical workers have conducted a great volume of work and have gained lots of meaningful results through their protracted struggle, and with their own effort and under the support of the interrelated branches of sciences and vast numbers of scientists. The frequent and timely comprehensive analysis and summation of these achievements and results are of great importance not only to the development of geomechanics, but also to the development of the whole geological sciences themselves and to promoting geomechanics to provide a better service for social development and national economic construction. With the support from the Ministry of Geology and Mineral Resources and the Chinese Academy of Geological Sciences, the publication of the *Method and*

*Practice of Geomechanics* series has been placed in the "Eighth Five-Year Plan of the Development of Natural Sciences" as an important project of basic researches to be implemented under the guidance of Academician Sun Dianqing.

As early as at the beginning of the 60's of this century, Prof. J. S. Lee, the founder of geomechanics used to plan to organize labour power to compile a set of the *Method and Practice of Geomechanics* series, aiming at the summation of the achievements and results of the research and practice of application of geomechanics. For this purpose, Prof. J. S. Lee personally took a hand in drafting an outline for the particular series, and decided to take the monograph of his *An Introduction to Geomechanics* as the first volume of this series. Later on, Prof. J. S. Lee made comments on the revision of the monograph *An Introduction to Geomechanics*.

The present comprehensive research and summation is exactly the implementation of the behests of Prof. J. S. Lee, modifying the first volume and compiling six books of four volumes and a sheet of Global Tectonic Map, namely:

- Volume I    An Introduction to Geomechanics, by J. S. Lee, modified by Sun Dianqing and Others;
- Volume II    Separate Treatises on Tectonic Systems (Individual papers on typical tectonic systems of China) by Wang Zhishun and Others;
- Volume III    Petromechanics and Analysis of Tectonics Stress Field, by Chen Qingxuan, Sun Ye, Wang Weixiang and Others;
- Volume IV    The Problems on Crustal Movement, by Gao Qinghua and Others;  
The Problems on Recent Crustal Movement, by Ma Zongjin and Du Pinren;
- Volume V    Application of Geomechanics in Prospecting for Mineral Resources, by Liu Xun and Others;  
Application of Geomechanics in Environmental Geology, by Shao Yunhui and Others;

An Outline Map of Global Tectonic Systems, by Miao Peishi and Others.

As the *Method and Practice of Geomechanics* series has been compiled on the basis of comprehensive analysis and summation of the results of research and practice conducted by vast numbers of geomechanical workers and scientists engaged in related branches of sciences, so it should undoubtedly be regarded as a crystallization of common effort of all the people concerned. Except for the monograph *An Introduction to Geomechanics*, for all other volumes of the series we use the term "Compilation", to mean that in the particular series results of research by other people are included, which the authors beg to acknowledge hereby. So and comments on possible oversights any omissions and mistakes in quotations are welcomed.

**Editorial Board of the *Method and Practice of Geomechanics***

# 前 言

“地质力学的方法与实践”系列丛书是中国地质力学工作者对长达半个多世纪从事地质力学研究的系统总结，以系列论著反映其研究成果。它的第一篇为《地质力学概论》，由地质力学的创建人李四光院士亲自撰写，于1962年出版，先后在国内外公开发行人。经过近30年的实践检验后，于90年代初，地质矿产部将“地质力学的方法与实践”重新列入地质矿产部“八五”重大基础研究项目，在孙殿卿院士的主持下，经过4年多的努力，完成了本项目研究任务。

《构造体系各论》是“地质力学的方法与实践”的第二课题，也是该系列论著的第二篇。作者于1991年9月接受课题任务，组成课题研究组，在广泛收集中国区域地质、构造最新成果的基础上，以综合研究为主，辅以少量野外地质调查，并同部分省区地矿局、大区地研所的有关同志广泛交流意见，讨论有关问题，经过4年多的努力，完成了预定的研究任务。

按照项目领导组提出的要求，本篇的主要任务是：立足中国，放眼世界，在广大地质力学工作者长期研究和生产实践所取得大量成果的基础上，系统总结和论述各类典型构造体系的基本特征、分布规律、发展演化及形成机制等构造动力学和运动学的基本问题。因地质力学这门边缘学科是在中国生长、发展起来的，对中国陆壳构造体系研究较为详细和深入，故本篇又定名为《中国典型构造体系分论》，重点论述中国陆壳的各类典型构造体系，同时兼述一些主要大型或巨型构造体系在全球的分布概况和基本特征，至于有关构造体系的形成机制、全球构造体系格架和地壳运动等重大问题，在本项目中均有专门研究，并有专著作为本篇的姊妹篇同时出版，因此在本论著中未加深入讨论，仅在必要时略加提及。

