Virginia Journal of Science
Volume 44, Number 3
Fall 1993

The Worldwatch-Talloires Connection: Meeting a Challenge with a Challenge[1]

Bruce Wallace, Department of Biology,
Virginia Polytechnic Institute and State University,
Blacksburg, VA 24061

During 1990, while serving on a committee that was reviewing Virginia Tech's[2] university-level core curriculum, I encountered the following statement in the Worldwatch Institute's 1990 *State of the World* report:

> In taking on the task of sketching an environmentally stable society, we have made several important assumptions. The first is that if the world is to achieve sustainability, it will need to do so within the next 40 years. If we have not succeeded by then, environmental deterioration and economic decline are likely to be feeding on each other, pulling us into a downward spiral of social disintegration. Our vision of the future therefore, looks to the year 2030.

Perhaps age provides a vantage point from which to perceive how brief a time 40 years is. The president of the United States who will serve in 2030 is probably 15-19 years old today. At this moment, that future president may well be in some college professor's class. In still other classes--high school or college--are that president's cabinet members, members of congress, state governors and assemblymen, and the community and business leaders of that not-so-distant era.

Having become aware of the Worldwatch's dire prediction, and having already convinced myself of the validity of their argument, I concluded that disseminating their warning to today's students was more important than worrying over the distribution of college credits among the natural and social sciences, and the humanities. This conclusion was transmitted to the Core Curriculum committee in the form of an essay. Using the fate of the Titanic as an analogy, I pointed out that after the ship had been gashed ever-so-gently by an iceberg, only one person--the builder's architect who was on board--realized that the Titanic had but one and one-half hours to remain afloat. The Captain took the architect's warning seriously and gave the order, "Abandon ship". Many passengers, perhaps a majority, sensed no danger during the early moments following the scraping encounter. Only as the *Titanic* filled with water and listed perilously did the truth of the situation strike home to all. By morning, half of the 3000 passengers and crew aboard the stricken ship were dead.

Once submitted to the committee, my essay disappeared from sight--presumably to be exhumed for consideration after the passage of two or three years. To my colleagues, forty years seemingly meant "Not to worry"; the committee had been charged with reviewing the core curriculum, and reviewing the core curriculum it would continue doing.

---

1 This is the text of the Sidney Negus Lecture presented by Dr. Wallace to the Academy on May 20, during the 1993 Annual Meeting at Old Dominion University, Norfolk, VA.

2 Throughout this paper, Virginia Polytechnic Institute and State University is refered to as "Tech" or "Virginia Tech".

The biologists at Tech have two seminars, an interdepartmental genetics seminar and an informal evolution seminar, that meet on alternate semesters: genetics in the Fall, evolution in the Spring. Frustrated at the inertia of those who were patiently reviewing the students' core credits, I asked the regular members of the evolution seminar group to expand the scope of the Spring 1991 seminars to cover the Worldwatch Institute's concerns. To be effective, I warned, ethicists, philosophers, and students of religion as well as economists, professors of business, political scientists, and engineers must be invited to participate. With the blessing of the evolutionists, the Worldwatch seminars were initiated.

Early meetings of new seminars were virtually clandestine. Nevertheless, the audience in the Spring of 1991 grew steadily from 25 to more than 100. With no credits weighing on the students' minds, and with no class waiting in the hallway for permission to enter the classroom, discussions were extended and animated. During this first semester, major newspapers carried articles about the Talloires Declaration, a declaration that was signed at the late Jean Mayer's urging by the presidents and senior executive officers of some two dozen universities, worldwide. The signatories of this Declaration agree to certain actions, ten in number, that ensure environmental literacy on the part of their students, informed action on the part of each university with respect to governmental policy and business practices, and--as physical entities--to institutional practices such as conservation and re-cycling that are environmentally kind.

Undergraduates and graduate students who were attending the 1991 Worldwatch seminars persuaded their respective student governing bodies to pass resolutions urging Tech's President-- James McComas--to sign the Talloires Declaration. President McComas took the matter an additional step. Through his initiative, Professor Richard Bambach and I were invited to speak at a meeting of the Presidents' Council, an advisory council of the State Council of Higher Education of Virginia (SCHEV). As a result of our presentations, the college and university presidents constituting the Presidents' Council signed onto the Declaration as a bloc, and urged SCHEV to amend its publication, *Education in the 21st Century*, by including an appendix on environmental matters, an area that earlier had been inexplicably overlooked.

