



# 21 世纪 小小百科

Miniencyclopaedia for  
the Twenty-first Century

科技卷

Volume on Science and Technology

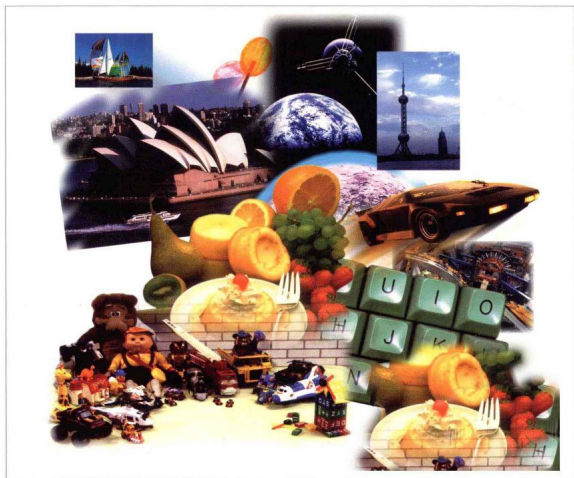
浙江教育出版社

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感谢对本书编辑过程中给予支持的单位和个人

**21 世纪小小百科**  
**科技卷**

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## 《小小百科》的话

这是一本献给孩子们的小小百科。在这里面，呈现的是一个神奇的大千世界和我们为孩子打开智慧之窗的爱心。

我们产生写这本书的愿望，那是因为我们的面前总在扑闪着一双双孩子们好奇的眼睛，他们正那么惊讶地看着并幻想着这个千奇百怪的世界！

于是，我们有了这样一个心愿：

和孩子们的父母、老师一起，来告诉他们一些从自身到宇宙、从物质到精神、从过去到未来的科学知识。我们想对孩子们说，世界不仅是博大的、神秘的、其妙无穷的，又是能认识、能驾驭、耐人寻味的，也是可以探索利用和改变创造的。

心怀着这清纯如水的爱，我们想牵引着孩子们一起去打开小小百科里的《人》、《自然》、《社会》和《科技》之门，获取新知识。

主 编：赵寄石

副主编：郭英英 周 兢 唐 淑 李运庆

编 委：赵寄石 郭英英 周 兢 唐 淑

李运庆 王大川 梁 明 程晓樵

总责编：郭英英

#### 科技卷

编 著：蒋 放 陈福民 虞永平 汝茵佳 顾葆春 沈美萍 张晓媛

翻 译：章汝雯

绘画摄影：（按姓氏笔划）

万国良 太 州 王锦秋 杨 安 孙树青 李春富 沈钰浩 陈忠宝

季芊芊 周初明 周 艳 唐鼎华 柴立平 谢光辉 曾国兴等

装帧设计：陈子劲 曾国兴 王大川 卢少夫

责任编辑：江 红

美术编辑：王大川

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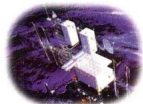
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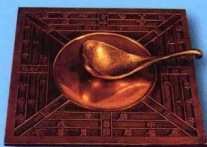
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# 一、改变人类生活的发明

## Part One The Inventions That Have Changed the Life of Mankind





# 1. 文明的开始——火与石

## The Beginning of Civilization

### — Fire and Stones

# 很

久很久以前,我们的祖先猿人生活在原始森林里,采野果,挖植物根吃,用木棒和石头猎取小动物,同野兽斗。后来,共同的生活和劳动使猿人开始了群居生活,成了原始人。原始人会把石头打成石器,把野兽的骨头磨成针,缝制兽皮作衣服。

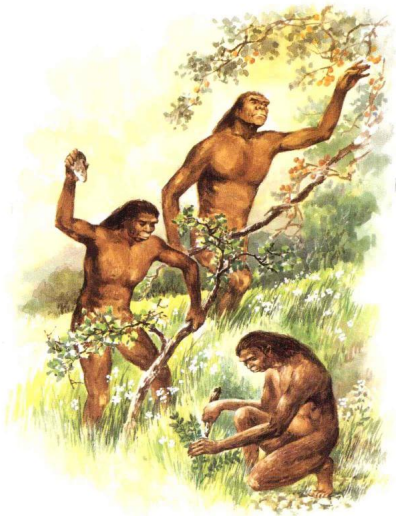
又经过了很长的时期,原始人发现,用尖锐的木头,使劲钻另一块木头,或用燧石敲敲打打可以制取火种。有了火,可以随时吃到烧熟的食物。在劳动中,原始人还学会了用绳子结网去猎猪、捕鱼以及驯养家畜和种植庄稼。

