QUANTITATIVE CHEMICAL ANALYSIS

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PREFACE

This text brings together the individuals and the desire to develop a text for undergraduate students who have English as a second language. Our initial focus was undergraduate students with chemistry major in the College of Chemistry and Molecular Engineering, Peking University, Beijing, China, but now we hope and expect that other undergraduate students may be able to learn more easily with this text as they cope with the English language and the essentials of analytical chemistry.

Lecture Series Leading to Text:

The one semester course in analytical chemistry in English for undergraduate students was initiated by Professor Li Ke'an in February 2005 with Dr. Li Na as the presenter of one 2 hour lecture each week for 15 weeks. The size of the lecture room limited the number of students to 50.

Each year the students prepare presentations of their science project reports. The audience of their peers grades the oral presentations of those students who volunteered and were selected to give oral presentations. Competition for being included among the oral presenters has been impressive. Student discussion, grading of the presenters and the presentations bring forth a profound bonding. Each of us in the lecture room feels the shoes worn by another.

As we introduced different examples and illustrations to the lecture series, these quickly became ideas for the coming analytical chemistry text. In Chapter 1, the Human Genome Project was used to show the power and success possible when analytical chemists join forces to bring the minds and resources of the academic community to focus on a goal. The project is indeed a road map of problem solving using new and different technologies plus automation to resolve analytical road blocks to meet the time constraints of the Genome Project thus opening research opportunities for decades. A global environmental need brought together another group of scientists in the concluding Chapter 10 to address the ever present need to monitor drinking water contamination throughout the world. We selected arsenic as one example of the world-wide need for simple, sensitive, cost effective analytical methods to monitor drinking water. Again, we tried to show the rationale dictating

the path taken by scientists to deal with the specifics of water treatment analysis. Fundamental to analytical chemistry are the problem solving tools that scientific minds select for each set of circumstances. This analytical chemistry text lists many of the scientific minds of analytical chemistry from Berthelot and Jungfleisch in 1872 to those of 2009 who have provided the best tool for the situation.

Peking University Lecture Team:

This text has been assembled and is based upon more than a quarter of century of teaching analytical chemistry at Peking University. Many examples and illustrative problems in this text have been taken from previous textbooks in Chinese written by the Peking University Team Teaching Program. This text was written by Dr. Li Na and edited by Professor John Hefferren with the guidance of Professor Li Ke'an. Some of the Chinese teaching style has been used in the text to maintain ties to the Chinese traditions; however, references and terminology of established analytical chemistry books published in the world have also been used. It is hoped that this blend of perspective is helpful and interesting to all readers.

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We gratefully acknowledge the influence of those that we consider our chemistry colleagues who have written the texts of the world. It is our profound hope that each of you will join us in continuing to nurture the rich tradition of analytical chemistry.

Li Na, Ph. D.

John J. Hefferren, Ph. D.

Li Ke'an, professor

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