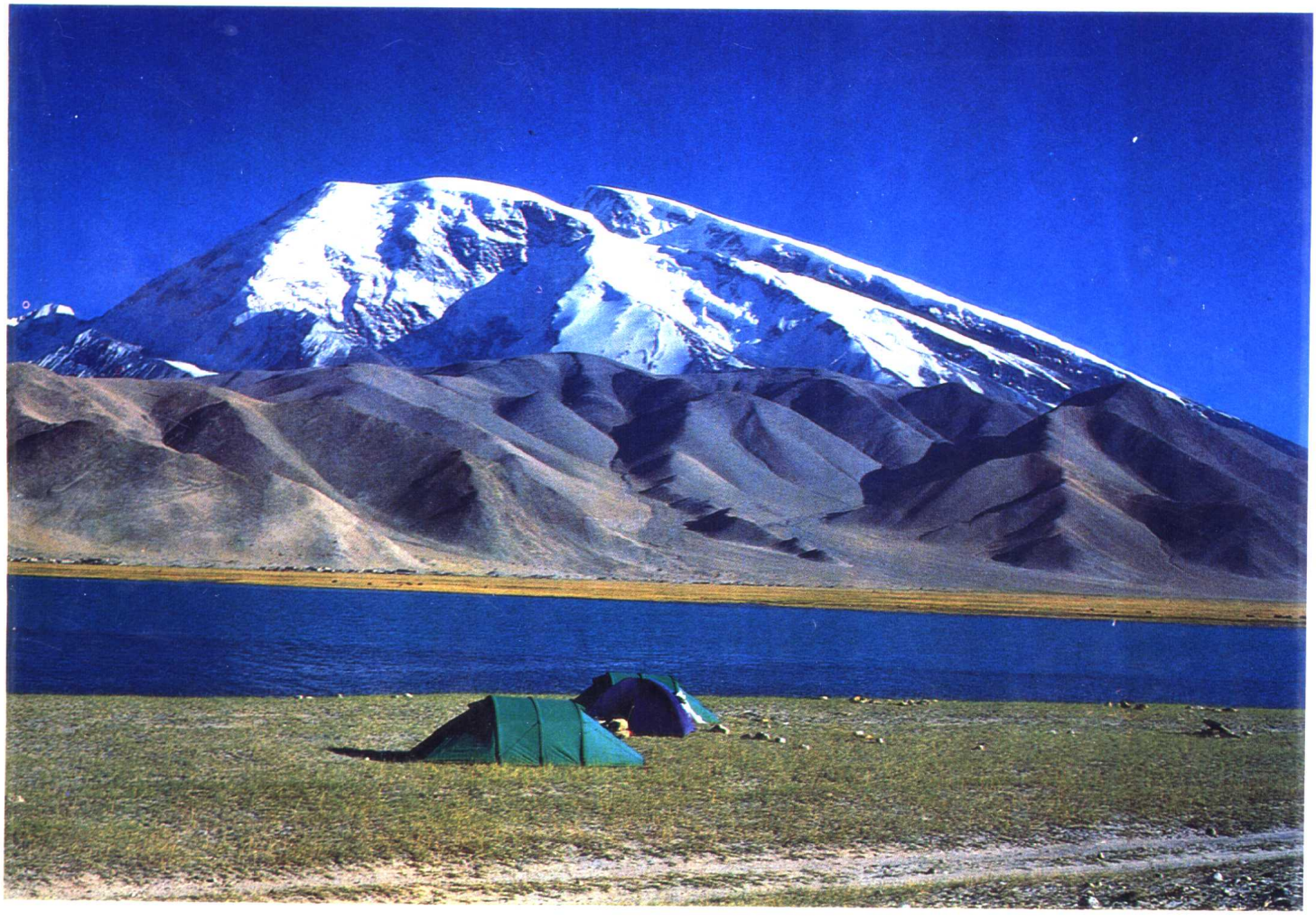
青藏高原喀喇昆仑山-昆仑山地区科学考察丛书

喀喇昆仑山-昆仑山地区古生物

中国科学院青藏高原综合科学考察队



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中国科学院青藏高原综合科学考察队

国家自然科学基金
中国科学院 联合资助重大项目

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内 容 简 介

本书为国家自然科学基金和中国科学院共同资助的“喀喇昆仑山-昆仑山地区综合科学考察”研究成果之一。书中共收集15篇论文，概略介绍了喀喇昆仑山-昆仑山地区地层情况及古生物基本面貌，系统描述古生代和中生代有孔虫、放射虫、珊瑚、苔藓虫、腕足类、腹足类、双壳类、介形类、牙形刺等化石共计296属510种(包括4新属60新种)。各篇论文均对地层时代、生物组合、生物地理等作了不同程度的讨论。全书附化石图版80幅。

本书可供地质、地层古生物工作者参考。

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THE SERIES OF THE SCIENTIFIC EXPEDITION TO THE KARAKORUM AND KUNLUN MOUNTAINS, QINGHAI-XIZANG PLATEAU

PALAEONTOLOGY OF THE KARAKORUM-KUNLUN MOUNTAINS

The Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau, Chinese Academy of Sciences

The Key Project Supported by the National Natural Science Foundation of China and the Chinese Academy of Sciences

Science Press, Beijing
1998

