

Professor Harold M. McNair: A Life dedicated to separating chemical species and unifying the Human beings.

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Harold Monroe McNair was born in Miami, Arizona (USA). He studied at the University of Arizona, Tucson, graduating with a BS degree (*Magna cum Laude*) in Chemistry in 1955. Shortly after, in 1957, he received his M.S. degree (with a thesis in electrochemistry), and in 1959 his Ph.D. degree (with a thesis on gas chromatography), both degrees in Analytical Chemistry from Purdue University, West Lafayette, Indiana, USA. Shortly after, he spend one year as a Fulbright Postdoctoral Fellow at the Eindhoven Technical University, Eindhoven, The Netherlands, in the laboratories of Professor A. I. M. Keulemans. In this place he first met Marjike, the laboratory secretary that became his wife for the whole life. Harold uses to tell that Professor Keulemans knew very well how to select the most beautiful secretaries and the cleverest co-workers. Another secretary to work on this same laboratory was Mariet, who married Professor Karel Cramers, the successor of Professor Keulemans as the head of this laboratory. Asked recently in an interview who first influenced him to work with gas chromatography, Harold quickly listed Professor A.I.M. Keulemans, Dr. A.J.P. Martin (Nobel Prize in Chemistry) and Dr. Steve Dal Nogare. In a recent publication, he describes his experiences working together with these icons of chromatography^[1].

Returning from Eindhoven, Harold was hired at Esso Research & Engineering, in December 1960. Just one year later, he joined F & M (later Hewlett-Packard Division in Wilmington, USA, now Agilent Technologies) with the responsibility of setting up their European operation. In 1963, Harold moved to Wilkens Instruments (later Varian Aerograph and now fragmented in different companies), as their Director of International Operations in Europe. After already living four years in Europe, in 1966 he was transferred to the company's headquarters in Walnut Creek, California, as their Director of Worldwide Marketing. In 1968, after the death of Steven Dal Nogare, Harold took his most important professional decision and returned to the academia environment by joining Virginia Polytechnic Institute and State University (VPI&SU), in Blacksburg, VA, USA. He became Professor of Chemistry in 1971 and served as the head of the Chemistry Department between 1990 and 1992 where he is now an Emeritus Professor.

Asked about what he would like to emphasize from his quite long research achievements, Harold pointed out^[1,2]: the report on the first capillary gas chromatography–mass spectrometry (GC–MS) results in 1961; the introduction of temperature programmed liquid chromatography (LC) in 1981; the use of mobile-phase modifiers to stabilize retention times on silica gel; the development of the first directly coupled LC–GC experiment using two independent computers in 1981; the identification of the role of pH in capillary zone electrophoresis (CZE); and the early work on the analysis of steroids in urine by gas chromatography time-of-flight mass spectrometry (GC–ToF-MS).

In spite of being the author or coauthor of over 100 scientific and technical papers, 14 book chapters and six books (two in Spanish), probably his most important activities are those of a teacher, both at VPI and outside. At VPI, over 50 students have completed MS and Ph.D. theses under his supervision, being his graduates much sought by research institutions and industrial

laboratories. A large number of Pos Docs supervised by him, are now leaders in the separation sciences in several countries around the world, giving continuity to his work initiated at the Virginia Tech almost half century ago. He has been also actively engaged in giving short courses on various aspects of chromatography for the American Chemical Society (ACS) and other organizations. He participated in 1967 in the first ACS Short Course ever offered (on GC); since then, he has taught at more than 180 courses^[1-3]. As teaching aids, he prepared several educational movies and audio-visual programs on gas and liquid chromatography. A most representative moment of his professional career would have to include his main scientific passion: how to explain to a novice the importance of chromatography, as in the Chromedia video course on Gas Chromatography^[3] (Figure 1).



Figure 1. Picture from a Chromedia video course on Gas Chromatography^[3]. <http://www.youtube.com/watch?v=Ijz43nJNLfs>

A summary of Dr. McNair's awards during his professional career would include the IR-100 Award as the co-inventor of the CIRA GC/IR system (1975); the VPI Alumni Teaching Award (1983); the Eastern Analytical Symposium's Award in Chromatography (1989); the K.P. Dimick Award (1991); the Tswett Medal (1993); the Dal Nogare Award (2001); the Horvath Medal (2003) and the LCGC Lifetime Achievement Award (2009); amongst others. In 1986 he received the first COLACRO Medal for Contributions to Chromatography in Latin America (Figure 2).

