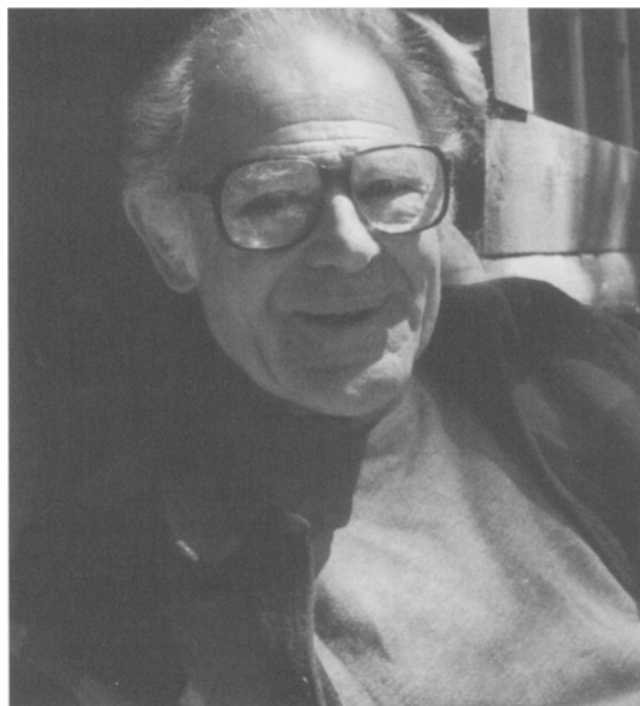




Dedication Herman Jan Phaff

This Special Issue of the Journal of Industrial Microbiology is dedicated to Herman Jan Phaff by his students, post-doctoral associates and close colleagues. Herman has been a world leader in the ecology, physiology and taxonomy of yeasts. The purpose of the Special Issue is to celebrate Herman's fifty years of active research which is still continuing. Many of us owe the success of our careers to his scholarship, teaching, professionalism and, above all, his deep friendship.



Born in Winschoten, The Netherlands in 1913, Herman Jan Phaff's childhood in the environment of his family's winery stimulated his curiosities of cellular processes of microorganisms and consequently had a strong impact on his later life. His rigorous Dutch high school education, with 5 years of German and French and 4 years of English and in-depth studies of mathematics, chemistry and physics prepared him for entrance into the Technical University in Delft. He chose to

major in chemical engineering, primarily because A.J. Kluver was Professor of General and Applied Microbiology, a subdivision of that discipline. Herman was well-aware of the outstanding reputation of Kluver and his world renowned predecessor, M. Beijerinck. Here, he earned a degree in chemical engineering and produced a thesis on 'The elaboration of extracellular pectin-hydrolyzing enzymes by fungi', a subject of importance to the wine industry.

During the final stages of his education in Delft, Kluver, who took a very personal interest in his students, encouraged Herman to pursue additional studies outside of The Netherlands and recommended the University of California at Berkeley. Thus, Herman left his native land in 1939 to visit and

This paper is dedicated to Professor Herman Jan Phaff in honor of his 50 years of active research which still continues.

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obtain additional research experience in the Division of Fruit Products (later known as the Department of Food Technology) UC, Berkeley. His initial research was with Emil Mrak on the isolation and identification of yeasts associated with spoilage of prunes and dates. He was encouraged to further his education and enter the Ph.D. program. First, Maynard Joslyn and then H.A. Barker directed his Ph.D. studies which centered on the 'Elaboration of pectic enzymes by *Penicillium chrysogenum*'. In 1943, Herman received his Ph.D. and, after having made the decision not to return to The Netherlands and the family wine business, he investigated faculty positions at various universities. Fortunately, W.V. Cruess, then Chairman of the Department of Food Technology, offered him a position in the Department which he happily accepted.

His early departmental activities focused on the improvement of dehydration of fruits and vegetables. Working with Mrak, he was successful in developing several processes that aided the dehydration of these products.

While on sabbatical leave in 1951 at the Technical University in Delft to work with Mia Lodder and Nel Kreger-van Rij who were in the midst of preparing the first comprehensive treatise on yeast taxonomy, Herman learned that the Department of Food Technology was relocating to the Davis campus of the University of California. In the last years at Berkeley, Herman's research moved from the applied area to more broad-based research endeavors. Under his direction his early graduate students accomplished biochemical studies on pectic enzymes in yeasts, while others studied pectic enzymes from fruit and fungal sources. In the early 1960s, his research focus moved to enzymes that hydrolyze the cell walls of yeasts. Herman, several of his graduate students and post-doctoral visitors contributed to elucidation of the composition of the yeast cell wall, as well as to knowledge of enzymes involved in lytic action on cell wall components.

