

ENCYCLOPEDIA OF 20TH-CENTURY
TECHNOLOGY

Volume 1
A-L

Colin A. Hempstead, Editor
William E. Worthington, Jr., Associate Editor

ROUTLEDGE
NEW YORK AND LONDON

**Also available as a printed book
see title verso for ISBN details**

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Published in 2005 by
Routledge
270 Madison Avenue
New York, NY 10016
www.routledge-ny.com

Published in Great Britain by
Routledge
2 Park Square
Milton Park, Abingdon
Oxon OX14 4RN, UK
www.routledge.co.uk

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Routledge is an imprint of the Taylor & Francis Group.

This edition published in the Taylor & Francis e-Library, 2005.

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Library of Congress Cataloging-in-Publication Data

Encyclopedia of 20th-century technology / Colin A. Hempstead, editor; William E. Worthington, associate editor.
p. cm.

Includes bibliographical references and index.

ISBN 1-57958-386-5 (set : alk. paper)—ISBN 1-57958-463-2 (vol. 1 : alk. paper)—

ISBN 1-57958-464-0 (vol. 2 alk. paper)

1. Technology—Encyclopedias. I. Hempstead, Colin. II. Worthington, William E., 1948–
T9.E462 2005
603—dc22

ISBN 0-203-99699-2 Master e-book ISBN

Advisers

Dr. Jon Agar, Department of History and
Philosophy of Science, University of
Cambridge

Professor Janet Bainbridge, Chief Executive,
EPICC (European Process Industries
Competitiveness Centre), Teesside

Dr. Hans Joachim Braun, Universität der
Bundeswehr Hamburg

Dr. Robert Bud, Principal Curator of Science,
Science Museum, London

Dr. Michael Duffy, formerly Department of
Engineering, University of Sunderland

Dr. Slava Gerovitch, Dibner Institute for the
History of Science and Technology, MIT

Dr. Ernst Homburg, Department of History,
University of Maastricht

Dr. Sally Horrocks, Department of Economic and
Social History, University of Leicester

R. Douglas Hurt, Professor and Director, Graduate
Program in Agricultural History and Rural
Studies, Department of History, Iowa State
University

Dr. Peter Morris, Science Museum, London

Professor John Pickstone, Centre for the History of
Science, Technology and Medicine, University
of Manchester

Keith Thrower, former Technical Director at Racal
Electronics, UK

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Editor's Preface

All editors of encyclopedias are faced with the problem of what to include. Even if the title is agreed and the numbers of volumes and pages have been decided, the sum of possible entries could be very large. In the case of the *Encyclopedia of 20th-Century Technology*, the editor decided that in order to construct a logical and consistent set of entries it was necessary to adopt what could be described as an analytic framework. During the 20th century a plethora of manufactured articles have appeared for which the real costs have continuously fallen. The products in industrialized societies have become universal, and many of the good ones are within the reach of a large proportion of humanity. In keeping with this democratic trend of the century it was decided that people and their experiences with technology should be central to the encyclopedia. Readers are urged to read the entries in the light of the humanistic core.

An examination of people and their lives led to six broad, related areas of society from which the four hundred entries that comprise these volumes could be derived. The type of analysis carried out is indicated in the diagrams on the next page. The first shows the six basic areas; the second diagram is an outline of the detailed application for the category FOOD. Five or six levels of analysis allowed the definition of headers that provided the individual entries. Of course, entries could be found in two or more basic areas or could be related to others: entries in refrigerating in the domestic situation as found in food preservation would lead to entries in the technology of refrigeration *per se*. Thus the contents were defined.

