A

Short Guide to

CHEMICAL LITERATURE

(SECOND EDITION)

G. MALCOLM DYSON

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TO

CHEMICAL LITERATURE

BY

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LONGMANS, GREEN AND CO

LONDON • NEW YORK • TORONTO

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Thibault House Thibault Square Cape Town
605–611 Lonsdale Street Melbourne C 1
LONGMANS, GREEN AND CO INC
55 Fifth Avenue New York 3
LONGMANS, GREEN AND CO
20 Cranfield Road Toronto 16
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Calcutta Bombay Madras
Delhi Hyderabad Dacca

First published 1951
New Impression 1951
Second Edition 1958

PREFACE

The purpose of this book is to supply an introduction to the literature of chemistry, for students and research workers. Since the publication, a quarter of a century ago, by *Dr. F. A. Mason* of **An Introduction to the Literature of Chemistry**, and the issue in 1927 of **A Guide to the Literature of Chemistry** by *Drs. E. I. Crane and A. M. Patterson*, and even since the more recent publication of **The Library Guide for the Chemist** by *B. A. Soule* (1938) and **Chemical Publications** by *M. G. Mellor* (1940), there have been many changes, extensions and additions to the range of texts and journals available for chemical communications.

This book affords an introduction to the subject and has been made 'non-exhaustive' with the express purpose of keeping its price within the reach of all students of the subject; on the other hand, it is thought that no really important journal or compendium has been overlooked, and that the user will find in its pages a beginner's guide to the vast subject of chemical documentation.

I take this opportunity of thanking *Prof. H. V. A. Briscoe* for reading and constructively criticizing the draft, and *Mr. A. E. Cummins, Librarian of The Chemical Society*, for his assistance, so freely given, in settling many of the queries which have arisen during the writing of this book.

Loughborough,
1951.

G.M.D.

PREFACE TO SECOND EDITION

The opportunity of a second edition has been used to rewrite certain sections of this work, to make some necessary additions and to correct minor points overlooked in the previous version.

I would like to thank many good friends who have made suggestions for additional material, many of which have been gratefully adopted; on the other hand I would like to emphasize that in a work as small in compass as this (necessarily so, to keep its price within the compass of the student's pocket), no pretence at a complete bibliography is made; the selection of standard works are only given as *examples*.

Loughborough,
1958.

G.M.D.

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CHAPTER I.

INTRODUCTION: CHEMICAL DICTIONARIES.

THIS little book is not a bibliography of chemistry; no attempt will be made to list the sources of chemical information in an exhaustive fashion; the main function of the work is to indicate to the student the general avenues of approach to the information contained in 'the literature'. In each section, especially those relating to textbooks and technological journals, examples only can be given, and it must be borne in mind that these are illustrative of type; omission of a work from the lists does not imply that it is considered less valuable than those cited. Chemical journals have increased, both physically and numerically, during the last three decades; smaller print is used, and style has become more terse, so that chemical literature, as such, now amply repays careful study.

It is becoming increasingly clear that insufficient attention is being paid to this aspect of our work; the vast flood of experimental data that is being poured out from the laboratories of all nations is recorded for all to read; the chemist must learn the paths that lead into these deep forests of information, bearing in mind that once knowledge is 'lost' or 'buried in the literature' the work might just as well never have been done. The entrance to these paths is through indexes which lead us to abstracts which, in turn, point the way to original communications; and in order to keep the plan of the terrain of chemical knowledge clear and recognizable, this book is divided into five main sections:-

1. General dictionaries and encyclopædias.
2. Chemical journals and periodicals.
3. Abstract journals.
4. Textbooks and special works of reference.
   4·1. History of chemistry.

4·2. Analytical chemistry.
4·3. Inorganic and physical chemistry.
4·4. Mining and metallurgical chemistry.
4·5. Biochemistry.
4·6. Organic chemistry.
4·7. Annual reviews and similar volumes.
4·8. Applied chemistry.