During these years of overseeing enzymatic studies, Herman's interest in the natural habitats of yeasts was keen and he and his students began isolating yeasts from various environments. These included shrimp in the Gulf of Mexico, stomach contents and feces of domestic rabbits, bark beetles and slime exudates in certain trees, and *Drosophila*. Numerous new species were described from these different habitats.

From these studies, the foundation was laid for a US-Japan Cooperative Research Project funded by the National Science Foundation. The first phase of the study took Herman and Martin Miller to Japan where they worked with two Japanese scientists, Minoru Yoneyama and Masumi Soneda, to isolate yeasts from tree exudates on the major Japanese islands. The following year, this group sampled tree exudates from Alaska down the Pacific-Northwest coast through British Columbia, Washington, Oregon and California. Approximately 400 yeast strains were collected; some were new species. One in particular is special. It is a fermenting, carotenoid-producing yeast. *Phaffia rhodozyma* was named in honor of Herman by his three colleagues. Its uniqueness is the presence of astaxanthin, a carotenoid pigment of industrial importance.

While directing his graduate students, collaborating with visiting scientists and carrying out his teaching obligations, Herman, along with Mrak and Miller wrote the book, 'The

Life of Yeasts'. The first edition was published in 1966 and the second (revised and enlarged) edition appeared in 1978. Herman's friend and colleague, Dr Susumu Nagai, formerly of the National Women's University of Nara, translated the book into Japanese. Another book, 'Bibliography of Publications by the Faculty, Staff and Students of the University of California 1876-1980 on Grapes, Wines and Related Subjects' was coauthored with Maynard A. Amerine in 1985.

Herman received the Faculty Research Lectureship Award in 1969 and selected the topic 'Changing Aspects in Yeast Systematics' for his lecture. This was timely and appropriate since studies in his lab on the use of molecular techniques to evaluate yeasts were providing new and exciting results. These studies brought a new dimension to the Phaff laboratory. Several graduate students, as well as post-doctoral visitors, used these techniques to elucidate the relationships of various species of many different genera. Other honors bestowed upon Herman include the Annual Lecturer of the American Society of Enologists (1973) and of the Mycological Society of America (1976); the J. Roger Porter Award of the American Society for Microbiology (1984); and the James F. Guymon Award of the American Society for Enology and Viticulture (1986).

Herman served as the Editor of The Yeast Newsletter (1953-1988) which he and Mrak had started. As the official communication of the International Commission on Yeasts of the International Union of Microbiological Societies, it is a valuable information source for individuals studying and working with yeasts. He was on the Editorial Board of the Journal of Bacteriology from 1963-1973. Then he became an Associate Editor of the International Journal of Systematic Bacteriology, where, regardless of the name of the journal, papers on the systematics of yeasts are welcomed. In addition, he served as an Associate Editor of the Canadian Journal of Microbiology, 1984-1989, and of Yeast, 1987-1992, and was a Consulting Editor for the McGraw-Hill 'Encyclopedia of Science & Technology'. He also contributed to 'The Yeasts, a taxonomic study', 2nd edition (1970), 3rd edition (1984) and the upcoming 4th edition (1995). From 1970-1975, he served as the Chairman of the Department of Bacteriology. Other university appointments included the Chairmanship of the Graduate Group in Microbiology, the Chairmanship of the Committee for Arts and Lectures and service on departmental and university committees. From 1952-1981 Herman directed nineteen Ph.D. students and two Masters students. He hosted twenty post-doctoral visitors from twelve countries. Thus far, he has published 320 articles and two books and described 58 new species and combinations of yeasts.

Since the early 1970s and continuing to the present, Herman's research efforts have centered on the study of yeasts associated with rotting cacti. His initial collaboration with Bill Heed and later with Tom Starmer resulted in the collection of hundreds of yeast strains from Arizona, Mexico, Baja California, northern Venezuela, the Caribbean Islands, Hawaii and eastern Australia and the description of many new species.

Herman has served the UC Davis campus, as well as the scientific community, in many capacities. No biographical sketch of him would be complete without the recognition of his professional skill as a cellist and his participation in sym-



phony orchestras and chamber music groups. Understandably, he was made an honorary member of the UC Davis Department of Music. Diane, his wife, is also an accomplished musician and they share their love of music.

Marinka Phaff (1916–1985), Herman's wife of 37 years, is remembered by those of us who enjoyed her marvelous cooking, elegant to flamboyant dinner parties, appreciation of the arts, her hearty laugh and her willingness to listen to frustrated, impatient graduate students.

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Note: A more detailed account of the life of Herman Jan Phaff is published in *Annual Review of Microbiology*, 40: 1–28, 1986.