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Compass and Gyroscope: Integrating Science and Politics for the Environment

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Review Essay of

Compass and Gyroscope
Integrating Science and Politics for the Environment

by Kai N. Lee

THE DYNAMIC TENSION BETWEEN TRUTH AND POWER—science and politics—is a long-running theme in human thought. It appears in the New Testament admonition to render to Caesar the things that are Caesar's, and to God the things that are God's [Luke 20:25]. It is a long-running theme in literature [e.g. Herman Hesse, *The Glass Bead Game*] and political science [e.g. Aaron Wildavsky, *Speaking Truth to Power*].

As a member of the Northwest Power Planning Council, Kai Lee experienced first hand the problems of bringing together science and politics. Before serving on the Council, Dr. Lee taught environmental studies and political science at the University of Washington. He currently directs the Center for Environmental Studies at Williams College.

In *Compass and Gyroscope*, Dr. Lee draws on the Power Planning Council's effort to save endangered Columbia River salmon to illuminate the problems and possibilities involved in using science to guide decisions in a hyper-political setting. Major conflict arises from the Council's responsibility to provide for the electricity needs of the Pacific Northwest while dealing with the salmon issue. Supporters of the status quo continually attack the Council's efforts as lacking scientific foundation.

The book is an erudite discussion of the dilemmas and opportunities encountered in the effort to combine theory and action in the search for sustainable development in large complex ecosystems. It is elegantly written, realistic, and firmly grounded in academic theory and real world experience.

While it is hard to resolve the tension between science and politics in theoretical terms, it may be even more difficult to achieve a personal resolution. *Compass and Gyroscope* can be read both as a psychological memoir of how one person attempted to resolve the tensions and as a guide for policy makers who are faced with making decisions in an atmosphere of scientific uncertainty and political conflict. Readers of *Hastings West-Northwest Journal of Environmental Law and Policy* may find an uncanny identification with the road that Dr. Lee has travelled.

The book begins with an expression of pessimism about the ability of human beings to self-consciously control our planetary future. Global warming, depletion of the ozone layer, and species extinction are a few of the impacts humans have unwittingly inflicted on the planet. While we have wrought major changes in planetary functions, we have not yet demonstrated that we can plan for and bring about mitigation of these effects on a significant scale. The challenges are two-fold: we may not have sufficient knowledge about ways to bring about desired change and we may lack the ability to coordinate human action to make it happen.

Dr. Lee argues that one of the sources of this dilemma—a pluralistic, democratic society—may also be one of the preconditions of its solution. A political culture charac-

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terized by diversity and freedom precludes the imposition of rigid policy solutions and yet provides the mechanism of bounded political conflict that is necessary to detect error and to force corrections [Lee, p 10].

Lee finds a resolution in what he calls "civic science"—a blend of scientific idealism and political pragmatism. Conditions of civic science are based on limits of rationality and recognition of conflicting views of ends and means. Lee uses a navigational metaphor to explain civic science--the compass and the gyroscope as guides for a successful journey.

The compass is adaptive management—policy interventions approached with a spirit of scientific experimentation. Policy makers are urged to design interventions in ways that facilitate learning from experience and to be open to surprise. Adaptive management points the way by providing ever improved knowledge about what activities will lead us toward our desired goals.

The gyroscope is bounded conflict—political competition limited by shared commitment to addressing important issues through continual debate. Bounded conflict works to stabilize the system so that it does not stray too far toward the extremes in either direction.

By combining learning from adaptive management with the long term stability provided by bounded conflict, humans can move steadfastly toward the goal of sustainability.

The book ends with basically moral/psychological lessons —focusing on idealism regarding science and pragmatism about politics. Lee attempts to provide hope and guidance in order to fight off despair, cynicism and resignation. He expresses faith and nurtures optimism while counseling adherence to the basic values of patience and determination.

The book offers two useful lessons to those who work for sustainable development. To the scientifically minded, Lee advises that conflict is functional as well as inevitable. We should not lament or avoid conflict, but be willing to engage in it for the benefits it provides.

To the politically minded, Lee points out that failure and surprise are also functional. They should be taken as opportunities to learn rather than covered up or explained away.

Some of Lee's other teachings may be questioned. The most problematic is his counseling of patience. One can look at patience in two ways. Be patient—things will get better. [or] Be patient—you will feel better even if things get worse.

The first basis for patience is optimism. If we follow the right path, things will get better. But one can question the optimism. Have we made much progress toward sustainability in the last decades? Has the fate of the Columbia River salmon improved over the fifteen years that the Power Planning Council has been working?

This article was written in a small room overlooking the Columbia River with constant reminders of its many uses—barges full of wheat and wood chips, tugs towing rafts of logs, air and rail traffic, people fishing and recreational boating. In fact, Columbia River hydroelectricity powered the word processor used to write this review.

Articles appearing in the local newspaper during the period of preparation of this review outline the plight of the river:

•An environmental group lists the Columbia-Snake as the most endangered river system.

•A Native American 'feast' finds few salmon. "The number of spring Chinook expected... took another drop Tuesday and caused Columbia River American Indian tribes to decide to end their ceremonial fishing."

•The Forest Service is accused of suppressing information about the effects of activities.

•The U.S. Supreme Court let stand a ruling that the Forest Service failed to follow the Endangered Species Act in protecting salmon habitat.

•The chairman of a Senate panel overseeing the U.S.Forest Service said the agency is "spinning its wheels" doing environmental assessments when it should be focussing resources on logging, recreation and other national forest missions.

The greatest difficulty may be that we do not have a high level of agreement about what constitutes desired change—let alone agreement about how to accomplish it. We could be dealing with people who do not share the goal of sustainability.

In the end, Dr. Lee believes some form of sustainability is inevitable. Humankind may survive, life on the planet is likely to survive, although there may be catastrophic changes in both. What is not known is the form such survival will take.

Here is where the navigational metaphor may be incomplete. A compass and gyroscope are of limited use when sailing in uncharted waters. They can only indicate which way one is going; they cannot tell where you are in relation to danger.

For safe navigation, you need two pieces of knowledge—both your position and the location of danger. We could say that Christopher Columbus' problem was not that he did not know how to navigate the *known* world; it was that he did not know of the existence of an *unknown* world.

In addition to the compass and gyroscope, we may need radar [the ability to detect unseen hazards] and/or we need to change our operational regime. Prudent mariners know to slow down or even stop moving if danger is suspected, but its precise location is unknown and visibility is reduced.

When in a fog, slow down!

In all cases, one should not be moving so fast that one

cannot change speed or direction in time to avoid a hazard once it has been detected.

The problem with modern society may be that we are more like aviators than mariners. An airplane rushes ahead in all types of conditions. It cannot stop in flight and runs the risk of crashing if it goes too slowly. That is why so much effort has been made to develop radars and navigational communications to warn of dangers and guide aviators to safe, soft landings.

Lee should be commended for providing guidance to people committed to the goal of sustainability. We can only hope that modern societies will slow their pursuit of economic acquisitiveness long enough to heed his advice.