5. Some works of reference on medicinal compounds.

The fifth section is added as an example of the literature of a 'borderland' subject, linking chemistry with another of the arts or sciences.

In addition three appendixes are provided giving an account of some obsolete journals; more detailed technique of searching, and a tabular survey of the main journals with their year and volume numbers.

1. **General Dictionaries and Encyclopædias.** (This section does not include dictionaries or compendia dealing with specialized subjects, such as organic, inorganic and physical or analytical chemistry, which are discussed in the appropriate division of Section 4).

From the beginning of the nineteenth century, there developed a marked movement towards the publication of dictionaries of chemistry which attempted to describe and to classify all that was then known of the subject. The great treatise of *Berzelius*, appearing about 1810, was the father of many such works; thus, *Gerhardt*, having been commissioned to re-edit the last French edition of *Berzelius*, found no alternative but to write a four-volume **Treatise of Organic Chemistry** which he issued in 1853.

In 1863-7, *Henry Watts* published a **Dictionary of Chemistry and the Allied Branches of other Sciences**, and this went through several editions and finally became the progenitor of **Thorpe's Dictionary.** A second edition was published in 4 vols. (1888-94) and was reprinted several times, even as late as 1918-27.

Many of the earlier dictionaries are now only of historical interest, but the following are still of importance:-

1·11. *O. Dammer*, **Handbuch der Chemischen Technologie.** (5 vols. 1928-1932). This is the second edition of the original publication of 1898 giving an excellent account

of the progress of chemical industry.

1·12. *O. Dammer*, **Chemische Technologie der Neuzeit** (3 vols. 1911). Gives a general outline without detail of the state of chemical invention at the period.

1·13. *H. Fehling (and others)*, **Neues Handwörterbuch der Chemie.** This compendium began publication in 1871. Although the earlier volumes are out of date, they have excellent lists of references which greatly facilitate the searching of early work. Peters and Grossman prepared a second edition in 5 vols. which was completed in 1932.

1·14. *T. E. Thorpe*, **A Dictionary of Applied Chemistry.** This valuable work was originally designed to be a companion volume to the third edition (1893) of **Watts' Dictionary of Chemistry** as set out by Muir and Morley. The latter was to contain the pure chemistry and the new compendium under *Thorpe* was to cover applied chemistry. Thorpe is now in its fourth edition, the issue of which was commenced in 1937, interrupted by the exigencies of war and completed in 1955. The work is in twelve volumes which have appeared under the auspices of an editorial board headed by *Sir Ian Heilbron*. A collective index to vols. I-V appeared in 1941 and a final complete index is in Vol. 12 (1955). This work has become a collection of small monographs on many subjects of applied chemistry and the work has been made the more useful by a liberal interpretation of the term 'applied'. Useful lists of references to original literature are given.

1·15. *J. S. Muspratt*, **Encyclopädisches Handbuch der Technischen Chemie.** 4th Edn., 11 vols. and supplements 1888-1922 (one projected supplement on 'Metals' was not published).

1·16. *J. C. Poggendorf*, **Biographisch-Literarisches Handwörterbuch.** This work is a compilation classified under the names of authors of scientific papers, with an account (bibliographical) of their contributions. It is not exclusively chemical but covers mathematics, astronomy, physics and crystallography; in addition, the volumes are of value in locating the work of investigators known only by name, and is especially useful for early work. The volumes are:-

Number	Date of issue	Period covered
1 & 2	1863	up to 1857
3	1898	1858-1883
4	1904	1884-1904
5	1926	1905-1922
6	1936	1923-1931

1·17. *F. Ullmann*, **Enzyklopädie der Technischen Chemie.** This is one of the most complete works on technical chemistry. The first edition of Ullmann appeared in 1914-1923 and the second edition in 10 volumes and an index volume was published over the period 1928-32; it was in many ways a reprint of the first edition. A third edition is now available. The work is illustrated by diagrams and flow-sheets, and has many references to technical journals and to the German Patent literature. The use of this encyclopædia is often the easiest and best introduction to a technical process.