作者以系统论为指导，运用力学原理去认识地质构造的力学本质，探索地质构造现象间的内在联系及其演化规律；同时还充分考虑了与当代地球科学发展相结合，运用了当代地球科学新认识及其所取得的新资料和新成果，将变形、位移、变质等改造作用与沉积建造、岩浆活动、变质与成矿物质等紧密结合，这样就能使构造体系形成演化研究具有更丰富的内涵。因此，在本书编写中，我们突出了以下几个方面。

1. 突出了中国陆壳结构演化与构造体系成生发展的时间和空间关系的联系性。强调了构造地块的离散与聚合，是构造体系形成发展的前提条件，或称构造体系形成的主要边界条件。只有地壳块体在相互作用（离散与聚合）过程中或块体结合以后的构造运动中所产生的构造形迹、形体才具有成因上的联系，它们才能具有统一应力场，形成一定型式的构造体系。从而为系统地分析中国统一陆壳的形成过程和中国主要构造体系成生发展历程、空间展布特征及其所反映的陆壳运动程式等打下了坚实的基础。

2. 突出了构造动力变质带。我们把变形、位移与动力变质统一起来加以研究，把构造动力变质带视为特殊而重要的构造形迹、形体，这就丰富了构造体系的研究内容，深化了构造形迹、形体的研究程度，对地壳上的构造变形带、岩浆岩带、变质带、地球化学异常

带等多位一体性, 给予了合理的解释, 它们都是构造体系活动带的重要组成部分。

3. 在研究陆壳结构演化的基础上, 进一步将建造与改造紧密结合起来, 在分析构造体系形成演化中, 将活动地带与相对稳定地带的沉积建造、岩浆活动、变质作用与地块间的离合和变形特点紧密结合, 并分别论述, 使构造体系形成演化研究有更丰富的物质基础。通过对陆壳结构演化各阶段的建造与改造分析, 筛分出了一部分古构造形迹或古构造带, 通过筛分还建立了个别的古构造体系。

4. 在构造体系研究方面, 取得了一些新进展。将构造体系类型划分为三大类五个亚类, 即由经向力的挤压或拉张形成的纬向构造体系和由纬向力的挤压或拉张形成的经向构造体系, 以及由扭应力作用形成的扭动构造体系, 在扭动构造体系类型中根据扭应力的作用方式, 进一步分为直剪扭动、剪弯扭动和旋转扭动构造体系三个亚类, 进而确立各种扭动构造型式。通过综合研究, 在具体的构造体系(型式)划分方面, 新建立了三个大型构造体系, 即华南山字型、扬子-塔里木地块的古棋盘格式构造, 以及重新厘定的中华夏构造体系。

5. 对岛弧构造带的成因和中国陆壳晚近活动构造体系, 提出了新的认识。

6. 根据陆壳结构演化阶段构造变形变质带的组合规律, 确定了主要构造体系(雏型期、成型期和定型期)的发展演化及其展布特征, 进而探讨了中国陆壳的主要运动程式。

参加本课题组研究的单位和研究人员有: 中国地质科学院地质力学研究所王治顺研究员(课题负责人)、李锦蓉研究员、朱大岗研究员, 宜昌地质矿产研究所熊成云研究员, 湖北省地矿局地质研究所蒋镇亚高级工程师, 江苏省地矿局地质研究所赵剑畏高级工程师和新疆维吾尔自治区地矿局地科处梁云海高级工程师。

本书由王治顺主笔, 参加编写人员还有朱大岗、熊成云、赵剑畏、蒋镇亚、李锦蓉、梁云海。全书共分九章及前言。其中第一章、第二章、第七章、第九章及前言, 由王治顺编写; 第三章由王治顺、熊成云、李锦蓉、赵剑畏和梁云海共同编写; 第四章由王治顺主笔, 熊成云、赵剑畏参加编写; 第五章分别由熊成云、王治顺、赵剑畏、李锦蓉编写, 梁云海提供新疆地区素材; 第六章由蒋镇亚主笔, 赵剑畏参加编写; 第八章由朱大岗主笔, 王治顺参加编写。全书文稿由王治顺统纂和修改, 图件由朱大岗整理。图件由赵小荣、尚玲工程师清绘。

在课题进行和成果编写过程中, 得到项目负责人孙殿卿和陈庆宣院士的亲切指导和项目办公室苗培实研究员、周显强研究员和徐炳川高级工程师(教授级)的支持与协助。在课题执行过程中, 还得到新疆地矿局张良臣总工程师、刘德权副总工程师, 地矿部西北石油局康玉柱总工程师, 甘肃地矿局郑文林高级工程师, 内蒙古地矿局王楫、边树起、拉夫高级工程师, 中国地质科学院成都地矿所杨迺和、李文汉、徐星棋研究员等的支持与协助, 同时, 他们还对中国西部地质构造问题提供的宝贵资料和意见, 特此致谢。

