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# Land-grant ideology, the Wisconsin idea, and the foundations of Van Rensselaer Potter's bioethics

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Dissertation

**LAND-GRANT IDEOLOGY, THE WISCONSIN IDEA, AND THE  
FOUNDATIONS OF VAN RENSSELAER POTTER'S BIOETHICS**

by

**MARGARET E. DORIS**

B.A., Kirkland College  
M.Div., Boston University

Submitted in partial fulfillment of the  
requirements for the degree of  
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2014



Approved by

First Reader

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Kirk Wegter-McNelly, Ph.D.  
Wold Visiting Professor in Religious Studies  
Union College

Second Reader

---

Robert Cummings Neville, Ph.D., D.D.  
Professor of Philosophy, Religion and Theology  
Boston University School of Theology

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Researching a person, and an issue, located in recent history presents a particular set of opportunities and obligations. As historian Arthur Schlesinger, Jr., observed, the ready availability of contemporary manuscript collections has, paradoxically, demonstrated their inadequacy as sources for 20<sup>th</sup> century history. “The contemporary historian acquires an indispensable function, if only to improve the record for historians of the future,” Schlesinger wrote. <sup>1</sup> To whatever extent I have been able to do that, I am deeply indebted not only to a flotilla of librarians and archivists, and to those whose letters and manuscripts they keep, but to the family, friends and colleagues of Van Rensselaer Potter who shared with me their memories<sup>2</sup> and insights and thus afforded my modest improvement of the record for the historians of the future. Any omissions, oversights or errors of fact or interpretation are of course mine alone.

My thanks to Dr. Potter’s granddaughter and occasional collaborator, Lisa Potter Bonvicini, for her openness to the idea of this project; to James Trosko, who shared both his memories of Dr. Potter and his own enthusiasm for this

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<sup>1</sup> Arthur Schlesinger, Jr., “On the Writing of Contemporary History,” *The Atlantic*, March 1967. <http://www.theatlantic.com/magazine/archive/1967/03/on-the-writing-of-contemporary-history/305731/>.

<sup>2</sup> Shared memories may not always be what one anticipates, as Van Rensselaer Potter found out. Eager to learn more about the relationship between Max Otto and Aldo Leopold, he asked friends to arrange a meeting with Otto’s widow. “She remembered that on one Sunday evening she and Max had been invited to the Leopold’s home and roast (Mallard?) duck had been served. ‘It was bloody awful,’ she commented.” Van Rensselaer Potter, “Real Bioethics: Biocentric or Anthropocentric?,” *Ethics and the Environment*, 1, no.2 (Fall1996):182, n.13.

effort; and to Erin D. Williams, an original member of the Global Bioethics Network, who has taken on the mission of continuing Dr. Potter's work, and of educating students about his ideas. A close examination of the genesis of Dr. Potter's Global Bioethics Network, and its subsequent expansion, is beyond the scope of this work but is surely overdue. When the time comes, Erin Williams will be a key contributor.

The Eureka! experience – the sudden flash of insight that offers a solution to a problem – fascinated Van Rensselaer Potter; indeed he told Warren Reich that the coining of “bioethics” was a Eureka! experience. It was Dr. Reich's notes from the interview he had with Dr. Potter – particularly his clarifying question about the Morrill Act – that touched off my own Eureka! experience. Until that moment, I had assumed that it was widely understood that Van Rensselaer Potter's bioethical thought was formed in the context of the land-grant epistemology, and its purpose-driven articulation was a legitimate expression of that understanding. Without Warren Reich's superior scholarship, his dedication to determining the origins of the word “bioethics,” his careful note taking and, above all, his willingness to share freely his investigations, this dissertation would not exist. Robert Perlman, editor emeritus of *Perspectives in Biology and Medicine*<sup>3</sup>, went above and beyond in attempting to locate the Potter/Ingle letters, which were long thought to have been lost or discarded. The correspondence not only resolves speculation about when and where Dr. Potter first began to use the

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<sup>3</sup> When Potter first began writing for *PBM*, the journal used an ampersand in its title. I have attempted to reflect the changing usage as I have discerned it.

word “bioethics” but also provides new insight into the development of his thought and his relationship with this unique journal. Appreciation is also due to Ellen Doris – a land-grant scholar herself – who primed the pump years ago when she gifted me with a copy of Liberty Hyde Bailey’s *The Holy Earth*, introducing me to the thought processes of the original land-grant “philosopher-poet-scientist.” Reading Liberty Hyde Bailey enabled me to recognize a land-grant mind at work when I encountered it again in Van Rensselaer Potter.

Many people responded kindly to questions about Dr. Potter and their association with him. I am equally appreciative of those who took the time to answer simply, “I don’t remember,” and of those who still felt their loss so deeply that they felt unable to speak about Dr. Potter, as I am of those who made substantive contributions to this work. My apologies to anyone I have inadvertently overlooked. I am also keenly aware that, for several people on the following list, I was one of their last academic correspondents. Their graciousness in responding to me when time was growing short is something I can only pay forward. Thanks, then, to Ian Barbour, Günter Blobel, Lucy Chang for Frederick Bollum, Claudia Card, Barry Commoner, Ellis B. Cowling, Naseeb Dajani, Norman Drinkwater, H. Tristram Engelhardt Jr., Michael W. Fox, Eugene P. Frenkel, Dan Klang, Andrew Jameton, Jenelle Johnson, Martin Marty, Robert E. McGinn, Masahiro Morioka, Eric Nelson, Arthur Pardee, Marti Patchell, Marcelo Palacios, Henry C. Pitot, Edmund Pellegrino, A.J.S. Rayl, John Reif,

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Schroeder, National Reference Center for Bioethics Literature, Kennedy Institute of Ethics, Georgetown University; Heather Smedberg, Mandeville Special Collections Library, UC San Diego; and the Wisconsin Historical Society Archives.

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Support services of various kinds have been provided by Michael “Mikey” McGovern, Moira Orr-Mullane, Lisa Deeley Smith, Dr. Lorraine Wolf and the Boston University Office of Disability Services, Al Yee, Theresa Cooney, Charles Doris-Pierce, Abraham Doris-Down, Brendan Doris-Pierce, Molly Doris-Pierce and Ana Solano-Campos. Melissa Sunog provided a necessary small space, and Lydia Bender gave the gift of a wide-open space. To all I am grateful.

Throughout this dissertation I have made note of the many misspellings of Van Rensselaer Potter. I hope all those I have called out will find some comfort in the following confession. The only time I have ever misspelled Van Rensselaer Potter was in an e-mail to H. Tristram Engelhardt, Jr., who roundly called me out by return e-mail. She who lives by the sword shall die by the sword. Swing away!

Rev. Earl Beane first put this project, as he has so many others at the School of Theology, in motion. I began my doctoral work at STH with Dr. Jensine Andresen. While the final form it took is something neither of us could have anticipated, her conviction that there is always another question to answer, and

another answer to be questioned, reverberates throughout this work. Dr. Alfred I. Tauber, Director of the Center for Philosophy and History of Science at Boston University, was generous in lending his expertise to the design of and preparation for the comprehensive examination in bioethics. I was blessed with an unusually engaged Dissertation Committee. My thanks and appreciation to my Dissertation Committee Chair Dr. David Jacobsen and Committee Members Dean Robert Hill and Dr. Phillis Sheppard.

A project of this sort, I have found, necessitates that one keep a targeted reader in her head. I have written, rethought, and rewritten with Dr. Robert C. Neville in mind. I hope I anticipated enough of his comments and criticisms so that he found the end product satisfactory.

Dr. Kirk Wegter-McNelly inherited not only this project but all that came with it; his fidelity under truly trying circumstances was remarkable. His ability to ask deceptively simple questions that cut right to the heart of the issue has constantly challenged and improved my own thinking. His ability to maneuver around obstacles that I, both literally and figuratively, could not is unmatched. One could not ask for a better cornerman.

And finally to Molly, Brendan, Abraham and Ana: Proverbs 17:17. Here's to a different summer.

**LAND-GRANT IDEOLOGY, THE WISCONSIN IDEA,  
AND THE FOUNDATIONS OF  
VAN RENSSELAER POTTER'S BIOETHICS**

**(Order No.      )**

**MARGARET E. DORIS**

Boston University School of Theology, 2014

Major Professor: Kirk Wegter-McNelly, Ph.D. Wold Visiting Professor  
in Religious Studies, Union College

**ABSTRACT**

In this dissertation I argue that properly situating Van Rensselaer Potter's bioethics makes it newly available to those seeking an alternative conceptual framework for global bioethics discourse. Locating Potter in the heretofore unappreciated context of the land-grant college ideology (evinced by those institutions established by the 1862 federal Morrill Act with a charge to democratize higher education and apply knowledge in the best interests of the public) and the Wisconsin Idea (a still-extant Progressive-era policy of applying university research to social legislation) not only illuminates its distinctive features but renders transparent its previously opaque epistemic culture.

I outline how American bioethics as it is commonly understood took form at Georgetown University in the early 1970s with a mandate to consider the impact of new medical technologies on society, particularly in relation to

reproductive and human fetal tissue research. This work yielded a vision that became known as principlism, the now-dominant form of Western bioethical discourse. I look at the various criticisms of principlism, as well as the inability of its critics to discard the principles framework. I then contrast principlism with the distinctly different understanding of bioethics that was offered in 1970 by Van Rensselaer Potter when he coined the word “bioethics.”

I discuss how, when Potter first began to speak of bioethics, he envisioned a “bridge to the future,” a union of science and the humanities that would foster cross-disciplinary thinking in anticipation of, and in the hope of averting, a worsening ecological crisis and its resultant negative impact on human health and well-being. The response to threats posed by technology – “dangerous knowledge” – was not to limit knowledge, but to respond with more knowledge, with the kind of contextual and moral vision that only transdisciplinary knowledge could provide. While Potter originally envisioned this work as a specific obligation of scientists, he gradually came to understand it as a social activity, a shift in communal perceptions and obligations.

Finally, I suggest that Potter’s bioethics has tremendous potential for redeeming bioethics and offers an alternative vision that is truly redemptive.

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## INTRODUCTION

In 1970, Van Rensselaer Potter II (1911-2001), a biochemist at the University of Wisconsin-Madison, offered the neologism “bioethics” to describe a new discipline where biological knowledge and moral appreciation inform human interaction with the biosphere.<sup>1</sup> Almost immediately, the word was appropriated by a group working at Georgetown University, and used to describe the consideration of the social and ethical implications of biomedicine.<sup>2</sup> Out of this

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<sup>1</sup> Van Rensselaer Potter, “Bioethics: The Science of Survival,” *Perspectives in Biology & Medicine* 14, no.1 (1970): 127–53.

<sup>2</sup> Brief note should be made of a third vision, “Medical Humanities, Human Values and Ethics,” which Edmund Pellegrino has located between the prototypic Georgetown and Wisconsin visions. “No imaginative neologism defined this third vision – which is perhaps one reason it has not received the attention it deserves,” Pellegrino noted in 1995, at a Transdisciplinary Symposium on Philosophy and Medicine at UT Galveston. It was the vision embraced by the founders of the Society for Health and Human Values, and which inspired early teaching and research programs at the State University of New York at Stony Brook, the University of Texas at Galveston and Penn State’s Hershey Medical Center. “The third vision lies conceptually, if not geographically, between Wisconsin and Georgetown,” Pellegrino explained. “In it, philosophical ethics plays an interdisciplinary and cooperative role with the humanities and with the humanistic end of the spectrum of the social sciences as well as with law and political science. In this view, ethics retains its philosophical identity. I believe that, of the three, this vision is most viable conceptually and practically. It avoids the narrowness of the one and the ambitious expansiveness of the other.” This “Humanistic Vision,” in Pellegrino’s understanding, encompasses philosophy in dialogue with all the “humanistic” disciplines that inquire into all aspects of human life and human values. In the 1970s the Society for Health and Human Values received support from both the United Ministries on Higher Education of the Presbyterian Church and the National Endowment for the Humanities, allowing a focus on integrating the humanities into the medical school curriculum to make “future physicians more humane.” Besides this brief burst of practical application, however, and the continued loyalty of its small but passionate group of advocates, the vision has failed to expand its influence much beyond its original parameters (In 1998, SSHV merged with two other organizations, the Society for Bioethics Consultation (SBC), and the American Association of Bioethics (AAB), to form the American Society for Bioethics and Humanities (ASBH).) “Bioethics as an Interdisciplinary Enterprise: Where Does Ethics Sit In the Mosaic of Disciplines?” Edmund D. Pellegrino in *Philosophy of Medicine and Bioethics: A Twenty-Year*

effort came principlism,<sup>3</sup> the now-dominant method of bioethical guidance for research, clinical medicine, and public policy discourse, and the “Georgetown Mantra,” the four ethical principles – autonomy, beneficence, justice and non-maleficence – presumed to undergird the common morality.<sup>4</sup> Some forty years later, there is widespread agreement that the dominant Georgetown model is inadequate to respond to urgent global concerns about sustainability, technology, and an acceptable quality of life.<sup>5 6</sup>

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*Retrospective and Clinical Appraisal*, Ronald A. Carson and C.R. Burns, ed. (The Netherlands: Kluwer Academic Publishers, 1997.)

<sup>3</sup> The principles were a source of contention long before the moniker “principlism” was hung on them in 1990. The term “principlism” was not originally complementary. K. Danner Clouser and Bernard Gert introduced the term to make the case that the principles do not function as claimed, lacking as they do any systematic relationship to each other, including a way to adjudicate conflicts. However, the term “principlism” so effectively captured the theory that it became convenient shorthand for those who actually wished to employ it as well as for those who wished to offer a critique. K. Danner Clouser and Bernard Gert, “A Critique of Principlism.” *Journal of Medicine and Philosophy* 2, (1990): 219-36.

<sup>4</sup> United States National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research* (Washington DC, 1978).

<sup>5</sup> See, for example, Marvin J.H. Lee, “The Problem of ‘Thick In Status, Thin in Content’ in Beauchamp and Childress’ Principles,” *Journal of Medical Ethics* 36, (2010): 525-528.

<sup>6</sup> Recently, there has been limited but intense interest in crediting another person, Fritz Jahr, with not only coining the word “bioethics” but with inaugurating the field. Starting in 1927 Jahr, an obscure Protestant pastor in Germany, used the word “bio-ethik” in a series of articles discussing the ethical relationships of humans to animals and plants and proposing an extension of Kant’s moral imperative to all forms of life. Jahr’s work was not widely circulated at the time and appears to have gone unremembered until the mid to late 1990s when Rolf Lothar’s encounter with the English word “bioethics” jogged something in his memory. Lothar, a professor at Humboldt University of Berlin, went searching through old bundles of the journal *Kosmos*, left to him by his grandfather and now stored in his attic, until he found Jahr’s first article. While

The “minimalist theories and restricted general principles used to practice mainstream bioethics were drawn from Anglo-Saxon moral, political, and social traditions, keeping it acceptable for the dominant majority,” complains Stephen Olufemi Sodeke of the Tuskegee University National Center for Bioethics in Research and Health Care. “But, in so doing, the approach marginalized other contextual issues and phenomena that are equally important in discourse, and it evaded socio-cultural issues. Thus, it failed to account for the role of emotions, feeling, religion, and other particulars.” Nonetheless, Sodeke is forced to acknowledge, “this has been long-lasting in the Western world and has profoundly influenced ethical judgments, even in international contexts.”<sup>7 8</sup>

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I am not unsympathetic to the enthusiasm Jahr’s bio-ethik has inspired, I rather liken it to Leonardo’s helicopter: elegant on paper, but never built, never flown. Deploying Jahr’s bioethics now, either as an academic or practical exercise, does not in any way suggest it inspired or influenced the development of bioethics prior to Lothar’s (re)discovery of his work. See Hans-Martin Sass, “Fritz Jahr’s 1927 Concept of Bioethics,” *Kennedy Institute of Ethics Journal* 17, no. 4 (2007): 279-95 and Hans-Martin Sass, “Asian and European Roots of Bioethics: Fritz Jahr’s 1927 Definition and Vision of Bioethics,” *Asian Bioethics Review* 1, no. 3 (September 2009).

<sup>7</sup> Stephen Olufemi Sodeke, “Tuskegee University Experience Challenges Conventional Wisdom: Is Integrative Bioethics Practice the New Ethics for the Public’s Health?,” *Journal of Health Care for the Poor and Underserved* 23, no. 4 (2012): 15-33.

<sup>8</sup> Potter himself identified the problem this way in 1999 when, for the first time, he was invited to contribute an article to the *Hastings Center Report*. “Medical ethics is today involved in what really is a very parochial problem, one that has been complicated by ‘America’s quest for perfect health,’” Potter wrote. “Parochial because America’s quest ignores the health problems of multitudes in some other parts of the world; it ought instead to call for ‘human health as the global bioethic’ in the context of the survival and improvement of the human race, not just a chosen few.” Van Rensselaer Potter, “Fragmented Ethics and ‘Bridge Bioethics,’” *Hastings Center Report* 29, no. 1 (1999): 38-40.