1·18. *R. E. Kirk and D. F. Othmer (Editors)*, **Encyclopædia of Chemical Technology.** This is now complete in fifteen volumes, and one Supplement (1958).

Vol. 1. A – Anthrimides;
Vol. 2. Anthrone – Carbon;
Vol. 3. Carbon (contd.) – Cinchophen;
Vol. 4. Cineole – Dextrose;
Vol. 5. Dialysis – Explosions;
Vol. 6. Explosives – Furfural;
Vol. 7. Furnaces – Iolite;
Vol. 8. Ion exchange – Metal plating;
Vol. 9. Metal surface treatment – Penicillin;
Vol. 10. Pentacene – Polymethine dyes;
Vol. 11. Polyols – Rutin;
Vol. 12. Sabadine – Stilbestrol;
Vol. 13. Stilbite – Thermochemistry;
Vol. 14. Thermodynamics – Waterproofing;
Vol. 15. Waxes – Zymosterol. Index.

The work has a very wide scope, and gives a good outline of the topics listed.

1·19. *H. Watts*, **A Dictionary of Chemistry.** Reference has

already been made to this work (1·4).

1·20. *A. Wurtz*, **Dictionnaire de Chimie pure et appliquée.** Originally in 3 vols. (2 parts each) (1874-8); two undated supplemental volumes were issued, and then Wurtz and Friedel published a large supplementary treatise in 7 vols. appearing between 1892-1908. This and the previous work are now of historical value only.

1·21. *E. Fremy*, **Encyclopédie chimique.** A publication in 10 sections and 94 volumes (1882-1899). It is of historical interest only.

1·22. *Landolt-Börnstein*, **Physikalisch-chemische Tabellen.** The fifth edition of this invaluable work was published in 8 volumes between 1923-1936 and a new edition is currently appearing. Part I of Vol. 1 appeared in 1951; Part II in 1950, while Parts III, IV, V together with the 3rd, 4th and 5th volumes appeared in 1951. It gives an enormous amount of information concerning the physical properties of chemical substances. This information is considered critically, and the whole work is fully documented; it constitutes one of the most important books of tables.

1·23. **International Critical Tables,** a development from the critical survey of the 1910-1923 **Tables annuelles internationales de Constants et Données numeriques.** This work is issued in seven volumes, Vol. 1 being issued in 1926, and Vol. 7 in 1930. These volumes contain much critical physico-chemical data.

1·24. *A. Ladenburg*, **Handwörterbuch der Chemie.** 13 vols. (1882-1895). Now of historical interest only.

1·25. *A. Seidell*, **Solubilities of Inorganic and Organic Compounds.** The third edition of this work (1940) replaced the edition of 1919 which was supplemented by a subsequent addenda volume in 1928. This work is solely a collection of data on solubilities.

1·26. *K. Kempf and F. Kutter*, **Schmelzpunkttabellen zur organischen Molekular Analysen.** A set of melting-point tables.

*1·27. *T. E. Jordan*, **Vapor Pressure of Organic Compounds** (1954). A summary of vapour pressure data of 1150 compounds.

1·28. *R. G. Wyckoff*, **Crystal Structures.**
Part 1 } General (1948 and 1951);
Part 2 }
Part 3 Benzene derivatives, alicyclic and heterocyclic compounds and carbohydrates (1953) and two supplements (1951 and 1953).

Attention must also be called to a series of year-books or handy compendia published frequently, which are useful for consultation at the laboratory bench.

Examples are:-

1·29. *J. H. Perry (Editor)*, **The Chemical Engineer's Handbook.** An invaluable book with many tables of chemical and physical properties. The third edition appeared in 1949.

1·30. **Handbook of Chemistry and Physics.** This work is published by the *Chemical Rubber Co.*, of Cleveland, Ohio, and was in its 30th Edition in 1940. It is full of useful tables and data for laboratory workers.

