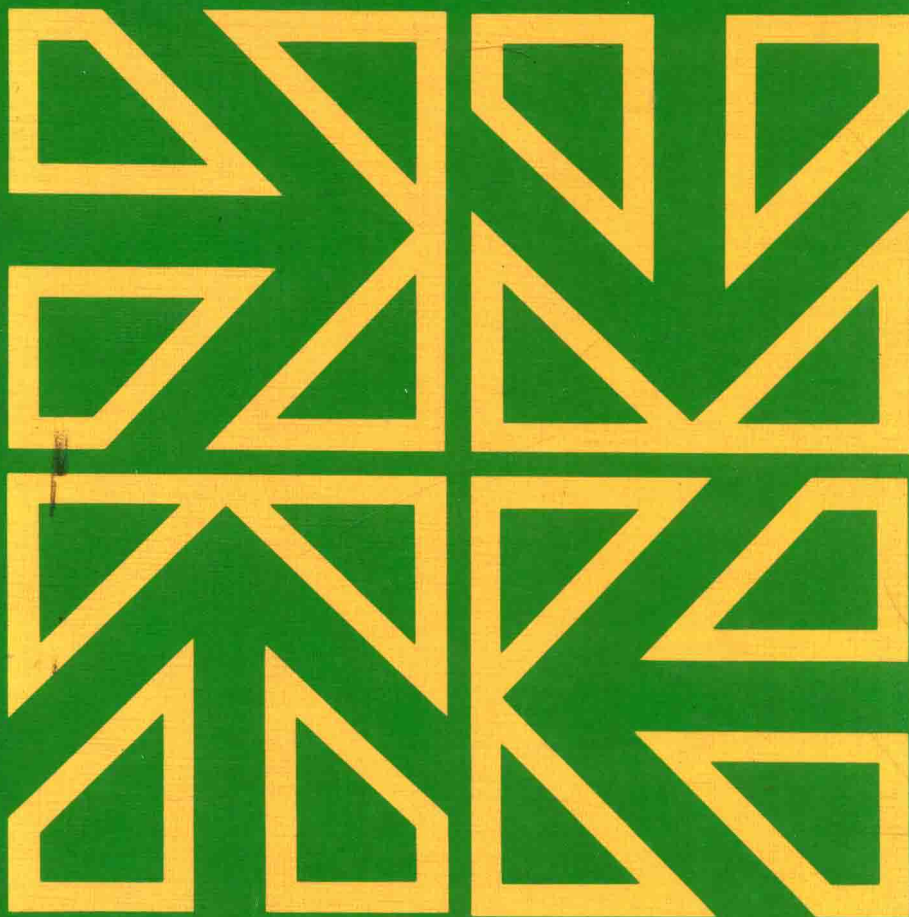


Butterworths Guides to Information Sources



Information Sources in the Life Sciences

third edition

editor: H. V. Wyatt

Butterworths

Butterworths Guides to Information Sources

Information Sources in the Life Sciences

Editor

H. V. Wyatt

Honorary Research Fellow in Community Medicine,
University of Leeds

Butterworths

London Boston Durban

Singapore Sydney Toronto Wellington

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, including photocopying and recording, without the written permission of the copyright holder, application for which should be addressed to the Publishers. Such written permission must also be obtained before any part of this publication is stored in a retrieval system of any nature.

This book is sold subject to the Standard Conditions of Sale of Net Books and may be re-sold in the UK below the net price given by the Publishers in their current price list.

First published as *Use of Biological Literature*, 1966

Second edition, 1971

Third edition as *Information Sources in the Life Sciences*, 1987

© Butterworth & Co. (Publishers) Ltd., 1987

British Library Cataloguing in Publication Data

Information sources in the life sciences.—

3rd ed.—(Butterworths guides to information sciences)

1. Biology—Information services

2. Biology—Bibliography

I. Wyatt, H.V. II. The Use of biological literature

574'.07 QH303.2

ISBN 0-408-11472-X

Library of Congress Cataloging in Publication Data

Information sources in the life sciences.