In this dissertation, I will argue that placing Potter's bioethics in the heretofore unappreciated context of the Land-Grant College ideology<sup>9</sup> (evinced by those institutions of higher education established by the 1862 federal Morrill Act with a charge to democratize higher education and apply knowledge in the best interests of the public)<sup>10</sup> and the Wisconsin Idea (a still-extant, Social Gospel inspired, Progressive-era policy of applying university research to social legislation in practical service of the state)<sup>11</sup> not only illuminates its distinctive features but makes it widely accessible for those seeking a new conceptual framework for global bioethics discourse. Looking at Potter's own career through these lenses we can see how those influences found practical expression in the conduct of his research, his understanding of his obligation to society, and in the eventual articulation of his bioethics.

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<sup>9</sup> Even the Association of Public and Land-grant Universities, formerly the National Association of State Universities and Land-Grant Colleges, has failed to authoritatively establish when "Land-Grant" should be capitalized, and when it should be hyphenated. I have attempted to go with the conventions as far as I have been able to discern them.

<sup>10</sup> *The Land-Grant Tradition*, Washington DC: The National Association of State Universities and Land-Grant Colleges, 1995. This publication reprints the entire 1862 Morrill Land-Grant Act, along with its subsequent amendments.

<sup>11</sup> The Wisconsin Idea was first popularized by University of Wisconsin President Charles Van Hise, who declared that he would "never be content until the beneficent influence of the university reaches every family in the state." Of the small group of thinker-actors who catalyzed the Wisconsin Idea, the Social Gospel heavily influenced them all; one of them, Richard T. Ely, wrote *Social Aspects of Christianity*, a major contribution to the movement's canon. Sen. Robert M. LaFollette, Sr., carried the Wisconsin Idea into the national political arena where it was realized in the 16th amendment to the US constitution with progressive taxation, and in the 17th amendment, requiring direct election of US senators. See J. David Hoeveler, "The University and the Social Gospel: the Intellectual Origins of the 'Wisconsin Idea,'" *Wisconsin Magazine of History* 4, (1976).

### **The Scope of the Problem: A Matter of Principles**

American bioethics is in turmoil. As a discipline, as a mode of discourse, and as a guide for decision-making, it has been judged and found severely wanting.<sup>12</sup> Taking a survey of the field in 2001, Georgetown-trained ethicist Dianne N. Irving threw up her hands, calling it “The Bioethics Mess.” Maybe someday, a less-than-optimistic Irving speculated, “society will come to grips with the moral and practical mess that bioethics has created and come up with something to replace it.” Pointing a finger directly where she believed the trouble lay, Irving continued, “This time society will perhaps not rely so heavily on the self-proclaimed scientific and moral experts.”<sup>13</sup>

Numerous attempts to re-envision American bioethics have turned out to be no more than a re-rounding of the same wheel. While noting that bioethics is historically contingent, reflecting, responding, and shaped “by the social and political conventions of the time [and therefore] may not be a particularly ‘good fit,’” today, the best that critics like medical historian Allan M. Brandt can suggest

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<sup>12</sup> See, for example, Tom Koch, *Thieves of Virtue: When Bioethics Stole Medicine* (Cambridge, MA: MIT Press, 2012) and Renée C. Fox and Judith P. Swazey, *Observing Bioethics* (New York: Oxford University Press, 2008).

<sup>13</sup> Dianne N. Irving, “The Bioethics Mess,” *Crisis Magazine* 19, no. 5 (2001).

is embarking on “a complex dialogue that helps to reveal consensual social and moral values in a diverse culture.”<sup>14</sup>

The hand-wringing has been going on for years. “A fairly widespread perception exists, both within and without the bioethics community, that the prevailing U.S. approach to the ethical problems raised by modern medicine is ailing,” wrote Edwin R. DuBose, Ronald P. Hamel, and Laurence J. O’Connell in their 1994 introduction to *A Matter of Principles*. “Principlism is the patient. The diagnosis is complex, but many believe that the patient is seriously, if not terminally, ill. Some observers have proposed a variety of therapies to restore it to health. Others expect its demise and propose ways to go on without it.”<sup>15</sup>

One of those advocating rehabilitation is self-professed communitarian philosopher Daniel Callahan, co-founder of the Georgetown Institute’s principal competitor, the Hastings Center.<sup>16</sup> Writing in 2003, Callahan explained that

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<sup>14</sup> Allan M. Brandt, “Bioethics: Then and Now,” *Harvard Health Policy Review* 1, (2002): 53.

<sup>15</sup> Edwin R. DuBose, Ronald P. Hamel and Laurence J. O’Connell, *A Matter of Principles* (Valley Forge, PA: Trinity Press International, 1994).

<sup>16</sup> The Institute of Society, Ethics, and the Life Sciences, as the freestanding Hastings Center was originally known, was founded in 1969 by Daniel Callahan, a philosopher and then-editor of the Catholic journal *Commonweal*, and Willard Gaylin, a psychiatrist, with funding from John D. Rockefeller III, Elizabeth Dollard, the National Endowment for the Humanities, and the Rockefeller Foundation. The Center now defines its mission as addressing “fundamental ethical issues in the areas of health, medicine, and the environment as they affect individuals, communities, and societies.” <http://www.thehastingscenter.org/About/Default.aspx> The “Life Sciences” were abandoned years ago, and ‘environment’ is a relatively new area of concern. The Center is best known for its publications, particularly the *Hastings Center Report* and *IRB: Ethics & Human Research*. Howard Brody has proposed a tongue in cheek “Hastings Mantra” to encapsulate the “certain message repeated *ad nauseum*” by Hastings

principlism “emerged as a way of dealing with ethical decisions in the 1970s, was dominant in the 1980s, and then saw a decline in the 1990s.”<sup>17</sup> However, here is Callahan in 2003, back and fully engaged. Callahan has professed to having certain ambivalence about principlism, faulting it both for its individualistic bias and its capacity to block substantive ethical inquiry. “I find the ‘four principles’ approach too narrow to do all the necessary work of ethics, too individualistic to help us answer questions about the appropriate needs of communities, and too mechanical to encourage some necessary analytical and personal skills,” he explained. “Having said that, I cannot help being struck over the years by the way principlism has been deployed, and the great difference it makes just who is making use of it.”<sup>18</sup> Callahan, like a moth to a flame, can’t resist trying to be one of them.

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Center. It is less neatly contained than Georgetown’s four-principle mantra, and Brody struggles a bit to put the mantra into two coherent parts: first, “The development of novel medical technologies confronts us with ethical challenges of a sort never before encountered” and second, “It is vitally important that we address those emerging ethical challenges pro-actively, before the technology has come into wide-spread use. (The mantra seldom proceeds to answer the logical follow-up question, ‘Or else what?’ since one cannot provide any very long list of technologies that were *not* put into use merely because pro-active bioethical analysis objected.)” After reading Brody’s Mantra, it is difficult not to conclude that the Hastings Center’s position as perennial first runner-up to Georgetown in the bioethical spokesinstitute sweepstakes is attributable in no small part to its inability capture Center thought with a simple bumper sticker slogan. Howard Brody, *The Future of Bioethics* (New York: Oxford University Press, 2009): 193.

<sup>17</sup> Daniel Callahan, “Principlism and Communitarianism,” *Journal of Medical Ethics* 29, (2003): 287-291.

<sup>18</sup> Callahan, “Principlism and Communitarianism,” 287-291.

Those who predicted death may be surprised to find themselves still keeping watch at the bedside. A decade ago, Roger Cooter<sup>19</sup> predicted in the *Lancet*, “Bioethics seems destined for a short lifespan. Conspiring against it is exposure of the funding of some of its US centers by pharmaceutical companies; exclusion of alternative perspectives from the social sciences; retention of narrow analytical notions of ethics in the face of popular expression and academic respect for the place of emotions; divisions within the discipline (including over its origins and meaning); and collusion with, and appropriation by, clinical medicine. To many, its embrace of everything bearing on human life renders it, paradoxically, bankrupt.” Cooter found only one potential exception to the “literal demise” of bioethics. In historical studies, Cooter suggests, bioethics “signposts the emergence of a set of tensions and realignments within the social relations of late-20th-century medicine.”<sup>20</sup>

As palliative, if not as restorative, additional principles continue to be advanced, as well as alternative ethical models such as virtue ethics, Callahan’s communitarianism, and Albert Jonsen’s casuistry, but they all have failed to

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<sup>19</sup> Cooter, a fellow with the UCL Centre for the History of Medicine in London, observed, “In the UK, both the medical profession and those moralising on it from the outside tended to regard bioethics as an Americanism associated with priestly-looking interlopers acting as moral police.” “Bioethics,” *Lancet* 364, no.9447 (2004): 1749. Principlism did not make its way to the UK in any substantive manner until the mid-1980s, where its primary proponent has been British medical ethicist and pediatrician, Raanan Gillon, who argues that respect for autonomy should hold a primary place among the four principles of biomedical ethics.

<sup>20</sup> Cooter, “Bioethics,” 1749.

satisfy.<sup>21</sup> The inadequacies of principlism are now widely recognized, but there is a marked inability to envision bioethics without – for or against – principlism.

Decrying minimalist ethics – a simplistic interpretation of John Stuart Mill’s harm principle – Callahan says, “There are no new and better values on the moral horizon than those we already possess: liberty, justice, human dignity, charity, benevolence, and kindness, and that is not a full list. A minimalist ethic cannot endure a serious attempt to deploy not just liberty and justice but all those values. Nor could it survive a new willingness to pass public judgment on conduct that the law may and should still permit. Civil tolerance is hardly tolerance at all if one moral choice is in principle as good as another. It can only make sense and show its full strength when there are standards against which to measure behavior.”<sup>22</sup>

“Tellingly,” says Raanan Gillon, “Callahan seeks to ‘convert’ those four principles to ‘communitarian principles’ – and all power to his aim. But in doing so he demonstrates their most important value: that these principles are similarly ‘convertible’ by all other particular moral theories and stances that purport to be based on common moral values, whilst remaining themselves a universalisable set of prima facie basic moral principles – or moral standards – that are common

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<sup>21</sup> See Daniel Callahan, “Bioethics: Private Choice and Common Good,” *Hastings Center Report* 24, no. 3 (1994): 28-31.

<sup>22</sup> Daniel Callahan, *The Roots of Bioethics: Health, Progress, Technology, Death* (London: Oxford University Press, 2012), 49.

to and thus compatible with all those more specific moral stances, themselves often mutually incompatible.”<sup>23</sup>

“For over a decade,” Gary S. Belkin wrote in 2004, “some consistent dissatisfaction has been leveled at the persistent dominance of the so-called school of principlism in bioethical practice.” He continued:

‘Care,’ ‘narrative,’ and ‘virtue’ schools of bioethics have flourished, at least on paper, asserting that ethical commitments and answers to ethical dilemmas lie in unraveling the context and content of specific relationships, unfolding events, or personal integrity and commitments, rather than derived principles and theories. Yet the very act of making those assertions generates a further proliferation of theories of ethics to support them, even while rejecting logically derived, generalizable rule-making as the path to ethical knowledge. What remains front and center are the processes of unraveling theories of ethics and identifying how the core ethical dilemma in a given situation can be understood so it can be resolved. Should this continue to be the central concern of bioethics?”<sup>24</sup>

What should be asked, Belkin suggests, is whether bioethics is *helpful*.

“How did bioethics and the interests that nourished it get us to believe that debates and anxieties over biomedical technology are primarily ethical ones, or that they are (or should primarily be) debates over ethics itself?” he wonders.<sup>25</sup>

And if the answer to Belkin’s first question is just “Maybe,” and not even “No,”

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<sup>23</sup> Raanan Gillon, “Review: “The Roots of Bioethics: Health, Progress, Technology, Death, Daniel Callahan,” Imperial College, London Notre Dame Philosophic Reviews Online journal, May 4, 2013 <http://ndpr.nd.edu/news/39759-the-roots-of-bioethics-health-progress-technology-death/>.

<sup>24</sup> Gary S. Belkin, “Moving Beyond Bioethics: History and the Search for Medical Humanism,” *Perspectives in Biology and Medicine* 47, no. 3, (Summer 2004): 374.

<sup>25</sup> Belkin, “Moving Beyond Bioethics,” 376.

then perhaps we should be asking another question: is it principlism that has failed bioethics, or is it bioethics itself that has failed?

In this dissertation I will provide an alternative to failed bioethics, and suggest that recovering Van Rensselaer Potter's bioethics by proper placement in the context of Land-Grant and Wisconsin Idea traditions will prove a truly helpful tool for formulating responses to technology, "dangerous knowledge," and human survival.

In Chapter One, "Whose Principles?" I outline how American bioethics as it is commonly understood took form at Georgetown in the early 1970s with a mandate to consider the impact of new medical technologies, particularly as regards reproductive and human fetal tissue research, on society. The need for the federal government to identify the ethical principles underlying such research resulted not only in a Georgetown scholar-assisted report offering three 'principles' to guide research, but also the simultaneous development of the scholars own four principle "moral vision," a vision that became principlism, the dominant form of Western bioethical discourse. I look at the various criticisms of principlism, as well as the inability of its critics to discard the principles framework. I then suggest that a distinctly different understanding of bioethics, offered in 1970 by Van Rensselaer Potter, will invigorate bioethics by infusing it not only with a new perspective but a new sense of purpose.

In Chapter Two, "Land-Grant Ideology and the Wisconsin Idea," I offer context for the development of Potter's thought by providing an overview of the



development of America's land-grant college system and its linkage of general education to national progress, and the Wisconsin Idea, which embodied the idea that the intellectual capital of the University should be placed at the service of the state's citizens.

In Chapter Three, "South Dakota Days: From Pierpont to Brookings," I look at Potter's upbringing on a family farm and his education in the Land-Grant tradition at South Dakota State College. I consider not only Potter's early understanding of science as a practice with practical goal addressing social needs, but also how his student experiences as a debater, journalist, float builder and writer of scientific communications opened him to recognizing a variety of modes for the effective transmission of ideas.

In Chapter Four, "Walk to the Bridge," I look at the development of Potter's sense of obligation to the state of Wisconsin and its people as it was reflected in the conduct of his research, and at his repeated returns to South Dakota, culminating in his address marking the centennial of the Morrill Act, in which he called on the Land-Grant colleges to take the lead in redefining the American notion of progress. I detail Potter's growing stature not only as a scientist, but also as an informal philosopher of science, and, in doing so, refute claims that Potter lacked sufficient stature or insight to enter into such conversations. I discuss how Potter's understanding of service to the University included his participation in university committees that struggled with issues of religious discrimination and the institution's obligation to the future, and how his growing

realization of the scientist's obligation to society led not only to his writing for a lay audience, but to his participation in an ecumenical conference to discuss the ethics of human experimentation. In both efforts Potter understood his responsibility as going beyond mere theorizing to providing practical responses to identified problems.

In Chapter Five, "Crossing Over," I consider the development of Potter's intellectual thought in the run-up to the publication of his *Bioethics: Bridge to the Future*, and identify the first expressions of his newly-coined word "bioethics" in the celebration of the first Earth Day, in previously unavailable correspondence with the editor of *Perspective in Biology and Medicine*, and at the 1970 meeting of the American Academy for the Advancement of Science. I also look at the appropriation of Potter's word "bioethics" by scholars at Georgetown, and claims by some of those affiliated with the institution that they were unaware of Potter and his use of the term. I provide evidence that contradicts those claims, and suggest instead that Potter's bioethics had been successfully deployed well in advance of Georgetown's usage.

In Chapter Six, "The Other Side," I examine Potter's continuing efforts to articulate his understanding of bioethics, particularly in the face of competing claims made by Georgetown scholars. I discuss his shift from conference participant to conference organizer in an effort to better influence agenda-setting, an effort that culminated in the 1975 meeting of the American Association of Center Researchers and his advancement of Humility with Responsibility as the

“basic bioethic.” Finally, I look at his attempts to find a publisher for *Global Bioethics*, and its eventual publication by the land-grant Michigan State University Press.

In Chapter Seven, “Redeeming and Redemptive Bioethics,” I consider Potter’s final attempts to articulate the obligations of the scientist/professor to act publicly for the social good. I then look at Potter’s final attempt to engage with religious thought, and how, in the thinking of Hans Kung, he finds potential for scientists, theologians and secular philosophers to acknowledge the threat overpopulation poses to human survival and come together in conversation to articulate a world global ethic. I address Potter’s expressed opinion that the biological sciences must inform theological and secular philosophy, especially as more is understood about genetic expression as an influence on human behavior. I then turn to look at the growing interest in Potter’s bioethics globally, as well as the small renaissance it is enjoying domestically. I suggest that although Potter himself was, within certain parameters, flexible about the ways with which his bioethics was engaged, understanding the background of Potter’s thought, particularly as it relates to the Land-Grant and Wisconsin Idea traditions, would result in its more effective deployment. Finally, I suggest that the persistence of Potter’s bioethics has tremendous potential for not only redeeming bioethics, but for offering a bioethics that is truly redemptive.