The action taken by Virginia's college and university presidents has had certain consequences. Each college pledges to establish a steering committee charged with responsibility for seeing that the institution does follow up on the other actions that are specified in the Declaration. When the Tech Steering Committee was appointed, Dr. McComas informed the other, statewide signatories that Tech will host an annual meeting of the chairpersons of all other local steering committees; the chairperson of Tech's Steering Committee will be the official host at that annual meeting. A Secretariat will be chosen at the annual meeting; this group can then represent the Commonwealth's institutions vis-a-vis the General Assembly or local industries. Upon hearing of Tech's plans to host an annual, statewide meeting, Anthony Cortese, Dean of Environmental Programs at Tufts University and keeper of the roster of Talloires signatories, asserted that he will inform all Talloires signatories of Tech's annual meeting, and suggest that representatives be sent from institutions throughout the United States, or even worldwide. As an addendum, I might say that the Council of Higher Education in Colorado, at the time of this

writing, is considering signing the Talloires Declaration *en masse*, just as the institutions of higher learning did in Virginia. Several other states including North Carolina and Georgia are apparently considering similar actions.

Over successive semesters, the Worldwatch seminars at Tech have evolved, largely through the efforts of Professors Bambach (who now arranges for the seminar speakers) and Dudley (Director of the University Honors Program), into a coherent program. No longer clandestine, attendance at the Worldwatch seminars (plus a weekly writing assignment) gains Honors Program and other motivated students one hour core credit; each student can repeat this "course" three times, for a total of three coveted core credits. In addition to students who have registered for this minimal credit, there are others who attend out of simple desire to do so; the latter are joined by interested faculty members and townspeople who wish to participate. Several undergraduate and one graduate course have been designed in a manner that requires those who are officially registered to attend the weekly Worldwatch seminars. Finally, the students who have registered in the honors, enrichment sections of the elementary courses that are offered by five departments (Biology, Sociology, English, Political Science, and Philosophy) are urged to attend these seminars, although they are not required to do so.

The Worldwatch attendees form a substantial portion of the audience that is attracted to the annual President's symposia. Upon his arrival at Tech in 1988, Dr. McComas requested that the Distinguished Professors organize an annual symposium (now known as the President's Symposium) around a timely topic of global interest. The first four of these symposia have dealt with global warming, AIDS, drugs and the law, and professional ethics.

Almost by definition, the topics discussed by the symposia speakers are those that bear on environmental matters of concern to Worldwatch speakers and their audiences. The Fifth Annual President's Symposium to be held on Thursday, September 23, 1993, for example, celebrates the wholesale signing of the Talloires Declaration by the college and university presidents of Virginia. Among the participating speakers will be Daniel Quinn, author of Ishmael, Anthony Cortese "caretaker" of Talloires signatories, Charles Knapp, President of the University of Georgia, and Marcia Lowe, representing the Worldwatch Institute.

Thus, by virtue of the Worldwatch program, obligations assumed under the Talloires Declaration, and the annual President's Symposium, students at Virginia Tech are exposed to a wide range of views concerning the huge problems that must be successfully confronted if a sustainable society (dwelling, if possible, in the complex natural environment to which we are accustomed) can be attained. The Worldwatch seminars do not dwell on techniques for managing the environment; technical training is best left to the professional departments. The most serious problems facing us all as members of the world community, however, are not technical ones; the truly difficult ones involve attitudes and behavior. They involve such matters as greed, racism, aggression, bigotry, and ethics. Because no one profession nor any one person has the wisdom to arrive at or the power to enforce the needed societal changes, an integrated (i.e., wholly multidisciplinary) educational effort such as that encouraged by the Worldwatch program is needed. I cannot claim that we have reached every student. I cannot claim that I have enlisted every faculty member to help in this huge task. I am endeavoring, however, to

remove ignorance as an excuse for inaction, or as a lament to be uttered 40 years from now if a sustainable society has not emerged, or has been designed too late.

At this point I would like to digress momentarily. A recent article by Professor John R. Searle that was published in a Bulletin of the American Academy of Arts and Sciences states that an important assumption made by humanists is that in the real world there are truths corresponding to the humanists' utterings. I would like to emphasize here my own desire that there be a reality that corresponds to my utterings. There is a partial correspondence; that I know from personal observation. But, the correspondence could be much better.