(Butterworths guides to information sources)

Rev. ed. of: *The use of biological literature* / editors, R.T. Bottle, H.V. Wyatt. 2nd ed. 1971.

Bibliography: p.

Includes index.

1. Biological literature. 2. Life sciences—Research.

I. Wyatt, H. V. (Harold Vivian) II. Use of biological literature. III. Series.

QH303.6.I54 1987 016.574 86-31731

ISBN 0-408-11472-X

Photoset by MC Typeset Ltd, Chatham, Kent

Printed and bound in Great Britain by

Anchor Brendon Ltd, Tiptree, Essex

Butterworths Guides to Information Sources

Information Sources in the
Life Sciences

Butterworths Guides to Information Sources

A series under the General Editorship of

D. J. Foskett, MA, FLA

M. W. Hill, MA, BSc, MRIC

Information Sources in Agriculture and Food Science

edited by G. P. Lilley

Information Sources in Architecture

edited by V. J. Bradfield

Information Sources in Economics (2nd edition)

edited by J. Fletcher

Information Sources in Education and Work

edited by E. H. K. Dibden and J. C. Tomlinson

Information Sources in Engineering

edited by L. J. Anthony

Information sources in the History of Science and Medicine

edited by P. Corsi and P. Weindling

Information Sources in Law

edited by R. G. Logan

Information Sources in the Life Sciences (3rd edition)

edited by H. V. Wyatt

Information Sources in Management and Business (2nd edition)

edited by K. D. C. Vernon

Information Sources in the Medical Sciences (3rd edition)

edited by L. T. Morton and S. Godbolt

Information Sources in Physics (2nd edition)

edited by D. F. Shaw

Information Sources in Politics and Political Science

edited by D. Englefield and G. Drewry

Use of Mathematical Literature

edited by A. R. Dorling

Use of Reports Literature

edited by C. P. Auger

Forthcoming titles:

Information Sources in the Earth Sciences (2nd edition)

edited by J. Hardy, D. N. Wood and A. Harvey

Information Sources for Metals and Materials

edited by M. N. Patten

Related titles:

Cost Management for Library and Information Services

S. A. Roberts

Information Sources in Science and Technology (2nd edition)

C. C. Parker and R. V. Turley

Microform, Video and Electronic Media Librarianship

S. J. Teague

Series editors' foreword

Daniel Bell has made it clear in his book *The Post-Industrial Society* that we now live in an age in which information has succeeded raw materials and energy as the primary commodity. We have also seen in recent years the growth of a new discipline, information science. This is in spite of the fact that skill in acquiring and using information has always been one of the distinguishing features of the educated person. As Dr Johnson observed, 'Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it'.

But a new problem faces the modern educated person. We now have an excess of information, and even an excess of sources of information. This is often called the 'information explosion', though it might be more accurately called the 'publication explosion'. Yet it is of a deeper nature than either. The totality of knowledge itself, let alone of theories and opinions about knowledge, seems to have increased to an unbelievable extent, so that the pieces one seeks in order to solve any problem appear to be but a relatively few small straws in a very large haystack. That analogy, however, implies that we are indeed seeking but a few straws. In fact, when information arrives on our desks, we often find those few straws are actually far too big and far too numerous for one person to grasp and use easily. In the jargon used in the information world, efficient retrieval of relevant information often results in information overkill.

Ever since writing was invented, it has been a common practice

for men to record and store information; not only facts and figures, but also theories and opinions. The rate of recording accelerated after the invention of printing and moveable type, not because that in itself could increase the amount of recording but because, by making it easy to publish multiple copies of a document and sell them at a profit, recording and distributing information became very lucrative and hence attractive to more people. On the other hand, men and women in whose lives the discovery of the handling of information plays a large part usually devise ways of getting what they want from other people, rather than from books, in their efforts to avoid information overkill. Conferences, briefings, committee meetings are one means of this; personal contacts through the 'invisible college' and members of one's club are another. While such people do read, some of them voraciously, the reading of published literature, including in this category newspapers as well as books and journals and even watching television, may provide little more than 10% of the total information that they use.