## CHAPTER ONE: WHOSE PRINCIPLES?

Bioethics as it is now commonly understood came to life at Georgetown University in 1971, when a \$1.3 million grant from the Kennedy family foundation funded the creation of the country's first university-affiliated center for the study of the ethical issues related to biomedicine. The Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics<sup>1</sup> was born with a mission; Eunice Kennedy Shriver was particularly concerned about the impact of new technologies on reproductive and fetal-tissue research. It was baptized with a name, either inadvertently borrowed or stolen, from Van Rensselaer Potter.<sup>2</sup> Thus funded and established, the new center only needed a methodology to realize its mission. That was supplied in short order when legislation cosponsored by Senator Edward M. Kennedy established the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. Charged with, among other things, identifying the ethical principles underlying such research, the commissioners issued the landmark three-principle *Belmont Report*. Two Georgetown scholars who assisted the commissioners simultaneously worked on their own "moral vision," ultimately adding an

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<sup>1</sup> Interestingly, "Bioethics" was later abandoned and the name changed to the Kennedy Institute of Ethics.

<sup>2</sup> Warren T. Reich, "The Word 'Bioethics': Its Birth and the Legacies of Those Who Shaped It," *Kennedy Institute of Ethics Journal* 4, (1994): 319-35, and Warren T. Reich, "The Word Bioethics: the Struggle Over its Earliest Meanings," *Kennedy Institute of Ethics Journal* 1, (1995):19-34.

additional principle and publishing all four in a handbook for researchers and clinicians.<sup>3</sup> The chief architect of principlism, Georgetown's Tom Beauchamp, later explained, "Principles gave an anchor to a youthful bioethics in the 1970s and early 1980s and contributed a sense that the field rests on something firmer than disciplinary bias or subjective judgment."<sup>4</sup>

"No single publication has shaped the field worldwide more than the *Principles*," Edmund Pellegrino, himself a vigorous proponent of restoring virtue to a normative status in medical ethics,<sup>5</sup> told an interviewer at Brazil's Centro de Estudos de Bioética in 2004. "Much of the bioethical literature is a reaction, response, and criticism of the *Principles* with competing methodologies like casuistry, narrative, hermeneutics, and phenomenology challenging their supremacy."<sup>6</sup>

It should be noted that the word "principlism," with its own unique staying power, was not coined by its founders or by its disciples. Instead, it was a politely disparaging term introduced in 1990 by two of its most strident critics, Bernard

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<sup>3</sup> Tom L. Beauchamp, "Background and Origins of the Belmont Report," in *Belmont Revisited: Ethical Principles for Research With Human Subjects*, eds. James F. Childress, Eric Mark Meslin, Harold T. Shapiro (Washington, DC: Georgetown University Press 2005).

<sup>4</sup> Tom L. Beauchamp, "Principlism and Its Alleged Competitors," *Kennedy Institute of Ethics Journal* 5, (1995):181.

<sup>5</sup> See, for example, Edmund D. Pellegrino, "Toward a Virtue-Based Normative Ethics for the Health Professions," *Kennedy Institute of Ethics Journal* 5, no. 3 (1995).

<sup>6</sup> Centro de Estudos de Bioética <http://www.cebacores.net/entrevistas/pellegrino>.

Gert and K. Danner Clouser.<sup>7</sup> But they were by no means the first to identify the problems inherent in the principled decision-making. Some six years earlier sociologist Renee Fox and medical historian Judith Swazey took issue with Beauchamp's assessment of the foundation provided by the principles, warning that American bioethics was suffering from a "constricting provincialism." Preoccupied with the social and ethical challenges posed by advancements in medical science and technology, they claimed, bioethics "is sealed into itself in such a way that it tends to take its own characteristics and assumptions for granted. It is relatively uncritical of its premises and unaware of its cultural specificity." The emphasis the principles placed on individualism and contractual relations "tended to minimize and obscure the interconnectedness of persons and the social and moral importance of their interrelatedness."<sup>8</sup>

The passage of twenty additional years only intensified their concerns. Principlism continued to insist on "the common morality,"<sup>9</sup> coupling it with an aversion to ethical and cultural relativism manifest as a "diffuse consciousness about attaching weight to social and cultural particularities and differences" that prevented recognition of the ways American bioethical thought is embedded in its

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<sup>7</sup> Gert and Clouser argued that the principles do not function, as claimed, as action guides and therefore their use is misleading both practically and theoretically. K. Danner Clouser and Bernard Gert, "A Critique of Principlism," *Journal of Medicine and Philosophy* 15, no. 2 (1990): 219-236.

<sup>8</sup> Renee C. Fox and Judith P. Swazey, "Medical Morality is Not Bioethics: Medical Ethics in China and the United States," *Perspectives in Biology and Medicine* 27, no. 3 (1984): 336-360.

<sup>9</sup> As a number of critics, including Fox and Swazey, have noted, it is always "the" and never "a" common morality.

own culture. The “consequences of these impediments,” the authors argued, increased in significance as bioethics has spread across the globe. Although “the paradigmatic form in which it has been ‘exported’ has been globally influential,” they continued, “some of its key attributes do not ‘fit’ the cultural traditions, world views, [and] historical circumstances to which it has travelled.” This “largely unintentional” hegemonic thrust delayed the field’s development of an outlook “as international and multicultural... as is now appropriate for it to be.”<sup>10</sup>

Not obvious at the outset, the very structure of principlism fosters the articulation of competing claims rather than cooperation. In contrast, Potter’s bioethics is advanced in the context of a whole earth, upon which we are all equally related and dependent. Acknowledgement of that fact must be the starting point for all bioethical conversations across perceived, real and felt – but ultimately artificial – boundaries.

In his recent plea in support of the Tuskegee Center for Bioethics<sup>11</sup> integrative bioethics, “an experience-based paradigm that blends all the disciplinary fields and domain – biological, psychological, social, economical, philosophical, political, cultural, spiritual –that enable human beings to live full lives in balance with their environments,” Stephen Olufemi Sodeke quickly

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<sup>10</sup> Renee C. Fox and Judith P. Swazey, *Observing Bioethics* (New York: Oxford University Press, 2008), 8.

<sup>11</sup> The Center was established in 1999, in partial response to the Presidential Apology for the United States Public Health Service’s “Study of Untreated Syphilis in the Negro Male,” conducted in Tuskegee, Alabama from 1932 to 1972.

dismisses Potter's notion of bioethics as one which "did not gain traction."<sup>12</sup> Yet the integrative bioethics he describes seems not just conceptually quite similar to Potter's, but linguistically reminiscent as he echoes Potter's notions of humility, bridges, and a science of survival.<sup>13</sup>

[A]lthough it takes patience, humility, and a collaborative spirit to practice *integrative bioethics*, the concept, when properly practiced, reflects the epistemic realities of living a full life in our pluralistic society. The concept is more advantageous to the moral sensibilities and worldviews of underserved people than the individualistic, minimalist-oriented, mainstream approach to bioethics. *Integrative bioethics*,<sup>14</sup> which is interdisciplinary, is a bridge-builder and boundary spanner. It celebrates particularities and inclusiveness; it aims at holism and wholeness; it embraces community and the spirit of solidarity... *Integrative bioethics*, as the science of survival with concerns about social and environmental justice, urges us to develop the motivation, seize the opportunity, and demonstrate the willpower to accomplish what needs to be done.<sup>15</sup>

Potter's notion of bioethics may have been eclipsed by American principlism. However, it persists as *the* understanding of bioethics in many parts of the world, where Potter is considered the seminal figure in bioethics. Potterian bioethics continues to dominate in places as diverse as Eastern Europe, Brazil, and Japan. The Pan American Health Organization's (PAHO) top award bears

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<sup>12</sup> Stephen Olufemi Sodeke, "Tuskegee University Experience Challenges Conventional Wisdom: Is Integrative Bioethics Practice the New Ethics for the Public's Health?," *Journal of Health Care for the Poor and Underserved* 23, no. 4 (2012): 20.

<sup>13</sup> See Van Rensselaer Potter "Bioethics, the Science of Survival" (1970), *Bioethics: Bridge to the Future* (1971) and "Humility with Responsibility: a Bioethic for Oncologists" (1975).

<sup>14</sup> All emphasis from the original.

<sup>15</sup> Sodeke, "Tuskegee University Experience Challenges Conventional Wisdom: Is Integrative Bioethics Practice the New Ethics for the Public's Health?": 27.



his name, and during the 2011 World Conference on Bioethics meetings in Spain, a public thoroughfare was named for “Professor Potter: Padre de la Bioetica.”<sup>16</sup>

It seems that Potter is rediscovered daily. “Social, cultural and ecological problems are now definitely within the remit of global health care ethics,” opined the editors of the recent *SAGE Handbook of Healthcare Ethics*.<sup>17</sup> “Curiously enough, some of the initial ideas of Potter” –the need to bridge not only the present and the future and nature and culture, but highlight the interrelatedness of human beings and the environment – “are reoccurring in this new approach and conception of global bioethics.”<sup>18</sup> Fascinatingly, Potter’s notion of ethics is even being applied in traditional medical settings. In a 2012 article about the misuse of topical corticosteroids in India, the authors wrote, “It is good to recall the Biologist Van Rensselaer Potter who proposed the term “bioethics” in 1970, to encompass a field that lay at the intersection of ethics and the biological sciences in general. The primary goal underlying all ethical issues in health care, in our case the use of TC, is to see that the knowledge gained through research should benefit and not cause harm to the society and that knowledge should be

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<sup>16</sup> <http://www.sibi.org/ingles/potter/potter.htm>.

<sup>17</sup> Ruth Chadwick, Henk ten Have, and Eric Meslin, eds, *SAGE Handbook of Healthcare Ethics*, (London: Sage Ltd, 2011), 8.

<sup>18</sup> Chadwick, et al. *SAGE Handbook of Healthcare Ethics*: 8.

disseminated correctly.”<sup>19</sup> Potter’s durability – recognized or newly discovered – does indeed suggest his utility in the furtherance of truly global bioethics.<sup>20</sup>

One of the most unfortunate consequences of Potter’s domestic marginalization has been the virtual exclusion of life scientists – the initiators of much of pre-bioethical conversation in the 1940s and 50s, and the primary impetus for Potter’s formulating a bioethics – from the bioethical conversation.<sup>21</sup> However, there are new demands that bioethics be reconstructed, and life scientists returned to the conversation. In 2010, the new journal *Ethics in Biology, Engineering and Medicine: An Interdisciplinary Journal* devoted a special section of its fourth issue to “Global Bioethics and the Recoverage of Life Ethics.” In it, special guest editor Daniel A. Vallero pointedly observed that bioethics had lost some its meaning since Potter first introduced the term. “It is now generally assumed to be a synonym for biomedical ethics,” he noted, “but the term originally conveyed a sense of integration and systematic thinking in all decisions related to living things. Thus, *Ethics in Biology, Engineering, and Medicine* is the ideal venue for retracing and reconstructing bioethics back to its

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<sup>19</sup> Sanjay K. Rathi and Paschal D’Souza, “Rational and Ethical Use of Topical Corticosteroids Based on Safety and Efficacy,” *Indian Journal of Dermatology* 57, no. 4 (2012): 251-259.

<sup>20</sup> On June 12, 2012, an Amazon reviewer named Marcello gave Potter’s long-out-of-print *Bioethics: Bridge to the Future* five stars, saying, “This book is a rare! I study this theme in Brazil and the oncologist Dr. Potter is a idol, the first in line of bioethics, the creator of this word.” [www.amazon.com/Bioethics-Bridge-Van-Rensselaer.../0130765058](http://www.amazon.com/Bioethics-Bridge-Van-Rensselaer.../0130765058).

<sup>21</sup> Physicians are, of course, broadly conceived life scientists. But, Potter’s concern was more for the bench life scientist, both creators and applied.

comprehensive roots, which encompassed moral decision making regarding both medicine and the environment.”<sup>22</sup>

It may well be, as some scholars have suggested, that given the political and social *zeitgeist* of the early 1970s, the only way a secular bioethics could have been promulgated was in connection with a religious university like Georgetown. It now seems that Georgetown bioethics, born to meet the needs of particular moment, is frozen in time. The land-grant model, still fluid and flexible after 150 years, seems well situated to deploy a bioethics responsive to the common needs of a global community. Exposing the traditions implicit in Potter’s construct will make it available for those who, like Potter, seek a bioethics that offers “a search for wisdom, a wisdom that will recognize man’s spiritual needs as well as his physical needs, a wisdom that will conquer by force of persuasion, a wisdom that will strengthen every individual member of society and make it possible for him to strengthen the society in which he lives.”<sup>23</sup>

### **Where’s Potter? A Hole in the American Canon.**

It is one thing to contest for dominance in a field. It is quite another to be barred from entering the arena. This active marginalization by the east coast bioethics intelligentsia both puzzled and grieved Potter. He was confident in his own scientific discipline of biochemistry: he had been awarded nearly every prize

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<sup>22</sup> Daniel A. Vellaro, “The New Bioethics: Reintegration of Environmental and Biomedical Sciences,” *Ethics in Biology, Engineering, and Medicine: An Interdisciplinary Journal* 1, no. 4 (2010): 270.

<sup>23</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 8.

of significance offered in cancer research. He had been president of both the American Society for Cell Biology and the American Association for Cancer Research, and had laid the groundwork for what would eventually become a mainstay of cancer treatment, combination therapy. Stepping past disciplinary boundaries, he was an active participant in the Institute on Religion in an Age of Science (IRAS),<sup>24</sup> had been on the editorial board of *Zygon*, the journal of religion and science, since its debut in March 1966, and had chaired a working group on the 1964 Declaration of Helsinki at a 1968 World Council of Churches ecumenical consult, *Experiments with Man*.<sup>25</sup> What exactly were the requirements for admission to this club from which he was so conspicuously excluded?

Warren Reich has speculated that the primacy of the Georgetown model was due in no small part to the immediately relatable issues, like right to die and depersonalized medical care, that were taken up by Georgetown's Kennedy Institute of Ethics, as opposed to the "(unfortunately) more remote and complex" environmental and public-health concerns that engaged Potter. There was a

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<sup>24</sup> In 1954, the founding president of IRAS was Boston University School of Theology professor Edwin Prince Booth. The IRAS website erroneously identifies him as a "professor of church history at Boston College." Interestingly, Booth published a book of his IRAS retreat chapel talks, *Religion in the Age of Science*, more than 30 years before fellow IRAS member Ian Barbour gave his Gifford Lectures the same name (Barbour did tweak the title slightly, however, before publishing them as a book).

<sup>25</sup> One member of Potter's working group was J. Robert Nelson, then a professor and later dean of the Boston University School of Theology. Unfortunately, no record of the consult, aside from the published report, exists among his papers archived at Boston University. Nelson also gave an individual talk, as did Edmund Pellegrino, then dean of the medical school at Stony Brook, who gave his now-classic address, "The Necessity, Promise and Dangers of Human Experimentation."

compelling air of urgency around the former issues, Reich explained; “The media craved biomedical controversies and state and federal policy makers wanted answers.”<sup>26</sup> There is some truth to what Reich says – but only some. After all, Potter’s bioethics was launched straight from the heart of the heady days of the American environmental movement. Potter’s first known documented public utterance of the word “bioethics” came in conjunction with the University of Wisconsin’s Earth Week – an expansion of the national Earth Day – in April 1970. Wisconsin’s own senator, Gaylord Nelson, conceived of the idea of Earth Day, and in a speech Nelson – a UW law school graduate and the former governor of Wisconsin – had “bet the farm” on a grassroots movement of demonstrations and teach-ins, and it was about to “pay off 20 million times over,” as an estimated 10 percent of Americans participated in Earth Day activities.<sup>27</sup>

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<sup>26</sup> Warren Reich, “The Word Bioethics,” 22.

<sup>27</sup> In an Earth Day address in Denver on April 22, 1970, Nelson laid out an ethic that seemed grounded in Leopold’s work and was in concert with Potter’s: “Environment is America and all of its problems. It is rats in the ghetto. It is a hungry child in a land of affluence. It is housing that is not worthy of the name; neighborhoods not fit to inhabit. Our goal is not just an environment of clean air and water and scenic beauty. The objective is an environment of decency, quality and mutual respect for all other human beings and for all other living creatures. Our goal is a new American ethic that sets new standards of progress, emphasizing human dignity and well being rather than an endless parade of Technology that provides more gadgets, more waste, more pollution.” Gaylord Nelson. Speeches and other documents on Earth Day, 1970 (From the Gaylord Nelson Papers, MSS 1020, in the Archives of the Wisconsin Historical Society. Online facsimiles at: <http://www.wisconsinhistory.org/turningpoints/search.asp?id=1671>.)

Nelson had been barnstorming the country for a week; on Earth Day he departed Milwaukee’s Mitchell Field at 7 a.m. and flew to Berkeley, California, via Bloomington, Indiana, Denver and San Francisco. In Denver, Nelson’s remarks were carefully, if surreptitiously, recorded by the FBI. David Cole and James X. Dempsey, *Terrorism and the Constitution: Sacrificing Civil Liberties in the Name of National Security* (New York: The New Press 2006): 7.

