

THE TIMETABLES™ OF TECHNOLOGY

A Chronology of the Most Important People
and Events in the History of Technology

Bryan Bunch and Alexander Hellemans

SIMON & SCHUSTER

New York London Toronto Sydney Tokyo Singapore

CONTENTS

Notes on conventions and abbreviations	v	Why is there no Classic steam engine?	101
		Wind power	103
The Stone Ages: 2,400,000–4000 BC	vi	Francis Bacon and the scientific method	112
The best rocks	2	Leonardo da Vinci	118
Fire: The second key tool	4	Johann Gutenberg	119
Stone technology of the Old Stone Age	9	Old and New World plants meet	128
The first navigators	11	Pendulum myths	144
The first ceramics	14	Early clocks	146
Stone technology of the Middle Stone Age and Neolithic	16	Gunpowder and guns in East and West	147
New materials: Tooth, bone, and horn	18	Perpetual motion (part 1): An old dream	150
The first machines	20	Recognizing the power of steam	156
Machines that go around	22		
		The Industrial Revolution: 1733–1878	158
The Metal Ages: 4000 BC –1000 CE	24	The canal age	161
Irrigation and the rise of civilization	27	The mechanization of farming	162
Metals and early smelting	28	Steam engines power machines	164
The invention of the wheel	30	Jacques Vaucanson	166
Inventing and writing numbers	31	Cast iron (part 2)	174
City life	32	James Watt	180
Early sailing	35	The atmospheric steam engine	182
Building with brick and stone	44	The French describe technology	183
Inventing writing and the alphabet	49	Joseph-Michel and Jacques-Etienne Montgolfier	189
Paddles and oars	51	Machine tools: The lathe	190
Domes, beams, and columns	52	Systems of machine tools	192
Arches	53	Color and chemistry	194
Cast iron (part 1)	55	The continuing search for fiber	195
Archimedes	56	The railroad system	206
Hero of Alexandria	61	US railroads	213
Salt and the fall of civilizations	71	Eli Whitney	216
What caused the Agricultural Revolution? (part 1)	75	Ada Lovelace	237
What caused the Agricultural Revolution? (part 2)	77	The telegraph	242
What caused the Agricultural Revolution? (part 3)	79	The advent of electricity	246
The first great explorers	83	Intellectual and technological property	250
How the Egyptians did NOT build the pyramids	84	The Crystal Palace	254
How the Egyptians DID build the pyramids	85	Perpetual motion (part 2): An obsession	266
The Age of Water and Wind: 1000–1732	86	The Electric Age: 1879–1946	278
Cathedrals	90	The development of radio	281
Early surgery	92	The telephone	282
Waterpower	94	Louis Pasteur	294
Al-Jazari	99	Thomas Alva Edison	296
		“‘Bout as high as a building ought to go . . .”	298

Alexander Graham Bell	300	The beginning of programming
The perfect machine: The turbine	304	The space race
Guglielmo Marconi	306	Looking into people (part 2)
Looking into people (part 1)	309	The integrated circuit, or chip
George Washington Carver	312	Scientists and defense
The Model T	326	The coming of future shock
Flight and the Wrights	328	
Steel for strength	330	The Information Age: 1973–1993
Aluminum for lightness	331	Time shifting
Nitrogen: A matter of life and death	332	High and low technology
Robots, fantasy and fact	338	The laser
Elmer Sperry	340	Composites
John Logie Baird	342	The post-industrial society
Industrial research	344	Perpetual motion (part 3): “It keeps on going . . .”
Wernher von Braun	350	Nuclear power
Alan Mathison Turing	352	Alternative energy sources
Vannevar Bush	353	The space shuttle
Magic bullets (part 1)	356	Kary Mullis
Computers: From analog to digital	362	Steven P. Jobs
Computers: From telephone relays to vacuum tubes	365	Communicating with light
Antibiotics	367	High-temperature superconductors
		Massively parallel computers
The Electronic Age: 1947–1972	368	Convergence of modes
The Hale telescope at Mt Palomar	375	Magic bullets (part 2)
First-generation computers	376	
The transistor	382	Name Index
Jonas Salk and Albert Bruce Sabin	383	
Grace Murray Hopper	388	Subject Index
Satellites into space	389	