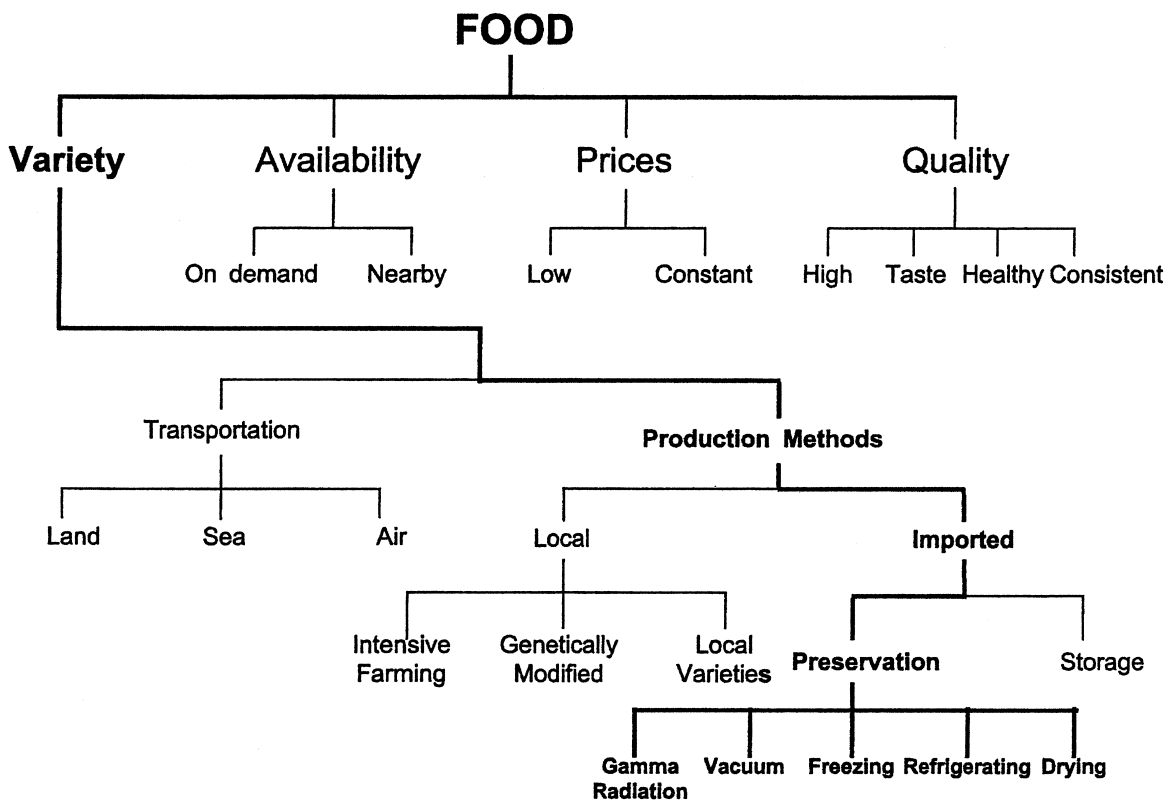
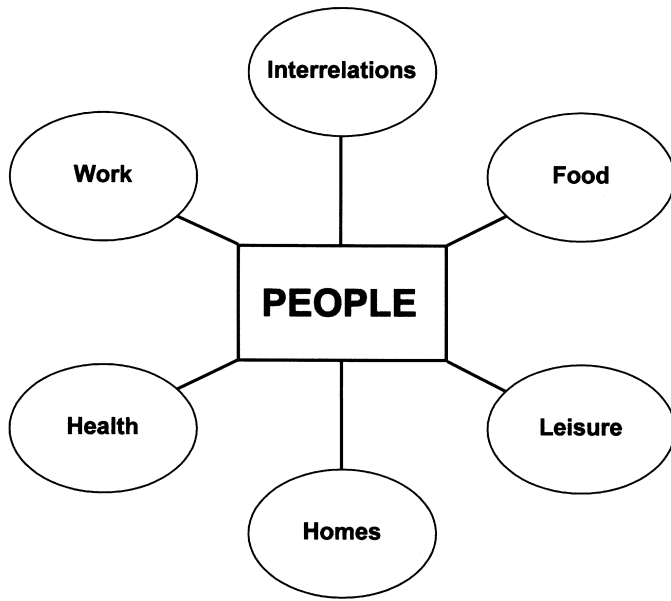
The encyclopedia contains two types of entries. The greatest number of entries are of 1000 words, and as far as possible these standard entries are devoid of interpretation. Nevertheless, it is recognized that all history is redolent of the era in which it is constructed, and this encyclopedia is of its own particular society, that of Western industrial. The

factual nature of the standard entries is leavened by longer essays in which historical and interpretative themes are explored. Among other things, these essays describe and analyze the relationship between society and technology, touch on the modern debates on the nature of the history of technology of history, and relate what people expect of the products of modern industrial civilisation.

The encyclopedia is concerned with 20th-century technology but not with 20th-century inventions. The technologies included are those that had an impact on the mass of the population in industrial societies. So many technologies invented in the 19th century did not begin to impinge markedly on many lives until the middle of the 20th century, so they are considered to be of the 20th century. Similarly, many products in the constructed world are old conceptions, transformed by modern materials or production methods. They have found a place in the encyclopedia. The inclusion of pre-20th-century products compares with the exclusion of recently developed technologies that have yet to have any effect on the mass of the public. However, the encyclopedia is not intended to be futuristic. In the 20th century, scientific engineering came to majority, and many if not all the products of modern technology can be seen to be the results of science. However, there are no entries that discuss science itself. Within the essays, however, science as science related to each subject is described.

Even with four hundred entries, the encyclopedia is not canonical, and gaps will be noted. However, the standard entries, the interpretative essays, and the lists of references and further reading suggestions allow readers to appreciate the breadth and depth of the technology of the 20th century.

Colin Hempstead



Associate Editor's Preface

Technology is a vital subject. It grows continuously. New technologies are introduced, existing technologies evolve, and the outmoded are abandoned. Looking dispassionately at technology, it is always exciting, for it is the product of human ingenuity. For the purposes of this encyclopedia, we felt it could not and should not be discussed devoid of its human element. It is breathtaking to consider the panoply of developments which occurred during the last century, but it is necessary to recall that these developments did not take place in isolation. It was our desire to see that events, where possible, were described in context. Thus, you will find names, places, dates, and events critical to the development of a particular technology. The reader will note that some entries contain a surprising amount of information on 19th-century events. This was appropriate, for some 20th-century technologies were firmly rooted in that earlier time and can be best understood in light of the past. To avoid a deadly dull recitation of formulae and regurgitation of dry facts, we sought to give the reader the broadest possible picture.

The encyclopedia was created for the lay reader and students as well as for historians of science and technology. In light of this, we attempted to minimize the use of the jargon that tends to grow

around some technologies. Although many of the subjects are highly technical, our belief was that even complicated subjects could be rendered in such a way as to make them comprehensible to a wide audience. In the same way that an electrical engineer might need explanations when encountering genetic terminology, students and non-specialists will also appreciate the clarification. Because of the pervasiveness of the subjects in all facets of our lives, the encyclopedia should be a handy reference tool for a broad range of readers. Our aim was to make the subjects, which many of us deal with daily and do not necessarily grasp completely, readily understood with a minimum need for additional reference. However, should the reader wish to delve further into any particular subject, our expert authors have provided a selection of further bibliographic readings with which to begin.

The scope of the encyclopedia is intended to be international. Discussions were to be as inclusive as possible and avoid focus solely on the events of any one country. Nonetheless, some skewing was unavoidable due simply to the prodigious number of developments that have taken place in some countries.

William E. Worthington, Jr.

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