

Robert A. (Bob) Nilan in memoriam, 1923-2015.

Roland von Bothmer and Udda Lundqvist

Robert A. (Bob) Nilan passed away in Pullman, Washington State, USA, October 7th, 2015 and with him USA and the whole barley community has lost a pioneer within plant breeding and plant genetic research.

Bob Nilan was born on December 26, 1923, in New Westminster, British Columbia, Canada. He was the son of Phyllis and Jack Nilan. Hiking and fishing in the Canadian wilderness with his father inspired him very early and then he founded a love for the natural world and plant sciences. His early school-days in Burquitlam and New Westminster launched a life-long passion for education. From University of British Columbia in Vancouver he completed a Bachelors degree in General Botanical Studies in 1944, and a Masters Degree in Plant Science in 1946. After that he moved to USA where he received a PhD in Genetics at the University of Wisconsin in Madison in 1951. During his studies at the University of British Columbia he met the love of his life, Winona Ross, and they married in Victoria, British Columbia, in 1948. After their time in Madison they moved to Pullman and Washington College for what Bob thought would be only a few years but he made a long career there, not less than 41 years. The State College soon became Washington State University, and during the first time here his focus was corn genetics. However, he soon became interested in the crops grown on Palouse Hills in the surroundings of Pullman. Here the large and life-long passion for barley breeding, barley genetics and a career at Washington State University started.

In Pullman Bob Nilan assisted to create the Genetics Department and served as department head for nine years. In 1979 he became appointed Dean of the College of Science, a position he held for twelve years until his retirement in 1992. During his years in the 'deanery' as he lovingly called it, Bob conducted the development of numerous programs, including statistics, environmental sciences, regional planning and plant physiology. He also supported the development of two essential and widely used Laboratories of Bioanalysis and Biotechnology, the Electron Microscopy Center, and the Nuclear Magnetic Resonance Center. He had a great interest in teaching and he established new education programs. During his long career he published more than 100 science research articles, authored two books and trained 60 students for their MSc- and PhD degrees.

In his research career Bob Nilan was mostly interested in the induction of mutations in barley with different mutagenic substances, but he also initiated phenotyping barley characters and its cytology. During his sabbatical year in Svalöv, Sweden, in 1960, he wrote his comprehensive work "The cytology and genetics of barley, 1951-1962" as a follow-up of his progenitor Luther Smith's publication in 1951. He summarized in this book all known and probably identified barley genes with their name, symbols, phenotypes, chromosome locations and reference publications. This work is the basic publication for all present large-scale descriptions of barley mutants and stands out as a real encyclopedia. With his research in developing the induction of mutation he discovered the inorganic substance, sodium azide (NaN_3). He detected that this substance was much more effective than many other tested mutagens up to that time. Sodium azide has an especially high mutation frequency in optimal concentrations and at a particular pH value. It has frequently been used in plant breeding programs.

One of Bob's proudest achievements during his long career was the establishment of the International Barley Genetics Symposia (IBGS) that are still taking place. Intensive discussions started at his sabbatical leave 1960 in Svalöv, Sweden, together with his Swedish host Arne Hagberg and Evald Favret, the latter also a visiting guest researcher (from Argentina) at the same time. The first symposium was organized 1963, in Wageningen, the Netherlands, but the second IBGS, Bob had the pleasure and opportunity to organize himself in Pullman 1969. In 1991 the symposium arrived in Sweden where Bob and Arne Hagberg were guests of honor. He could participate in 10 of the symposia, but unhappily he was not able to participate in the eleventh in China, 2012, because of health troubles.

At the fourth IBGS in Edinburgh, Scotland, 1981, Bob got the commission to update all gene names and gene symbols which he successfully carried out during some sabbatical months at the Carlsberg Laboratory in Copenhagen, Denmark. This immense work is published in Barley Genetics Newsletter (BGN), which he greatly contributed to establish. The first issue appeared in 1971 and with this issue BGN has been published for 45 years. At the 7th IBGS in Saskatoon, Canada, 1996, he put forward a motion recommending symbols for gene loci by utilizing a three-letter code for barley genes to the organizing committee. He was also involved in the numbering of barley chromosomes and chromosome arms based on the Triticeae system. Both systems were approved at the business meeting of IBGS on August 5th, 1996.

Bob Nilan worked with colleagues around the world to create different important programs in barley breeding and genetics. He visited barley research centers on nearly every continent and he spent sabbatical leaves in Italy, Sweden, Denmark, Germany and England. He was deeply engaged in IAEA/FAO programs on mutation genetics and agriculture and attended their symposia many times.

During his long and distinguished career he won several awards and honors, including appointment to the Danish Academy of Science, the Nilan Distinguished Professorship in Barley Research and Education, the Washington State University Foundation Outstanding Service Award, the College of Sciences Legacy of Excellence Award, most recently the establishment of the Robert A. Nilan Endowed Chair, and a honorary member of the Swedish Seed Association, Svalöv, Sweden. He once expressed about his beloved Washington State University: "I can think of no other institution where I would have had such a rewarding and satisfying career".

By his retirement he procured a wonderful house in southern part of California near Palm Springs, east of Los Angeles where he spent the warm winter months to escape the cold and unfriendly Pullman. Bob Nilan is survived by three children, Judith, Gregor and Patricia, five grandchildren and a great grandson. With the death of Robert A. Nilan the whole barley community has lost a prominent researcher in genetics and plant breeding. All of us who had the opportunity to meet and work together with Bob for many years are very grateful for all his wonderful discussions. We all miss him very much.

The picture of Bob Nilan together with Udda Lundqvist is taken at the 9th International Barley Genetics Symposium in Brno, Czeck Republic, 2004, in connection with the publication of the new book “Diversity in Barley (*Hordeum vulgare* L.)” where both were contributors (Photo Roland von Bothmer).

