Northwest Science Forum

Northwest Science Forum provides an opportunity to articulate and discuss scientific issues in a less structured format than peer-reviewed articles. The Forum publishes short articles, opinion pieces, and letters with a focus on science and natural resource issues in the Pacific Northwest. Although the Forum is not peer-reviewed, it is edited for format and clarity. Articles should generally be less than 2000 words and contain minimal literature citations. Letters in response to articles are particularly encouraged; the original author will normally be given a chance to respond to the letter as well. There are no page charges or reprints associated with the Forum, and participants need not be members of the Northwest Scientific Association. Please send all submissions, including two hard copies and an electronic copy (any recent version of Word or WordPerfect, Macintosh or DOS), to the Editor.

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Civic Science is Democracy in Action

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Upon the invitation of Mr. Halvorsen we have come here to help you organize a Lonepine study group, in which you may analyze and look into the problems of your community. We are not thinking in terms of an action committee, but a group that will uncover whatever problems exist, study their underlying causes and effects, and engage in objective, friendly discussion with a view toward solving them. (Poston 1950:40).

With World War II raging across both oceans, people living in small isolated communities in Montana came together in the evenings, sometimes with university scientists, to do research on themselves, their communities, their state and their world. Their purpose was simple: the forces creating the modern industrial nation and economy were draining rural communities of people, money and resources. To survive and maintain their community, action was needed. But what kind of action and by whom?

The core principle of democracy is that educated citizens should make decisions about how to govern themselves. Segregating science and education into specialized settings like universities where professional researchers study and teach undermines the democratic capacity of citizens. From the perspective of rural communities during all of the 20th century, universities have trained young people for careers in cities, agencies, or other distant places. Indeed, it is generally argued that with declining rural economies such training is necessary to provide opportunities for employment. But from the perspective of a healthy, active democracy, the separation of science and education from daily community life threatens the foundations of a self-governing society.

This paper takes up the issue of science and scientists as contributors to creating **civic science** for a learning and experimenting society. Democracy is designed as an experimenting process in that it works by trial and error. Solutions to problems are developed in response to creative ideas and then tested. What works is kept, what doesn't is redesigned based upon experience. These ideas are deceptively simple! We all know that many "solutions" become so entrenched as to be permanent fixtures, often with permanent ways of getting around them. Problems are often ideologically defined, and thus allow only a narrow range of potential solutions to be considered. Changing laws, rules and policies or funding commitments takes serious effort, often over long periods of time or in the face of definitive failure.

So how do we improve democratic capacity in the face of such obstacles? The first and easiest step is by taking science out of the universi-

ties and research institutions and putting it back in the hands of citizens. By this we do not mean simply moving laboratories to the hinterlands, but rather reconceptualizing *what science is, who does it, and with what effect.* The notion of scientists as professionals whose specialized training gives them the authority to create scientific knowledge which is separate and distinct from the knowledge of experience and practice rose in prominence in the early 20th century. Around the country universities and colleges were created to develop the knowledge needed for an increasingly technical, industrial society. Even in farming and forestry, the knowledge of practice and experience was discredited and the "scientific" knowledge of experts given prominence and new social authority. When "modern industrial methods" of farming or forestry led to social, eocnomic, or ecological problems, new technical experts were called to fix them. The voices of experience and history were silenced and ignored.

What Is Civic Science? Why Is It Different?

Contemporary science and contemporary democracy are both distinctively modern institutions. By modern we mean, progress in society through improvements in science and technology leads to better lives for all. Thus, while firmly grounded in ancient antecedents, science and democracy are institutions of modern society with shared values and assumptions about the importance of progress. Of course, a commitment to progress brings an acceptance of continual change as a way of life. This is in contrast to traditional societies in which knowledge, especially through religion, had the central purpose of keeping the pattern of social life constant.

The challenge of defining civic science lies in distinguishing it from the scientific institutions created in the 19th and 20th centuries. In other words, the most important barrier to a fully developed civic science is how science is currently carried out and by whom! It is neither method nor subject that is the problem here. Rather it is the implicit agreement between the scientific and political communities which gave scientists autonomy and financial support to make discoveries, create knowledge and provide technology to the world. In return the political community freed scientists of responsibility for the consequences of their work, instead taking responsibility upon itself or giving it to "society" in general. This has led to a situation in which scientists are not held accountable for the moral implications of what they do and society can abide by the myth that the social effects of science and technology are pre-determined results, not choices. That is, the effects science and technology are thought to be inevitable, and thus not subject to rational social control but merely requiring social adjustment to them. This double evasion of responsibility thus masks the dynamics of power that permeate the scientific enterprise and also diminishes the ability of a scientifically and technologically advanced society to direct itself and control its destiny. In the end, when scientists find themselves misunderstood or perhaps resented and society finds itself faced with unforeseen ecological and other problems, neither scientists nor citizens are well-served.

Civic science seeks to reunite these divided roles and responsibilities. In civic science we do not just possess knowledge of a detached and objectified world, but are involved in the creation of a better, more meaningful and more fulfilling one. In other words, the world is subjectified as the scientist-citizen and citizen-scientist participate together in its creation. Whereas academic science is oriented toward observation and control, civic science involves observation but is oriented toward interpretation (of nature and society) and involvement. It thus becomes a part of the world rather than a process of standing away and looking at it from a distance.

