

A personal memory of John R. Holloway, former Visiting Professor in the Institute for Geothermal Sciences, Graduate School of Science, Kyoto University

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I learned that John Holloway passed away on the 6th September 2017 in Oregon, USA. John Holloway stayed in the Institute for Geothermal Sciences, Graduate School of Science, Kyoto University at 2008. I sent the following message to his former colleague, Dr. Gordon Moore, and John's wife Helen.

I was in Oregon last month for attending IAVCEI meeting at Portland and I passed Ashland, where John and Helen stayed after they left Arizona, in interstate 5 on the way back from a field excursion to Mount Medicine Lake Volcano, Mount Lassen, and Mount Shasta, California, to Portland, Oregon. I thought of John in a hospital and Helen at the moment, in the afternoon of the 25th August. John told me that he liked Oregon where we see more forests, mountains, and the water in rivers.

I feel lucky to know John.

I will write here what I remember about him.

When I first visited Arizona State University (ASU) after the AGU meeting at 1993, he invited me to a desert botanic garden in Phoenix in an evening just before they closed it. Cactus has flowers then. I was fascinated with the beauty of the desert. Yes, December is the best season there.

In April of 1993, I wanted to apply for JSPS postdoc fellowship that sent Japanese young researchers abroad. I wanted to do experiments to know the effects of oxygen fugacity on differentiation of hydrous magmas. Ikuo Kushiro, my supervisor at the University of Tokyo, suggested me to ask John Holloway to be a host. Kushiro san told me that he learned something new from John whenever they met in conferences. Eiichi Takahashi, my senior friend, advised me to learn not only experimental technique from John but also the wisdom of thermodynamics, and I failed to learn the latter. Since the spring when I applied the fellowship, I changed my mind from oxygen fugacity control in gas-vessel high-pressure apparatus to hydrous wadsleyite in peridotite system using multi-anvil apparatus. Totally-different targets. I never touched the gas-vessel high-pressure apparatus in ASU. John has a long leash to me and other students, and he never complained me about this change of mind.

I learned many things in lab of the depths of the Earth, many restaurants, his office, his house and

back yard, his car, and conferences during three years in ASU. There are figures of wizards on the piston-cylinder-type high-pressure apparatus in the lab, and they protect experiments from broken thermocouple, leaked or melted capsule. Unfortunately there was no wizard to protect us in the lab of multi-anvil apparatus. As a Japanese postdoc standard, I was not good at experiments. Many blowouts. For a few months, I broke almost a hundred of newly arrived WC cubes named of Toshiba F from Japanese company, which is the hardest and the most expensive cubes to generate highest pressure. We used molted MgO cement for gaskets, which play as rubricant between cubes, at ASU, and at the moment we did not notice that it was too hard to be squeezed at high-pressure conditions that we wanted to reach. After I broke the hundred cubes, I asked John to continue to do experiments at New York State University at Stony Brook, where I broke their Toshiba F cubes for the next two months.

John and I succeeded in determination of hydrous mantle up to 300 km deep at 1996. Thick capsule composed of silver was from John's idea. Silver has good thermal conductivity and no reaction with iron. This enabled us to determine the solidus temperature well. The experiments showed miscibility of ultramafic melts and water at 5 GPa and 1000 degree C, which is much shallower than any people expected. This work was a beginning of my long study of mixing and unmixing between rocks and water. John read our manuscript printed on the Proceedings of national Academy of Science, USA, and he kindly corrected my typo of "immiscibility gap", which should be "miscibility gap", unfortunately just after it was published at October, 2012. I think this is the last message from John.

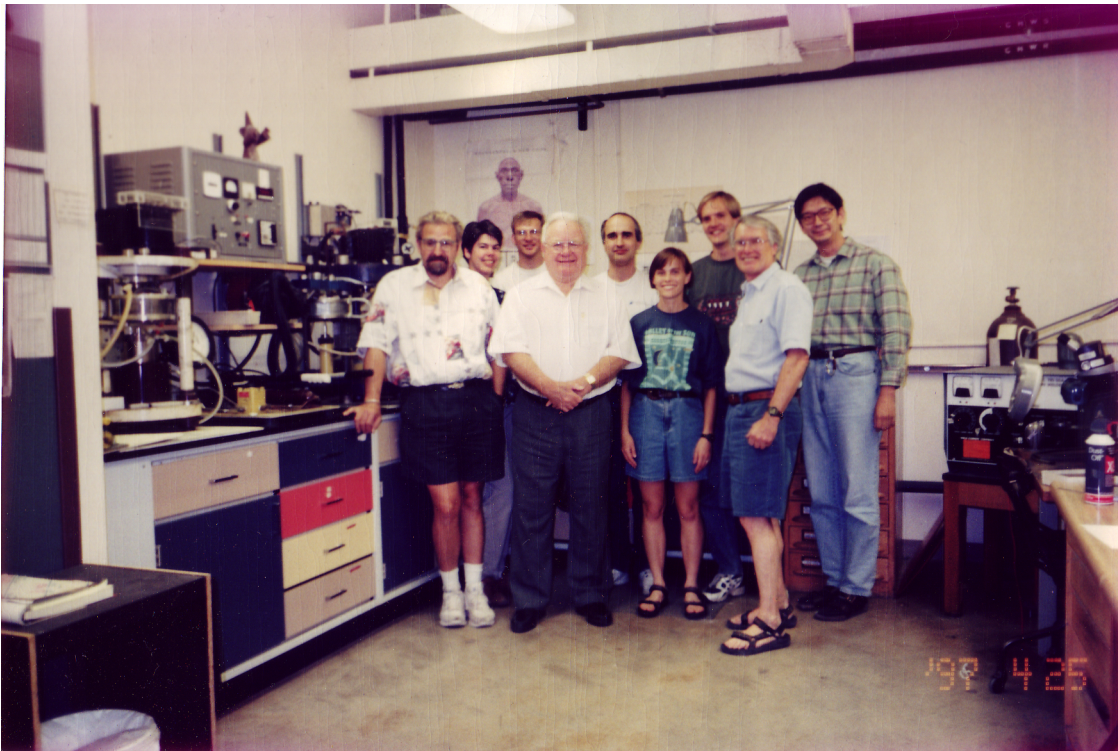
John was my first professor who dances with students at department parties. I asked him to come to Kyoto University as a visiting professor at 2008. John provided lectures and a conference presentation (he complained about silent Japanese audience), went out to field excursions including Nagasaki metamorphic rocks lead by Dr. Nishiyama of Kumamoto University, tried to do diamond anvil cell experiments (failed) with oxalic acid (COOH)<sub>2</sub> and he danced with my 9-year-old daughter.

John died at young. We need John to do something excited and well-thought with respect to thermodynamics.

Tatsu Kawamoto

8 September, 2017

Kyoto, Japan



From left

Daniel Vielzeuf, Melanie, Edward Bailey, Wayne Burnham, Kenneth Domanik,  
Penny King, Tobias Fisher, JRH, Tatsu Kawamoto (25 April 1997)