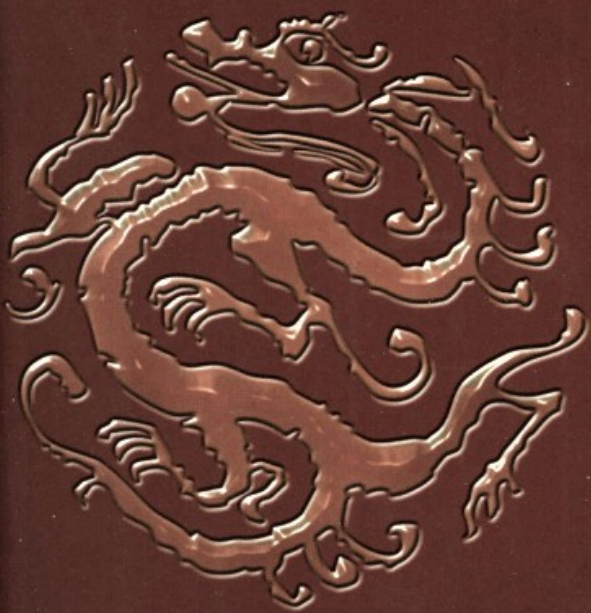


中華農器

宋树友 主编

第一卷

CHINESE AGRICULTURAL EQUIPMENT ATLAS



圖譜

本书科学地记述了中华民族约一
万年来各历史时期发明创造的农业
生产器具的发展轨迹。这是中华农
器发展历史的真实再现，是展示中
华农器从远古走到今天、昭示未来
发展前景的壮丽篇章。

国家科学技术学术著作出版基金资助出版

中华农业科教基金资助图书

中华农器图谱

第一卷

宋树友 主编



捐赠人 王乃康 第也冰
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在工作期间，组织编撰了《简明农业机械化词典》、《当代中国的农业机械化》、《中国农业机械化重要文献资料汇编》（1840—1987）、《世界农业机械化发展要览》、《旱地农业工程的理论与实践》等著作。

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序

陈耀邦

《中华农器图谱》是一部关于中国农业生产器具发展历史的著作。它以图为主、图文并茂，全面、系统、科学地记述了上自约公元前八千年，下迄二十世纪末的一万年间，中华民族创造使用的农业生产器具中具有代表性的器具及其发展轨迹。这是对中国农业生产器具发展史、中国农业发展史、中国科学技术发展史、中华文明史等研究的重大贡献，是一项开创性的工作，是一部昭示历史、激励当代及后人的传世之作。

生产工具的状况是衡量生产力发展水平的重要标志。一万年来，中华民族为改善农业劳动条件，提高劳动生产率，在农业生产实践中不断探索改进与创新农业器具。其中许多农器的创造使用在同时代具有世界领先水平。例如，距今三千年的春秋时代以前就开始利用畜力耕田；距今两千年的汉代赵过发明的三行播种器（耩）已具有调节种子量、开沟、播种和覆土四种功能。当代创制的具有中国特点的水轮泵、水稻插秧机、船式拖拉机、水田耕整机、全方位深松机等农机具，对世界农业机械技术的发展带来积极的影响。农业生产工具的进步曾使我国创造了辉煌的古代农业文明。近代由于种种原因，我国生产力水平与西方资本主义国家存在较大差距，农业生产工具的进步也明显滞后。新中国成立后，在中国共产党的领导下，党和政府十分重视发展生产力，农业生产机具迅速更新，取得了显著进步：开始从种类数量很少、单一的手工工具，逐步发展到品种较多、门类齐全的各类农机具；其性能从单机、单项作业发展到成龙配套、一机多用、节能高效、优质安全；农机具的动力从使用人畜力到水、风、机电动力，以至利用液压操纵、激光控制和

计算机控制等。总体而言，现在已经基本形成了一套适合我国自然条件和社会经济条件的现代化农机具体系，成为我国农业现代化的重要物质技术基础，在推动农业生产和农村经济发展，加强农村精神文明建设中发挥着越来越重要的作用。