Howard Brody, a physician and self-identified “philosopher-ethicist,” may have grasped a larger portion of the truth when he touched on the control established disciplinary elites can exert over discourse. “In hindsight,” Brody wrote in 2009, “Potter was destined to lose this battle.” Not only was he outmatched in funding, but an institutional parochialism rejected Potter’s scholarship. “Potter had no formal training in philosophical or theological ethics, and the main philosophical inspiration for his work was the renegade Jesuit writer Pierre Teilhard de Chardin, a figure whom most mainstream American intellectuals regarded with suspicion,” Brody explained.<sup>28</sup> Potter’s writing was not

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<sup>28</sup> Howard Brody, *The Future of Bioethics* (New York: Oxford University Press, 2009): 179. Brody is both wrong in suggesting that Teilhard was the main philosophical inspiration for Potter’s thought, and in implying no serious-minded, credentialed philosopher or theologian, let alone bioethicist, would found his or her thought in such works. Potter himself noted that he had not given consideration to Teilhard’s thought until he was asked to participate in a Teilhard conference. (I think this was probably a 1966 Teilhard de Chardin symposium held at Edgewood College in Madison. It is not known how Potter came to be involved; the college maintains no records relevant to his participation. However, the archive does contain several flyers and the conference program. The program notes the planning committee had representatives from both Edgewood and the University of Wisconsin; one of the UW members was John M. Opitz of UW’s department of medical genetics. Potter’s talk was entitled “Teilhard de Chardin and the Concept of Purpose.” Ian Barbour closed out the day with a “Summary and Synthesis.” 1966 was the year the journal *Zygon* was launched, with Potter and Barbour both serving on its editorial advisory board.

It is also important not to discount the role Teilhard played in popular intellectual thought in the America of the 1960s. Garry Wills has made note of the fact that, as one of Secretary of Defense Robert McNamara’s “most valued authors,” Teilhard’s name was “mentioned with awe” in the Kennedy White House. Teilhard, Wills explains, “...was preparing the rationale for a weird American optimism.” Groping with the twin problems of change and death, Teilhard found an answer in evolution, both as a principle of conservation and as a process in which the “healthy joy in death” is but one step. “By anticipating that death,” Wills writes, “forging proleptic comforts against its mystery he became the posthumous theologian to Camelot.” Garry Wills, *Bare Ruined Choirs: Doubt, Prophecy and Radical Religion* (New York: Dell Publishing, Delta Book reprint, 1974): 97-117.

in “the language of ethics,” and thus was not recognized by mainstream philosophical and theological ethicists. “It was easy to assume that Potter was a scientist who had wandered into an area where he was simply out of his depth. His call for a scientific ethic seemed to most analytic philosophers a simple violation of the fact-value distinction, and not worthy of their time or attention.”<sup>29</sup> This dismissal of Potter, Brody concedes, “split bioethics off from an important tradition Potter represented.” According to Brody, Potter also was “influenced heavily” by Aldo Leopold, one of the “major figures” in the early ecology movement in America. “Potter later modified his preferred term to ‘global bioethics,’ by which he meant, briefly, the ethics of the biosphere, and explicitly linked that idea to the ‘Leopold legacy’.”<sup>30</sup> Brody is quite vague as to the details of the tradition he sees Potter as representing – something environmental to be sure, something descending from the ecology movement, whatever that was.<sup>31</sup>

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<sup>29</sup> Brody, *The Future of Bioethics*, 179.

<sup>30</sup> Brody, *The Future of Bioethics*, 179.

<sup>31</sup> Brody’s inability to identify Potter’s manifestation of the Land-Grant tradition is sharply ironic, given that he is not only a graduate of Michigan’s land-grant institution, Michigan State, but was for many years director of MSU’s Center for Ethics and Humanities. It was as a student at MSU that he was first introduced to *Bioethics: Bridge to the Future* by molecular biologist James E. Trosko. Trosko, who studied with Potter and became a close friend, was later instrumental in bringing Potter’s *Global Bioethics: Building on the Leopold Legacy* to Michigan State Press. Despite Trosko’s sustained enthusiasm for Potter’s bioethics, Brody found that when he began his own formal graduate study of philosophy in 1973, “embracing” the analytic school then dominant in Anglo-American philosophy, he “found it harder and harder to translate any of Potter’s views into the language of ethics that I was learning. Eventually references to Potter dropped out of my own work, although I continued to admire him as a person.” [Brody, *The Future of Bioethics*, note 8, 189-90.] For Trosko’s part, he remembers Brody

It's interesting that, despite his academic background and the bioethical sensibilities it inspired in him, Brody was so quick to buy into the prevailing notions of with what it was acceptable for a bench scientist like Potter to engage. As Alice Kimball Smith noted in her detailed consideration of the Scientists Movement in the mid 1940s, "Scientists have not always been thought to be apolitical or 'constitutionally unsuited' to public life." Indeed, she observed, "Earlier generations did not find it strange that Isaac Newton should direct the Mint or that Benjamin Franklin should represent his country in France. But in more recent times, with specialization and a tendency of researchers to disassociate themselves from cruder forms of applied science and technology, it was generally assumed that one of the marks of a first-class scientist was exclusive preoccupation with research. Private indulgence in music, travel, or

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fondly as "one of the most brilliant undergraduate students I ever had." However, a brief stint in Trosko's lab, where Brody proved himself "a complete disaster, in terms of physical laboratory skills.... he almost destroyed all my sophisticated equipment," convinced Trosko his intellectual energies should be directed elsewhere. When the young Brody asked Trosko's advice about whether to go to medical school or to graduate school in the sciences, Trosko's first thoughts were not just for future laboratory equipment, but future patients. "I said he should either think about mathematics/theoretical physics or to be a pathologist/psychiatrist, but not a lab scientist in any field or a surgeon or ob/gyn physician." Brody went on to earn not only an M.D. but a Ph.D. in philosophy. [James Trosko, Draft manuscript: "Odyssey of a Basic Scientist to Bridge The Two Cultures", provided to the author.] Potter, as well as Trosko, was quite supportive of young Brody's initial forays into bioethics. In a February 15, 1973 letter to Dwight J. Ingle, editor of *Perspectives in Biology & Medicine*, Potter wrote, "I am enclosing herewith the original and 2 copies of a paper by Howard Brody as well as his covering letter. Prof. Trosko and I both feel that this is a remarkable paper for a student at this stage of his career and indeed that it would do credit to one much farther along. I hope that you may find the paper worth publishing as an Invited paper...."



mountain climbing was acceptable, but public displays of interest in things other than science required special justification.”<sup>32</sup>

The rapid ascendancy of the Georgetown formulation may be attributable to its immediate utility and control of disciplinary discourse, but that does not explain, I argue, Potter’s being rendered invisible in the official canon. Instead, I believe the Georgetown articulation was the victor in the collision of two radically different epistemic cultures, each believing to be fully apprehending of the other, but having significant, unrecognized differences regarding what constitutes adequate or valid knowledge, how it is obtained, what its purpose is and what legitimizes its dissemination. As the Austrian sociologist Karin Knorr Cetina observed in a slightly different context, their internally referential systems were such as to prevent perception of structure and implicit bias.<sup>33</sup>

Gloria Ladson-Billings, Assistant Vice Chancellor of Academic Affairs at the University of Wisconsin-Madison, has noted a Catch-22: epistemology is linked intimately to worldview in a troubling self-referential loop. Drawing on the work of Mwalimu J. Shujaa, she argues that worldviews and systems of knowledge are symbiotic: that is, how one views the world is influenced by what knowledge one possesses, and what knowledge one is capable of possessing is

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<sup>32</sup> Alice Kimball Smith, *A Peril and a Hope: The Scientists’ Movement in America 1945-47* (Cambridge MA: MIT Press; Revised edition, February 15, 1971): vii-viii.

<sup>33</sup> Karin Knorr Cetina, *Epistemic Cultures: How the Sciences Make Knowledge* (Cambridge, MA: Harvard University Press, 1999).

influenced deeply by one's worldview. "The process of developing a world view that differs from the dominant world view," she writes, "requires active work on the part of the knower, because schools, society and the structure and production of knowledge are designed to create individuals who internalize the dominant world view and knowledge production and acquisition process. The hegemony of the dominant paradigm makes it more than just another way to view the world – it claims to be the only legitimate way to view the world."<sup>34</sup>

The acknowledged epistemic culture that grew the Georgetown understanding of bioethics was strongly influenced by the lengthy tradition of Catholic moral philosophy. Less appreciated, but nonetheless present, was the historical Protestant understanding of personal freedom and the value of autonomy. This privileging of individual autonomy contributed to the establishment of respect for persons or autonomy as a foundational concept in modern American bioethics.<sup>35</sup> These traditions combined in principlism, a logical secular expression of the confidence that discursive reasoning, applied to human nature, could identify moral truths.

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<sup>34</sup> Gloria Ladson-Billings, "Racialized Discourses and Ethnic Epistemologies," Chapter 9 in *Handbook for Qualitative Research 2nd ed.*, Norman K. Denzin and Yvonna S. Lincoln.

<sup>35</sup> For a discussion of some of these influences, see Albert Jonsen, "The Theologians: Recovering The Tradition," in *The Birth of Bioethics* (New York: Oxford University Press, 1998).

By way of contrast, Potter's self-characterized "bioethics in the Wisconsin tradition"<sup>36</sup> was fermented in the epistemic culture of the land-grant tradition, with its democratic and evangelical pursuit of practical knowledge for the greater social good. Here I follow loosely in the footsteps of Hans-Jorg Reinberger in understanding epistemology as reflection on the historic conditions under which, and the means by which, things are made into objects of knowledge, and suggest that the Land-Grant construction of an epistemic culture, with its emphasis on interdisciplinary and scientific creation of distributable, practical knowledge, not only anticipates but obligates the creation of epistemic objects intended to facilitate the conveyance and implementation of the new knowledge. (In considerations of Science, epistemic objects are typically tangible objects subject to investigation. However, they can also be representational<sup>37</sup>).

In attempting to understand the two cultures, it is helpful to borrow a model from *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. In the early 1990s, Gibbons, et al. perceived a new and dramatic shift in the way the sciences generated knowledge (the authors are admittedly Euro-centric; had they any exposure to the Land-Grant tradition they would have been hard-pressed to defend their claim of "new"). They contrasted

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<sup>36</sup> Van Rensselaer Potter, "Bioethics and the Human Prospect," In *The Culture of Biomedicine: Studies in Science and Culture* 1, ed. D. Heyward Brock, (Dover: University of Delaware Press, 1984).

<sup>37</sup> See, for example, Boris Ewenstein and Jennifer Whyte, "Knowledge Practices in Design: The Role of Visual Representations as 'Epistemic Objects'," *Organization Studies* 30, no. 1 (2009): 7-30.

traditional knowledge generation, or “Mode 1,” which occurs within a disciplinary and primarily cognitive context with the new [sic] “Mode 2” knowledge, which is created within a broader, transdisciplinary social and economic context.<sup>38</sup> In Mode 1 – which is in many ways reminiscent of the Georgetown epistemic culture – problem-solving is organized around a particular application and is carried out following the codes of practice relevant to a particular discipline. Mode 2 – if you will, the Land-Grant mode – is knowledge generated in the context of application. Mode 2, the authors say, is transdisciplinary, developing a “distinct but evolving framework” to guide problem solving efforts. “This is generated and sustained in the context of application and not developed first and then applied to that context later by a different group of practitioners. The solution does not arise solely, or even mainly, from the application of knowledge that already exists. Although elements of existing knowledge must have entered into it, genuine creativity is involved and the theoretical consensus, once attained, cannot be easily redirected to disciplinary work.”<sup>39</sup> Products of the Land-Grant institutions would likely recognize their intellectual experiences when Gibbons et

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<sup>38</sup> Michael Gibbons, Camille Limoges, Helga Notwonty, Simon Schwartzman, Peter Scott and Martin Trow, *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies* (London: Sage Publications, 1994, reprint 2002). See also Helga Notwonty, Peter Scott and Michael Gibbon “‘Mode 2’ Revisited: The New Production of Knowledge,” *Minerva* 4, no. 1 (2003):179-194.

<sup>39</sup> Gibbons, et al., *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*: 5.

al write, “Transdisciplinarity is dynamic. It is problem solving capability on the move.”<sup>40</sup>

When Van Rensselaer Potter first began to speak of bioethics, he envisioned a “bridge to the future,” a union of science and the humanities that would foster cross-disciplinary thinking in anticipation of and in the hope of averting a worsening ecological crisis and its resultant negative impact on human health and well-being. The response to threats posed by technology – “dangerous knowledge” – was not to limit knowledge but to respond with more knowledge, the kind of contextual and moral vision transdisciplinary knowledge could bring. While he originally envisioned it as a specific obligation of scientists, Potter gradually came to understand it as a social activity, a shift in communal perceptions and obligations.

Potter’s bioethics has been termed the Wisconsin understanding. Perhaps more properly it should be considered the land-grant college understanding. America’s land-grant colleges were founded beginning in the mid-1860s in an effort to democratize access to higher education, including access for women, and to challenge the entrenched Eastern educational establishment with its emphasis on providing a classical education for future doctors, lawyers and clerics. The Land-Grant College, or Morrill, Act of 1862 provided federal resources to fund in each state “at least one college where the leading object

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<sup>40</sup> Gibbons, et al., *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*: 5.

shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts....”<sup>41</sup> Related branches of learning were properly understood as interrelated, and included domestic science, home economics or, as it eventually developed, human ecology.

“Today, the college or university which is inspired by the land-grant spirit considers itself not simply or mainly as a teaching organization but as a public service institution,” enthused Eugene Davenport, Dean Emeritus of the University of Illinois College of Agriculture, in 1931, “not simply in and for agriculture and engineering but in all the affairs of life. It exists not for the service of men only but for women as well; not for personal service merely but for the development of the industries and of the state.” Davenport told those assembled for the 45<sup>th</sup> annual convention of the Association of Land-Grant Colleges and Universities that such an institution “no longer confines itself to teaching approved courses in stock knowledge to the young, but is active, even aggressive, in the discovery and application of new truth wherever it can be useful in the development of the state, material as well as human, economic as well as social. It is a new source of power in the state, a new influence in the development of the human race and its institutions....”<sup>42</sup>

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<sup>41</sup> A transcript of the Morrill Act is located in the National Archives’ 100 Milestone Documents collection, located at [www.ourdocuments.gov](http://www.ourdocuments.gov).

<sup>42</sup> Eugene Davenport, “The Spirit of the Land-Grant Institutions,” in *The Spirit of the Land-Grant Institutions* (Tucson: University of Arizona, 1961), 21.

For Potter, the product of two land-grant institutions – South Dakota State College and the University of Wisconsin<sup>43</sup> – and a career academic at UW-Madison, confining himself to his laboratory was not an idea he considered and dismissed. It simply wasn't part of the conceptual framework of a land-grant scholar, obligated as he was to make the theoretical practical, and see the practical put into practice. In his first book, *Bioethics: Bridge to the Future*, Potter makes a distinction between simple knowledge and wisdom, or “the knowledge of how to use knowledge for the social good.”<sup>44</sup> This was a latter-day restatement of the core tenet of the Wisconsin Idea. First forged in the birth of the Progressive era, the Wisconsin Idea is the application of the expertise of the state's university to social legislation, for the benefit of all the state's citizens. Potter repeatedly acknowledged his indebtedness to Aldo Leopold, a one-time forester and professor at UW-Madison<sup>45</sup>. Leopold, who is credited with coining

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<sup>43</sup> The University of Wisconsin was created by the state constitution and state law in 1848. Opened in Madison in 1849, the University of Wisconsin became the state's land-grant institution. UW, which came to include 10 freshman-sophomore centers (later called colleges) and statewide Extension, was merged with the University of Wisconsin-Milwaukee in 1956, UW-Green Bay in 1968 and UW-Parkside in 1968. A separate Wisconsin State Universities system was merged with the University of Wisconsin in 1971, and the University of Wisconsin system is now comprised of 13 universities, 13 freshman-sophomore colleges, and statewide extension with offices in all 72 counties. Because this dissertation covers the long arc of University of Wisconsin history, “University of Wisconsin” should be assumed to refer to what is now known as the University of Wisconsin-Madison unless otherwise specified.

<sup>44</sup> Van Rensselaer Potter, *Bioethics: Bridge to the Future*, (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1971), 186.

