

COLLECTION OF PAPERS

THE THIRD INTERNATIONAL CONFERENCE
ON THE HISTORY OF SCIENCE & TECHNOLOGY
OF THE CHINESE MINORITY

(AUG. 7-10, 1996, Kunming, China)

(1996年8月7-10日, 中国·昆明-大理)

第三届中国少数民族科技史
国际学术讨论会论文集

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第三届中国少数民族科技史
国际学术讨论会论文集
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序

中国是一个多民族的国家，从古至今，中国的少数民族就和汉族一起创造了灿烂的中华文明，并且还将在建设有中国特色社会主义的伟大事业中作出更大的贡献。云南地处祖国西南边陲，人口在5000人以上的少数民族达25个，为研究我国少数民族历史、文化提供了十分有利的条件。云南生物资源丰富，气候宜人，山川秀丽，地域广阔，世代聚居于此的各少数民族，从各自不同的自然环境和劳动方式出发，创造出了丰富多彩的民族传统技术，从而为研究中国少数民族科技史提供了优越的条件。

当今的时代，是一个科技竞争的时代，我国作为一个民族大团结的国家和我省作为一个多民族和睦相处、同舟共济的边疆省份，有必要正视各民族的历史文化，在充分挖掘和利用各民族优秀传统科技文化的基础上，把各民族合理的科技传统与现代科学技术结合起来，使其在改革开放的大潮中为我国的科技发展助力，为边疆少数民族地区的脱贫致富增劲，为全人类的文化事业添彩。其所具有的价值不应低估。

1996年8月7日至8月11日，“第三届中国少数民族科技史国际学术讨论会”在云南农业大学和大理召开，来自世界不同国家和我国的近百名专家、学者欢聚一起，共同探讨和交流研究成果，其内容之丰富，是十分令人鼓舞的。这次大会的成功，无疑对于具有60年历史的云南农业大学是一次有力的推动，这是一次值得庆贺的盛会。我相信，由云南农业大学、中国科技史学会、中国科技史学会少数民族科技史研究会、中国科技史研究所、内蒙古师范大学共同主办，云南省科协、大理州科协协办，并由云南农业大学承办的这次大会，必将促进各民族的团结和推动中国科技史研究的向前发展。

第三届中国少数民族科技史国际学术讨论会论文集的出版，是世界上关心中国少数民族及其科技文化的不同国籍的专家、学者献给人类和平与科技文化事业的一份礼物，它凝结了国内外专家学者的智慧与心血，对论文集的出版，我谨表示衷心的祝贺。同时，也真诚地希望通过这一论文集的出版，进一步扩大云南农业大学与国内外各方的交流与合作。在21世纪即将到来的今天，愿一切爱好和平的人们携起手来，共同创造美好的未来。

祝愿这本论文集在人类社会的进程中，为推进相互之间的理解和为中国少数民族科技史研究做出应有的贡献。

云南农业大学校长
陈海如 教授

Preface

China is a multi-national country. The minority nationalities in China, together with the Hans, have created splendid civilization since time immemorial, and will make greater contribution in the construction of socialist cause with Chinese characteristics. Yunnan is located in the border areas in southwest of China, and the nationalities with a population of more than 5,000 amount to 25. These offer good conditions to the study of history and culture of the minorities in China. Yunnan has rich biotic resources, delightful weather, beautiful landscape and vast territory. All nationalities inhabited in this land generation after generation have created rich and varied technology with national traditions depending on the natural environments and their ways of labour; thus providing favorable conditions for the study of scientific and technological history of Chinese minority nationalities.

At present time with scientific and technological competition, China as a unitary multi-national country, and Yunnan as a border province with various national minorities living in harmony and pulling together in times of trouble, are essential to face up to the history and culture of all nationalities. Based on fully unearthing and using splendid traditional science, technology and culture of different nationalities, we should combine rational and traditional science and technology with modern science and technology, so that they can help increase the development of Chinese science and technology in the current of reform and opening up, assist the minorities inhabiting in border areas to shake off poverty and build up a fortune, and add lustre to the cultural cause of all mankind. The value it possesses can not be underestimated.