When the topic under discussion concerns the potentially irreversible harm that may severely afflict the earth within the next forty years, one would expect to generate more interest than that suggested by audiences of 75-100 students from a student body that exceeds 20,000. Or a half-dozen professors from a faculty of nearly 2,000. The massive proportion of absentees demands an explanation. I can enumerate several possible ones:

1. Information of the sort generated by the Worldwatch Institute has not yet reached (or has not been grasped by) academics in all fields. Major newspapers may carry relevant news stories virtually every day, but the linkage between these depressing stories and topics such as those covered by the Worldwatch seminars is implicit rather than explicit. Many persons fail to see the underlying connections. A professor of business management, for example, accepted an invitation to speak in the Worldwatch series, but denied that there existed any connection between his field of expertise and environmental matters.
2. Many persons disbelieve the Worldwatch warning. The same, as I mentioned earlier, was true of many passengers aboard the Titanic. Such persons are desperately needed in the seminar audience in order to broaden the discussions to which attending audiences are exposed. Unfortunately, academic disputes and intellectual confrontations are for many persons physically, emotionally, and mentally wearing, and are to be avoided--not sought out--if possible.
3. Professor Alfred Kahn's "tyranny of small decisions" can be re-phrased in the present context to read: "the tyranny of small activities. " Parkinson's law states that work expands to fill the time available for its completion. The Worldwatch seminars, despite the urgency of the problems they address, must compete for time in otherwise saturated daily schedules-- however trivial each moment's task may be.
4. Most students, in the final analysis, take their cues from their professors. If departmental seminars are poorly attended by faculty members, they will be poorly attended by students, as well. The converse has been amply confirmed at past Worldwatch seminars: participating faculty members have often been accompanied by a coterie of their own students who then disappeared never to return.
5. Class conflicts prevent many interested students and faculty members from attending; under current scheduling procedures such conflicts would seem to

be inevitable. Indeed, compiling a course schedule that is free of conflicts is a major task that confronts every undergraduate every school term.

The last point ends my digression while providing me an opportunity to issue a challenge to the academic administrators of all colleges and universities--including my own. Consider the following facts: Life on earth arose some 3.6 billion years ago; pre-human apelike creatures arose some 10 million years ago; Neanderthal men and women were thriving 100,000 years ago; and agriculture has flourished for the past 10,000 years. If the time that life has existed on earth is equated to one year, each day represents 10 million years. Each of the nearly 100,000 seconds in a day represents 100 years. Thus, apelike creatures appeared only on December 31st, after the earlier 364 days of life's year were gone. Neanderthals flourished only during the last 2-3 hours of the last day--beginning, let us say, at 9 PM on December 31st. Human society as we have known it since Egypt and Babylonia has existed for two minutes only--civilization arose at 11:58 PM--only moments before midnight on New Year's Eve.

Huge numbers of persons--scientists and others--have warned us during the past two or three seconds of this fateful year that the number of persons (nearly 6 billion at the latest count, but increasing by 100 million annually) is threatening lifesustaining relationships and biological interactions that have taken months (that is, hundreds of millions of years) to arise, adjust to one another, and to fall into place. This ecological network of interactions supports human beings as well as other forms of life, even though our technological and industrialized society, and our preoccupation with political matters may conceal that fact. These concerned, knowledgeable persons have given us less than a half-second--an eye blink--in which to act.

My challenge to academic administrators is this: Given the importance of the issues described here, create a weekly two-hour period that is free of any other officially sanctioned faculty or student activity, and dedicate this period to a campus-wide discussion of vital, global issues. Remove from these two hours all conflicting activities such as classes, departmental seminars, committee meetings, and administrative conferences. I make this challenge while providing two loopholes by which those whom I have challenged may escape: First, they may escape by providing a thoughtful, written document stating why they disbelieve the urgency of the matter, a document that can be studied and possibly rebutted publically by those of us who are truly concerned. Second, they may escape by providing a formal, mathematically-valid proof that no 2-hour, school-day period at a college or university can be set aside and declared to be free of all other official activities. I make these challenges, neither in a mean or disgruntled spirit nor in pique, but rather in an attempt to provide a permanent, written account of what was attempted during the 1990s at our institutions of higher learning with respect to environmental instruction. Historians of the 2030s and later years will appreciate having such contemporary accounts available for their research.