编 者

# 目 录

<b>第一章 绪论</b> .....	(1)
1.1 关于地质构造的三重基本概念 .....	(2)
1.2 建立和划分构造体系的基础 .....	(4)
1.3 构造体系类型与构造型式 .....	(6)
1.4 关于陆壳结构演化与古构造型式的鉴定问题 .....	(8)
<b>第二章 中国陆壳结构演化与主要地壳运动</b> .....	(11)
2.1 中国陆壳早前寒武纪结晶基底岩系概况 .....	(12)
2.2 中元古代中国陆壳结构的基本特点 .....	(18)
2.3 新元古代中国陆壳的基本格架 .....	(25)
2.4 显生宙中国陆壳构造演化梗概 .....	(37)
2.5 中国陆壳所经历的主要地壳运动 .....	(38)
<b>第三章 巨型纬向构造体系</b> .....	(45)
3.1 阴山-天山纬向构造体系 .....	(45)
3.2 秦岭-昆仑纬向构造体系 .....	(63)
3.3 南岭纬向构造体系 .....	(79)
3.4 中国境内其他纬向构造体系和区域东西向构造带 .....	(90)
3.5 巨型纬向构造体系在全球的分布概述 .....	(91)
3.6 纬向构造体系的形成机制 .....	(94)
<b>第四章 经向构造体系</b> .....	(95)
4.1 三江经向构造体系 .....	(96)
4.2 川滇经向构造体系 .....	(106)
4.3 湘桂经向构造体系 .....	(120)
4.4 皖东经向构造体系 .....	(121)
4.5 台湾海岸经向构造体系 (或台湾-菲律宾经向构造体系) .....	(126)
4.6 牡丹江经向构造体系 .....	(128)
4.7 中国大陆其它经向构造带 .....	(133)
4.8 经向构造体系在全球的分布状况 .....	(136)
<b>第五章 直剪扭动构造体系</b> .....	(141)
5.1 华夏系列多字型构造体系 .....	(141)
5.1.1 华夏构造体系 .....	(143)
5.1.2 中华夏构造体系 .....	(156)
5.1.3 新华夏构造体系 .....	(168)
5.1.4 中国东部的古北东—北北东向构造带简介 .....	(192)
5.2 西域系列反多字型构造体系 .....	(195)

5.2.1 西域构造体系 .....	(196)
5.2.2 河西构造体系 .....	(208)
5.3 棋盘格式构造体系 .....	(211)
5.4 入字型构造体系 .....	(218)
<b>第六章 剪弯扭动构造体系 .....</b>	<b>(225)</b>
6.1 山字型构造体系 .....	(225)
6.1.1 中国大陆典型山字型构造体系分述 .....	(226)
6.1.2 世界各地主要山字型简述 .....	(248)
6.2 弧型构造体系 .....	(251)
6.3 剪弯扭动构造体系的分布规律和组合规律 .....	(258)
<b>第七章 旋扭构造体系 .....</b>	<b>(263)</b>
7.1 帚状构造体系 .....	(264)
7.2 莲花状构造体系和环状构造体系 .....	(274)
7.3 涡轮状或旋涡状构造体系 .....	(278)
7.4 巨型反 S 型 (歹字型) 旋扭构造体系 .....	(282)
7.4.1 青藏川滇反 S 型构造体系 .....	(283)
7.4.2 帕米尔-喜马拉雅反 S 型 (歹字型) 构造体系 .....	(295)
7.5 S 型、反 S 型构造体系 .....	(302)
<b>第八章 中国主要构造动力变质带的特点和分布规律 .....</b>	<b>(308)</b>
8.1 构造动力变质作用简论 .....	(308)
8.2 动力变质岩的基本类型 .....	(312)
8.3 中国主要构造动力变质带的基本特征 .....	(314)
8.4 中国主要动力变质带的分布规律 .....	(352)
<b>第九章 主要构造体系形成演化与大陆地块的运动程式 .....</b>	<b>(355)</b>
9.1 中国统一陆壳形成过程 .....	(356)
9.2 中国主要构造体系的形成演化 .....	(357)
9.3 中国陆壳运动的基本程式 .....	(360)
<b>主要参考文献 .....</b>	<b>(366)</b>
<b>英文摘要 .....</b>	<b>(371)</b>