From 7th to 11th, August 1996, The Third International Conference on the History of Science and Technology of Chinese Minority Nationalities was held in Yunnan Agricultural University and Dali city. Nearly 100 celebrated experts and scholars from different lands were gathered happily together, talked of and exchanged their achievements in academic research. The substantial content is encouraging. Undoubtedly, the success of the gathering gives great impetus to the academic research of Yunnan Agricultural University who has 60-year history. It is a grand gathering worthy of congratulation. I

believe that the meeting mutually sponsored by Yunnan Agricultural University, the Society of Chinese Scientific and Technological History, the Society of Scientific and Technological History of Chinese Minority Nationalities, the Institute of Chinese Scientific and Technological History, Inner Mongolia Normal University, held jointly by Yunnan Scientific Association, DaLi Scientific Association, and undertaken by Yunnan Agricultural University, will be beneficial to the promotion of unity of all nationalities and the development of the study of Chinese scientific and technological history.

The publication of the symposium of the Third International Conference on the History of Science and Technology of Chinese Minority Nationalities is a precious present to the peace and undertakings of science, technology and culture offered by experts and scholars of different countries, who care about Chinese minorities and their science, technology and culture. It is the result of the experts' and scholars' wisdom and painstaking labour. To the publication of the symposium, I wish to extend my cordial greetings. Besides, I hope that through its publication, YAU can extend its exchange and cooperation in this field with experts and scholars at home and abroad.

At the present time approaching the 21th century, I hope all people who love peace can join hands and create a glorious future together.

I hope this symposium can increase mutual understanding of different countries and make due contributions to the study of scientific and technological history of Chinese minority nationalities in the course of human society.

Professor
President Chen Hairu
Yunnan Agricultural University

前 言

第三届中国少数民族科技史国际会议，于1996年8月7日至11日，在云南昆明和大理两地召开，到会国内外代表一百余名，共收到代表提交的会议论文107篇。根据第二届理事会的决定，会后要出版论文集，并推举了编委会和正副主编。

会议结束后不久，我们就着手整理会议论文。一些作者陆续按我们会上提出的要求寄回了论文修改稿。我们将论文按学科分为八组，分送有关专家审阅，并要求审稿人尽可能地帮助作出文字修改。我们按照审稿意见，并对论文再次进行审阅，对论文作出筛选，确定了入选论文。本文集共收入论文82篇。

对选编审阅论文作出贡献的，除全体编委外，尤其要感谢的是：中国科学院自然科学史研究所编审赵慧芝女士、云南农业大学诸锡斌副教授和云南农业大学学报编辑部的同志，他们对论文质量再次作出把关，并认真地对每篇论文作了文字加工。这些劳动全都是无偿的。正是由于有大批会员的无私奉献，我们这个研究会才越来越兴旺发达，越办越好。这次文集的出版补贴是由云南农业大学负责筹备的，云南农业大学、云南省科委、云南省科协均给予了赞助。这本文集能够得以出版，要感谢他们的支持。

有许多国内外的第一流学者，都积极参加我们这个研究会的学术交流活动，为我们提供了第一流的、有创见的会议论文，就这本文集中，也有许多有价值的论文，它们对于推动中国少数民族科技史的研究，提高研究水平，都将起到重要的作用。同时还必须指出，我们这个研究队伍的学术水平虽然有了很大提高，但研究水平仍然是参差不齐的，本文集中有部分论文，虽有新意，但质量还有可提高之处。但总的来说，这本文集的出版，非但反映出这几年来中国少数民族科技史研究中新显现的重要成果，同时对于培养和锻炼我们这支科研队伍，均起到重要的促进作用。

祝我们的研究会繁荣昌盛。

陈久金

1997年3月12日于北京东总布胡同寓所

YUNNAN AGRICULTURAL UNIVERSITY



■ 云南农业大学是中国西南边疆一所历史较久的多科性农业综合大学，是国务院学位委员会批准的硕士学位授予单位和云南省属重点大学。学校设农业科学技术学院、烟草种植技术学院、工程技术学院、动物科学技术学院、经济贸易学院、成人教育学院、基础部、社会科学部、食品科学部、体育工作部、外语部等教学单位。全校在职教师职工 1200 余人，在校各类学生 4000 余人。



YUNNAN NONGYE DAXUE
云南农业大学

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