Various 'Chemical Dictionaries' of a smaller type have appeared from time to time; they are mainly of two types, language dictionaries for chemists and glossaries giving the meaning of chemical terms in a sentence or two.

Some examples are:-

1·31. *A. M. Patterson*, **French-English Dictionary for Chemists,** also **German-English Dictionary for Chemists.** The third, and considerably enlarged edition of the latter was issued in 1950.

1·32. *H. Bennett*, **Standard Chemical and Technical Dictionary,** published in New York in 1939.

1·33. *E. Hackh*, **A Condensed Chemical Dictionary.**

1·34. *Hoyer-Kreuter*, **Technologisches Wörterbuch.** A trilingual dictionary in English, French and German.

1·35. *G. Marolli*, **Dizionario Tecnico** (1950). A glossary of Italian technical terms.

1·36. *L. I. Callaham*, **Russian-English Technical and Chemical Dictionary.**

1·37. **The Van Nostrand Chemical Dictionary** (1953). A useful general list of technical chemical terms.

1·38. *H. Kingzett*, **Chemical Encyclopædia,** 8th Edition (1952).

1·39. *L. De Vries*, **German-English Science Dictionary.**

1·40. *L. De Vries*, **German-English Medical Dictionary.**

1·41. *M. Goldberg*, **Spanish-English Chemical and Medical Dictionary.**

1·42. *M. Goldberg*, **English-Spanish Chemical and Medical Dictionary.**

1·43. *L. L. Sell*, **English-Spanish Technical Dictionary.**

1·44. *L. L. Sell*, **English-Portugese Comprehensive Technical Dictionary.**

Among works of a general character, the following are noteworthy:-

1·45. *W. Gardner*, **Chemical Synonyms, Trade-names etc.**, (5th Edition 1948). This volume gives a list of 28,000 words which have been accepted as 'trade-names' and is often of value in locating the nature of a material where the trade-name itself gives no indication.

1·5. **Some General Works on the Literature of Chemistry.**

1·51. *E. J. Crane and A. M. Patterson*, **A Guide to the Literature of Chemistry** (1927). Originally published in 1927; second Edition (1957) with E.M.Marr as co-author.

1·52. *B. A. Soule*, **Library Guide for the Chemist** (1938).

1·53. *M. G. Mellor*, **Chemical Publications – their Nature and Use**, 2nd Edition (1940).

1·54. *A. B. Eason*, **Where to Search for Scientific Facts** (1925).

1·55. *W. Ostwald*, **Die chemische Literatur und die Organization der Wissenschaft** (1919).

1·56. *E. E. Reed*, **Introduction to Organic Research** (1924).

1·57. *A. M. Patterson and L. Capell*, **The Ring Index** (1940). A valuable catalogue of the known rings with a system of numbering and naming them.

1·58. *A. D. Mitchell*, **British Chemical Nomenclature.** A valuable book for the student for it will help him towards the correct names of compounds without which a literature search cannot commence.

1·59. The *Editorial* introductions to the *Indexes* of the **Journal of The Chemical Society** and of **Chemical Abstracts** are valuable sources of information on nomenclature problems.

CHAPTER II.

CHEMICAL JOURNALS AND PERIODICALS

CHEMICAL journals and periodicals fall roughly into three classes:-

2·1-2·2 National chemical journals.
2·3 Specialized chemical journals.
2·4-2·7 Ancillary and technical journals.

2·1. **National Chemical Journals.** In practically all modern civilized countries, chemical journals are maintained by the leading chemical societies. Their function is almost entirely the publication of original research and most of the important new work appears on their pages. The chief of these journals are:-

2·11. *American:* **The Journal of the American Chemical Society** and the **American Chemical Journal.** Both commenced publication in 1879; the latter became merged in the former in 1914 and since that date the J.A.C.S. has served most of the needs of America for original publication in pure chemistry.

The **American Journal of Science,** the **Journal of the Franklin Institute** and the **Proceedings of the National Academy of Sciences** are also American Journals of the highest standing which have many papers devoted to the publication of original chemical research.

