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**SPECIAL ISSUE:
A Tribute to Professor George V. Chilingarian**

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A Tribute to Professor George V. Chilingarian

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This issue of *Energy Sources* is dedicated to Dr. George V. Chilingarian, professor of civil and petroleum engineering at the University of Southern California, for his numerous fundamental contributions in practically all aspects of petroleum engineering and petroleum geology, as well as his humanitarian efforts as an international ambassador on behalf of the scientific and engineering community. The contributors to this issue are living proof of the legend that Dr. Chilingarian has created—a diversified and creative group of scientists. The issue deals with topics ranging from modeling of photovoltaic cells to bioremediation and gas processing. The contributors are from fourteen different countries and four different continents. This issue is an indication of how many lives Dr. Chilingarian has touched and the impressions he has left on them. After all, Dr. Chilingarian is the best-known international ambassador I have ever seen in academia (Islam 1995). It is mind-boggling if one considers that none of the contributors to this issue are from the thousands of students who were lucky to have Dr. Chilingarian in their classrooms. While preparing this dedication issue, I did not contact any of his former students. Dr. Chilingarian would find any effort to organize an issue with former students to be improper, especially if the organizer is not one of his former students. I simply looked for contributors who represent the kind of aspiration and dedication that Dr. Chilingarian has been so famous for.

Professor Chilingarian's list of scientific accomplishments is literally an annal of the fundamentals of petroleum engineering and petroleum geology. His contributions range from the use of organic colloids in drilling fluids to the development of standard tests for aviation gasoline. He covered a wide variety of topics, yet with a depth parallel to none. He developed many techniques, any one of which would take a lifetime to accomplish. Some of his scientific accomplishments include: (a) utilization of organic colloids in drilling fluids, (b) development of tests for aviation gasoline (that saved many lives), (c) diagenesis in sediments, (d) development of the Ca/Mg ratio technique for characterizing carbonate rocks (that discovered a major oil field), (e) initiation of storage of fuels in salt domes, (f) use of electrokinetics in augmenting reservoir energy, stimulation, and soil stabilization, with direct current, (g) geochemical exploration techniques for petroleum, (h) compaction of sediments, subsidence, and overpressure formations, (i) development of methods for classifying source rocks, (j) identification of subsidence-prone areas from resistivity logs, (k) proof of the plating theory for some chemicals that reduce viscosity of drilling fluids, and (l) correlation among porosity, permeability, specific surface area, grain-size distribution, and others. Each one of these scientific accomplishments became a norm for some of the most widely used engineering methodologies in petroleum and geological engineering. For instance, when his theory regarding Ca/Mg ratio (dolomitization) was put into practice, an oil field was discovered and

subsequently named after him. When Dr. Chilingarian investigated the possibility of using organic colloids in drilling fluids, people listened, and today it has become one of the most common practices in drilling fluid engineering. In his early career, when he was at Wright-Patterson Air Force Base, he solved the mysteries of many unexplained jet crashes by discovering the cause and designing a test for jet fuels. This test remains a standard in the aviation industry. His accomplishments transcend the boundaries between different engineering disciplines and, more importantly, that between science and engineering. I have not seen another scientist who ventured into science and engineering with dexterity equal to Dr. Chilingarian's.

To understand how it is possible for one individual to accomplish all these scientific landmarks in a lifetime, one has to know Dr. Chilingarian. One of Professor Chilingarian's visions was to bridge the gap between engineers and geologists. For the last ten years, even some of the most stubborn petroleum engineering companies have realized the potential of interdisciplinary teamwork. Dr. Chilingarian had started to "marry" geology and petroleum engineering several decades prior to the "modern-day fad" for interdisciplinary projects (Mazzullo 1993). How could one foresee something that eluded everyone else for decades? The answer to this question is as elusive as the question regarding how old Dr. Chilingarian is. This forever-young scientist has defied age and all common logic in his determination to achieve excellence in whatever area he sets his mind to.

His accomplishments did not really go unnoticed. He has published more than 350 research articles, 40 books, and 150 scientific reviews. The quality of each of his works is reflected in the number of awards he has received: more than 100 medals and awards from around the world (including the Lomonosov Medal, the most coveted award from the Russian Academy of Sciences, and the Kapitsa and Peter the Great medals of honor from the Russian Academy of Natural Sciences). He is a fellow and member of dozens of professional societies and academies. He has been recognized numerous times for research, teaching, and community service. When the Society of Petroleum Engineers began to recognize outstanding faculty members, he was among the first professors to be recognized as the most outstanding petroleum engineering faculty member. He is the president of the U.S. branches of the Russian Academy of Natural Sciences, the Armenian Academy of Sciences, and the Armenian Academy of Engineering. He is also elected to the International Academy of Engineering. He is the honorary consul of Honduras in Los Angeles, California, and has established fellowships for Honduran students at the University of Southern California. In the discipline of petroleum engineering and geology, I am not aware of another faculty member who has received so many accolades from such varied interest groups from so many countries.

It is important to note how this outstanding pioneer evolved from a young energetic student to an academician and scientist the whole world can look up to. He started his professional career by teaching in the Department of Petroleum Engineering at the University of Southern California (USC) in 1950, the year that he received his M.S. in petroleum engineering from the same university. He moved briefly to industry as the chief of the Petroleum and Chemical Laboratories at Wright-Patterson Air Force Base in Ohio in 1954. After receiving his Ph.D. in geology (with a minor in petroleum engineering), Dr. Chilingarian came back to USC in 1956 and continued his illustrious career there, where he spent the next forty-three years. During his academic career he moved up to the position of professor very early and assumed a chair in 1965. He occupied the one-million-dol-

lar Shah of Iran Chair (which he brought from Iran) in Petroleum Engineering at the University of Southern California. In those days he accomplished more than many top scientists would accomplish in a lifetime.

After addressing just about all petroleum geology and petroleum engineering problems, it is probably time for any scientist to bask in the glory of success. But Dr. Chilingarian is no ordinary scientist and he has no time to slow down. I see him getting excited about a scientific problem with the charisma of a teenager. He still is eager to publish and disseminate his knowledge and remains as the role model for any aspiring scientist and academician in the field of petroleum engineering and geology. He is credited with founding several international journals and has served on the editorial board of numerous scientific journals. This is a simple testimony to his eternal thirst for the dissemination of knowledge—the essence of university research. He works tirelessly to make every single paper, every single issue of a journal, and every single scientific presentation at a conference as flawless as humanly possible. In doing so, he has picked up some of the finest scientists and academicians from around the world to collaborate.

Only this year, he published a book in Russian with the foremost petroleum geologist in Russia—a collaborative effort that can be considered to be the first of its kind in this century. It is no surprise that he is the U.S. representative for so many international academies (including the Russian Academy of Natural Science) which have trusted him to select the best from the United States for recognition. This is one area where Dr. Chilingarian has worked his magic. He has combed through the webs of prejudice and elitism (that plague the United States of late) and has established a standard for professional equality and fairness. His entourage of the intellectual elite has only one nationality—the human race.

Personally, I have gone through the education system of five different countries in four different continents, have taught in four different universities and worked in collaboration with a dozen more, but never did I come across another individual who has inspired me as much as Dr. Chilingarian in searching for the truth and caring for the human race. I have never told Dr. Chilingarian (I met him three times in the United States and once in Russia) in person, but if I were allowed to have a role model (my religion doesn't allow me to have one other than the last Prophet), he comes closest to being the one. I take tremendous pride in dedicating this issue of *Energy Sources* to Professor George V. Chilingarian.

References

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