<sup>45</sup> Leopold died of a heart attack on April 21, 1948 at the age of 61 while helping his Baraboo neighbors fight a grass fire. Only a week before he had received word that

the term “land ethic,” once observed “No important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions.”<sup>46</sup> In turn, Leopold acknowledged the influence of what one land-grant enthusiast called “our poet-philosopher-scientist-colleague in agriculture,”<sup>47</sup> Liberty Hyde Bailey, the founding Dean of Cornell’s land-grant College of Agriculture. “The idea of responsibility is much asserted of late,” Bailey wrote in 1915, “but we relate it mostly to the attitude of persons in the realm of conventional conduct, which we have come to regard as very exclusively the realm of morals; and we have established certain formalities that satisfy the conscience. But there is some deeper relation than all this, which we must recognize and the consequences of which we must practice. There is a more direct and more personal obligation than that which expends itself in loyalty to the manifold organizations and social requirements of the present day. There is a more fundamental co-operation in the scheme of things than that which deals with the proprieties or which centers about the selfishness too often expressed in the salvation of one's soul.”<sup>48</sup> Rather than thinking outside of the box, land-grant

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Oxford University Press had accepted his manuscript collection of essays, *A Sand County Almanac*.

<sup>46</sup> Aldo Leopold, *A Sand County Almanac* (New York: Oxford University Press, 1968), 209.

<sup>47</sup> W.O. Thomas, “The Spirit of the Land-Grant Institutions,” in *The Spirit of the Land-Grant Institutions* (Tucson: University of Arizona, 1961), 45.

<sup>48</sup> Liberty Hyde Bailey, *The Holy Earth* (New York: Charles Scribner’s Sons, 1915), 2.



epistemology was circumscribed by an extremely grand box. By comparison, in the Georgetown practice, bioethics is a structured, establishment activity. As John H. Evans has observed, “The whole point of the public policy bioethics was to shape that debate in such a way that the public did not need to get involved since bioethicists were representing the public values.”<sup>49</sup> <sup>50</sup>.

“Epistemologically,” Warren T. Reich offered in 1995, “Potter regarded the task of bioethics as being engaged in the search for wisdom—i.e., for the knowledge that would enable us to make good judgments as to what would constitute physical cultural, and philosophical progress toward a valued survival.”<sup>51</sup> On the Georgetown front, however, “There was some skepticism over whether Potter's thought even qualified as ethics. For example, [K. Danner] Clouser wrote that it would seem odd to call Potter's enterprise ‘ethics,’<sup>52</sup> since it does not tell us whether we have specific obligations or rights, or whether some environmental benefits outweigh environmental harms.” However, Reich notes, “that what [Clouser] called Potter's ‘applied science’ – the use of science to improve the quality of life – helped to give substance to already existing “derived

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<sup>49</sup> John H. Evans, *The History and Future of Bioethics: A Sociological View* (New York: Oxford University Press, 2012), 77.

<sup>50</sup> While I agree with the general outlines of his argument, I believe that his contention that bioethics is an establishment activity of Protestant elites is unsupportable.

<sup>51</sup> Warren T. Reich, “The Word ‘Bioethics’: The Struggle Over Its Earliest Meanings,” *Kennedy Institute of Ethics Journal* 5 no.1 (1995): 21.

<sup>52</sup> K. Danner Clouser, “Bioethics”. In *Encyclopedia of Bioethics*, vol. 1, ed. Warren T. Reich, (New York: Macmillan, Free Press): 115-127.

moral rules.”<sup>53</sup> Nonetheless, implicit in the epistemic Georgetown culture was a value assessment by certain tradition-established standards; created and operating outside of those standards, Potter’s bioethics could not help but be found wanting.<sup>54</sup>

### Transition To Principle

There are many accounts purporting to know where American Bioethics was born.<sup>55</sup> There is far less dispute about its foundational document. *Principles of Biomedical Ethics* is “undeniably the leading account of principlism,” Gert et al. write in *Bioethics: A Return to Fundamentals*. Beauchamp and Childress’s “account is the very best the position has to offer, and it is their account that has so pervaded the world of biomedical ethics.” Not only are the principles synonymous with the Georgetown mantra, but “[f]or many years it has provided the conceptual framework of the Georgetown Intensive Bioethics course, a one-week summer course which has been attended by thousands from the United

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<sup>53</sup> Reich, “The Word ‘Bioethics’,” 22-23.

<sup>54</sup> Ethicist Clouser, the first philosopher to receive an appointment at an American medical school, and no fan of principlism, is contextually obtuse when he dismisses Potter’s bioethics as nothing more than an “applied science” – something that anyone schooled in the Wisconsin Idea would have said is exactly the point. Clouser, “Bioethics” *Encyclopedia of Bioethics*, 116.

<sup>55</sup> See, for example, M.L. Tina Stevens, *Bioethics in America: Origins and Cultural Politics*, (Baltimore/London: Johns Hopkins University Press, 2000); George J. Annas, *American Bioethics: Crossing Human Rights and Health Law Boundaries*, (New York: Oxford University Press, 2005); Albert R. Jonsen, “The Birth of Bioethics,” *Hastings Center Report* 23, no. 6 (1993): S1-S15, David J. Rothman, *Strangers at the Bedside: A History of How Law and Bioethics Transformed Medical Decision Making* (Piscataway, N.J.: Transaction Books, 2003).

States as well as from around the world,”<sup>56</sup> – thousands who, presumably, transported this peculiar Washington-centric algorithm back to their home operating bases.

When Joseph Fletcher, the father of situation ethics, reviewed the first edition of *Principles of Biomedical Ethics* for *Theology Today* in 1979, he puzzled over who its audience would be. It was a thorough work, he thought, but “dry.” It lacked a new and compelling moral theory and it did not cast fresh light on old concerns. Finally, he conceded, it might find an audience among college undergraduates who were compelled to buy it as one of their course books.<sup>57</sup> Almost 35 years later, *Principles of Biomedical Ethics* is in its seventh edition and is the fundamental text of applied, regulatory and clinical bioethics. Those college undergraduates who do read it are dwarfed by the number of academics and medical professionals who make room for each new edition on their bookshelves. Even more numerous are those who have never cracked open any version of the text, and yet think they know what *Principles of Biomedical Ethics* is, and what principles it articulates.<sup>58</sup>

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<sup>56</sup> Bernard Gert, Charles M. Culver and K. Danner Clouser. *Bioethics, A Return to Fundamentals* (New York: Oxford University Press, 1997): 72.

<sup>57</sup> Joseph Fletcher, Review: “Principles of Biomedical Ethics. By Tom L. Beauchamp and James F. Childress,” *Theology Today* 36, no. 4 (1980): 595-596. Some years later Fletcher would write that he had “learned from such physicians and biologists [as]...Van Potter, Dwight Ingle....” Joseph Fletcher, *The Ethics of Genetic Control: Ending Reproductive Roulette* (Amherst, NY: Prometheus Books, 1988): xxi.

<sup>58</sup> There has been an unfortunate conflation in the public mind with *Principles of Biomedical Ethics* and its four principles, with *The Belmont Report*, the report of the National Commission for the Protection of Human Subjects of Biomedical and

“The sociology of knowledge assumes that decision making systems, such as principlism, do not become influential because they are ‘the best’ or ‘correct,’ ” argued John H. Evans in his sociological account of the establishment of principlism, “but rather because the social conditions are right for those promoting the system to defeat the [the] champions of competing ideas. That an idea is the ‘most coherent,’ for example, is important in this competition only if the people in authority to judge the legitimacy of the ideas agree that ‘coherence’ is important.”<sup>59</sup>

“Everyone recognizes that to understand the dominance of principlism we must go back in history, perhaps to the Nuremberg trial. I propose that to understand the social determinants of principlism we must go back much farther, to 1494, when the first textbook for double-entry bookkeeping was written. The principles give us a commensurable unit – akin to ‘profit’ in bookkeeping – that also allows for much simpler decisions... Commensuration is essentially a method for discarding information in order to make decision making easier by ignoring aspects of the problem that cannot be translated to the common metric.”<sup>60</sup>

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Behavioral Research, which identified three core principles for federally supported research.

<sup>59</sup> John H. Evans, “A Sociological Account of the Growth of Principlism,” *Hastings Center Report* 30, no. 5 (2000): 31.

<sup>60</sup> Evans, “A Sociological Account of the Growth of Principlism,” 32.

Evans' argument is clever, and exposes some implicit assumptions. I do not agree, however, that to understand the social determinants favoring principlism we must look to the biomedical-ethical concerns identified in the Nuremberg Doctors Trial, nor do we have to reflect on the influence of 15<sup>th</sup> century Franciscan bookkeeping. Principlism, an American creation, has proven particularly well-suited to the needs of a federal government that has rapidly expanded its self-definition as not only guardian of the public welfare but of guarantor of services, or entitlements, and as a watchdog over providers of said benefits. American bioethics, defined by the changing role of a federal government that found the principles as an essential regulatory tool, has, I contend, a comparatively recent birth: the articulation of The Great Society and the actions of the 89<sup>th</sup> Congress. The landslide elections of 1964 gave the Democrats a supermajority, enabling even the newest senator to introduce legislation, chair subcommittees, and hold hearings. The 89th Congress produced a huge burst of legislation – President Lyndon Johnson's Great Society<sup>61</sup> – that not only significantly expanded governmental responsibility for the well-being of its citizens, but also significantly increased the need for regulatory oversight to ensure that well-being. Senator Walter Mondale's (D-MN)

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<sup>61</sup> See, for example, Robert A. Caro, *The Years of Lyndon Johnson: The Passage of Power* (New York: Alfred A. Knopf, 2012); G. Calvin MacKenzie and Robert Wiesbrot, *The Liberal Hour: Washington and the Politics Of Change In the 1960s* (New York: Penguin Press, 2008) and David Zarefsky, "The Great Society as a Rhetorical Proposition," *Quarterly Journal of Speech* 65, (December, 1979). Johnson announced the call for The Great Society at a commencement speech at the University of Michigan on May 22, 1964. The text of his speech can be found here: <http://www.lbjlib.utexas.edu/johnson/archives.hom/speeches.hom/640522.asp>.

attempts,<sup>62</sup> with the assistance of Senator Fred Harris (D-OK), to establish a National Commission on Health Science and Society had its roots in that Congress, and his subsequent, largely unsuccessful attempts through subsequent Congresses to legislate responses to biomedical advances laid the foundation for Senator Edward Kennedy's 1973 subcommittee hearings on rights of human subjects in biomedical and behavioral research, hearings that culminated in the passage of the 1974 National Research Act establishing the National Commission for the Protection of Human Subjects. The Commission codified the three principles, Commission staffer Tom Beauchamp and advisor James Childress added a fourth, and the rest is Georgetown history.

There were many other things that emerged from that Congress. For example, the Comprehensive Health, Service and Planning Act introduced the notion of a "right" to healthcare, and the Social Security Amendments of 1965 established Medicaid and Medicare as the country's first public health insurance programs. These established legislatively what would later become issues of academic bioethical consideration. Principlism provided a simple metric for evaluating not only federal programs and mandates, but also their social fallout.

Bioethics is historically contingent, observed Gary S. Belkin and Allan M. Brandt in 2001. "[I]t reflected – and responded to – a series of specific

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<sup>62</sup> In his autobiography, *The Good Fight*, Mondale writes of those heady days: "It was as if we took the intellectual heritage of Franklin Roosevelt, the inspiration of John Kennedy, and a decade of pent-up demand for social change and converted them into social reality." Walter Mondale, *The Good Fight: A Life in Liberal Politics*, (New York: Scribner, 2010), 46.

contemporary critiques of biomedical practice and was fundamentally shaped by the social and political conventions of the time in which it emerged. Therefore, the bioethics that emerged in this period may not be a particularly 'good fit'...."<sup>63</sup> But Belkin and Brandt still conceive of bioethics far too narrowly, assuming that it simply requires a change of focus from what medical providers should do to what they can do to make bioethics fit contemporary reality. However, I argue, what is needed is not so much a change of focus but a change of definition, and with that a new sense of purpose. Van Rensselaer Potter's bioethics offers exactly that.

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<sup>63</sup> Gary S. Belkin and Allan M. Brandt, "Bioethics: Using its Historical and Social Context," *International Anesthesiology Clinics* 39, no. 3 (2001): 9.

## CHAPTER TWO: LAND-GRANT IDEOLOGY AND THE WISCONSIN IDEA

### Genesis of the Morrill Act

In August 1992, *Encyclopedia of Bioethics* editor-in-chief Warren T. Reich interviewed Van Rensselaer Potter about the development of his bioethics. A few days later he contacted Potter with a few follow-up questions, apologizing as he did for the “picky nature” of some of them.

“Is the term spelled “the Morell Act”?” Reich wrote. “I’m referring to the centennial at which you spoke in 1962.”<sup>1</sup>

To understand Potter’s bioethics, an understanding of the 1862 Morrill Act, the legislation that established the nation’s land-grant colleges, is essential. Indeed, as Potter believed, it may be essential to understanding America. In his pre-bioethical work, “Bridge to the Future: The Concept of Human Progress,” an address delivered in 1962 at the South Dakota State College centennial celebration of the founding of the land-grant colleges, Potter said that, for good or for ill, the idea of progress is inextricably bound to the development of the land-grant colleges, America, and indeed even the world.<sup>2</sup>

To understand the Morrill Act’s passage in 1862, it is necessary to recognize two fundamental debates that go back to the country’s founding: the

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<sup>1</sup> Warren T. Reich to Van Rensselaer Potter, 2 September 1992. Courtesy of Warren T. Reich. I deeply appreciate Dr. Reich’s willingness to make these documents available to me.

<sup>2</sup> Van Rensselaer Potter, “Bridge to the Future: The Concept of Human Progress,” *Land Economics* 38, no. 1 (1962): 1.



first is the debate over how to make education generally available to the most number of citizens in an ever-growing nation, and the second is the debate over the role of the national government vis a vis the states, a debate that sharpened as the country spread itself across the continent, and one that exploded (finally) in the Civil War, a cataclysm that, ironically, made the passage of the Morrill Act possible. The Morrill Act can be seen as the final, and the most wide-ranging product, of the debate over “internal improvements,” which roiled national politics in the decades before the Civil War, a debate that was shadowed at all times – as was the debate over “states rights” – by the question of slavery.

As president, and in his retirement, James Madison saw internal improvements and the general spread of education as being two sides of the same coin. “On internal improvements,” writes Ralph Ketcham, in his biography of America’s fourth president, “Madison notes that there was no country ‘which presents a field where nature invites more the art of man to complete her own work for his accommodation and benefit.’” Federal support was necessary to accomplish “what the states alone could not”; canals and roads were of economic benefit, universally-acknowledged utility, and, honored, in Madison’s words, a “wise and enlarged patriotism [which] duly appreciates them.... [which would] bring and bind more closely together the various parts of our extended confederacy...”<sup>3</sup> Arguably man was also nature’s work, and in need of

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<sup>3</sup> Ralph Ketcham, *James Madison: A Biography*. (Charlottesville VA: University of Virginia Press, 1990), 603.

completion, as, Madison urged, as did every president before him, that “a national seminary of learning”<sup>4</sup> be established in the District of Columbia. Such an institution, Madison proclaimed, in fidelity to republican gospel, “claims the patronage of Congress as a monument of their solicitude for the advancement of knowledge, without which the blessings of liberty cannot be fully enjoyed nor long preserved...”<sup>5</sup>

“Advancement of knowledge” was not enough in and of itself, however. Practically from the beginning in America, there was to the idea of general public education added a demand by which that education should be directed toward the practical in everyday life. Earle Ross traces this relationship all the way back to the earliest purely American inventions. “Even in that day, the homelier needs and corresponding vocations were not overlooked,” Ross writes. “Scientific effort was applied to existence, security, or comfort; there was no time for the luxury of the pure and abstract. Franklin’s researches were all directed to practical ends and his plans of education, as well as those of such sympathizers as Dr. Benjamin Rush, included them.”<sup>6</sup>

This impulse grew as the country did, and it adapted itself to the changes in American society and in the American economy. The impulse toward an expansion of educational opportunity always was directly tied to the increase in

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<sup>4</sup> Ketcham, *James Madison: A Biography*, 603.

<sup>5</sup> Ketcham, *James Madison: A Biography*, 603.

<sup>6</sup> Earle D. Ross, “The Land-Grant College: Democratic Adaptation,” *Agricultural History* 15, no. 1 (1941): 27.

the size of the nation, a symbiosis that was recognized as early as 1789. As University of Wisconsin historian Vernon Carstensen points out, the idea that expanded education was inextricably bound to an expanding nation was present even prior to the ratification of the Constitution. “In 1785, in its first land legislation, the Continental Congress sought to encourage establishment of public education by reserving one section of land in each surveyed township of the public domain for the use of the common schools,” Carstensen observes. “Two years later, in 1787, the same Congress granted land to the Ohio Company for the endowment of a ‘literary institution’.” This and additional land was subsequently turned over to the state of Ohio for higher education. Other states carved from the Old Northwest asked for and obtained similar grants, and Michigan, Wisconsin, and Iowa were prompt in creating and opening institutions they called state universities.<sup>7</sup>

As the country grew, so did its political differences. The Democratic Party, founded by Madison and by Thomas Jefferson, ostentatiously attached itself to the common people, and this attachment led it to oppose the programs of internal improvements proposed by the rising Whig party, most notably in the person of Henry Clay of Kentucky. This pushed the Democratic Party into the position of defending states rights and, ultimately, slavery. As David and Jeanne Heidler write in their biography of Clay: “... Democrat hostility to internal improvements stemmed as much from the desire to protect slavery as from constitutional

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<sup>7</sup> Vernon Carstensen, “A Century of the Land-Grant Colleges,” *Chronicle of Higher Education* 33, no. 1 (1962): 30.

scruples. At a time when southerners were committed to preserving the status quo, an economy transformed by a market revolution promised diversity and all the unwelcome changes that came with it. In addition, a government capable of central planning would also have the power in theory to abolish slavery.”<sup>8 9</sup>

One of those “unwelcome changes” that would come along with a more geographically, politically, and demographically diverse country, the Heidlers argue, would be a system through which an education might be generally available to people beyond the traditional elites. “Because Democrats said that the native intelligence of good, sturdy Americans would embrace and protect liberty as a natural exercise, they saw publicly funded schools as unnecessary,” they write. “Whigs believed that ignorance was the path to tyranny and that only an educated citizenry could preserve its liberty.”<sup>10</sup>

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<sup>8</sup> David S. Heidler and Jeanne Heidler. *Henry Clay: The Essential American*. (New York: Random House, 2011), 314.

