

Dr. James J. McCarthy, Chair
Dr. Peter C. Agre, President & Council Chair
AAAS
1200 New York Avenue NW
Washington, DC 20005

Re: mission critical problems for sustainability science

Dear Drs. McCarthy & Agre,

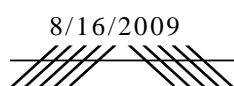
New insights are often arrived at by finding problems with trusted habits used in new circumstances where they no longer apply. There's a simply marvelous advance in science of that kind available, but being missed. It concerns a systematic misunderstanding of nature clearly evident in the broadly accepted practices of sustainability science. It goes straight to the heart of why our best societal efforts to solve sustainability problems seem to only make them worse. They actually do make them worse. It turns out that our solutions are systemically the main source of our multiplying problems. If you don't understand my way of describing it, please try to articulate what is not clear, rather than reasons to avoid considering the uncustomary questions needed to understand it.

In a fundamental way modern science is not quite acknowledging that natural systems exist, representing them as "information models" rather than as "things". It keeps us focused on how we explain things to ourselves and diverts our curiosity away from how natural systems work on their own. Specifically, we're not generally acknowledging that natural systems have different sets of internal and external relationships. Acting as if unaware of that is causing science to misunderstand how internal system solutions can multiply external system problems. We're not asking what whole system responses will be, as if unaware that this is specifically what characterizes natural systems. It's a little like our being trapped in "flatland".

The case in point is that our common solution for relieving stress within the economic system, inventing efficiencies to enhance local productivity, is multiplying stress on the system as a whole and its environment. This common solution for our internal problems is a primary multiplier of the system as a whole and all its impacts. *The fact that this trap is very profitable, and so also very profitable to misunderstand, puts all of science in direct conflict of interest with its own mission.* It makes our profitable choice for solving impact problems also cause impact problems to accumulate to become overwhelming. Our solutions have created a nightmare. What changed for me, 30 years ago, is that I learned how to frame whole system questions.

The reason I'm taking the approach of writing you a personal letter is that my delight in uncovering and solving a whole cluster of related deep scientific questions has received endless evasive academic response, from both official and unofficial "gate keepers" in quite diverse fields, as if intended to protect the scientific community from some remarkable and fascinating questions. I ask you to change that.

Recently, as a member of the AAAS and AAAS Sustainability Forum (sustainabilityscience.org) I was



asked to participate in a survey on the core competencies of sustainability science in an 8/11/09 email containing the following paragraph:

In preparation for the 2010 Forum, we are currently conducting a literature review and a series of surveys. The survey linked to this e-mail represents a large-scale attempt to compare core competencies in sustainability across programs and scientific communities. We will solicit input now through August 31st and compile a list of core competencies in sustainability which will be available for review via email this fall. Based on this review and additional sources (literature review and other surveys), a consolidated draft list will serve as the starting point for our Forum*s discussions at the Annual Meeting in February 2010.

The response to the comments I offered, mentioning some of the mission critical problems our misconceptions cause, was that the editor thought my comments would have already been taken into account by the accredited institutions. This fits the standard pattern, that people “say” they’re interested in what new questions should be asked,... but then make quick dodges to avoid them as soon as they’re pointed out. No one in the institutional world seems to object to the facts I cite, or even to disagree with what they understand of my analysis. My papers are either just never responded to or rejected for unspoken cause, apparently for breaking with tradition and just not “fitting in”. Our civilization is getting that very same message from the physical world we inhabit, though, and I just thought it would be a good idea to really ask why.

There is indeed a “non-simple” problem to deal with, learning how to distinguish between information systems and physical systems. The tradition of science in most places is to specifically not distinguish between them. I think that’s a big part of how we became so fixated on wrong solutions, treating our models as reality. I found some good ways to address that, with empirical methods for identifying whole system behavior and various instrumental physical features clearly beyond any possible information to define. It turns our information “box” into an environmental “boat” for navigating a complex natural world, as it were.

In any case, dismissing the questions raised by quite competent but struggling scientists is not the way to make the problems they raise disappear. Regarding my work, at least, what is needed as a response are attempts to articulate what is hard to understand or apply, rather than just categorizing it as “not understood” and pushed aside.

Please change the system.

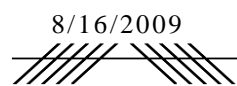
Best regards,



Phil Henshaw

cc: editor@sustainabilityscience.org

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