Douglas C. Neckers

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Douglas Neckers received his B.A. degree from Hope College in 1960 and his Ph.D. from the University of Kansas in 1963 under the direction of Earl Huyser. Following postdoctoral work at Harvard University with Paul D. Bartlett, he held faculty appointments at Hope College and the University of New Mexico before coming to Bowling Green State University in 1973 as Professor and Chair of the Department of Chemistry from which he resigned in 1996. He is currently the McMaster Distinguished Research Professor and the full time director of the Center for Photochemical Sciences at Bowling Green.

Neckers is the author or co-author of 11 books and over 240 scientific papers and holds 34 patents. He has served as a consultant to the National Science Foundation, the American Chemical Society, the Alfred P. Sloan Foundation, the Dreyfus Foundation, the Research Corporation, and the Josiah Macy Foundation, as well as more than a dozen companies. He is a Fellow in the American Association for the Advancement of Science. Among Neckers' many awards are an Alfred P. Sloan Fellowship, the Paul R. Block, Jr. Award from the American Chemical Society Toledo Section, the Paul and Ruth Olscamp Research Award from Bowling Green State University, the President's Award from Mead Imaging, the Morley Medal from the Cleveland Section of the American Chemical Society, Honorary Alumnus Award from Bowling Green State University, and a National Science Foundation Creativity Award.

Scientifically, Neckers' interests are based in his physical organic early years, but were substantially influenced by the Hammond school through collaborations with Nick Turro at Harvard and later with Chris Dalton who joined the Bowling Green faculty in 1978.

Neckers' interest in polymer chemistry resulted from his doctoral dissertation which was on the photoreactions of aromatic ketones. When these compounds found uses in commerce as photoinitiators, a number of industries were interested in his experience. His first experiments using polymers were influenced by Bruce Merrifield's work on solid phase peptide synthesis. Polymeric dye sensitizers based on Merrifield beads such as the polymer Rose Bengal came from early experiments as did the observation that polystyrene complexes with aluminum chloride can be tightly bound, and thus "protected" from their environment. This became the first successful commercial application of Neckers' chemistry: the polymer-protected reagent.

Rose Bengal, as a singlet oxygen source, has long been an interest of his. Studies of structure−reactivity relationships in the series fluorescein, Eosin, Erythrosin, and Rose Bengal−contributed to the understanding of the mechanisms of aggregation and bleaching in the series. The fluorone dyes, a new series that eliminate many of the troublesome side reactions of the xanthenes, became commercial photoinitiators several years ago.

Photopolymerization, specifically of acrylates, traces through all of Neckers' work. The objective for the last several years has been to follow a photochemical event from the absorption of light through the production of a useful polymer. In recent years his attention has turned to modifying polymer surfaces using known photochemical processes. A number of systems have been developed for this, including a series of intramolecular electron transfer systems that release a multitude of differing reaction intermediates in a single step.

Neckers' contributions in chemical education have also been important. At Hope College he introduced a number of instrumental techniques to liberal arts college laboratories, and pushed research with undergraduates as an educational tool long before it became the norm. His concerns with failures in the American system of education in producing science students at the graduate level, published in 1978, seems almost prescient as evidenced by the decreasing number of American students studying science and engineering today. In 1985, before the National Science Foundation was promoting interdisciplinary research in focused areas, Neckers determined that climate was right for the creation of the Center for Photochemical Sciences at Bowling Green. In 1988 the growth of the Center in personnel and funding led to the development of the only Ph.D. program in the photochemical field in the country. Since the

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first students entered the program in 1988, 20 have graduated and are all employed in industry or academia. The program maintains a steady state of about 40 students and has been given a number one rating in a study of doctoral programs conducted by the Ohio Board of Regents in 1995. The success of the Center for Photochemical Science and the doctoral program can be directly attributed to the enormous efforts on the part of Professor Neckers.

Douglas Neckers has on many occasions spoken of the value of mentoring relationships. Two extraordinary educators who have vastly influenced him include Cal Vander Werf, a Kansas chemistry professor who became the President of Hope College while Neckers taught there, and George Hammond whose scientific influence pervades all the programs in the Center for Photochemical Sciences and continues an active relationship with Bowling Green. Professor Neckers' involvement with his Ph.D. and postdoctoral students have taught him well the role of the mentor and brought the excitement of long-term research and overall educational experience to his laboratories.

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