本单元帮助孩子初步了解人类的发展过程,懂得火和石器的使用是人类走向文明的第一步。

**L**ong long ago, our ancestors, apemen, lived in primeval forests, gathering wild fruits, digging out plant roots, catching small animals and fighting against large ones with sticks and stones. Later, by living and working together, they began to live in groups, thus becoming primitive men. Primitive men were able to strike stones into stonewares, grind the bones of wild animals into bone needles with which they sewed animal skins into clothes.

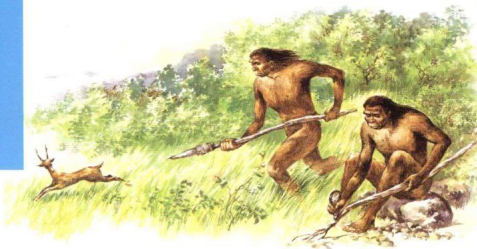
It took primitive men a very long time to find two ways of making fire; one is to drill a piece of sharp wood against another; the other is to beat or strike with flints. With fire, they could eat cooked food at any time. In working, they also learned to hunt and fish with nets made of ropes, to tame and raise livestock, and to plant crops.

This unit is to give children basic knowledge about the process of human development and help them understand that the use of fire and stonewares was the first step towards civilization.



猿人在原始森林里采摘果子,用木棒和石头挖植物的根茎吃,还用它们来捕获小动物,同野兽作斗争。

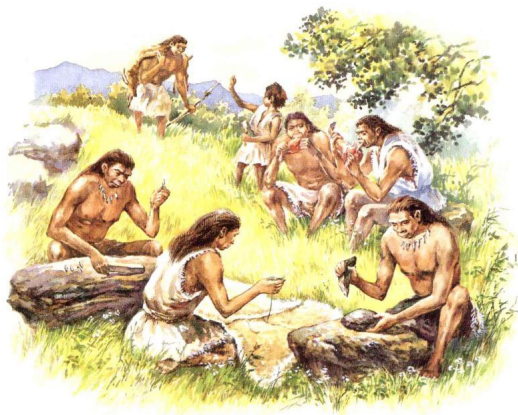
Apemen gathered fruits in primeval forests. With sticks and stones, they dug out plant roots, caught small animals and fought against large ones.





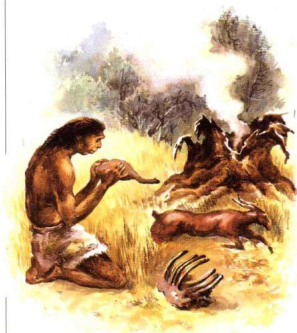
群居的原始人学会了制作石斧、石锤，把野兽的骨头磨成针，将兽皮缝成遮身的衣服。

The primitive men who lived in groups learned to make stone axes and stone hammers; they were also capable of grinding animal bones into bone needles, and sewing animal skins into clothes.

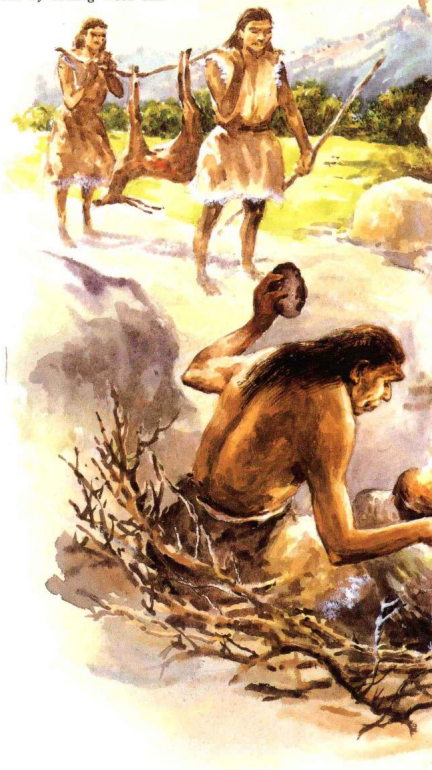


最早的火种是从火山爆发、雷电起火中得到的。后来，原始人利用钻木、敲打燧石等手段获取火种。

The first sources of fire were obtained from volcanic eruption and fire caused by thunder. Later, primitive men made fire by drilling wood and striking flints.