Computers have increased the opportunities, not merely by acting as more efficient stores and providers of certain kinds of information than libraries, but also by manipulating the data they contain in order to synthesize new information. To give a simple illustration, a computer which holds data on commodity prices in the various trading capitals of the world, and also data on currency exchange rates, can be programmed to indicate comparative costs in different places in one single currency. Computerized data bases, i.e. stores of bibliographic information, are now well established and quite widely available for anyone to use. Also increasing are the number of data banks, i.e. stores of factual information, which are now generally accessible. Anyone who buys a suitable terminal may be able to arrange to draw information directly from these computer systems for his own purposes; the systems are normally linked to the subscriber by means of the telephone network. Equally, an alternative is now being provided by information supply services such as libraries, more and more of which are introducing terminals as part of their regular services.

The number of sources of information on any topic can therefore be very extensive indeed: publications (in the widest sense), people (experts), specialist organizations from research associations to chambers of commerce, and computer stores. The number of channels by which one can have access to these vast collections of information is also very numerous, ranging from professional literature searchers, via computer intermediaries, to

Citizens' Advice Bureaux, information marketing services and information brokers.

The aim of the Butterworths Guides to Information Sources is to bring all these sources and channels together in a single convenient form and to present a picture of the international scene as it exists in each of the disciplines we plan to cover. Consideration is also being given to volumes that will cover major interdisciplinary areas of what are now sometimes called 'mission-oriented' fields of knowledge. The first stage of the whole project will give greater emphasis to publications and their exploitation, partly because they are so numerous, and partly because more detail is needed to guide readers adequately. But it may be that in due course the balance will change, and certainly the balance in each volume will be that which is appropriate to its subject at the time.

The editor of each volume is a person of high standing, with substantial experience of the discipline and of the sources of information in it. With a team of authors of whom each one is a specialist in one aspect of the field, the total volume provides an integrated and highly expert account of the current sources, of all types, in its subject.

D. J. Foskett
Michael Hill

Preface to the third edition

The previous editions of this book were published as *Use of Biological Literature* with Professor R. T. Bottle and myself as joint editors. The book arose from the enthusiasm of Professor Bottle and I am very grateful that he persuaded me to pursue this topic. I have reduced the size of this book to make it a guide rather than a compendium. It is aimed at working scientists and information specialists who will be able to refer to standard bibliographic tools in the library. As far as possible, only recent books are given; very recent books will be found in the booklists of the leading publishers. Guides to the literature – and to writing and speaking – are a special resource for library readers. These guides should not only be in the librarians' rooms and reference section, they should be prominently displayed for readers to browse through and use.

A number of chapters in the 2nd edition have been omitted or completely changed in this new edition. The following chapters in the 2nd edition should be consulted as the material is still largely relevant: Chapter 4, Foreign serials and translations; Chapter 5, Patent literature; Chapter 9, Botanical taxonomy with special reference to the British flora; and Chapter 18, History and biography of biology. Other books in the series of Butterworths Guides to Information Sources will be useful, particularly those in medical sciences, agriculture and food science, history of science and medicine and *Use of Chemical Literature*.

