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Presentation of the 2011 Roebling Medal of the Mineralogical Society of America to Juhn G. Liou

W.G. Ernst

Department of Geological and Environmental Sciences, Stanford University, Stanford, California 94305-2115, U.S.A.

In the fall of 1965, a new graduate student from National Taiwan University arrived at University of California Los Angeles. Assigned to me as his initial academic advisor, I was favorably impressed by Mr. Liou's eagerness, industry, and scholarly abilities. He chose me to supervise his dissertation study, and first impressions were amply reinforced by his enrollment in the UCLA Chemistry Department's physical chemistry and thermodynamics courses, as well as in the Geology Department's six-week summer field mapping class in the poison-oak-infested California Coast Ranges. He received top grades in these subjects, as well as in my own phase equilibrium class. So, just imagine my surprise when, after enthusiastic, insistent suggestions regarding the opportunity to study sterling minerals such as the calcic or sodic amphiboles, he instead decided to investigate experimental low-temperature stability relationships among Ca-Na-Al-hydrous silicates in the system plag-qtz-H_2O, a system plagued by sluggish kinetics. It was his decision and welcome to it! However, before beginning experimental mineral synthesis, he needed to have an informal Americanized handle: "John" seemed too ho-hum, but "Louie" was PERFECT!

Thus baptized, he started experimental research in the hydrothermal pressure-vessel lab, and the rest, as they say, is history. Mineral stabilities investigated by Louie included lawsonite, laumontite, prehnite, wairakite, stilbite, and analcime—phase equilibrium studies that have stood the test of four decades, and are referenced today. Let's also not forget clinozoisite, most of the other epidote minerals, several garnet end-members, and the laboratory phase relations of metabasalts. This paragenetic trajectory traces his scientific journey from UCLA through NASA's Manned Spacecraft Center/Houston until, in 1972, Louie accepted a faculty position at Stanford. There he initiated an extremely broad range of fruitful mineralogic and metamorphic collaborations, for instance, with Yotaro Seki and later, Shige Maruyama in Japan, John Suppe in Taiwan, and Martin Frey in Switzerland. By the mid 1980s, Louie had become an internationally recognized leader in the low-temperature recrystallization of rocks based on studied field relationships, experimental phase equilibria, and thermodynamic computations.

But the best was yet to come! Collaborating with Stanford associates Steve Graham, Edmund Chang, Bob Coleman, Brad Hacker, and Ruth Zhang, Carnegie colleagues Doug Rumble and Dave Mao, as well as innumerable foreign scientists, Louie embarked on a wide-ranging investigation of high-pressure blueschist belts, first of China, and then of the world. These oceanic-continental margin convergent sutures unambiguously reflect the global operation of plate tectonics throughout Phanerozoic and latest Proterozoic times. Then, as implications of the remarkable discoveries of coesite inclusions in metamorphic rocks of the Western Alps (Chopin, 1984) and Western Norway (Smith, 1984), and microdiamonds in northern Kazakhstan (Sobolev et al., 1987) unfolded, Louie and his coworkers turned their full attention to ultrahigh-pressure, UHP, continental collisional complexes. Astonishing depths of underflow of now-recovered sialic crust—100–150 km—were subsequently documented, with some entrained mantle blocks derived from even greater depths. The breathtakingly detailed chemical-isotopic evolution of these terranes has been quantified over the past 20 years by Louie and colleagues in more than 240 papers! That he is a pioneer and world authority on integrated UHP studies is an understatement: Louie ranked among the top 10 highly cited Earth scientists for 2007 in the ISI Web of Science.

You will not hear this from him, because Louie is an unassuming, ultra-friendly, modest geoscientist, but today's program lists of some of his more weighty prior recognitions of scholarly achievement, including the MSA Award, a Guggenheim Fellowship, The Geological Society of Japan International Prize, and honorary professorships in the Chinese Academy of Geological Sciences, in Academia Sinica of Taiwan, in the National Taiwan University, and in the Tokyo Institute of Technology.

Louie has organized and led many international conferences and meetings. He has selflessly supported and mentored several generations of students and young colleagues internationally, as well as at Stanford. He is a scientific inspiration to us all, but even more than that, he is a one-of-a-kind warm-hearted, generous friend. Mr. President, I give you Juhn G. Liou, Mineralogical Society of America Roebling Medalist for 2011.

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