《中华农器图谱》第一次把我国各个历史时期具有代表性的农业生产器具及其发展历程作了翔实的记载，形成一幅展示我国农器万年发展历史的壮丽画卷。

《中华农器图谱》是写给当代人的，更是我们这一代人留给子孙后代的一份宝贵遗产。对于了解中华文明史，借鉴历史振兴中华，是一部真实生动的教材。

《中华农器图谱》也是献给世界人民的。中国农业生产器具发展史是世界农业发展史及世界科学技术发展史的组成部分。在农业生产器具发展过程中，中国和世界上一一些国家（地区）相互借鉴，相互启发，相互引用。这部书的出版，对于帮助世界人民了解中国，研究世界农器发展史、农业发展史和世界科学技术发展史也是一部重要的参考史料。

为了编辑出版好这部书，在农业部的主持下，农业机械学、农学、考古学、历史学、社会学、民族学、民俗学等学科的许多专家学者付出了辛勤的劳动。我对他们及所有为本书编辑出版作出了贡献的同志们表示诚挚的谢意。欣喜之际，是为序。

2001年1月



编辑说明

一、编写宗旨：农业乃人类繁衍生息和人类文明发展的基石。在中华大地上，我国各族人民共同创造的中华文明源远流长，包容浩瀚，其主体当为农业文明，而农器文明则为农业文明之骨干。本书依农器实物拍摄的照片及文献记载的图样资料，并借鉴农业机械学（及其专业学科门类）、农学（及其专业学科门类）、农史学、考古学、历史学、科技史学、社会学、民族学、民俗学、经济学等学科有关的研究成果，采取以图样为主、图文并茂的方式，系统、全面、科学地记载从中华大地最早出现农业和农器以来约1万年间中华各族人民发明、研制、生产、使用的各种农器中具有代表性的图样及其发展史实，再现中华农器科技进步的伟大成就及发展轨迹，其宗旨是为当代及后代了解中华农器发展历史，借鉴历史，不断创新提供史料依据，为弘扬中华文明和中华农业文明，为21世纪中华民族振兴服务。

二、本书从农器最早出现年代开始，划分为原始农器（约公元前8000年—前2100年）、古代农器（约公元前2100年—公元1840年）、近代农器（公元1840年—1949年）、当代农器（公元1949年—20世纪末）四个历史时期，分别记载各个历史时期农器发展历史和所出现的农器图样资料。凡在出现时期已记载的农器种类，沿用至以后各时期的，后代时期不再重复记载。

同一历史时期同一种农器图样，按其制造材料木、骨、石、铜、铁顺序排列。

三、本书收入的图样资料系在农、林、牧、渔业及其产品加工业主要生产工序使用的器具中较有代表性者。其代表性包括各类农器出现的历史时期、年代以及农器种类、适用地域条件、材质、动力、结构特点等。由于社会分工越来越细，农业与其关联行业的划分古今有别者，本书采用当时传统与习惯划分方法。

四、本书定稿于20世纪末，书中关于某农器研制生产年代的记载，

凡只注明××年代而未注明世纪的，均属于20世纪。

五、书内专业性名词术语和计量单位采用国家标准或行业标准。尚无标准的采用较通行的习惯叫法。来源于古文献中的关于古农具(含传统农具)的名词术语、计量单位记载方法保留原表达方式。

六、本书对于从古沿用至今的传统农具中，其最初出现年代不详者，选其代表性图样收入书内，与原始农器时期或古代农器时期相近的农器对应排列，用“附图”二字注明。书中所采用的农器线条图(不含从古文献中引用的线条图)、操作示意图及农器模型图亦注“附图”二字。注有“附图”二字的图样与未注“附图”二字之图样编制统一图号。

七、同一种农器多个单位生产者，仅据已知资料记载其生产厂。

八、农器名称及其研制生产单位名称、所属地域名称均依据编写者现有资料编写。农器名称依原名称记载，已改名者或原名称不符合现行通用名词术语者在括号内注明。工厂名称依生产该农器时的工厂名称记载，对部分已知改名者加注现名称或改用现名。

九、有的农器系多个单位生产，本书主要根据收到的图样质量选用，被选用的图样提供单位排序置于前列。这不涉及各生产厂家生产该农器的时间先后、产品质量、规模大小等因素。凡属一家生产的产品图样资料，系该产品生产单位提供，一般不另注明。