吃熟食尝味道 eating cooked food to taste its flavour



保存火种 preserving fire







看到起火很害怕 fearful at the sight of fire

他们用弓箭射击、用绳子结网捕猎。猎物一时吃不完，还可以养着，留到下次吃，于是学会了饲养动物。

They hunted animals by shooting arrows and using nets made of ropes. If they could not eat all up at once, they would keep them until next time. In this way, they learned how to raise animals.







## 2. 农业的发展——铁木农具

### Agricultural Development —

#### Iron and Wooden Farming Tools

# 原

始农业是“刀耕火种”式的农业。经过长期实践，才慢慢发展成犁耕农业。

早在春秋战国时代，中国已使用铁包木式和实心铁式犁铧。最初是人拉犁，以后才改为牲口拉犁。有了铁木农具，农业生产的效率大大提高，农业发生了根本的变化。

本单元是让孩子知道，中国最早发明的铁木犁农具推动了农业的发展。

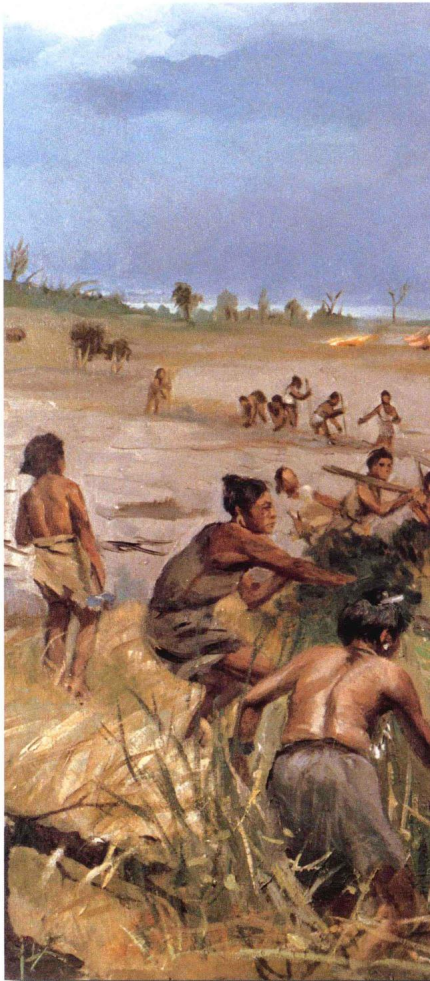
**T**he primitive agriculture is a kind of “slash-and-burn cultivation”. After a long time, it evolved into ploughing agriculture.

As early as the Spring and Autumn Period and the Warring States Era, China had already been using wooden ploughshares coated with iron and solid iron ploughshares. At the very beginning, men pulled ploughs; later, draught animals replaced men. With iron and wooden farming tools, production efficiency increased a great deal and basic changes took place in agriculture.

Children will learn from this unit that the iron and wooden farming tools first invented by China pushed forward agricultural development.

原始人种田，是先砍倒这块地上生长的灌木，放火烧掉野草杂木，用草木灰作肥料，用木棍点种。这就是“刀耕火种”式的原始农业。

Before they tilled the land, primitive men would first cut down bushes growing on this land and set fire to wild weeds and wood; then with the ashes as fertilizer, they dibbled in the seeds with sticks. This was the primitive agriculture in the style of “slash-and-burn cultivation”.







人们把拖拉机叫“铁牛”，它是从中国人最早发明的铁犁铧发展过来的。

Tractors, known as “iron cattles”, were developed from iron ploughshares first invented by the Chinese.



拖拉机 tractor



炼铁 iron-smelting