《青藏高原喀喇昆仑山-昆仑山地区科学考察丛书》

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《青藏高原喀喇昆仑山-昆仑山地区科学考察丛书》序

素有“世界屋脊”之称的青藏高原西自帕米尔和喀喇昆仑山，东抵横断山区，北起昆仑山和祁连山，南界喜马拉雅山，幅员广阔，地势高亢，是全球海拔最高和独特的地域单元。自50年代起，国家曾组织过多次对青藏高原的科学考察，取得了丰硕的成果。自70年代初开始，中国科学院组织了青藏高原综合科学考察队，以“青藏高原的形成、演化及其对自然环境和人类活动的影响”为中心问题，对青藏高原进行了全面、系统的综合考察研究。第一阶段(1973－1980年)考察了青藏高原南部的西藏自治区；第二阶段(1981－1986年)考察了青藏高原东南部川西、藏东和滇西北的横断山区；第三阶段(1987－1992年)考察了研究程度最低、资料甚少的青藏高原西北部的喀喇昆仑山和昆仑山地区。

喀喇昆仑山-昆仑山地区包括喀喇昆仑山和西、中昆仑山，它西起帕米尔东缘，东到昆仑山口，南达喀喇昆仑山及羌塘高原北部可可西里山，北抵昆仑山北翼，面积约40万平方公里。这一地区是阐明青藏高原有关地学、生物学一些重要问题的症结所在，是研究东特提斯形成演化及板块碰撞机制的关键地区。晚新生代以来这里隆起强烈，自然环境演变急剧；气候极端寒冷干旱，却又是高山冰川集中发育的中心；生物区系迁移融合比较复杂，形成独特的高原生物区系；优势自然景观是荒漠和草原，高寒荒漠、高寒草原在全球高山区域占有独特的席位，其山地垂直自然带类型也迥异于高原的其他区域。开展对这一地区的研究，不仅将促进对高原形成演化、自然环境变迁、生物区系起源、自然地域分异及演化趋势等重大问题认识的深化与完善，而且对全球环境变化的研究也有重要意义。同时也将为这一地区自然资源的开发利用、山地自然灾害的防治和自然保护以及区域的持续发展提供必要的科学依据。

“喀喇昆仑山-昆仑山地区综合科学考察”是国家自然科学基金委员会资助和支持的重大项目，也是中国科学院重点支持的基础研究项目。根据在喀喇昆仑山-昆仑山地区所要解决的科学问题，这一研究项目包括如下4个综合性课题：

