

邢景文

主编

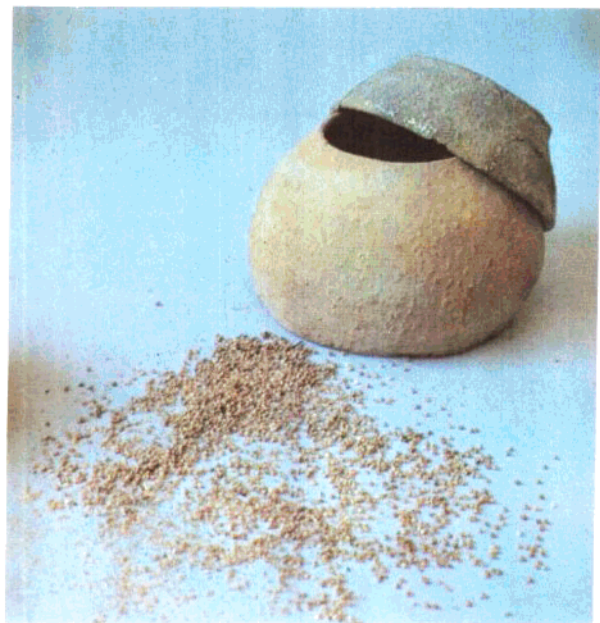
陕西古代科学技术

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西周何尊（宝鸡贾村出土）



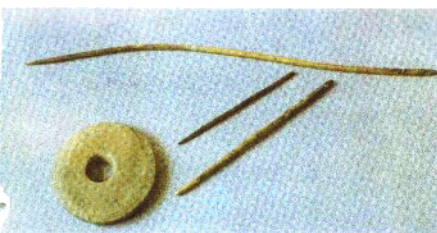
新石器时期粟的种子残壳(西安半坡遗址出土)



新石器时期刻有数
字符号和几何图形
的陶片(西安半坡
遗址出土)



新石器时期的石斧、石刀、石铲
(西安半坡遗址出土)



新石器时期的骨针、石纺轮
(西安半坡遗址出土)



新石器时期的骨钩和鱼钩
(西安半坡遗址出土)



西周史墙盘(扶风庄白村出土)



秦铜车马(临潼秦陵陵园出土)



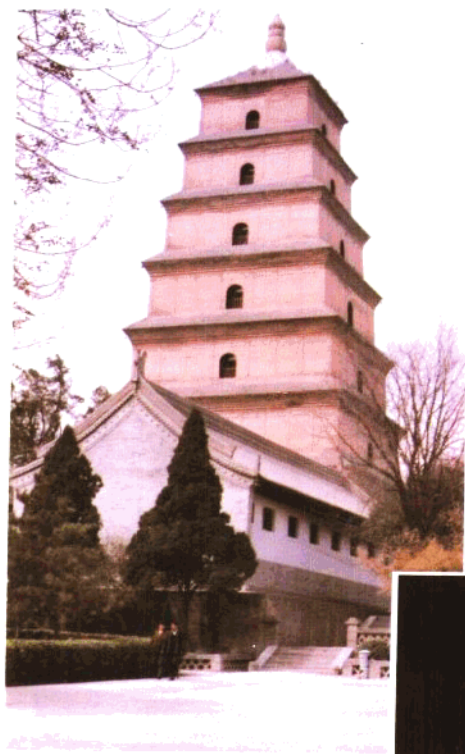
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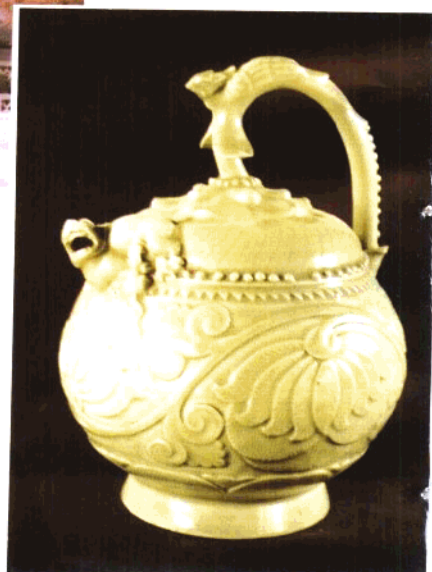
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西安大雁塔



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汉代铁刀(关中出土)



唐鎏金镂空银香囊
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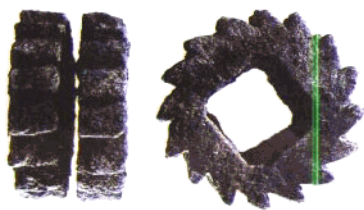
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内 容 提 要

陕西是中华民族古代文化发祥地之一。从公元前 11 世纪起,先后有 14 个王朝在这里建都,作为全国的政治、经济和文化中心。本书系统地记述了从远古至鸦片战争期间陕西地区科学技术的发生、发展及其成就。内容涉及天文、数学、物理、地学、农业、建筑、纺织、机械、冶金和医药等领域。全书内容丰富、资料翔实。