H. V. Wyatt

Contributors

R. K. Butlin, MA, PhD

Royal Society Research Fellow, University College, Cardiff

J. Browne, BA, MSc, PhD

Lecturer, Unit for History of Medicine, Department of Anatomy, University College, London

G. D. Fussey, BSc, MIBiol, FRES, ALS

Biology Master, Eton College, Windsor

C. W. Gordon, BA, MIInfSc

Information Scientist, Commonwealth Institute of Parasitology, St Albans

D. H. Jennings, BA, MA, DPhil, FIBiol

Professor of Botany, University of Liverpool

J. A. Leigh, BSc

Head of Special Information Services, Science Reference & Information Service, London

R. L. J. Muller, BSc, PhD, FIBiol

Director, CAB International Institute of Parasitology, St Albans

J. Turner, BSc, PhD, FIBiol

Reader, Biochemistry Department, University of Liverpool

P. Wortley, BSc, MIBiol, MIInfSci, DipLib

Head of Publications, Tropical Development and Research Institute, London

x Contributors

H. V. Wyatt, BSc, BSc(Hons), PhD, FIBiol
Honorary Research Fellow in Community Medicine, University of
Leeds

Contents

Series editors' foreword	v
Preface to the third edition	viii
Contributors	ix
Suggestions: how to use this book	xi
Introduction: reading and searching, libraries	1
<i>H. V. Wyatt</i>	
1 Reading for profit: current awareness	11
<i>H. V. Wyatt</i>	
2 Literature searching by computer	19
<i>H. V. Wyatt</i>	
3 Secondary sources: abstracts, indexes and bibliographies	26
<i>H. V. Wyatt</i>	
4 Databanks; cells, culture, germplasm and stock collections; herbaria and museum collections	37
<i>H. V. Wyatt</i>	
5 Guides to the literature	45
<i>P. M. Wortley</i>	
6 Biochemical sciences	57
<i>J. M. Turner</i>	
7 Microbiology including mycology, virology, tissue culture, immunology and use of animals	80
<i>H. V. Wyatt</i>	

xiv *Contents*

8	Biotechnology <i>J. A. Leigh</i>	101
9	Genetics <i>R. K. Butlin</i>	115
10	Zoology <i>R. Muller and C. W. Gordon</i>	132
11	Ecology <i>G. D. Fussey</i>	143
12	Botany <i>D. H. Jennings</i>	167
13	History of biology <i>J. Browne</i>	177
	Index	187

Suggestions: how to use this book

USE	the Contents page for broad subjects the Index, p. 187 for services, names and concepts the following tables and data for additional background and ideas:	
JOURNALS		
	citation order	168, 170
	core journals	6, 12, 59, 84, 170
SECONDARY SERVICES		
	choosing a service	28, 34, 83, 85
	comparing services	19, 34, 85
	delay times	85
	the important services	34
SUBJECTS		
	within a discipline	83, 84
BOOKS		
	publishers	61
	comparison of textbooks	119
GOVERNMENT		
	range of involvement	105

Introduction: reading and searching, libraries

H. V. Wyatt

People don't read anymore, they Xerox. (S. Brenner)

The life sciences comprise two parts with different information needs: the experimental scientist wants to know what will be published next month; the more traditional scientist makes use of past literature. For experimental scientists who wish to search the recent literature, it may be quicker and cheaper to repeat an experiment than to search the literature to see whether it has been done before. As topics are explored by newer techniques, the older literature becomes less and less relevant. In ecological and other subjects, however, the present can only be interpreted by knowledge of the past. Most working scientists can devote only a portion of their time to searching the literature; if they read everything, there would be no time for experiments. Some scientists, on the other hand *have* to make certain that a particular finding has not been reported and must devote much effort to their search. Despite the cries that there is too much literature, the unprecedented speed with which discoveries in genetics and immunology have been exploited in the last decade, suggests that scientists are coping well. The channels of communication are complex and this book is a guide to them. The first division is between reading and searching. Reading is keeping up to date by systematic reading of the current literature as it arrives. Searching is a systematic use of secondary services for specific items or topics.