1. 喀喇昆仑山-昆仑山地区各地体的地质特征、碰撞机制与东特提斯的演化；
2. 晚新生代以来喀喇昆仑山-昆仑山地区的隆起过程及自然环境变化；
3. 喀喇昆仑山-昆仑山地区生物区系的特征、形成与演化；
4. 喀喇昆仑山-昆仑山地区自然地理环境的特点、区域分异及演化趋势。

这一研究项目的中心问题和各课题综合性强，相互之间联系密切，需要多专业协作，多学科交叉。中国科学院青藏高原综合科学考察队组织了中国科学院下属16个研究单位和部分高等院校约50余位科学工作者参加了这一项目的研究工作，主要包括构造地质、地层、古生物、沉积学、岩石地球化学、同位素地质、古地磁、重力、第四纪地质、地貌、冰川、

冻土、地热、植物区系、动物区系、自然地理、气候、陆地水文、土壤、地植物和遥感制图等专业。

在中国科学院、地方和部队有关部门的领导、支持和协助下，项目组连续进行了四年野外科学考察，搜集了大量珍贵的科学资料，在此基础上进行了室内的鉴定、分析、测试和总结研究工作。

《青藏高原喀喇昆仑山-昆仑山地区科学考察丛书》包括《喀喇昆仑山-昆仑山地区古生物》、《喀喇昆仑山-昆仑山地区地质演化》、《喀喇昆仑山-昆仑山地区晚新生代以来的环境变迁》、《喀喇昆仑山-昆仑山地区冰川与环境》、《喀喇昆仑山-昆仑山地区昆虫》、《喀喇昆仑山-昆仑山地区植物志》、《喀喇昆仑山-昆仑山地区脊椎动物》、《喀喇昆仑山-昆仑山地区自然地理》和《喀喇昆仑山-昆仑山地区土壤》等专著。我们希望《丛书》能在探索青藏高原的自然规律和我国的现代化建设中发挥积极的作用，殷切地期望读者对《丛书》的不足和缺点给予批评指正。我们愿意和更多的科学工作者一道为进一步揭开青藏高原的奥秘，为建设好青藏高原而继续努力。

中国科学院青藏高原综合科学考察队

PREFACE OF *THE SERIES OF THE SCIENTIFIC EXPEDITION TO THE KARAKORUM AND KUNLUN MOUNTAINS, QINGHAI-XIZANG PLATEAU*

The Qinghai-Xizang Plateau, which is called "the Roof of the World", has covered a huge area from the Pamir and the Karakorum in the west to the Hengduan Mountains in the east, and from the Kunlun and Qilian Mountains in the north to the Himalayas in the south. It is the highest plateau and a unique region on the earth. Since the 1950's, the People's Republic of China had organized a series of comprehensive scientific expeditions to the Qinghai-Xizang Plateau area and had made much achievements. From the beginning of the 1970's, the Chinese Academy of Sciences (CAS) had organized the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau. Having made the "Formation and Evolution of the Qinghai-Xizang Plateau and Its Influences on the Natural Environment and Human Activities" as the key issues, the team had developed three stages of comprehensive and systematic expeditions. The first stage was from 1973 to 1980 in which the Xizang Autonomous Region had been investigated, and the second one from 1981 to 1986 was mainly in the west Sichuan, east Xizang and northwest Yunnan. The third one from 1987 to 1992 had occurred in the Karakorum and Kunlun Mountains where the research level was lower and the data was less in the past.