2·12. *Belgian:* The **Bulletin de la Société chimique de Belgique** has been issued since 1887, but in 1945 the name was changed to **Bulletin des Sociétés chimiques Belges;** the volume numbers, however, continue serially.

2·13. *British:* **The Journal of The Chemical Society.** This society is the oldest chemical society in existence and commenced to publish its **Memoirs** in 1841; in 1847 these became known as the **Quarterly Journal of the Chemical**

Society; in 1862, more frequent publication led to its becoming the **Journal of the Chemical Society.** In 1885 the *Chemical Society* began to publish a separate **Proceedings*** in addition to its **Journal,** in which matters of scientific interest were often discussed; this practice was abandoned in 1915 when the **Proceedings** became a record of purely business activities only. It must, therefore, be kept in mind that a reference to the **Proc. Chem. Soc.** between the years 1885 and 1914 may cover scientific material not also published in the **Journal.** In most libraries the **Journal and Proceedings of the Chemical Society** are to be found together on the shelves. In some libraries, however, the **Proceedings** are bound in at the end of the volumes entitled **Transactions.** This name arises from the fact that the **Journal** consisted for many years of two parts, **Transactions** and **Abstracts,** the former being original papers communicated to the *Society* and the latter abstracts of other chemical publications. This practice was modified in 1924 when the word **Transactions** was dropped from the title and the **Journal** became separated from the **Abstracts,** which were transferred to a special *Bureau of Abstracts.* In 1926 the volumes ceased to be numbered, the year alone constituting the full reference.

2·14. *British Commonwealth, Australian:* Apart from the **Australian Journal of Chemistry** there is no regular Australian journal specifically devoted to the publication of original chemical work, but an important review journal was commenced in 1951 – **Reviews of Pure and Applied Chemistry** – and published by the *Royal Australian Chemical Institute.* The **Australian Journal of Science, Series A, Physical Sciences,** often includes papers of chemical interest.

Canadian: The principal journals of interest to chemists are the **Canadian Chemical Journal** and the **Canadian Journal of Chemistry.**

Indian: **Journal of the Indian Chemical Society** is a

* In the first year a single volume of **Proceedings** was published (1841) and the full title during 1847 was **Memoirs and Proceedings of the Chemical Society.**

flourishing publication started in 1924 as a quarterly journal; there is, also, an **Industrial and News Edition.**

South African: The **Journal of the South African Chemical Institute** is mainly a review journal.

2·15. *Chinese:* **Journal of Chinese Chemical Science,** published up to 1946 and probably irregularly thereafter. Many Chinese chemical journals were suspended or published irregularly during the recent war years, as for example the **Transactions of the Science Society of China.**

2·16. *Czechoslovakia:* The official chemical journal of Czechoslovakia is the **Chemické Listy v. a. Premyzl.**

2·17. *Danish:* A Danish Chemical Journal – the **Kongelike Danske Videnskabernes Selskab** – is published from Copenhagen.

2·18. *Dutch:* The **Recueil des Travaux Chimiques des Pays-Bas** commenced publication in 1882 and has had one anomalous year in 1917 when not only vol. 36 but part of vol. 37 was published, the latter being completed in 1918. From vol. 16 (1897) to vol. 28 (1919) the title was lengthened by 'et de la Belgique'. Originally a private venture this journal was taken over by the Dutch Chemical Society in 1920. News and review articles are published weekly in **Chemisch Weekblad,** which commenced publication in 1904.

2·19. *French:* The **Bulletin de la Société chimique de France** has been published since 1858. The first volume covers 1858 and 1859. It is a typical example of a journal published in SERIES (*i.e.* the volume numbers commence *de novo* from '1' for each series).

The series are:-

Series [1]	1858-1863	[Vols. 1-5; 1 vol. per annum]
Series [2]	1864-1888	[Vols. 1-50; 2 vols. per annum]
Series [3]	1889-1906	[Vols. 1-36; 3 vols. per annum]
Series [4]	1907-1934	[Vols. 1-56; 2 vols. per annum]
Series [5]	1935-	Since 1946 the volume number has been discontinued.

