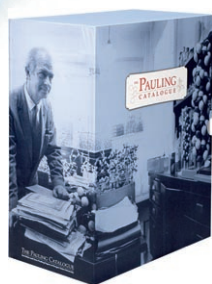




The Pauling Catalogue



By Chris Petersen and Cliff Mead. Valley Library Special Collections, Oregon State University, Corvallis 2006. 1669 pp., softcover \$ 125.00.—ISBN 0-9629082-3-1

Linus Pauling (1901–1994), internationally acclaimed scientist, educator, humanitarian, and political activist, and the only person to have received two unshared Nobel Prizes, is considered one of the two greatest scientists of the 20th century, the other being Einstein, and the greatest chemist since Antoine-Laurent Lavoisier, the founder of modern chemistry. His multifaceted life and activities, both scientific and personal, spanned almost the entire century. His magnum opus, *The Nature of the Chemical Bond*, is one of the most influential and frequently cited scientific books of the twentieth century. His endorsement of megadoses of vitamin C for the common cold, cancer, and AIDS is the controversial work for which he is best known to the general public.

In 1986, Pauling donated his and his wife's papers, more than 500 000 items—one of the largest personal archives in the world—to their alma mater, Oregon State University. Twenty years later, in a labor of love, the OSU Libraries Special Collections has published an extremely detailed complete inventory of this extraordinary collection. The introductions to the six volumes were written by major authors, historians of science, or

members of the Pauling family. The catalogue contains more than 1200 illustrations, 120 in full color, with extensive captions relating the stories behind the images, a beautifully illustrated 45-page timeline of Linus and Ava Helen Pauling's lives, and an extensive reproduction of Linus Pauling's 1917 diary. The volumes have separate paginations and separate ISBNs.

The collection contains the following: Volume I (xxiv+285 pp., ISBN 0-9629082-4-X)—Acknowledgments (1 p); Dedication: William H. and Michal S. Rieckmann (1 p.); Preface: Chris Petersen and Cliff Mead (3 pp.); Foreword: Chris Petersen, summary of the catalogue's contents (6 pp.); Introduction to Volume I: Mary Jo Nye (2 pp.); Timeline: Robert J. Paradowski (44 pp.); Correspondence: letters received by Linus Pauling and carbon copies of letters sent by him, alphabetically arranged and chronologically sub-sorted (57 pp.); Publications: chronologically arranged reprints of Pauling's more than a thousand publications (48 pp.); Manuscripts and Typescripts of Articles: unpublished articles and related correspondence, abstracts, galley proofs, figures, research notes, and other background materials (130 pp.) Illustration List (3 pp.).

Volume II (the shortest volume, xvi+174 pp., ISBN 0-9629082-5-8)—Introduction to Volume II: Robert Olby (3 pp.); Science: 15 thematic subsections, which reflect the extraordinary breadth of Pauling's scientific biography (66 pp.); Research Notebooks: 47 original research notebooks (1919–1994), laboratory calculations, experimental data, scientific conclusions, ideas for further research, and biographical musings (80 pp.); Appendix: 1917 Diary, August 1917 through the first several months of Linus's freshman year at Oregon Agricultural College (18 pp.); Illustration List (2 pp.).

Volume III (xiv+248 pp., ISBN 0-9629082-6-6)—Introduction to Volume III: Thomas Hager (4 pp.); Peace: eight thematic subsections on Pauling's interests in peace and humanism; manuscripts, typescripts, correspondence, notes, meeting minutes, non-Pauling publications, and other ephemera reflecting the numerous concerns addressed by the Paulings and the

international peace movement (mid-1940s to mid-1990s); three-volume Bomb Test Petition to the United Nations, for which Pauling received the 1963 Nobel Peace Prize (180 pp.); Ava Helen Pauling: manuscripts, typescript leaves, correspondence, biographical materials, publications, government documents; writings on peace, civil liberties, and women's rights; correspondence and meeting minutes for Women's International League for Peace and Freedom, Women International Strike for Peace, and Federal Union (32 pp.); Travel: itineraries, transit and hotel receipts, maps, and background materials (14 pp., the Paulings visited every continent except Antarctica); Honors, Awards, Citations, Diplomas and Other Recognitions: nearly 50 honorary doctorates, two Nobel medals, Lenin Peace Prize medal, M. V. Lomonosov medal, and National Medal of Science; correspondence and related background materials (20 pp.); Illustration List (2 pp.).

Volume IV (the longest volume, xiv+362 pp., ISBN 0-9629082-7-4); Introduction to Volume IV: Robert J. Paradowski (4 pp.); Biographical: manuscript and typescript materials, correspondence, notebooks, newspaper clippings; government, legal, and tax documents, and receipts (sorted into subsections labeled: Academia; Political Issues; Legal, Business, & Financial; Personal Materials & Family Correspondence); more than 2700 pages of loose-leaf scrapbooks (254 pp.); Personal Safe: Drawer 1: more than 700 letters, mostly love letters, between Linus and Ava Helen; Drawers 2 and 3: communications with world-historical figures; Drawer 4: notebooks and Dictaphone belts, including chapters of a proposed autobiography (104 pp.); Illustration List (4 pp.).