The Karakorum and Kunlun Mountains, include Karakorum and west, middle Kunlun, range from the east border of the Pamir in the west to the Kunlun Pass in the east, and from the Karakorum and north Qiangtang Plateau, Hoh Xil Mountains in the south to the northern foot of the Kunlun Mountains in the north. This huge area, with $4.0 \times 10^5 km^2$, are the key area for expounding some important problems about the geoscience and biology of the Qinghai-Xizang Plateau, and for studying the formation and evolution of the east Tethys and the collision mechanism of tectonic plates. Their intensive uplifting since the Late Cenozoic Era has brought about drastic changes in the natural environment. Though the climate here is extremely dry and cold, they are the center in which the mountain glaciers are very developed. Various biotic elements have been admixed, interpenetrated, and specialized in evolutionary process that formed a unique plateau biotic fauna. Serving as the dominant landscapes, alpine desert and alpine ateppe are well developed and occupy the unique status in the alpine region of the earth. The spectrum of altitudinal belts in this area also differs greatly from that in other parts of the plateau. Therefore, investigation and research on this region will not only promote the deepening and broadening of knowledge on such issues as the formation and

evolution of the plateau, changes of the natural environment, origins of the biota, physico-geographical regional differentiation, environmental evolution tendencies, etc., but also make great significance to the study for global environmental change. In addition, this investigation and research will provide a solid scientific basis for the exploitation and utilization of natural resources, the control and prevention of natural hazards and nature conservation as well as the sustainable development in these mountainous areas.

"The Comprehensive Scientific Expedition to the Karakorum and Kunlun Mountains" has been supported by the National Natural Science Foundation of China and the Chinese Academy of Sciences. Based upon the scientific problem which will be served in this area, the research project includes the studies of the following four interrelated issues:

(1) Geological characteristics and the collision mechanism of tectonic plates in the Karakorum-Kunlun Mountains region and the evolution of the eastern Tethys;

(2) Uplifting of the Karakorum-Kunlun Mountains region and environmental changes since the Late Cenozoic Era;

(3) The characteristics, origin and evolution of fauna and flora in the Karakorum-Kunlun Mountains region;

(4) Physico-geographical characteristics, regional differentiation and environmental evolution tendencies in the Karakorum-Kunlun Mountains region.