<sup>9</sup> Slavery was never far from many of the debates that raged within the politics of the expanding country. In the 1820s, when Thomas Skidmore led the Working Men’s Movement in New York, he made not only abolition, but also equal education, a part of the platform his movement adopted in 1829. They shared similar visions and ideals. As Sean Wilentz points out: “As political eschatology, Skidmore ... was just as uncompromising as David Walker’s vision of slavery’s demise. In some respects, Skidmore was even more audacious than Walker, propounding a nonviolent democratic revolution that would not only abolish slavery but create a new egalitarian regime for all Americans.” Skidmore’s founding document for the Working Men’s Movement, says Wilentz, “... attacked private banking and chartered monopolies, and included demands for abolishing imprisonment for debt, reforming the coercive militia system, equal education, and a mechanics lien law.” Sean Wilentz, *The Rise Of American Democracy: Jefferson To Lincoln*. (New York: Norton Company, 2006), 354-355.

<sup>10</sup> Heidler and Heidler. *Henry Clay: The Essential American*, 314.

Explicit in the later land-grant legislation would be a mandate for practical or “useful” education. However, as Roger L. Williams points out, this was not a new concept, either. In 1824, Williams notes, Stephen Van Rensselaer<sup>11</sup> established first distinct technical college<sup>12</sup> at Troy, New York. “A harbinger of the land-grant college, the institution was founded primarily as an agricultural college, although agricultural instruction soon fell by the wayside, supplanted by civil engineering.” Van Rensselaer’s action, he adds, “stirred a few other colleges to similar action.”<sup>13</sup> This idea would later become an essential part of the philosophy of the land-grant colleges. As David Madsen explains, it was never far from their eventual mission. “The founders of the land-grant colleges,” Madsen writes, “in keeping with the historical thought and experience, acknowledged the essential importance of work, as they dedicated their institutions to helping the industrial and working classes better their lot in life.”<sup>14</sup>

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<sup>11</sup> The possibility that Van Rensselaer Potter might be related to the Van Rensselaer family of New York is intriguing, but evidence has yet to be found to support a connection. The politically prominent Van Rensselaer family (they first secured a deed from the Mohawk tribe for all the land where the state capital city, Albany, is now located) was also active in education and the arts. In 1908 Cornell’s Liberty Hyde Bailey invited Martha Van Rensselaer to chair, along with her life partner Flora Rose, the new Department of Home Economics (later Cornell’s land-grant School and then College Home Economics and, still later, College of Human Ecology.)

<sup>12</sup> Now Rensselaer Polytechnic Institute.

<sup>13</sup> Roger L. Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement* (University Park, Pennsylvania: Pennsylvania State University Press, 1991): 21.

<sup>14</sup> David Madsen, “The Land-Grant University: Myth And Reality.” In *Land-Grant Universities and Their Continuing Challenge*, ed. G. Lester Anderson (Lansing, MI.: Michigan State University Press, 1976), 24.

Education itself was changing, and not just in the United States. Roger L. Williams argues that what was happening in America was a rougher, less formalized version of a movement that had taken hold in European education, and that what was happening in Europe was uniquely suited to the demands of an expanding, largely agrarian America. “The subdiscipline of agricultural science ... was a European contribution,” Williams observes, “beginning mainly with the organic chemistry of Justus von Liebig ... the establishment of James Johnston’s agricultural experiment laboratory in Scotland in 1842; the founding in 1843 of the private Rothamsted Experiment Station in England, which provided perhaps the greatest inspiration to U.S. agricultural researchers; and the rise of the state-supported German agricultural experiment stations...”<sup>15</sup> Once that movement reached America, Earle Ross says, it was filtered through the new democratic institutions of the country into a purely American form, but still owing much of its basic philosophy to the European movements.

“The land-grant college was the outstanding, permanent achievement of the industrial movement in education which, starting in Europe, found greatest opportunity in a new land of exploitable resources and equalitarian tradition,” Ross writes. “The movement marked essentially an effort to bring instruction more into harmony with the rapidly changing economic and social order and to democratize technical education in consonance with the free-school system of elementary education and the high school and State university at their levels. In

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<sup>15</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 13.

practice it sought a direct application of the developing sciences to the new industries, with the main emphasis, in the days of the agricultural nation, upon the basic occupation.”<sup>16</sup>

Meanwhile, Ross continues, outside of the political arena, as the basis for the American economy changed, there was a considerable agitation in the country for educational transformation. “In the decade and a half before the Civil War, the economic scene changed markedly, the chief manifestations being the early mechanization of farm and factory, the extension of transportation and communication, the growing mercantile and financial complexities, and the rise of a permanent labor problem,” Ross says.

In response, there arose a demand for a corresponding shift of emphasis in education. Was it not desirable to have special training for the farmer and the mechanic, as well as for the white-collar representatives of the professions and the military establishment?

“The agitation, though scattered at first, developed into a more or less concerted effort corresponding to the parallel Industrial Movement in Europe. The advocates were to be found throughout the Nation. Agricultural leaders and journals in the North, South, and West joined schemes of agricultural education with demands for State and Federal boards. Labor mutuals, becoming increasingly class conscious, gave trade education a leading place on their agenda. Women’s rights crusaders sought to have their cause included, although

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<sup>16</sup> Earle D. Ross, “The ‘Father’ of the Land-Grant College,” *Agricultural History* 12, no. 2 (1938): 159.

they were usually regarded as embarrassing allies. Some agitators had the breadth of social vision to include all these causes in their scheme of popular education, as did Horace Greeley in his people's colleges and Jonathan B. Turner in his industrial university."<sup>17</sup>

Jonathan Baldwin Turner, a professor at Illinois College, was indeed one of the most prominent advocates of this shift in American education. As John Campbell, president emeritus of Oklahoma State University, Oklahoma's 1862 land-grant institution,<sup>18</sup> described him in 1995, Turner seems to be rather a rural version of Thomas Skidmore. "Jonathan Baldwin Turner was a unique combination of classical scholar, educator, farmer, amateur scientist, orator, religionist, social reformer, entrepreneur, and rugged individualist," Campbell writes. "But most importantly he was a restless visionary, abundantly imbued with a strong missionary spirit. Throughout his life, he was a proselytizer in the three areas that consumed his interest and energy – religion, politics, and education." In all three, Campbell notes, Turner's ideas often were unorthodox, leaving him open to considerable criticism. "In the church, he attacked many of the conventional views of his denomination. In politics, he was among the first in Illinois to speak out publicly against slavery. And in the 1830s, he plunged headlong into the crusade for universal education for those who normally did not

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<sup>17</sup> Ross, "The Land-Grant College: Democratic Adaptation," 28.

<sup>18</sup> Langston University, founded in 1897 as the Oklahoma Colored Agricultural and Normal University, is Oklahoma's 1890 land-grant institution.



have that opportunity – the sons and daughters of what he called ‘the working class.’”<sup>19</sup>

Turner’s agitation eventually cost him his teaching job, but he continued to write and to speak on the topic of expanded higher education. He rooted his philosophy in the country’s founding principles and went from there, applying those principles to a new and growing country. Eventually, as Campbell points out, Turner found a willing audience for his ideas. “Jonathan Baldwin Turner’s thinking, talking, and planning for education ultimately led to concrete proposals for the creation of an industrial university,” Campbell explains. “His speech before the Illinois Teachers Institute in Griggsville, Illinois, on May 13, 1850, entitled ‘A Plan of our State University for the Industrial Class,’ was a blueprint for what followed in the organization of public higher education in the United States. He proposed not only the foundation of a state university for the agricultural and general industrial classes in Illinois, but such a system in every state of the Union.”<sup>20</sup> Turner’s plan – influenced and guided by Jeffersonian ideals and an expressed wish to develop young people’s minds, morals and reasoning faculties in the service of the public interest as realized in commerce, agriculture, and

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<sup>19</sup> John Campbell, *Reclaiming A Lost Heritage: An Historical Perspective of the Land-Grant University System*, (Ames, IA: Iowa State University Press, 1995), Chapter I, available at <http://www.adec.edu/clemson/papers/campbell-chapter1.html>. [Title varies in different print editions, cited as per [adec.edu](http://www.adec.edu).]

<sup>20</sup> Campbell, *Reclaiming A Lost Heritage*. See also Campbell *Reclaiming a Lost Heritage: Land-Grant and Other Higher Education Initiatives for the Twenty-First Century*, (Ames, IA: Iowa State University Press, 1995), and *Reclaiming a Lost Heritage: Land Grant & Other Higher Education Initiatives for the Twenty-first Century*, (Lansing: Michigan State University Press, 1998.)

manufacturing – included three basic goals: the establishment of colleges which would be open, at minimum cost, to laborers in agriculture, commerce, and the arts who needed educational assistance; the development of curricula which would include instruction in practical and vocational subjects for the benefit of the working classes; and the endowment of these colleges by grants of land from the holdings of the federal government.

Turner proselytized endlessly, forming alliances, and making sure that his ideas spread around the country. Campbell explains at length how Turner's ideas took hold in all parts of the country, from the Midwest to the Deep South, and how Turner's indefatigable advocacy brought the same message to radically different audiences. "He was long on ideas and enthusiasm, and his philosophy and concepts remain valid today," Campbell writes.

Listen to the words and fervor of his creed, as expressed to a large audience in Monmouth, Illinois: 'The sun never shown on such a nation, and such a power, as this soon would be, with such facilities of public advancement and improvement put in to full and vigorous operation. Set the millions of eyes in this great Republic to watching, and intelligently observing and thinking, and there is no secret of Nature or art we cannot find out; no disease of man or beast we cannot understand; no evil we cannot remedy; no obstacle we cannot surmount; nothing lies in the power of man to do or to understand, that cannot be understood and done.'<sup>21</sup>

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<sup>21</sup> Campbell, *Reclaiming A Lost Heritage*.

In Campbell's account, Turner targeted not only Illinois teachers but Illinois farmers for support of his plan for the establishment and maintenance of an industrial university:

In response to his passionate plea for their support of his plan, the following resolutions were adopted by the Convention of Illinois Farmers, held November 18, 1851, at Granville, Illinois:

'Resolved, that we greatly rejoice in the degree of perfection to which our various institutions, for the education of our brethren engaged in professional, scientific, and literary pursuits have already attained, and in the mental and moral elevation which those institutions have given them, and their consequent preparation and capacity for the great duties... of life in which they are engaged.

Resolved, that as representatives of the industrial classes including cultivators of the soil, artisans, mechanics and merchants, we desire the same privileges and advantages for ourselves, our fellows and our posterity as our professional brethren enjoy in theirs.

It was the third resolution, however, that most anticipated the land-grant mission:

Resolved, that we take immediate measures for the establishment of a university... expressly to provide a means of applying knowledge or science to the several pursuits of the industrial classes of our state...as well as to teach them how to read, observe and think, and act so as to derive the same needful and wholesome mental discipline from their pursuits in life, which the professional and military classes are taught to derive from theirs.

Turner's plan was printed and widely distributed, and it was reprinted in many newspapers, including *The New York Tribune*, at the time the nation's most

widely circulated newspaper. The newspaper's editors responded in their September 4, 1852, issue:

The greatest idea of a higher or thorough education for the sons and daughters of farmers, mechanics and laborers, is everywhere forcing itself on the public attention. Our race needs instruction and discipline to qualify them for working, as well as for thinking and talking. It may be ten years since a few poor and inconsiderate persons began to 'agitate' in favor of a more practical system of thorough education, whereby youth without distinction of sex should be trained for eminent usefulness in all the departments of industry. It is worthy of note that one of the most extensive of the public land states proposes a magnificent donation of public lands to each of the states. In furtherance of this idea, Illinois has taken a noble step forward, in a most liberal patriotic spirit, for which its members will be heartily thanked by thousands throughout the Union. We feel that this step has materially hastened the scientific and practical education for all who desire and are willing to work for it. It cannot come too soon.<sup>22</sup>

But in order exert maximum influence in the campaign for educational reform another group, the broadly disseminated sympathizers and promoters of industrial education, had to be organized. Through the efforts of Bronson Murray, Turner and other like-minded individuals, in 1853 the state legislature chartered the Illinois Industrial League, its understood purpose the "endowment of an Industrial University in all the States for the benefit of the industrial classes particularly."<sup>23</sup>

In a speech before the Springfield branch of the Illinois Industrial

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<sup>22</sup> Campbell, *Reclaiming A Lost Heritage*.

<sup>23</sup> Burt E. Powell, *The Movement For Industrial Education and the Establishment of the University 1840-1870*, (Urbana, IL: University of Illinois, 1918,) 59.

League in 1983,<sup>24</sup> Turner pointed out:

. . . All of society is divided into two classes -- the professional class and the working class. Colleges of this day provide a good liberal education for the professional class, which constitutes only a small fraction of the population. Nowhere are there colleges for the great mass of people. Society has become wise enough to know that its teachers need to be educated, but it has not become wise enough to know that its workers, too, need an education. We need a system of education adapted to the needs of the common man, which would elevate him to his rightful place in society. Education should be practical, as well as academic, and it should not be the monopoly of the privileged few, but rather the right of everyone who has the desire and the ability to learn.<sup>25</sup>

Turner had made a national cause out of his ideas. And, as Campbell explains, his campaigning helped prepare the ground for the idea of a national system of higher education in general, and for what eventually would become the land-grant system specifically. Campbell traces the straight line running from Jonathan Baldwin Turner to Justin Smith Morrill.

“Now Turner’s campaign for education reform had become truly national in scope,” Campbell recounts, “He and his fellow crusaders around the country recognized that they had to rely on the united efforts of like-minded groups across the nation if they were to gain congressional support for their plan.” Campbell explains. “Although Illinois was the first state to advocate a national appropriation to establish an industrial university for every state and territory,

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<sup>24</sup> Campbell says the speech was before the 1851 Illinois Industrial League Convention. However, since the League was not chartered until 1853, I believe he is mistaken. See David E. Shore, “The Farmers of Putnam County: Leaders in the Development of American Education,” *Illinois History* 53, no. 2 (2000).

<sup>25</sup> Campbell, *Reclaiming A Lost Heritage*.

New York and others soon asked Congress for appropriations of land to establish institutions in their respective states. For example, on April 2, 1850, the legislature of Michigan petitioned Congress for 350,000 acres of public land to establish an Agricultural College. And in February 1855 the Congress enacted a law that created the first college in the United States to offer agricultural courses for credit, the institution that would eventually be known as Michigan State University.”

Throughout the 1850s, Jonathan Baldwin Turner corresponded with members of the Illinois delegation in Congress, providing “philosophical and conceptual information and urgings” as well as his own correspondence, speeches, and related materials, as he entreated the delegates to introduce a bill supporting establishment of an “Industrial University” in each state of the Union. At the request of Illinois Congressman Richard Yates, Turner prepared a bill on the subject of industrial universities in 1852. Unfortunately, Yates was not re-elected to Congress, so the bill was not introduced. In the fall of 1857, Turner wrote to Lyman Trumbull, United States Senator from Illinois, asking him to introduce the bill. Trumbull was supportive of the concept but, because he sensed a feeling of opposition in Congress against further major grants of federal land, expressed reluctance to comply. He believed the bill would more likely pass if members of Congress from some of the older states sponsored it.

“The Illinois members, following the reasoning of Senator Trumbull, believed introduction of their bill could be entrusted” to Justin Morrill, Campbell

writes. “Representative Morrill was able, had a pleasing personality, and was a staunch friend of agriculture.”<sup>26 27</sup>

Justin Morrill was a man of no formal education beyond secondary school. Born in Strafford, Vermont on April 14, 1810, the son of a local blacksmith, Morrill built such a successful career selling dry goods all over northern New England that he retired at the age of 38. However, as Craig LaMay writes, he “regretted his lack of formal education and ... saw the need for practical education in agriculture and mechanics for the working people with whom he identified.”<sup>28</sup> Elected to Congress from Vermont as a representative of the Whig party in 1854, Morrill squeaked into office by a mere 59 votes.