十、为了阅读方便，本书将前人使用的异体字(包括繁体字)改用正体字。引用原文时不变。

十一、在编写本书过程中，有关单位和个人提供了大量资料并给予了无私帮助，在此，谨表示诚挚的谢意。本书中有些图样在出版前虽经我们多方查寻，仍没有查到原作者、编者，因而未能署名，敬请谅解。

《中华农器图谱》编辑委员会

2001年1月



Preface

Chen Yaobang

The *Chinese Agricultural Equipment Atlas* is a book on developmental history of agricultural productive tools of China. It records and describes representative agricultural production equipment created and used by Chinese people over 10 thousand years from about 8000B.C. to the end of 20th century and its developmental track. It is an important contribution to the study of the history of the agriculture of China, the developmental history of Chinese agricultural production equipments, the history of the scientific and technologic development of China, and the history of civilization of China. It is a creative work revealing history to encourage this generation and the future generations. It will be handed on from age to age.

The state of production tools is an important mark indicating the level of the development of production force. Over 10 thousand years, the Chinese people has continuously explored, improved and created equipments in their agricultural practices for improvement of agricultural working condition and the labor productivity. Creation and application of many of these equipments were at the world leading level in the same age. For instance, the animal-drawn tillage dates back more than 3000years ago, before the Spring and Autumn Period in Chinese history, and the 3-row planter(*Luo*)invented by Zhao Guo had provided with seeding adjusting, furrow-opening, sowing, and covering functions, 3000 years ago in Han Dynasty. The rice planter, boat tractor, paddy plowing and land preparing machine, all-direction deep stirring machine and other machines with Chinese distinguishing features in present age have had positive effect to the development of agricultural machinery science and technology in the world. The progress of agricultural tools had enabled our people to create the splendid ancient agricultural civilization. In modern times, because of various reasons, the difference of production level has been found between our country and the western developed countries with the progress apparently lagging behind. However, since the foundation of New China, the significant progress has been made. Under the leadership of the Party, the government has paid great attention to the development of productive force. The agricultural equipments have been renewed rapidly, with the category growing steadily, from only a few kinds of hand tools and animal tools to large amount of satisfactory kinds of agricultural equipments, and with the advance of machine performance, from simple machines, most of them for single purpose, to sets of machines for multiple purposes with high efficiency, low energy consumption, superior qualities and safe operation. The

power has developed from human labor and animal power to water power, wind power, internal-combustion engines, electric power, some of them are hydraulic-operated, laser-controlled, computer-controlled. A system of modern agricultural equipments has been formed, which is suitable for the natural and social-economical conditions of China, constituting an important material-technical foundation of the modernization of Chinese agriculture, and playing an important role in promotion of agricultural production and development of rural economy, and intensification of rural spiritual civilization.

The *Chinese Agricultural Equipment Atlas* records in details the representative agricultural production tools used in different historic periods of China and their development, which forms a magnificent picture scroll displaying the 10 thousand years history of Chinese agricultural equipments.

The *Chinese Agricultural Equipment Atlas* is written for the contemporary people, and above all, it is particularly an invaluable inheritance left to our descendants. It is a realistic and vivid teaching material for people to understand the history of civilization of China, and it may be used for reference to invigorate our country.

The *Chinese Agricultural Equipment Atlas* is also dedicated to the world people. The history of Chinese agricultural production tools is a component of the history of the world agriculture and the scientific and technologic history of the world. In the course of development of agricultural productive tools, China and other countries have inspired and introduced the invention mutually. The publication of this atlas is also important historic references for the world people to understand China, and study the history of agricultural equipments, the agricultural history of the world, and the scientific and technologic history of the world.

In order to accomplish compilation and publication of this atlas, hard work has been offered by a group of specialists and scholars of agricultural machinery, agronomy, archaeology, history sociology, ethnology and other disciplines under the direction of Ministry of Agriculture. Heartfelt thanks to those comrades who have made the contributions. I am very pleased to write this preface.