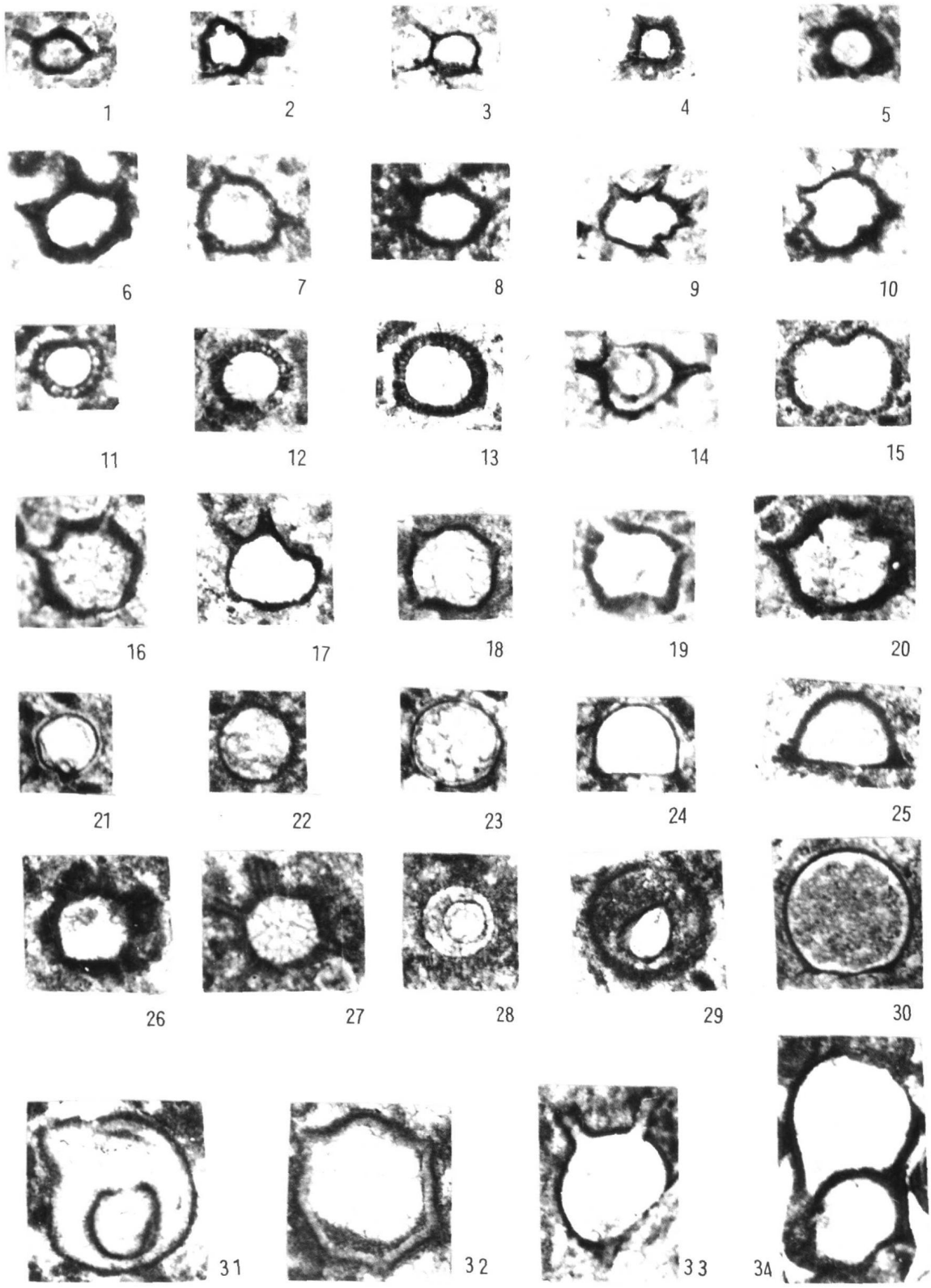
Because of the integration and close interrelation among the central issues and subissues and the necessity of coordination and crossing among multi-specialities and sciences, the Comprehensive Scientific Expedition Team to the Qinghai-Xizang Plateau, CAS had organized some 50 scientists from 16 institutes of CAS and some universities to undertake the multidisciplinary research project, including stratigraphy, palaeontology, sedimentology, petrology, geochemistry, isotopic geology, tectonic geology, geophysics, Quaternary geology, geomorphology, glaciology, cryopedology, geothermics, systematic botany, florology, entomology, zoology, faunology, physical geography, climatology, hydrography geoecology, geobotany, pedogeography and remote sensing cartography.

Under the leading, supporting and cooperating of the Chinese Academy of Sciences, local governments and some related units of the People's Liberation Army, the project work group had continuously carried out 4 years' field scientific investigations and had obtained a lot of valuable scientific data, upon which the identification, analysis, test as well as researches have been completed.

The series are planned to be composed of *Palaeontology of the Karakorum and Kunlun Mountains*, *Geological Formation and Evolution of the Karakorum and Kunlun Mountains*, *Environmental Changes of the Karakorum-Kunlun Mountains since the Late*

Cenozoic Era, *Glaciers and Environment of the Karakorum-Kunlun Mountains*, *Insects of the Karakorum-Kunlun Mountains*, *Flora of the Karakorum-Kunlun Mountains*, *Vertebrate of the Karakorum-Kunlun Mountains*, *Physico-geography of the Karakorum-Kunlun Mountains*, and *Soil of the Karakorum-Kunlun Mountains*. We hope that this series will be able to give an active play in probing into the natural law of the Qinghai-Xizang Plateau and in the construction of Modern China. We sincerely hope that the readers will give their real ideas for the insufficient of this series. We are willing to develop co-operations with more scientists to make efforts for mysteries discovering and regional development of the Qinghai-Xizang Plateau.