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<sup>26</sup> Campbell, “Milestones in the Legislative History of U.S. Land-Grant Universities.”

<sup>27</sup> The debate over whether Justin Smith Morrill or Jonathan Baldwin Turner was the father of the land-grant act raged into the 20th century. As Earle Ross explains, in 1907, Eugene Davenport, dean of the College of Agriculture at the University of Illinois, broached the notion at a meeting of an agricultural society that Turner deserved the credit. “Most recent general discussions of the movement if not altogether impartial and unprejudiced have been more objective and temperate,” Ross writes. “A Carnegie Foundation study in 1917, while fully recognizing limitations to Morrill’s contribution, found the Turner claims not supported by the evidence, and with that conclusion the official Morrill biographer thought the contention might rest as ‘it is not likely to be revived.’” A consensus gradually formed by which Morrill was given the lion’s share of credit for bringing the land-grant system into existence, but that consensus also concluded that Morrill’s bill would not have been possible without all the decades of spadework done all over the country by people like Turner. As Earle Ross notes, “It is evident that through the efforts of many pioneers - famous and obscure - the agricultural or industrial college movement was initiated in its essentials and, for the time, well-advertised when the Vermont Republican sought national aide.” Ross, “The Father of the Land-Grant College,” 157,169.

<sup>28</sup> Craig LaMay, “Justin Smith Morrill and the Politics and Legacy of the Land-Grant College Acts,” [http://community-wealth.org/\\_pdfs/articles-publications/universities/article-la-may.pdf](http://community-wealth.org/_pdfs/articles-publications/universities/article-la-may.pdf), 74.

Once in Congress, Morrill established for himself a reputation as a solid legislator particularly on the dicey issues of taxation and tariffs. As John Y. Simon notes, he quickly became allied with Thaddeus Stevens of Pennsylvania<sup>29</sup>, one of the Congress's most fiery abolitionists, with whom Morrill found a common interest in the democratic potential of education. "Stevens," Simon writes, "proud of his role in support of public education in Pennsylvania, was particularly receptive to plans for the democratization of education. Morrill sat at Stevens' side in the House, and while the extent of his prompting and influence cannot be measured, personal attacks on Morrill were often answered by Stevens."<sup>30</sup>

And Stevens was not one given to half-measures in defense of his friend. After another congressman attacked Morrill's tariff, Simon writes, "Stevens cried: 'I would to Heaven there were more public men who had the industry and the patriotism to originate, mature, and carry through great public measures, worthy to bear the impress of their names and carry them to other nations and to posterity!'"<sup>31</sup>

The Morrill Act was first introduced in the Congress on December 14, 1857. As John Florer notes, the country's land was bound now to the improvement of the people who would live on it. "The bill proposed a total grant

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<sup>29</sup> Born in rural Danville, Vermont, to Joshua and Sarah Morrill Stevens, Stevens moved to Pennsylvania as a young man.

<sup>30</sup> John Y. Simon, "The Politics of the Morrill Act," *Agricultural History* 37, no. 2 (1963): 105.

<sup>31</sup> Simon, "The Politics of the Morrill Act," 105.



of 6,060,000 acres of federal land worth an estimated \$7,575,000 and apportioned to each state according to the size of its congressional delegation,” Florer writes. “Each was expected to use its portion to establish at least one college where major, but not exclusive, attention would be paid to ‘agriculture and the mechanic arts.’ The Secretary of the Interior was obligated to issue land scrip to states that did not contain sufficient federal lands to fill the grant within their own boundaries. The state could then sell such scrip, thereby financing its college through the disposal of federal lands in other jurisdictions.”<sup>32</sup>

Even in a time of national turmoil, as Theodore Sky argues, there remained a desire in the country to improve itself as it grew. “[The Morrill Act] ...was consistent with legislation that Lincoln actively promoted during his presidency and discussed in his annual messages, including grants of public lands for railroads, federal assistance for internal improvements such as canals and waterways, and the homestead legislation,” Sky writes. “Representative Justin Smith Morrill of Vermont, who proposed and managed the college bill, argued during the debates on the legislation that it would enhance national prosperity by increasing agricultural production and efficiency. Morrill tied his legislation to the Homestead Act: if the land were given freely, farmers would have to learn how to use it. All of the legislation – for the railroad, for internal improvements, and for education – shared a common theme: their constitutional

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<sup>32</sup> John H. Florer, “Major Issues in the Congressional Debate of the Morrill Act of 1862,” *History of Education Quarterly* 8, no. 3 (1968): 459.

support ultimately depended on a broad Hamiltonian reading of the General Welfare clause.”<sup>33</sup> And, James Collier adds, Morrill also argued that what he was proposing was essential to modernizing not only education, but the country itself, as increasing access to practical education invariably would result in general improvements in the areas being taught. “The introduction of Morrill’s proposed legislation in 1857 confronted the Hamiltonian and Jeffersonian position on public land use,” Collier says. “Defending the bill, Morrill referred to poor contemporary land management practices and their possible solution stemming from European science and technical education. Morrill artfully wedded the Jeffersonian notion of educating citizens as the ‘proprietors of the soil’ to the Hamiltonian desire for direct federal revenue.”<sup>34</sup>

When Morrill first introduced his bill, however, the Lincoln Administration was still three years away, and that reading of the General Welfare clause was far from prevailing in the Congress. Neither was it shared by President James Buchanan. The bill occasioned fierce debates, all of them energized by the momentum of the issues – slavery, the relationship between the federal government and the states, and between the states themselves – that were driving the country toward constitutional cataclysm. No issue was immune, and John Florer is quick to point out that Morrill’s legislation found itself caught up in

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<sup>33</sup> Theodore Sky, *To Provide for the General Welfare: A History of the Federal Spending Power* (Dover, DE: University of Delaware Press, 2008).

<sup>34</sup> James Collier, “Scripting the Radical Critique of Science: The Morrill Act and the American Land-Grant Institution,” *Pergamon* 34, (2002): 182.

these issues as well. “Like most national projects of the day, the bill encountered sectional rivalries,” Florer writes. “Most of the strong opposition was found among congressmen from the South and from the Western states, while support was centered in the East, and, as Earle Ross points out in his *Democracy’s College*, ‘among those western states where most of the federal lands were already sold or given away.’ The vote also shows a greater tendency toward support among Republicans than it does among Democrats, therefore leading Ross to suggest the existence of partisan overtones, although he holds that the major division was sectional.”<sup>35</sup>

The political volatility of the times even charged the older conflicts within the country’s politics with a new urgency. The ancient fights between Eastern money and Western agricultural interests flared again, and the fundamental argument that had raged among the Founders regarding a governing elite vis-a-vis a country of yeoman farmers, found a new focus in what appeared to be an attempt by Morrill and his supporters to “professionalize” the working of the land. Neal Harl found several vivid examples of the rhetoric and ideas arrayed against Morrill: “We want no fancy farmers, no fancy mechanics,” said Senator Rice of Minnesota, while Senator Mason of Virginia railed, “It is one of the most

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<sup>35</sup> Florer, “Major Issues in the Congressional Debate of the Morrill Act of 1862,” 460.

extraordinary engines of mischief ... misusing the property of the country ... an unconstitutional robbing of the Treasury for the purpose of bribing the States.”<sup>36</sup>

The bill passed both the House and the Senate by narrow margins, but, on February 22, 1859, President Buchanan vetoed it. In his veto message, you can see Buchanan’s unique sensitivity to the state’s rights arguments – he was trying, vainly, to hold the country together by appeasing the Southern fire-eaters – in that he cited the Morrill Act as an unwarranted intrusion by the federal government into the affairs of the several states.

“The Constitution is a grant to Congress of a few enumerated, but most important powers,” Buchanan wrote in his veto message. “... All other powers are related to the states and to the people. For the efficient and harmonious working of both, it is necessary that their several spheres of action should be kept distinct from each other. This alone can prevent conflict and mutual injury.”<sup>37</sup>

For his part, as John Y. Simon points out, Morrill was outraged by what he saw as the president’s capitulation not merely to the slave states, but to a kind of anti-intellectualism that Morrill saw as impeding the benefits of inevitable progress. “The telegraphic news of this veto will start a tear from the eye of more than one manly boy,” Morrill charged, and added that the president had created

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<sup>36</sup> Neal E. Harl, “The Relevance of the Land-Grant in the 21st Century,” [www.econ.iastate.edu/~harl/RelevanceoftheLandGrantMission.pdf](http://www.econ.iastate.edu/~harl/RelevanceoftheLandGrantMission.pdf).

<sup>37</sup> Charles K. Burdick, “Federal Aid to Legislation” (1922) cited in Felix Frankfurter and James McCauley Landis, *The Business of the Supreme Court: A Study in the Federal Judicial System* (New York: MacMillan, 1927): n.8, 58.

“a party question.” Simon writes. “Yet the Republican platform of 1860, which endorsed homesteads and a Pacific railroad, failed to mention college land-grants.”<sup>38</sup> The country, it seemed, thought it had bigger problems. And it did.

Morrill reintroduced his bill late in 1861. The 37<sup>th</sup> Congress was in its second session, and it was a different Congress than the one that had preceded it. The South had seceded, taking its congressional delegations with it, and leaving only the delegations from the West to stand against the Morrill Act. (Morrill’s primary defender during what was still a contentious congressional debate remained Thaddeus Stevens, who answered the personal attacks lobbed at Morrill in kind). Florer explains that the grounds of the debate had not changed very much. “Several themes seem to recur through both Congresses and in both Houses. The most prevalent were centered upon the issues of *constitutionality* and *precedence*,” Florer writes. “These seemed to intertwine in the course of debate. References to precedence frequently became only a part of a more general effort to argue that the bill was, or was not, constitutional.”<sup>39</sup>

Morrill found his bill buried in committee in the House, and turned to the Senate to pass its own version. Morrill’s primary obstacle in the House ironically was a congressman from Wisconsin named John Fox Potter. Morrill quickly found arrayed against him the almost instinctive distrust held by Western farmers against the bankers and speculators from the East. John Y. Simon explains how

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<sup>38</sup> Simon, “The Politics of the Morrill Act,” 104.

<sup>39</sup> Florer, “Major Issues in the Congressional Debate of the Morrill Act of 1862,” 461.

Morrill employed no little political shrewdness in finessing the congressional system, sending his bill to the Senate, which Morrill believed to be a more sympathetic audience. "By early May 1862, Morrill arranged to have the bill presented by Ben Wade of Ohio in the Senate," Simon writes. "It was referred to the Senate Public Lands Committee, headed by James Harlan of Iowa, former superintendent of public instruction for his state, who was backed by a resolution of the Iowa legislature calling for the passage of the college bill and pressure from the trustees of Iowa State College. Of the seven members of the Senate Committee, only three were westerners, and two of these (Harlan and Pomeroy of Kansas) supported the bill. In two weeks, the bill returned to the Senate. As Wade tried to hurry it through, James Lane of Kansas fought it bitterly by asserting that it would allow other states to exploit Kansas land, and by proposing to limit land entries to the territories."<sup>40</sup>

When the Senate passed its own version of the Morrill Act, the momentum behind the bill became irresistible. John Fox Potter became so vehement in his opposition to the bill that he alienated fence-sitting members of the House. Simon describes Potter's increasingly frantic efforts to kill Morrill's bill. "Soon after the Senate passed the bill, Morrill rammed it through the House," Simon writes. "Potter opposed the motion to take up the bill out of regular order, tried to have it referred to his own Public Lands Committee, moved it be postponed, demanded

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<sup>40</sup> Simon, "The Politics of the Morrill Act," *Agricultural History* 37, no. 2 (1963): 105.

a full reading for purposes of delay, moved to lay the bill on the table, and tried to offer crippling amendments.”

But Morrill moved adroitly through Potter’s flurry of dilatory motions to obtain a quick vote.<sup>41</sup> Between Morrill’s haste, and Potter’s frenzy, there was no chance for a lengthy discussion of the merits of the bill. On June 10, 1862 the bill passed the Senate 32-7, and the House followed suit, 90-25, on June 17. The size of the margin can be attributed partially to the support of border state congressmen such as Charles Calvert of Maryland, who donated his model farm outside of Washington for an agricultural college.<sup>42</sup>

(According to Simon, John Fox Potter never relented in his opposition. Later in 1862, in a debate over the construction of a ship canal, he referred to “that stupendous humbug, the agricultural colleges bill. (Laughter).”)<sup>43</sup>

On July 2, 1862, on the same day the Abraham Lincoln called on 300,000 men to volunteer for the Union and to serve for three years, the President

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<sup>41</sup> In reintroducing the Act, John Campbell explained that Morrill justified it as a necessary response to “... the loud demand for more scientific instruction in the colleges” and the fact that “so much of the abundant public lands of the United States were being given away to local corporations, railroads, and other entities that he thought it very desirable for a portion of the proceeds from such lands be directed in some way to the good of the whole people...and that the thoroughly educated, being most sure to educate their sons, appeared to be perpetuating a monopoly of education inconsistent with the welfare and complete prosperity of American institutions.” John Campbell, *Reclaiming A Lost Heritage: An Historical Perspective of the Land-Grant University System*.

<sup>42</sup> Simon, “The Politics of the Morrill Act,” 106.

<sup>43</sup> Simon, “The Politics of the Morrill Act,” 107.

signed<sup>44</sup> "An Act Donating Public Lands to the Several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts," or the First Morrill Act, into law:

An Act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts: Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that there be granted to the several states, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each state, in quality equal to 30,000 acres, for each Senator and Representative in Congress to which the States are respectfully entitled by apportionment under the census of 1860; . . . And be it further enacted, that all monies derived from the sale of lands aforesaid . . . shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five percent, upon the par value of said stock; and that the money so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, and the interest of which shall be inviolably appropriated . . . to the endowment, support, and maintenance of, at least, one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.<sup>45</sup>

Ultimately, and ironically, given the nature of the times, and given the nature of the political arguments that had been arrayed against it, John Y. Simon sees the Morrill Act as a mechanism for a kind of national unity in a country that was tearing itself apart, and a vision of the kind of national unity that might prevail

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<sup>44</sup> Lincoln signed two other laws that day, including one banning polygamy in the territories and another creating a loyalty oath for all government officials.

<sup>45</sup> The Library of Congress provides the text of the first Morrill Act here: <http://www.loc.gov/rr/program/bib/ourdocs/Morrill.html>.



after the Civil War had ended. “In passing the Morrill Act, Republicans were presumably redeeming their promise of a national reform program and, in addition, strengthened their internal unity,” Simon writes. “The college bill was one of many Republican efforts to cement an alliance between East and West, between industry and agriculture.”<sup>46</sup>

According to Roger L. Williams, the bill also gave a uniquely American spin to the educational reforms that had come out of Europe’s agricultural and industrial movements. It was as though a kind of stealth American nationalism was at work at a time when there was real doubt about the continued existence of an American nation. “Morrill’s motives in introducing the bill covered a complex web of concerns,” Williams writes. “Certainly the urge to provide a practical and, especially, a liberal education for the industrial classes was salient, as this constituency comprised 80 percent of the population.” But there were other concerns to contend with, as Williams notes: the perceived reluctance of existing colleges to accommodate new subjects and new kinds of students; the inability of the newer states (twenty new states were formed in the years between 1820 and 1860) to provide such colleges without federal help; concern over the rapid divestiture of public lands to powerful private interests, such as the railroads; concern over soil degradation, erosion and wastage; fear the United States could not keep pace with the competition posed by Europe’s agricultural

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<sup>46</sup>Simon, “The Politics of the Morrill Act,” 110.

and industrial movements; and the Republican party's desire to bring the industrial movement, particularly the agrarian interests, into the fold...."<sup>47</sup>

And, in the end, the Morrill Act, and the land-grant institutions it made possible, answered the questions posed by Madison and Hamilton at the country's founding, and later by Clay and the "internal improvements" movement. There was a role for the national government in promoting education, and there was a role for the national government in making sure that the country at large would benefit from what was produced by the institutions founded to provide that education. As Simon argues, Madison's "national seminary of learning" would not be one university, but many of them, all with the same goal. "In a sense not understood in 1862, the persistent problem of the national university has been solved, and in accord with the aspirations of a democratic society," Simon writes. The dichotomy between federal resources and regional needs was harmonized under an implicit partnership. Congress had moved tentatively in a new direction, and colleges developed slowly amid salutary neglect."<sup>48</sup>

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<sup>47</sup> Williams, *The Origins of Federal Support for Higher Education*, 39.

<sup>48</sup> Simon, "The Politics of the Morrill Act," 111.