Volume V (xvi+283 pp., ISBN 0-9629082-8-2)—Introduction to Volume V: Barclay Kamb, Linus Pauling, Jr., and Linda Pauling Kamb (5 pp.); Audio/Visual: audio-cassette tapes, vinyl records, videotapes, dictaphone belts, audio tape, and film reels of commencement lectures, public speeches, radio appearances, and taped interviews (32 pp.); Photographs and Images: the most frequently consulted of all the Pauling Papers: more than 5500 photo-

graphs, drawings, and other images of Pauling, his family, and colleagues (248 pp.); Illustration List (3 pp.).

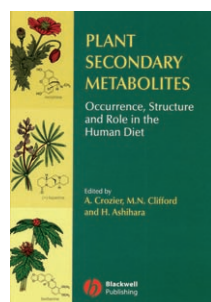
Volume VI (xiv+317 pp., ISBN 0-9629082-9-0)—Introduction to Volume VI: Cliff Mead (4 pp.); Newspaper Clippings, Magazine and Journal Articles: more than 3000 items, domestic and foreign, either focusing on or mentioning Pauling (134 pp.); Personal Library: more than 4000 volumes from the Paulings' personal library, including pure science, sociological surveys, detective stories, crossword puzzles, annotated and alphabetically arranged by the author's last name (179 pp.); Illustration List (2 pp.).

Printed in an edition of 1000 copies, *The Pauling Catalogue*, with its lavishly illustrated listings of the Paulings' extensive correspondence, manuscripts, research notebooks, awards, and their scientific, peace, and personal papers, is a fittingly ambitious tribute to the extraordinary lives of this remarkable couple. As an invaluable resource for historians of science and chemistry, scholars of science policy, persons concerned with the peace movement, practicing chemists and scientists interested in the history of their fields, and science students, it also belongs in every library. Its fantastically inexpensive price, considering the scope of its contents and the number of its illustrations, makes it a "best buy."

George B. Kauffman
California State University
Fresno, CA (USA)

DOI: 10.1002/anie.200685543

Plant Secondary Metabolites



Occurrence, Structure and Role in the Human Diet.

Edited by Alan Crozier, M. N. Clifford and H. Ashihara. Blackwell Publishing, Oxford 2006. 384 pp., hardcover £ 99.50.—ISBN 1-4051-2509-8

Human food contains many plant secondary metabolites, which can often have positive health benefits. Hardly a week goes by without something appearing in a newspaper or in a specialist journal about the beneficial effects of green tea, broccoli, olive oil, or red wine. This book contains a collection of articles on this subject, in which experts report on recent findings.

The first five chapters discuss the main classes of secondary metabolites that are relevant to human nutrition, namely polyphenols, sulfur compounds, terpenes, alkaloids, acetylenes and polyacetylenes, and psoralens, with details of the most important compounds of each group and their occurrence in plant-derived foods. Clear schemes are presented to show the biosynthetic pathways, with details of the enzymes that are involved, and in some cases the genetic fundamentals are also described and possibilities for metabolic engineering are discussed. Whereas polyphenols such as flavonoids, hydroxycinnamic acids, and stilbene derivatives occur in nearly all types of fruits and vegetables, the sulfur-containing compounds are limited to cabbage and *Allium* species. The preparation of these vegetables is accompanied by enzymatic changes and breakdown reactions, which are described in detail here. The article on terpenes is especially good; the biosynthetic pathways of the most important classes of terpenes are described, based on discoveries about the localization of the mevalonate and 1-deoxyxylulose-5-phosphate pathways in different cell compartments. The importance of terpenes for human health is also discussed. The choice of alkaloids for

discussion has had to be limited, for reasons of space, to those that are most important to humans, including the benzyloquinolines, tropanes, purines, and pyrrolizidines. Another important contribution is that on (poly)acetylenes and linear furocoumarins (psoralenes), which are present in carrots, for example; these have undesirable biological activities, but also beneficial long-term effects.

Building further on the basis of these fundamentals, Chapter 7 discusses the secondary metabolites present in individual types of fruits, vegetables, and cereals and the drinks produced from them, and also their effects. For example, the chemical processes that occur during the production of green and black tea are described in detail, and the effects of the roasting process on substances present in coffee is discussed.

The plant metabolites described in the book can only develop their physiological effects when they are taken up by the body and become available in the blood plasma. Important insights into this process have been gained in the last few years, and are discussed in the chapter on the absorption of secondary metabolites and their bioavailability. Another chapter of the book deals with the functions of the flora in the human gut and their importance for the uptake and conversion of secondary metabolites. Special attention is devoted to the importance of probiotics (bacteria preparations) and prebiotics (carbohydrates) in beneficially affecting the intestinal flora.

In summary, the book offers an excellent survey of the plant secondary metabolites that are most important for human nutrition, and a discussion of their significance for health. The literature covered is mainly that of the last 15 years, so that the book is a mine of information about recently gained knowledge. As the subject is treated in a multidisciplinary way, the book is of great interest for food chemists, nutrition scientists, pharmacologists, and medical scientists. It fills a significant gap in this area.

Unfortunately, the book contains some errors that have been overlooked. For example, the structure of berberine is shown with a pentavalent carbon atom, and this even "graces" the