可供科技史研究工作者、各类科技人员、教师、广大党政干部和具中学文化程度的读者阅读、参考。

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序

陕西是中华民族灿烂的古代文化发祥地之一。远在 100 万年以前,“蓝田猿人”就在气候宜人,生物繁茂的灞河上游繁衍生息。西安半坡村仰韶文化遗址出土的耕作、渔猎工具、彩陶、村落建筑等,显示了半坡先民的聪明才智,其基本技术已具雏形。从公元前 11 世纪起,周、秦、汉、隋、唐等 14 个王朝在陕西建都,历时 1000 多年。在古代科学技术发展史上,曾出现过不少杰出的人物,取得了举世瞩目的科技成就。青铜铸造技术早在西周时期已臻成熟,秦始皇陵秦俑坑出土的青铜兵器铬酸盐处理技术,比西方国家早了 2000 多年。隋唐时期杰出的医药学家孙思邈,根据长期临床实践经验,写出了《备急千金要方》和《千金翼方》,对祖国医学做出了多方面贡献,被后世尊称为“药王”。这些科学技术成就,为我国经济和社会的发展,为人类的进步和文化的繁荣作出了重大贡献。

对地方科技史的研究是中国科技史研究中的薄弱环节。陕西省科技志编辑室在编修《陕西省科学技术志》时,为了突出陕西地区古代科学技术的优势,组织高等院校和科研单位有关专家,通过对古代科技史料的广泛收集与严格考证,写出了《陕西古代科学技术》一书。内容涉及天文、地学、数学、物理、农业、建筑、陶瓷、纺织、医药、交通、冶金、造纸印刷等领域,比较全面地反映了陕西地区古代科学技术的发展面貌和巨大成就。全书内容丰富,资料翔实,特别是通过近年来考古新发现,增补了许多新史料,使之更具有可靠性、科学性。

科学技术的发展,显示着人类在实践中改造自然、征服自然的丰富经验和成就。科学技术有着很强的继承性,今天的科学技术正是由过去的科学技术发展而来的,借鉴前人的科学技术成果是科学技术进一步发展的重要前提,了解和研究古代科学技术的发展与成就,将会给我们以启迪。《陕西古代科学技术》的出版,

对于弘扬中华民族文化，提高全民族科学文化水平，增强赶超世界科技水平的信心，都是大有裨益的。希望通过这部书的出版，有助于推进我省地方科技史的研究，做好科技史料的收集、整理和利用工作，使其更好地为科学研究和经济建设服务。

林季周

1995年1月

Preface

Shanxi is one of the birthplaces of China's splendid ancient culture. As far back as one million years ago, Lantian Man (*Sinanthropus lantianensis*) has lived and multiplied around the upper reaches of the pleasant and luxuriant Ba River. The tillage, fishing and hunting tools, the painted pottery, and the village structure unearthed from the ruins of Yangshao Culture in Ban Po village, Xi'an city demonstrate the intelligence and wisdom of Ban Po ancestors, and their basic technologies have begun to take shape. From 11th century B. C., Zhou, Qin, Han, Sui, Tang... totally fourteen dynasties have successively founded capitals in Shanxi, altogether lasting over one thousand years. Many outstanding persons who have made world-famous scientific and technological achievements in the history of ancient science and technology were from Shanxi. Bronze casting technology has been perfected as early as West Zhou Dynasty; the chromizing technology of the bronze weapons unearthed from the Tomb of the First Emperor of Qin Dynasty is more than two thousand years earlier than that of Western countries. The great medical scientist during Sui-Tang dynasty, Sun Simiao, who is respectfully addressed as "Medicine King" by descendants, on the basis of his long period of clinical experience authored "Precious Prescriptions Against Emergency" and "Precious Assistant Prescriptions", making contribution to China's medicine in many ways. These scientific and technological achievements made great contribution to the development of China's economy and society, the flourish of culture, and the progress of mankind.

The study on the history of local science and technology is a vulnerable spot of the study on the history of China's science and

technology. During the compiling of "The Science and Technology Annals of Shanxi Province", in order to highlight the advantage of the ancient science and technology of Shanxi area, the editorial office organized the experts concerned from colleges, universities and institutions, widely collected and strictly researched the historical materials of ancient science and technology, and finalized "The Ancient Science and Technology of Shanxi". This book involves fields of astronomy, geography, mathematics, physics, agriculture, architecture, pottery & porcelain, textile, medicine, communication, metallurgy, papermaking & printing, etc., quite comprehensively portraying the development level and tremendous achievements of the ancient science and technology of Shanxi area. It has substantial content, full and accurate data, and especially supplements many new historical materials according to the new archaeological discoveries in recent years, which making it more reliable and scientific.

The development of science and technology shows the rich experience and achievements of mankind in remaking and conquering nature through practice. Science and technology is inheritable. Present science and technology develop from the science and technology of the past. Using predecessors' scientific and technological achievements for reference is a major prerequisite of the further development of science and technology, and understanding and studying the development and achievements of ancient science and technology will greatly inspire us. The publishing of "The Ancient Science and Technology of Shanxi" will be of great benefit for enhancing the China's culture and the nation's scientific and technological level, and highlightening the confidence of catching up with and surpassing the world scientific and technological level. I hope the publishing of this book will contribute to the advancing of the study of the local science and technology of this province, and the collect-

ing, sorting and using of the historical materials of science and technology, making them better serve the scientific and technological research and economic construction.

Lin Jizhou

January, 1995

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