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BOOK REVIEW - "Houben/Weyl Methoden der organischen Chemie", E. Müller, editor-in-chief, Vol. IV/5a, Photochemie, Part 1, LV + 876 pages, DM 450, Vol. IV/5b, Photochemie, Part 2, LI + 1083 pages, DM 540, Georg Thieme Verlag, Stuttgart, 1975.

The importance of organic photochemistry for the synthesis of organic compounds cannot be overestimated. While there are many good texts dealing with photochemistry in a general way, aside from Schönberg's "Preparative Organic Photochemistry", no comprehensive treatment of synthetic organic photochemistry specifically can be found. These two volumes on photochemistry in the well-established Houben/Weyl series provide a handbook solution for this need. It is a pleasure to browse through the amount of material presented in the 1810 pages. Eugen Müller, as the editor-in-chief, has again been able to recruit a large number of prominent researchers from industry and universities as authors for the individual chapters. The excellent and very careful coordination, so characteristic of the Houben/Weyl series, has been fully maintained in the photochemistry volumes. This makes them a most stimulating source of information. The excellent graphic representation of the formulas and diagrams as well as the well-organized tables are commendable. The carefully prepared author and subject index, the many references, in particular from the patent literature, and the extensive bibliography on page 1551 make the material easily accessible, and provide additional references. While the official publication date of the photochemistry volumes is December 30, 1975, many of the references cited cover the 1975 literature.

The very thorough and up-to-date presentation of the many aspects of synthetic organic photochemistry together with excellent discussions of the apparatus required and experimental considerations, as well as of the theoretical and mechanistic aspects, will make these two volumes an invaluable part of the review literature of the synthetic organic chemist. The Houben/Weyl series has long ago established its place in a good science library.

The text is in German and it is somehow a shame that this excellent source of valuable information is becoming less and less accessible to a large number of English and American students, due to the steadily decreasing foreign language requirements at most American universities.

The two volumes, written by 33 contributing authors, are divided into three large chapters dealing with photochemistry and an additional chapter dealing with plasma-chemistry. In the first chapter (40 pages) a brief but concise discussion of the theoretical aspects is presented. The second chapter (48 pages) discusses the various experimental aspects of photochemistry, providing valuable information concerning lamps, filters, sensitizers, apparatus etc. The third and largest section (1460 pages) deals with the photochemistry of individual groups of compounds. It is subdivided into seven subsections. Subsection # 1 presents an excellent discussion of the various photochemical substitution reactions in saturated systems. After a very thorough treatment of the photochemistry of unsaturated systems follows a particularly welcome chapter on the photochemistry of heteroaromatic compounds. Subsection #4 deals with the photochemistry of various functional groups such as the carbon-halogen, carbon-oxygen, carbon-nitrogen, and carbon-sulfur bonds. Most useful is subsection #5 which presents a well written account of the photochemistry of selected organo-metallic compounds. This chapter could have been less restricted in scope, allowing the inclusion of the photochemistry of Group I and II organo-element compounds, as well as of the more inorganic photochemistry of metal carbonyls. Subsection #6 contains excellent reviews of photoreductions, photooxygenations and photopolymerizations, together with an article on photochromism. The last subsection of Part C deals with the important photochemistry of nucleic acids, and their very special methodology and techniques. After an extensive bibliography of leading reference books and review articles, the second volume concludes with a very well written chapter on the reactions of organic compounds in electrical discharges (Organic Plasma-Chemistry). One could continue pointing out the numerous especially impressive sections in these volumes. Every researcher will find particular chapters in the photochemistry volumes of the Houben/Weyl series of special value for his work. The overall quality

and general appearance of both volumes are excellent. This reviewer found only very few minor typographical errors. These two volumes are certainly the most comprehensive and up-to-date presentation of the large and very active and diverse synthetic organic photochemistry area. Their availability will greatly aid the organometallic chemist who wishes to apply photochemical procedures in his research.

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