In addition to his other scientific activities, Dr. McNair contributed on the Editorial Boards of

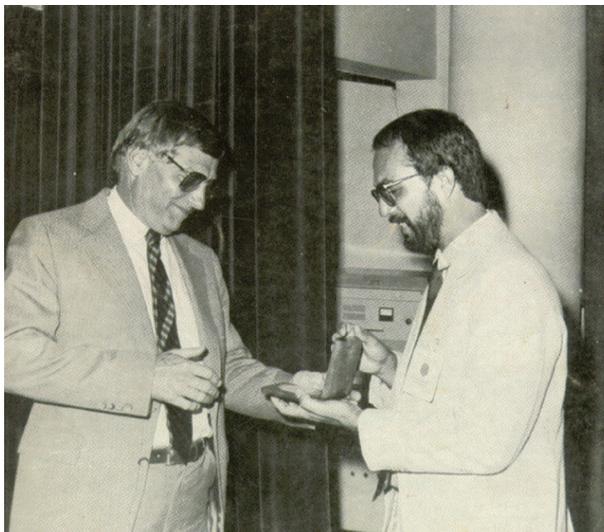


Figure 2. Professor Harold McNair (left) receiving from Professor Fernando Lanças (right), Chairman of the Latin American Symposium on Chromatography, the first COLACRO Medal. Rio de Janeiro, 1986.

Analytical Chemistry, Chromatographia, Journal of Chromatography, Journal of Chromatographic Science, Journal of High-Resolution Chromatography, Journal of Liquid Chromatography, Journal of Pharmaceutical and Biomedical Analysis, and Scientia Chromatographica. He is actively involved in the organization of a number of international meetings and symposia, being one of the initiators of the biannual COLACRO (Congresso Latino-Americano de **C**romatografia) Symposia (Figure 3).

I met Professor McNair for the first time in April 1981, when he was at the University of Campinas (UNICAMP), Brazil, as a consultant for UNESCO. I was defending my Ph.D. Thesis and Harold got a sit at the public to hear my presentation. After the defense we had a very nice and extensive talk – obviously about chromatography and teaching. He really incentivize me to visit him at the Virginia Tech to develop a research project in chromatography and get involved in his



Figure 3. Third Latin American Symposium on Chromatography held in Brazil, 1990, showing the Permanent Organizing Committee; from left to right: Harold McNair; Pat Sandra; Fernando Lanças (Chairperson) and Karel Cramers.

courses. He was so enthusiastic and convincing that at the end of the same year, I started a 2 years visit program as a Visiting Professor with Professor McNair in Blacksburg, VA, USA.. Upon finishing my visit I returned to Brazil and shortly after (less than 2 years later) we started together – with the help of two other Icons of chromatography Professor Karel Cramers and Professor Pat Sandra - the now successful COLACRO (Latin American Congress on Chromatography) meeting, the most important forum for the discussion of Separation Sciences in Latin America. During the period after my first visit to his laboratory, he had the opportunity to visit me several times at the University of São Paulo, Brazil, always incentivizing my progress in the Academic area. Several of my former graduate students had the opportunity to visit his laboratory at VPI, either for a short time or as one year Pos Doc. All of them had an excellent professional opportunity and always acknowledges Professor McNair not only for the excellent scientific work they developed in his laboratory but also for his kindness in welcoming international visitors and students.

While working in his laboratory back in 1982 and most 1983 I had an excellent opportunity to interact with his students as well from other laboratories, frequently coming to consult him about chromatography. The interaction created by him within his students presented the ideal atmosphere for the development of outstanding research programs in chemistry, together with training on how to become a Teacher (with capital T). Also the human being side was never neglected and he always tried to advise the students on how to become a scientist in the complete concept of the term, thus including also our role in the Society, particularly our responsibilities.

In addition to my personal experience in interacting several times with Professor McNair, I had the great opportunity to participate in several events together with him, particularly in Latin America including Brazil (several times), Argentina (several times), Chile (couple of times), Colombia, Venezuela, Mexico, and so on. Based on that I can ensure that he is the most knowledge American scientist in Latin America. Through my participation in many international meetings in USA (in special PittCon and the International Symposium on Chromatography) and Europe, I could also be a testimony about how many people know and interact with him, including scientists from Russia, Japan, China, India, and so on.

In short, it has been a great feature in my professional career and personal life to have the opportunity to interact with Professor McNair during several decades.

On the occasion of his eighty birthday, the Editor and the co-Editors, publisher and readers of *Scientia Chromatographia* – representing the Latin American researchers working on Separation Science – joins our colleagues from all over the world to wish Professor McNair many more years of productive work.

To wrap up this tribute to Professor Harold McNair in acknowledgement to his immensurable contribution to the *separation of molecules and unification of human beings*, I would like to add my personal greetings to him as a friend who had the privilege to participate in many wonderful moments of his life, enjoying his advisement, cooperation and friendship.

References

1. Kevin Schug, "Icons of Chromatography: Harold McNair", LCGC North America, Vol. 30, Issue 2, pp. 134-141 (2012).
2. Fernando M. Lanças, recorded interview with Professor Harold McNair, 2013.
3. <http://www.youtube.com/watch?v=ljz43nJNLfS>, accessed November 14, 2013.