The Comprehensive Scientific Expedition
to the Qinghai - Xizang Plateau , Chinese
Academy of Sciences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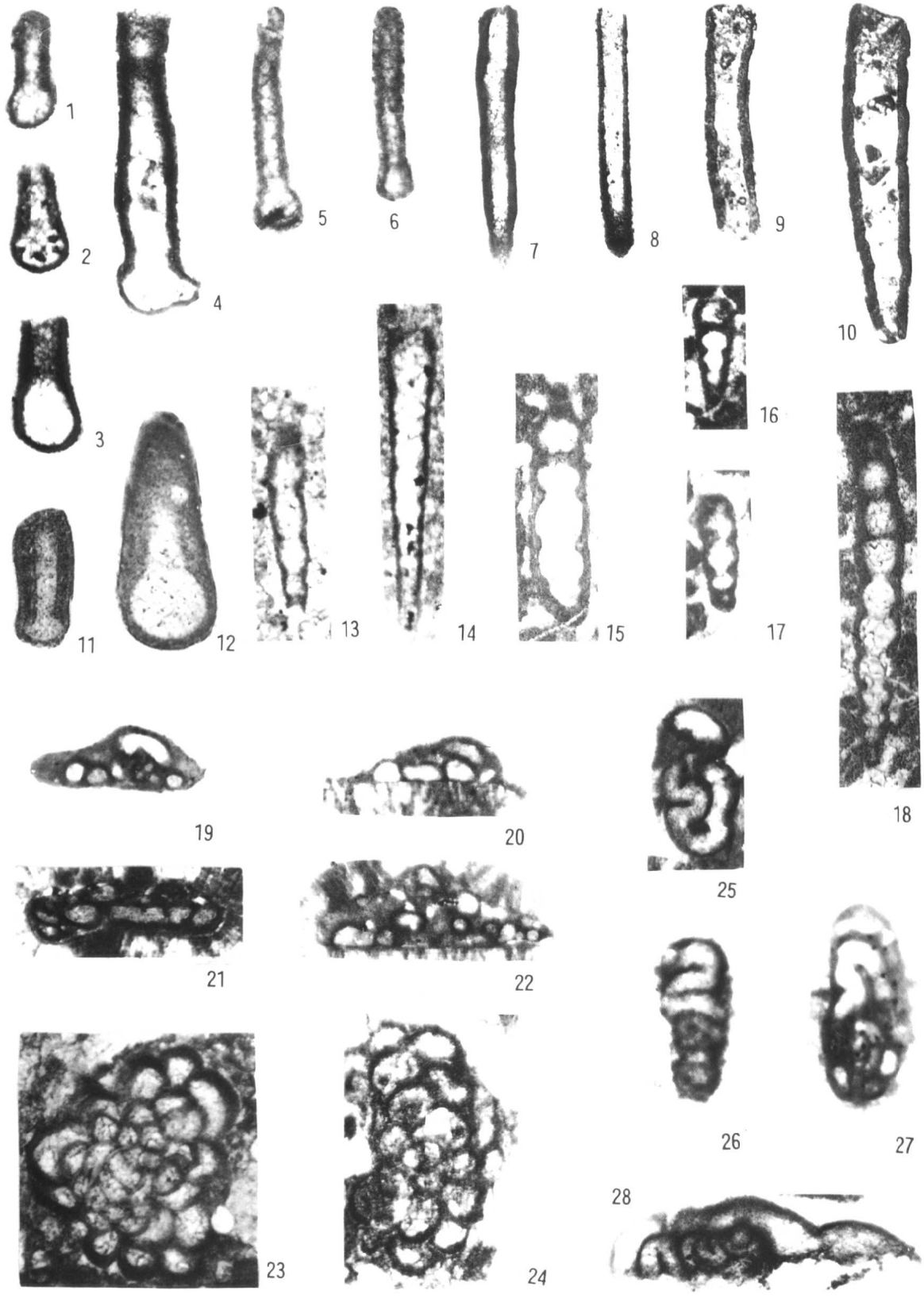
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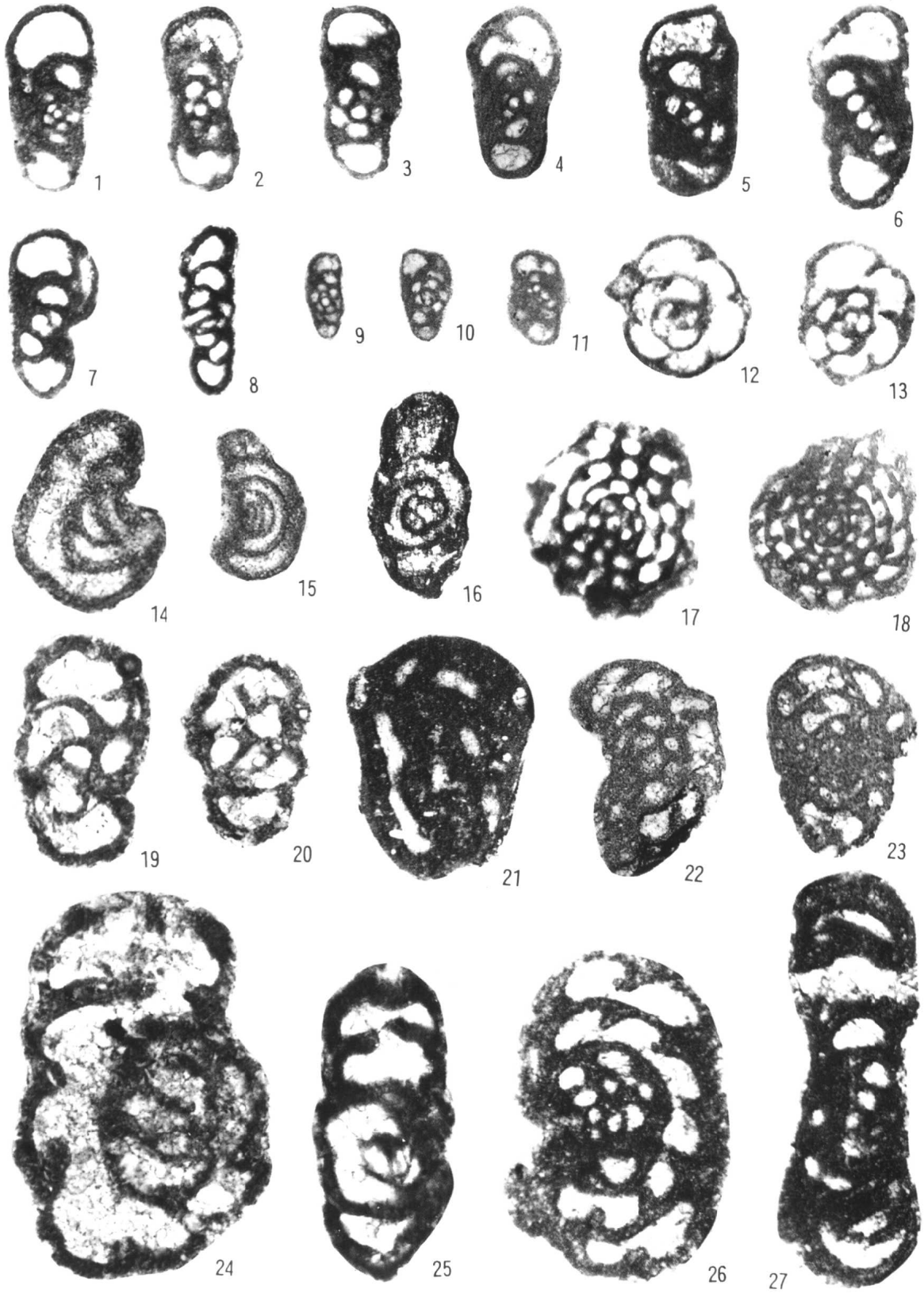