# CONTENTS

<b>Chapter 1 Introduction</b>	(1)
1.1 Three Fold Basic Conception of Tectonics	(2)
1.2 Establishment and Classification of Tectonic Systems	(4)
1.3 The Type and Style of the Tectonic Systems	(6)
1.4 Determination of the Continental Crustal Evolution and Paleotectonic Type	(8)
<b>Chapter 2 The Evolution of the Continental Crustal Texture and the Major Crustal Movement of China</b>	(11)
2.1 Outline of the Precambrian Crystallized Basement Rock Series in Continental Crust of China	(12)
2.2 Characteristics of the Meso-Proterozoic Continental Crustal Texture of China	(18)
2.3 The Framework of the Neo-Proterozoic Continental Crust of China	(25)
2.4 Outline of the Phanerozoic Continental Crustal Texture of China	(37)
2.5 Major Movements of the Continental Crust of China	(38)
<b>Chapter 3 Gigantic Latitudinal Tectonic Systems</b>	(45)
3.1 Yinshan-Tianshan Latitudinal Tectonic Systems	(45)
3.2 Qinling-Kunlun Latitudinal Tectonic Systems	(63)
3.3 Nanling Latitudinal Tectonic Systems	(79)
3.4 Other Latitudinal Tectonic Systems and Regional E-W trending Tectonic Belts	(90)
3.5 Global Distribution of the Gigantic Latitudinal Tectonic Systems	(91)
3.6 The Formation Mechanism of the Latitudinal Tectonic Systems	(94)
<b>Chapter 4 Meridional Tectonic Systems</b>	(95)
4.1 Lancangjiang-Jinshajiang-Nujiang Meridional Tectonic Systems	(96)
4.2 Sichuan-Yunnan Meridional Tectonic Systems	(106)
4.3 Hunan-Guangxi Meridional Tectonic Systems	(120)
4.4 Eastern Anhui Meridional Tectonic Systems	(121)
4.5 Taiwan Coast Meridional Tectonic Systems	(126)
4.6 Mudanjiang-Tumenjiang Meridional Tectonic Systems	(128)
4.7 Other Meridional Tectonic Systems of China	(133)
4.8 Global Distribution of the Meridional Tectonic Systems	(136)
<b>Chapter 5 Shear Tectonic Systems</b>	(141)



5.1	Cathaysian $\xi$ -type Tectonic Systems .....	(141)
5.1.1	Cathaysian Tectonic Systems .....	(143)
5.1.2	Midcathaysian Tectonic Systems .....	(156)
5.1.3	Neocathaysian Tectonic Systems .....	(168)
5.1.4	NE、NNE Paleo-Tectonic Belts in East China .....	(192)
5.2	Xiyu Reversed $\xi$ -type Tectonic Systems .....	(195)
5.2.1	Xiyu Tectonic Systems .....	(196)
5.2.2	Hexi Tectonic Systems .....	(208)
5.3	Chess-Board Tectonic Systems .....	(211)
5.4	$\lambda$ -type Tectonic Systems .....	(218)
<b>Chapter 6</b>	<b>Curve-shear Tectonic Systems .....</b>	<b>(225)</b>
6.1	$\epsilon$ -type Tectonic Systems .....	(225)
6.1.1	Typical Continental $\epsilon$ -type Tectonic Systems of China .....	(226)
6.1.2	Major $\epsilon$ -type Tectonic Systems over the World .....	(248)
6.2	Arcuate Tectonic Systems .....	(251)
6.3	Distribution Pattern and Association for Curve-Shear Tectonic Systems .....	(258)
<b>Chapter 7</b>	<b>Rotation-Shear Tectonic Systems .....</b>	<b>(263)</b>
7.1	Brush Tectonic Systems .....	(264)
7.2	Lotus-form and Ring-shaped Tectonic Systems .....	(274)
7.3	Turbine-liked Tectonic Systems .....	(278)
7.4	$\eta$ -type (Reversed S-shaped) Tectonic Systems .....	(282)
7.4.1	Qinghai-Xizang (Tibet) -Sichuan-Yunnan Reversed S-shaped Tectonic System .....	(283)
7.4.2	Pamir-Himalayan $\eta$ -type (Reversed S-shaped) Tectonic Systems .....	(295)
7.5	S-shaped and reversed S-shaped Tectonic Systems .....	(302)
<b>Chapter 8</b>	<b>Characteristics and Distribution Pattern of Dynamic Metamorphism Belts in China .....</b>	<b>(308)</b>
8.1	Outline of Tectono-Dynamic Metamorphism .....	(308)
8.2	Dynamo-Metamorphic Rock Type .....	(312)
8.3	Major Dynamic Metamorphism Belts of China .....	(314)
8.4	Distribution Pattern of Dynamic Metamorphism Belts of China .....	(352)
<b>Chapter 9</b>	<b>Deformation and Evolution of Major Tectonic Systems and the Process of Continental Land Masses .....</b>	<b>(355)</b>
9.1	Deformation of Universal Continent of China .....	(356)
9.2	Deformation and Evolution of Major Tectonic Systems of China .....	(357)
9.3	Basic Process of Continental Crust Movement of China .....	(360)
<b>References</b>	.....	<b>(366)</b>
<b>Abstract</b>	.....	<b>(371)</b>