To democratize science is to bring science back into its proper context. That is, to insure its relevance and morality through involvement with social action. Simultaneously, civic science revitalizes democracy by making citizens more aware and understanding of each other and their world. The proper context of science is as a catalyst for social learning—or, learning about the world that leads naturally to action. Thus, civic science helps make science more meaningful and ethical as well as deomcracy more purposeful and effective.

Who Does Civic Science?

On the evening of April 23, 1945... the Darby Study Group was organized... In addition to the weekly question committees and temporary research committees called for in the study guide which Lonepine helped improve, it was now suggested that two or three standing committees be appointed to investigate the communityís major long range problems. Thus, the group established committees on small industries, local

taxation, and Darby education and recreation. ...For thirteen consecutive weeks nearly thirty resolute citizens gathered around a table in their community hall and sized up the problems of their town." (Poston 1950:52-53).

Can only those located in universities or research groups be called scientists? If so, democracy is in danger. Civic science is essential for active democracy in our communities. The concept of civic science assumes that one essential role of citizens is as lay scientists who seek to clearly, objectively, and honestly assess themselves, their communities, and their society. Moreover, an essential role of scientists is to be engaged as citizens bringing their special knowledges and skills to this enterprise.

It should be clear that civic science cannot be simply a device through which citizens are enrolled as helpers in a scientific process. As the Montana Study examples so clearly show, self governance rests upon civic processes of inquiry as well as action. In other words, civic science is not simply citizens doing the procedures of science with the help of scientists. Rather, **civic science involves scientists as citizens and citizens as lay scientists** in a process in which knowledge production is integrated with and therefore cannot be separated from the enlightenment function of self discovery and the moral effects of political deliberation and choice. In doing civic science neither traditionally scientific or traditionally civic ways of creating knowledge are privileged. Rather, these two knowledge systems and ways of thinking about the world interrogate each other in a process that leads to integration and more robust and meaningful knowledge.

In the case of forests, wildlife, water, and other natural resources, citizens can be vital participants in the investigation of questions regarding habitat requirements, history of land use, patterns of water flow, and so forth. This knowledge of experience is often missing from the work of research scientists, even when they seek to reconstruct the historical patterns of landscape processes. For example, when scientists were seeking to establish the historical levels of large woody debris in the creeks and streams of the Pacific Northwest, they extrapolated from the quantities observed in areas unlogged or otherwise seemingly unaffected by extractive management practices. At one meeting out in the woods with various local people, a veteran woods worker, listening to the scientists efforts to reconstruct these earlier conditions, burst out laughing as he recalled the efforts during World War II to provide cedar for the batteries powering the engines in planes, vehicles, and ships. He talked of running large bulldozers up nearly every drainage across the region and pulling out all of the fallen cedar trees! The scientists were amazed and quickly revised their assumptions regarding "natural" amounts of down trees along streams and in riparian areas in the Pacific Northwest.

Civic Science Is Part of the Life of a Community

Such examples illustrate that science can be improved if it is a part of the civic life of a society. Imagine what might have happened if the scientists had begun their work in the communities and had worked from jointly conceived problems! **Civic science locates the work of science within the community and makes it a part of the regular and necessary life of the community.** In the example above, the policy questions could move from simply narrowly defined biological problems, toward more broadly conceived problems located in history, past practice, and the dilemmas of past choices for today's problems. When problems are conceived in broad social context, the past cannot be so easily separated from the present. Thus, the question is not simply "what should be done about streams which are loosing their capacity to support healthy populations of fish?" but might also include "what social and political choices have led to this problem and why did they?" By asking these kinds of questions, citizens and scientists can address not only what to do about an immediate problem, but can also begin to develop ideas about how to address larger forces which affect their lives in more pervasive ways.

In civic science, citizens and scientists can learn from each other and help to mutually define problems, develop approaches to dealing with them, and hopefully learn something about themselves, each other, and their social and natural worlds. In a modern democratic society, citizens are necessary participants in science, not merely the subjects of scientific study or the passive recipients of scientific solutions. Active citizenship requires that citizens be engaged in creating knowledge, including scientific knowledge, in order to better imagine possible solutions and put them to work.

They had experienced the thrill of seeing action grow from their aspirations. By the democratic process of people with conflicting opinions sitting down together to study life in their own community, they had become better Americans—more tolerant, more understanding. They had learned how to free themselves from emotional prejudices that grow from political controversy. (Poston 1950:101).

The participation of scientists and citizens in a civic science process is an attempt to remove the constraints and tunnel vision that the specialization of roles produces. When science is no longer the exclusive domain of certified specialists, it begins to take account of the wider context in which it lives. In this way it can become more accurate in the advancement of knowledge as the commitment of science, and more meaningful to the improvement of society as the commitment of modern democracy. It is also fun for all involved.

The Conrad Study Group had generated such enthusiasm for community analysis that they decided to continue as a public forum. "Our country is in a dangerous state," said Mr. Christopher, district manager for the gas utility, "because our destiny is too often governed by pressure groups. A group like ours is a bulwark against that danger."

And besides that, it had been fun.

"We couldn't even bear to recess for the Christmas holidays," said Clara Withee (Poston 1950:101).

Literature Cited

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