2 Introduction: Reading and searching, libraries

The complexity of information sources and the difficulty of categorizing them is illustrated by the field of human genetics. *The Human Gene Map* is distributed annually by Professor V. A. McKusick and consists of nomenclature, symbols, maps and data from international workshops and other sources. The same information is published later in journals. This and other information is part of a Human Genetics Knowledge Base which is used to produce *Mendelian Inheritance in Man*, by V. A. McKusick, (6th ed., Johns Hopkins U.P., 1983). Specialized items may also be published in journals, for example, all the known or suspected sites of human diseases on the human genome were published in *Clinical Genetics*, vol. 27, 1985, pp. 207-239, which included maps of all 24 chromosomes and located 1600 genes. *Human Gene Mapping*, vol. 8, 1985, is published by Karger every two years and is printed in *Cytogenetics and Cell Genetics*; there was an increase of 66% in two years.

Just good friends

The best sources of information are friends and colleagues. The large department and institution, and the research institute constitute not only a resource of equipment but also of information. The coffee room and departmental library, the research and journal clubs and the departmental seminar are all as important as the central library. Every reasonably sized department should have *Nature*, *New Scientist*, *Current Contents* and one of the new magazines (see p. 3). Club or departmental meetings should always be preceded by some kind of drink to encourage socializing. Staff who have been to meetings should pass on significant new ideas; staff should also be expected to give rehearsals of papers within the confines of their scientific family. At this level, there should also be available *Biochemical Education*, *Journal of Biological Education* and *Medical Teacher*, not only because teaching is important but because teaching reminds one of first principles.

When embarking on a new technique, the supplier of the equipment may help in setting it up but it is the practical details which are so difficult to master from the literature. The best, and in the long run the cheapest, way is to work for a few days or weeks in a laboratory where the technique is in use. A different approach is to use video, e.g. the techniques in genetic engineering video library, IRL 1984, which consists of eight colour videocassettes, e.g. *DNA Sequencing Using M13*. Although their main use

will be in undergraduate and postgraduate teaching, they should be very good for researchers wishing to learn a new technique.

Collaboration with departments in developing countries and those with currency difficulties can take the form of sending journals, exchange of staff and technicians, and expedition of chemicals and materials by checking orders with the suppliers.

There are very real problems in supplying cultures, chemicals, hybridomas, vectors, etc. to those who ask for them. In general, large research groups are givers whereas individuals are receivers; the imbalance can be disrupting to the large groups. With the prospects of patents and income from research, the openness of science may give way to greater secrecy: this may well affect the flow of information to journals.

There has always been a gap between *Nature* and *Science* with their weekly news, and the review serials with their exhaustive reviews coming out quarterly or annually. Journals such as *Discovery*, *Endeavour* and *Science Progress*, and the paperback series *New Biology* and *Science News*, have attempted with varying success to fill this gap. At last the format of the monthly magazine seems to have proved successful with the following: *Trends in Biochemical Sciences* (TIBS) (1976-); *Trends in Pharmacological Sciences* (TIPS) (1978-); *Trends in NeuroSciences* (TINS) (1978-); *Immunology Today* (1980-); *Trends in Biotechnology* (1983-); *BioEssays* (1984-); *Microbiological Sciences* (1984-); *Trends in Genetics* (TIG) (1985-); *Parasitology Today* (1985-). *BioEssays* specializes in developmental biology and complements *Trends in Genetics*.

With shorter articles, mainly two to four pages long, skilful although occasional colour printing, and a wide cover of the subject, the magazines are currently in the fast-moving experimental life sciences; whether zoology, botany and ecology will be able to support similar magazines is clearly not yet resolved. One of the features is the centre-page pin-up in colour in publications such as *Immunology Today* and *Microbiological Sciences*. Each magazine covers about 150 topics a year and may well be more attractive to subscribers than the more conventional journal. In one way, the magazine is a return to the concept of the society journal which covered a wide range of interests. Clearly there are still many subjects not covered by these magazines.

One of the most perplexing problems in information is the word or phrase which has recently been adopted in a speciality but is not defined in any source. *Biochemical Education* has an occasional feature called 'Lexicon - words and phrases at the growing edge', which gives definitions and reference to the original. It would be