Alternate volumes are devoted to original communications and abstracts.

2·20. *German:* The **Berichte der deutschen chemischen Gesellschaft** was first published in 1868 and has steadily pursued its course of an annual volume until 1945, when publication temporarily ceased with Vol. 77 No. 11/12. Publication has been systematically resumed under the title **Chemische Berichte**, parts of which have been issued since 1947. This journal has been of paramount importance in chemical literature.

2·21. *Italian:* The **Gazzetta Chimica Italiana** has steadily issued its annual volume since 1871, when it was founded by *Paternò*. It has collective indexes for the Vols. 1-20 and 21-40.

2·22. *Japanese:* The oldest chemical journal in Japan is the **Journal of the Chemical Society of Japan** which commenced publication in 1880 and in March 1948 divided into two sections, one for Pure Chemistry and one for Industrial Chemistry. These are published monthly in Japanese and in 1927 a **Bulletin of the Chemical Society of Japan** was commenced with articles and summaries in European languages. There are also various chemical journals published by printing houses rather than Chemical Societies, such as the **Review of Physical Chemistry of Japan** and the **Journal of Japanese Chemistry**, while the **Journal of Organic Synthetic Chemistry**, is published by a Society of the same name. An excellent survey of Japanese chemical literature has been given by Stevens (J. Chem. Educ., 1954,31,471-4).

2·23. *Russian:* The older **Journal of the Russian Physical-Chemical Society** began publication in 1869 and in 1930 ceased with Vol. 62. The old journal dealt with both physics and chemistry, but the continuation of the journal in the new regimes was split into two parts, the **Journal of General Chemistry (U.S.S.R.)** and **Journal of Physical Chemistry (U.S.S.R.)**; these may also be met with under their Russian titles **Zhurnal Obschei Khimii** and **Zhurnal Fizicheskoi Khimii**. The new journal has volume numbers different from those of its older progenitor, but the older number is also cited; thus, in 1946 the legend 16/(78) indicates the two volume numbers.

The U.S.S.R. Academy of Sciences is the central publishing body of Soviet Chemical Science. The **Doklodi** (Reports) of this Academy, thirty six issues of which appear annually cover the whole of natural science. The papers are short and usually appear in a more fully descriptive form in a journal more particularly devoted to that branch of science in which the study is made.

Each section of the Academy has its own journal (**Izvestia**) which in most cases appears six times a year. In chemistry there are the following specialized journals:-

(i) Journal of General Chemistry (see above)	Monthly
(ii) Journal of Applied Chemistry	Monthly
(iii) Journal of Physical Chemistry	Monthly
(iv) Journal of Analytical Chemistry	Six issues a year
(v) Colloidal Journal	Six issues a year
(vi) Biochemistry	Six issues a year

Since 1947 the Soviet journals have discontinued the practice of giving an English or German title in addition to the Russian title. However, the translations of the titles of the twenty major Soviet journals are printed and published by the Brookhaven National Laboratory of the U.S.A.E.C. as a Guide to Russian Scientific Periodical Literature.

Review articles of chemical interest are to be found in **Uspekhi Khimii** (Progress of Chemistry).

2·24. *Polish:* The official chemical journal of Poland is **Roczniki Chemii.**

2·25. *Spanish:* In 1941, the **Anales de la Sociedad Española di fisica y quimica,** changed its title to **Anales de fisica y quimica.** It was first published in 1903.

2·25. *Scandinavian:* The *Swedish* chemical journal **Svensk Kemisk Tidskrift,** first published in 1889, is now (1949) in its sixtyfirst volume.

The **Acta Chimica Scandinavica,** a journal which started in 1947, is a medium for the publication of much work done in Scandinavian countries. There is also a *Finnish* journal, **Suomen Kemistilehti (Acta Chimica Fennica,** originally) which is published now somewhat irregularly