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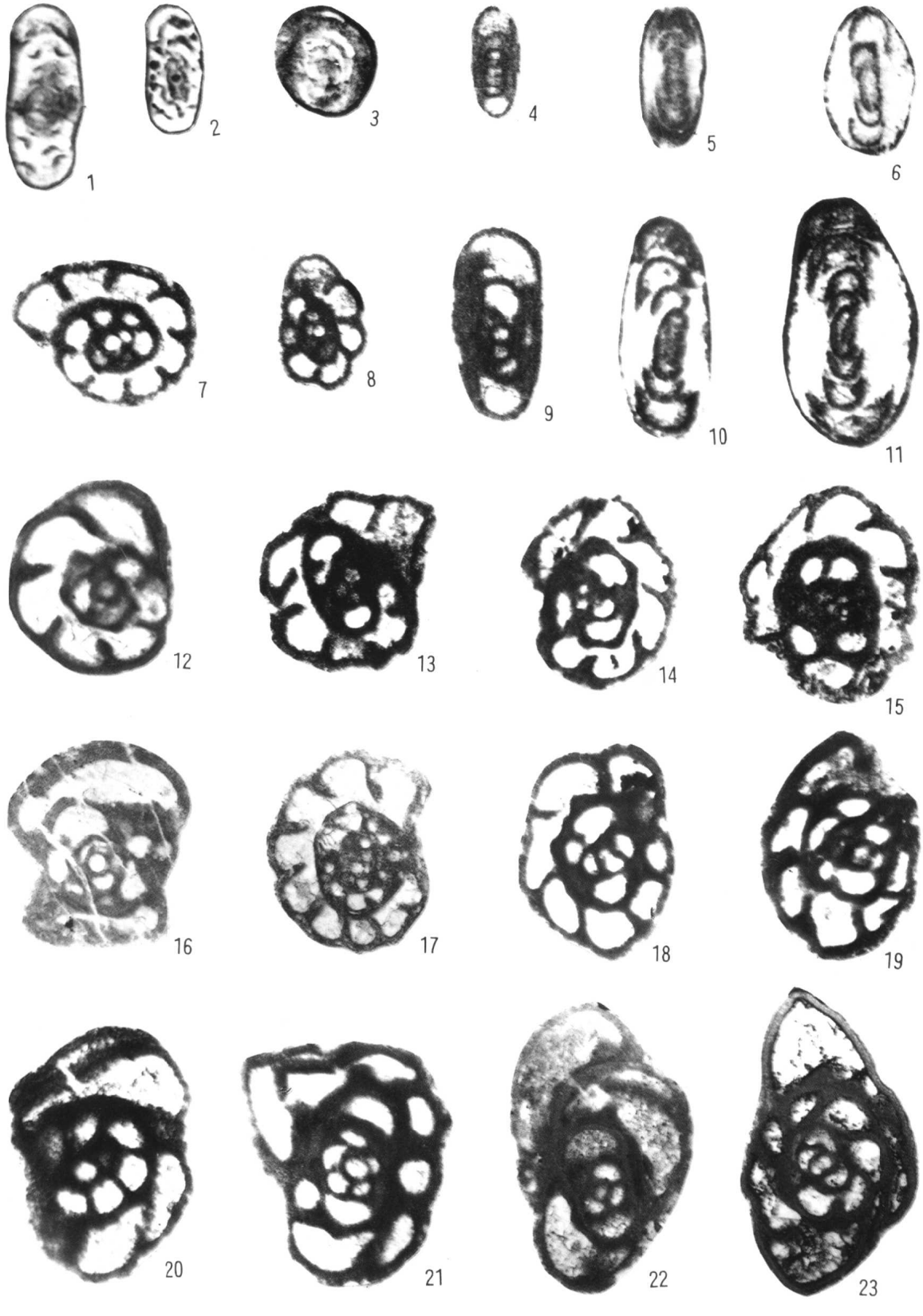
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