My concluding point will be as heretical as the challenge that I have leveled above at college and university administrators. I contend that no science, no profession, no technology, and no philosophy or religion has the innate wisdom to solve, on its own, the grave problems confronting the modern world. Neither the

professions alone nor their associated professional ethics are adequate for the task. This assertion, I might emphasize, includes medicine and medical ethics; I make this point explicit because many persons regard medical ethics with a reverence generally reserved for the Holy Book.

It appears to me, then, that no general, elementary, departmental course (beginning biology, beginning chemistry, beginning physics, basic engineering, or whatever) provides the incoming college freshman or woman with an overview that is adequate for today's world. A multidisciplinary survey course in Environmental Literacy must be made available for all. A course that provides each student with an understanding of the earth's origin, the evolution of life, and of the human lineage. A course that convincingly demonstrates the inadequacy of any one profession or professional ethic to cope with existing and everworsening problems. A course whose content is consistent with the established laws of thermodynamics; one that avoids fanciful solutions to pressing problems--no rocketing of solid wastes to the moon, no habitation of Mars, no creation of needed elements by splitting atomic nuclei, and no genies who emerge from lamps prepared to grant every human's wish. And, finally, a course that emphasizes the unity of the human species even while extolling its diversity. A course emphasizing that cultures are not indivisible units but, rather, are entities that are composed of *ideas* which recombine, but do not disappear, when cultures fuse. Thus, variation is not lost by the admixture of cultures; rather, *inter*-culture variation is merely transformed into *intra*-culture variation.

In concluding, I emphasize once again that in my opinion-- and in that of thousands of scientists--the specter of what may happen to our world during the next forty years--irreversible, tragic happenings--virtually demands that specialized, departmental introductory courses be regarded solely as part of one's professional training at colleges and universities. The student's training for living within a sustainable society must be met by a broadly based, multidisciplinary course on environmental literacy--a course that will exclude no branch of intellectual endeavor, be it in the sciences, the professions, the humanities, or the arts.

University Presidents for a Sustainable Future
The Talloires Declaration

We, the presidents, rectors, and vice chancellors of universities from all regions of the world are deeply concerned about the unprecedented scale and speed of environmental pollution and degradation, and the degradation of natural resources. Local, regional. and global air and water pollution; accumulation and distribution of toxic wastes; destruction and depletion of forests, soil, and water; depletion of the ozone layer and emission of "greenhouse" gases threaten the survival of humans and thousands of other living species, the integrity of the earth and its biodiversity, the security of nations, and the heritage of future generations. These environmental changes are caused by inequitable and unsustainable production and consumption patterns that aggravate poverty in many regions of the world.

We believe that urgent actions are needed to address these fundamental problems and reverse the trends. Stabilization of human population, adoption of environmentally sound industrial and agricultural technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature. Universities have a major role in the education, research, policy formation, and information exchange necessary to make these goals possible.

University heads must provide the leadership and support to mobilize internal and external resources so that their institutions respond to this urgent challenge. We, therefore, agree to take the following actions:

1. Use every opportunity to raise public, government, industry, foundation, and university awareness by publicly addressing the urgent need to move toward an environmentally sustainable future.
2. Encourage all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward a sustainable future.
3. Establish programs to produce expertise in environmental management, sustainable economic development, population, and related fields to ensure that all university graduates are environmentally literate and responsible citizens.
4. Create programs to develop the capability of university faculty to teach environmental literacy to all undergraduate, graduate, and professional school students.
5. Set an example of environmental responsibility by establishing programs of resource conservation, recycling. and waste reduction at the universities.
6. Encourage the involvement of government (at all levels), foundations, and industry in supporting university research, education, policy formation, and information exchange in environmentally sustainable development. Expand work with non-governmental organizations to assist in finding solutions to environmental problems.
7. Convene school deans and environmental practitioners to develop research, policy, information exchange programs, and curricula for an environmentally sustainable future.
8. Establish partnerships with primary and secondary schools to help develop the capability of their faculty to teach about population, environment, and sustainable development issues.
9. Work with the U.N. Conference on Environment and Development, the U.N. Environment Programme, and other national and international organizations to promote a worldwide university effort toward a sustainable future.
10. Establish a steering committee and a secretariat to continue this momentum and inform and support each other's efforts in carrying out this declaration.