January 1,2001



Editors' foreword

I. The aim of this atlas: Agriculture is the foundation of human propagation and civilization. The Chinese civilization, created by 56 nationalities on this great land of China, goes back to the remote ancient times. It involves boundless implications, mainly the agricultural civilization, with its backbone being the agricultural implements and equipments. In this atlas, various kinds of agricultural equipments are recorded and arranged in a systematic, all-round and scientific way. They represent the agricultural equipments ever invented, developed, produced and used by Chinese people in the history about 10 thousand years since the primitive agriculture and its implements appeared. They are compiled according to the time sequence of pictures of real things and recorded diagrammatic materials, and in reference to the research achievements concerning agricultural machinery science, agricultural history, scientific and technologic history, history, archaeology, sociology, economics etc. It is in a style of pictures and accompanying essays being both excellent with pictures as major part. It reveals the great achievement and the developmental path of the scientific and technologic progress of Chinese agricultural equipments. The purpose of it is to make this generation and the future generations to understand the history of Chinese agricultural equipments and to have a historical basis for further creation and invention to carry forward Chinese civilization and to serve the invigoration of Chinese nation.

II. The pictures of agricultural equipments are arranged in groups according to the historical periods in which they were found. From the earliest appearance of agricultural equipments, the history of Chinese agricultural equipments are divided into 4 historical periods of agricultural equipments, i.e., primitive (about 8000 BC — 2100 BC), ancient (about 2100 BC — 1840 AD), modern (1840 — 1949) and present (1949 — the end of 20th century). Records are not repeated again in this atlas if they were in use continuously in the subsequent periods.

The same kind of equipments in the same period are arranged sequentially according to the material of which the equipment is made, i.e., wood, bone, stone, bronze and iron.

III. The pictures and materials collected in this atlas are representative equipments and production facilities used in the main procedures of agriculture, forestry, animal husbandry, fishery, and initial processing of their products. The representativeness embodies the period and the year when equipment appeared, the category of equipments, its suitable region, material, power, structural characteristics, etc. Because social division of labor has become finer and finer, the division between agriculture and its related trades is different in different historical periods, this atlas adopts the traditional and conventional method of division.

IV. This book was finalized at the end of 20th century. The producing dates of the agricultural equipments in this book are all 20th century if the records are only indicated years.

V. For the technical terms and the measurement units in this atlas the state standards are adopted.

The technical terms and measurement units originated from ancient books remain the original way of expressions unchanged.

VI. The traditional farm implements, used continuously up to today with the years of its earliest appearance not clear, are listed along with the primitive agricultural equipments, or the ancient agricultural equipments, and indicated with words "attached figure". The line drawings of equipments (not including line drawings cited from ancient documents), operational schematic diagrams and model figures are also indicated with the words "attached figure". All the pictures with and without indicated words "attached figures" are coded with unified figure numbers.

VII. The same equipment could be manufactured by a number of producers, the factory recorded is only according to the materials already known.

VIII. Names of the equipments, the units developing and producing them and the region they belongs to are all compiled according to present materials the compiler had already had and recorded after the original names of the equipment. If the original names changed or not commonly used today, the name in used currently is given indication. The factory name is recorded after that of the time when the equipment was produced and the present name is indicated if change of the original name is known.

IX. The selection of equipments which produced by several factories compiled in this atlas is mainly according to the materials received and the sample' quality. The sequence of the factory will be in front for one's samples selected. It is irrelevant of the date, products' quality, magnitude or other factors for its production. Only one factory produced the equipment with its samples, materials are offered by this factory. There is not annotated separately in the book.

X. For reading easily in the atlas, the variant form of a Chinese character (including the original complex form), which were written by the ancestors, are all unified as standardized form of Chinese characters. If they were quoted from the original that are not changed.

XI. We sincerely express our gratitude to the organizations and individuals that have offered us a lot of materials and great help during the editing of the atlas. Otherwise, we are unable to connect with the original authors or editors of some samples in the atlas before publication. Their names are not indicated in the book. Please accept our apologies and know that you are appreciated.

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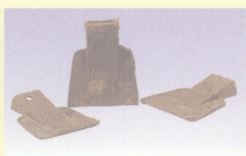
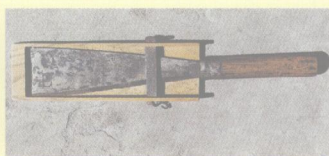
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