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Personal report

## Professor Barry L. Karger's 60th birthday

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It is my pleasure to have this opportunity to extend my heartfelt congratulations to Barry Karger on his 60th birthday. Professor Karger is a towering figure in analytical chemistry whose specialty is the rather broad field of separations. Much earlier than other analytical chemists, he has recognized the importance of bioanalytical chemistry and his research interest was focused on biopolymer analysis during the last score of years. In fact he has become the leading advocate of strengthening bioanalytical chemistry and, ironically enough, demolishing the



barriers that separate biochemists and analytical chemists.

I first met Barry early 1964 in Boston where he had just been appointed to Assistant Professor in the Department of Chemistry at Northeastern University after being an undergraduate student of Professor L. Buck Rogers at MIT and a doctoral student of Professor W. Donald Cooke at Cornell. We had much to talk about because both of us had a strong background in gas chromatography, which revolutionized the analysis of volatile substances, but was still considered an esoteric analytical technique. Furthermore, gas chromatography (GC) found only limited use in life sciences that were just about to begin their meteoric ascent and give birth to biotechnology. This was the beginning of our friendship that persisted the ensuing 35 years, but not without challenges. Here, I recall the crises during the preparation of our book "An Introduction to Separation Science" which was written by three authors in their "free" time and was quite a taxing endeavor. Without Barry Karger's persistence and organizational talent as well as Lloyd Snyder's patience, the book would not have been published.

Finally, the book appeared in 1973 and Barry turned to a much greater project: setting up the Institute of Chemical Analysis at Northeastern University which later became "The Barnett Institute of Chemical Analysis and Materials Science". It is now among the few prominent research institutions in the United States which are devoted to chemical analysis. Still under the direction of Professor Barry L. Karger, who has the James L. Waters Chair in Analytical Chemistry, the Institute celebrated its Silver Anniversary last year. Perusing the long list of various projects and of the many accomplishments by the Institute during the past 25 years, one cannot

but appreciate the able leadership by Barry who has carefully adjusted research priorities of the Institute to the ever changing needs of modern analytical chemistry and thus kept consistently doing cutting edge research.

In the late sixties, Barry's research moved to the field of liquid chromatography and has been very successful in exploring the foundations of reversed-phase chromatography and its application to small biomolecules. In the late seventies it became focused on the separation of proteins and on using high-performance liquid chromatography (HPLC) for the characterization of proteins and studying their behavior under chromatographic conditions. Major developments from his laboratory include seminal investigations of reversed-phase and hydrophobic interaction chromatography of biopolymers.

The introduction of capillary zone electrophoresis has expanded Barry's research interest much further. The instrumentalization of electrophoresis, the most important analytical tool in life sciences at that time, has given rise to a high performance analytical tool second to none in DNA separation and only to HPLC in other areas. Much of the difficulties associated with the gel filling of the capillaries were removed by employing replaceable linear polyacrylamide solution instead. This approach, which was advanced by Karger and co-workers, is now commonly used in the high resolution separation of single- and double-stranded DNA molecules as well as other biopolymer mixtures. Since this tour de force his laboratory has been very productive in separation science applied to DNA and to DNA sequencing. This work has made in many ways significant contributions to the success of the Human Genome Project.

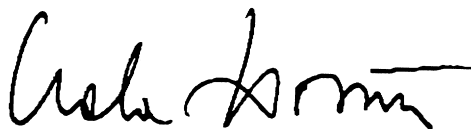
The last few years we have witnessed a growing employment of the mass spectrometer as the detector in HPLC and electrophoresis. This combination adds another dimension to the analytical results by virtue of the identifying power of the mass spectrometer. Barry's recent research entails an intensive program to investigate novel ways for using mass spectrometric detection. His laboratories have already three mass spectrometers to explore some of the new opportunities offered by the alliance of two tools representing a formidable analytical power. This even may make Barry return to chromatographic research by using capillary electrochromatography with mass spectrometry. Right now he seems to be

engaged in research on ultratrace analysis, high-throughput screening and by exploiting the latest opportunities and by developing new ones that arise from scaling-down the analytical systems onto a chip. His targets are likely in the field of genomics and proteomics, which require the best and the latest weaponry from the armory of bioanalytical chemistry.

Barry Karger's highly successful scientific career with more than 250 research papers and 22 patents has also been recognized by numerous awards. Among them are three ACS National Awards in Separation Science and Technology, Analytical Chemistry and in Chromatography; the A.J.P. Martin Medal by the Chromatographic Society, UK; the Steven Dal Nogare Award; the EAS Separation Science Award. He has been a widely sought speaker in international symposia and he himself organized two HPLC symposia in Boston, furthermore started and co-organized eleven HPCE Symposia at different venues. He serves on the editorial board of ten journals and was until recently an executive editor of Analytical Biochemistry. Over the years his laboratory hosted many postdoctoral and professorial visitors and he was advisor to more than 150 doctoral and postdoctoral students. They together represent Barry's extended family.

At home he can relax in the circle of his real family in the company of his lovely wife Trudy, his daughters Bess and Joanne, and son-in-law Andy. His devotion to the Muses made him among others a very good trumpet player and a consultant of the Museum of Fine Arts in Boston. Over the years of working at the front of scientific research, he has found time to become a connoisseur of fine food and wine and when an opportunity arises it is a real pleasure to enter with Barry into a discussion about such edibles and potables.

I want to renew my best birthday wishes for happiness, good health and further scientific success, and I am sure that readers of the Journal join me in this proposition. Happy Birthday to Barry.



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