Twenty years later after the passage of the Morrill Act, Eugene W. Hilgard would reflect in the *Atlantic Monthly* not only on the success of the Act, but also on the misunderstandings that would be perpetuated for generations to come:

This beneficent act to promote the arts of peace, again championed chiefly by Mr. Morrill, and passed almost within hearing of hostile cannon, is entitled, whether by oversight or with a view to the conciliation of popular sentiment, 'A bill for the benefit of agricultural colleges,' – a title which does not do justice to its broad and liberal scope, and wise deference to the varied requirements of the different portions of the immense empire covered by its action. As a matter of fact, the impression conveyed in that title has in a great measure remained fixed in the popular mind and parlance, it being usually designated as the agricultural college act: and this has given rise to not a few misapprehensions and acrimonious discussions that a candid consideration of the act itself would have rendered superfluous.<sup>49</sup>

The Morrill Act of 1862 was far more of a beginning than it was an end. It was fortunate that a culture of ongoing experimentation was baked into the very nature of the Act. The era that began with the passage of the first Morrill Act in 1862, ran through the passage of the Hatch Act in 1887 and the second Morrill Act in 1890, and ended with passage of the Smith-Lever Act in 1914 is best seen as a period of continuing experimentation in cooperative and interdisciplinary learning, as well as a revolution in graduate education. In the beginning, however, the original Morrill Act clearly needed refinement in its implementation. As Vernon Carstensen points out, the idea of the land-grant colleges, and their stated purpose, was so unlike previous American attempts at higher education

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<sup>49</sup> Eugene W. Hilgard, "Progress in Agriculture by Education and Government Aid," *Atlantic Monthly* 49, no. 294 (April 1882): 533.

that it caught the existing educational establishment flatfooted. “Although the state legislatures were often deadlocked in trying to decide how the Morrill lands should be assigned, this decision was relatively simple in comparison with the problem of what the nature and activities of the new institutions should be,” Carstensen writes. “The real difficulty occurred when it came to translating aspirations and expectations into a course of study, finding adequate teachers, and attracting students. Perhaps the wonder is that more did not try to solve the problem by renaming courses so as to offer Agricultural Greek or Latin and Agrarian Philosophy or Mathematics. Some did, and those incidents were remembered with bitterness.”<sup>50</sup>

And the political mechanics of the Act, which had been constructed to balance state and federal authority over the land-grant institutions, often complicated the implementation of the Act out in the states. In the first decade after the passage of the Morrill Act, Roger L. Williams explains, the attempts to establish the individual institutions was fragmented, and it was vulnerable not only to the very real financial vicissitudes of the time, but also to local political rivalries.

“In some states, the land-grant status would go to the agricultural colleges founded before the war; in others, to the existing state universities; and, in other states, brand-new institutions were built on the promise of the land-grant designation,” Williams writes. “State funding would be irregular, if forthcoming at

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<sup>50</sup> Vernon Carstensen, “A Century of the Land-Grant Colleges,” *Journal of Higher Education* 33, no. 1 (1962): 33.

all ... From 1862 to 1890, and the passage of the second Morrill Act, the land-grant colleges continuously faced hard times. Aside from the difficulties presented by the varying interpretation of what these colleges were expected to do, money was scarce. The North had accumulated a huge debt from the Civil War, and the South was broke. State legislatures from both sections were reluctant to make appropriations for land-grant colleges.”<sup>51</sup> Williams also describes a scene in Illinois in which petty politics gummed up the entire process.

“At the opening session of the Illinois General Assembly in 1863,” Williams writes, “Knox and Shurtleff colleges, two old-time schools, introduced a bill to set up agricultural colleges in northern and southern Illinois. Rudely awakened by this sectarian sortie, the Illinois Industrial League called a convention in Springfield in June 1863 to discuss the matter. Jonathan Turner persuaded the convention, dominated by agriculturalists, to ask the legislature to postpone its decision.”<sup>52</sup>

Williams points out that this was an easier process in some places than in another. In Illinois, it got bogged down in local politics. In Wisconsin, the state legislature simply adapted the existing state university to the precepts of the Act. “In Wisconsin, where the University of Wisconsin had opened for instruction in 1849, the process took an entirely different route,” Williams writes. “There, the

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<sup>51</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 45.

<sup>52</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 45.

legislative 'organic act' of 1866 reorganized the university – the obvious recipient of the grant – in response to the necessity of implementing the Morrill Act. After defeating the bids of Ripon College and Lawrence Institute for the land-grant, the legislature, in designating the university as the recipient, required the regents to establish a college of arts and letters and to purchase an experimental farm.”<sup>53</sup>

The patchwork efforts to implement the Act in its first decade was matched by, and occasionally contributed to, confusion over what the land-grant institutions were supposed to be doing. “Defining the goals of agricultural and mechanical education in the context of the Morrill Act would become a focal point in late nineteenth century American higher education. While experimentation was seen as essential to land-grant institutions, the design of experiments was contested. [... A] persistent confusion [existed] between the showily successful 'model' farm and experimental plots, equipment and livestock. The spic-and-span farm setup had a direct demonstrational appeal to the farmer and prospective farmer that the average field and laboratory experiments could not make.” Absent resources to combine showpiece farming and engineering projects with testing laboratories, questions arose about the place of experimental research in the classroom.”<sup>54</sup>

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<sup>53</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 44.

<sup>54</sup> Collier, “Scripting the Radical Critique of Science: The Morrill Act and the American Land-Grant Institution,” 188.

The act establishing the Land-Grant institutions was not yet a decade old when educators expressed a pressing need to connect, to share experiences, and to “bolster one another in their new and common effort.”<sup>55</sup> A call went out for all “Friends of Agricultural Education,” whatever their affiliation, to come together in conversation.<sup>56</sup> Still, the record of participants reflects an overwhelming representation from the Land-Grant institutions when the group convened in Chicago from August 24-28, 1871.

The weight of responsibility felt by those assembled was acknowledged by Regent J.W. Gregory of Illinois Industrial University who, in his opening remarks, noted that, “Practical men, like those there assembled, believed in deeds rather than words.” The duty of the convention, then, “was to deliberate about the particular duties, as practical scientific men to whom vast public interest had been committed, about which great solicitude was felt.”<sup>57</sup> The Morrill Act called the Land-Grant colleges into being, now the Convention of Friends of Agricultural Education had to make the first formal attempt to assess critically the form that education was taking. Participants were acutely aware that decisions made had consequences they could not fully anticipate. As Regent Gregory observed: “There were many things to be done. ... Consequently, there were many

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<sup>55</sup> Richard A. Hatch, ed., *An Early View of the Land-Grant Colleges: Convention of Friends of Agricultural Education*, (Urbana, IL: University of Illinois Press, 1967), vii.

<sup>56</sup> The definition of “friends” was ultimately expanded to include “persons in the United States or British Provinces who are engaged or interested in promoting the art or science of agriculture.” *An Early View of the Land-Grant Colleges*, vii.

<sup>57</sup> Hatch, ed., *An Early View of the Land-Grant Colleges*, 4.

changes to be made, and many new things to be attempted. ... In this country, the business was new and raw.”<sup>58</sup> If the goals of the Morrill Act were going to be achieved, the land-grant institutions were going to have to find a unity of purpose, and they were going to have to develop a unified voice, because it had become plain that the land-grant idea had to sell itself to the country.

Three areas of concern dominated the discussions. First, and arguably most important, was consideration of the role and importance of experimental methods in agriculture. Second was a discussion of administrative problems, pedagogy, and philosophy. Finally, consideration was given to proposals for creation of an organization of representatives from the “industrial colleges.”<sup>59</sup>

Some sixteen years before the Hatch Act established the experiment stations, the conventioners already had come to realize the advantages of having institutionalized cooperation in research. As Professor E.W. Hilgard of the University of Mississippi, pointed out, “I agree ... that the more we employ experiments, the more apt we are to come to general laws instead of local experiences. The matter of experimenting has been ‘run into the ground.’ Experiments made by private individuals have been reported as general laws, or illustrating general laws, without any basis for the assumption. It is that which

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<sup>58</sup> Hatch, ed., *An Early View of the Land-Grant Colleges*, 10.

<sup>59</sup> Not all attendees were convinced of the need for such an organization. The Association of State Universities and Land-Grant Colleges would not be founded until 1887.



makes a great portion of agricultural journals worthless, and a stumbling block to one who is trying to learn the truth.”<sup>60</sup>

The extent to which the eastern Land-Grant colleges were beholden to the pioneering Land-Grant institutions was evident in some of the questioning. “We are very curious to learn what the experience of the West is in admitting women to the universities, colleges, and schools of science,” Professor D.C. Gillman of the Sheffield Scientific School of Yale College inquired politely. (The Sheffield School was briefly Connecticut’s Land-Grant institution.) “None of the New England colleges have thus far admitted women to the privileges of instruction in any definite way.”<sup>61</sup> Iowa State Agricultural College president Welch was quick to respond: “From an experience of twenty-five years in conducting such schools, I can say confidently that the two sexes are of an average equally in their capacity for scholarship. Some of our best students are young ladies. One of our best manipulators in analytic chemistry is a girl of 17. Variations in natural ability is shown in difference sciences, not in sexes.”<sup>62</sup> For its part, Yale would not admit women until 1969.

While those gathered reflected different institutional styles and local concerns, for the first time there was a sense that all the land-grant institutions were part of a single movement, and that they would speak in one voice. This

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<sup>60</sup> Hatch, ed., *An Early View of the Land-Grant Colleges*, 33.

<sup>61</sup> Hatch, ed., *An Early View of the Land-Grant College*, 52.

<sup>62</sup> Hatch, ed., *An Early View of the Land-Grant College*, 55.

provided the land-grant movement with a kind of momentum that led them to take more collective action on their behalf. They gradually became a viable political constituency, with a plan for a permanent organization of the agricultural colleges proposed in 1885. Two years later – the same year Congress adopted the Hatch Act – the Association of American Agricultural Colleges and Experiment Stations, parent of the Association of Land-Grant Colleges and Universities, was created.

The Hatch Act mandated that federal funds be used for the establishment of agricultural experiment stations. As such, it not only centralized the research work being done at the various land-grant schools, it also cemented in place an expanded role for the federal government in the land-grant system. As Roger L. Williams writes, the federal money from the Hatch Act helped out the participating universities in a number of ways. “The evidence suggests that the colleges needed the experiment stations more than the experiment stations needed the colleges,” Williams explains. “The scientists found themselves overburdened with responsibilities for teaching and service, at the expense of research. Moreover, Hatch Act funds were sometimes used to support college needs that were not related to agricultural research. On the other hand, the college presidents ... tended to view the stations as federally funded academic departments.”<sup>63</sup>

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<sup>63</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 88.

In turn, this helped to break down the skepticism regarding scientific farming in the rural communities that the new system was meant to serve. As David Madsen points out, “The discontent of the farming community was somewhat allayed by the passage of the Hatch Act in 1887, which encouraged the creation of research stations to perform agricultural research and service. The later success of the colleges was due, in part, to the activities engendered by the experiment stations with their well-equipped barns, their carefully nurtured fields, their laboratories and demonstration facilities, and to the services they provided through county agricultural and home economics agents as well as through correspondence with persons seeking answers to questions about agriculture ... The impressive list of achievements in agricultural experimentation includes improvements in fertilizers, seed corn, pesticides, fruits, hog breeding, disease control, and tests for butterfat.”<sup>64</sup>

Roger L. Williams also argues that the experimental stations not only convinced the individual farmers, but also broke down the formal resistance of the existing farmers’ organizations to the land-grant system as a whole. “The Hatch Act not only provided an underpinning for agricultural research and instruction, but also freed limited funds that had been allocated to agriculture for use by other academic programs. Equally important, it provided the ‘agricultural colleges’ with the means to make substantial contributions to the well being of

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<sup>64</sup> David Madsen, “The Land-Grant University: Myth And Reality,” in *Land-Grant Universities and Their Continuing Challenge*, G. Lester Anderson, ed. (Lansing, MI.: Michigan State University Press, 1976), 24. This last was the revolutionary discovery of University of Wisconsin professor and experiment station chemist Stephen Babcock.

their agricultural constituencies. During the preceding quarter-century, the powerful Grange and National Farmers Alliance had denounced the land-grant colleges as failures and shams for their inability to attract agricultural students. With the Hatch Act came heightened prospects to mend fences with the farmers.”<sup>65</sup>

Gradually, as Roger Williams explains, the Hatch Act acclimated the country’s farmers to entirely new ways of agriculture. The experiment stations were part of a new status quo in the country’s heartland. And it also created a new status quo for how the nation as a whole funded higher education. “The Hatch Act also legitimized agricultural science as an intrinsic part of the entire agricultural enterprise,” Williams says, “and helped to establish scientists as the source of knowledge and the engine of agricultural productivity ... the Hatch Act also placed the federal government’s imprimatur firmly on the land-grant colleges. Atherton and his colleagues had argued for fifteen years that the Morrill Act of 1862 implied a continuing federal relationship with the colleges; the Congress that had brought ‘the national schools of science’ into being, they charged, had a continuing responsibility to nurture them. The Hatch Act gave great credence to their argument.”<sup>66</sup>

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<sup>65</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 89.

<sup>66</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 120.

For the first time since the passage of the original Morrill Act, its effects were clearly seen and its potential was beginning to be realized because, as Vernon Carstensen points out, the balance between the state and federal interests had slid toward the latter. “Thus, twenty-five years after the passage of the Morrill Act, the first period of indecision and uncertainty had come to an end. The colleges had established curriculums, trained scientists were beginning to be available, the experiment stations – the agencies conducting research – were coming into existence, and the colleges had formed a national organization to represent their interests before Congress and in government departments,” Carstensen writes. “Within the Department of Agriculture, the Office of Experiment Stations was created to co-ordinate the work of the state experiment stations and to serve as a federal center for the agricultural colleges. Indeed, the proceedings of the Association were edited by the Office of Experiment Stations from 1889 to 1909 and were issued as bulletins of the United States Department of Agriculture.”<sup>67</sup> In 1889, the Commissioner of Agriculture was elevated to cabinet status as the Secretary of Agriculture, and the next year additional funds were obtained from Congress in the second Morrill Act.<sup>68</sup> Meanwhile, the

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<sup>67</sup> Carstensen, “A Century of the Land-Grant Colleges,” 35.

<sup>68</sup> The Second Morrill Act of August 30, 1890, was an act to apply a portion of the proceeds of the public lands to the more complete endowment and support of colleges as provided for under the provisions of the first Morrill Act. Most specifically, the post-war act specified that states maintaining separate colleges for different races had to propose a just and equitable division of the funds to be received under the act. Any states that had used their 1862 funds entirely for the education of white students was forced to either open their facilities to black students or to provide separate facilities for them. This act served to establish sixteen black land-grant colleges throughout the South. These

experiment stations were expanding under the federal grant: in 1893 it was reported that they had published a total of 89 million pages during the previous year; and by 1900, 56 experiment stations, employing 678 persons, had been organized.”

At the same time, as Frederick Buttel argues, the federal role was to create a structure within which programs could be developed that would be uniquely suited to the specific needs of the communities in the various states. “There was an emphasis on applied, locally adapted research (research that would be immediately useful and which was consistent with the wide range of local agroecological conditions in the country). The public research system was mainly state-funded,” Buttel writes. “A predominance of state funding overcame farmer opposition to federally funded, productivity-increasing research; the land-grant rationale was to support research in one’s state to enable farmers in that state ... to compete with farmers in other states.”<sup>69</sup>

The next development came with the passage of the second Morrill Act in 1890. This was aimed at the states that had been in rebellion during the passage of the original Morrill Act and, as Roger L. Williams points out, it led to the establishment of many of the historically black colleges, although the funding for these latter was often inconsistent and paltry, and shot through with the vicious

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universities became known as “The 1890 Land-Grant Institutions.” As might be expected, resources were not distributed equitably.

<sup>69</sup> Frederick H. Buttel, “Ever Since Hightower: The Politics of Agricultural Research Activism in the Molecular Age,” *Agriculture and Human Values* 22, (2005): 276.

absurdity of the Jim Crow system. “The contradictory section forbidding payment of funds to a state that maintained segregated land-grant college,” Williams writes, “but considering the maintenance of separate land-grant colleges for blacks and whites to be compliant with the act, stood intact.”<sup>70</sup> And, as Samuel Proctor reminds us, the schools in question had no political clout whatsoever to remedy the situation. “Every state had several fledgling colleges when the Morrill Act of 1890 provided funds to establish more black schools for agricultural and industrial arts,” Proctor writes. “Unfortunately, these funds were a mockery, a mere gesture. Black people were so politically impotent by 1890 ... that they had to accept these poor offerings.”<sup>71</sup> In fact, James Collier argues, among African Americans, the lost promise of the second Morrill Act damaged the historical legacy of the land-grant movement itself. “And while the Morrill Act came to be hailed as a step toward democratizing United States education, other criticisms, over time, were raised. University leadership was questioned,” Collier writes. “Opportunities for minority groups were limited. Shortly before his death in 1968, Martin Luther King castigated the land-grant system for being a federal instrument protecting the interests of wealthy farmers.”<sup>72</sup>

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<sup>70</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 145.

<sup>71</sup> Samuel D. Proctor, “Land-Grant Universities and the Black Presence.” In *Land-Grant Universities and Their Continuing Challenge*, G. Lester Anderson, ed. (Lansing, MI.: Michigan State University Press, 1976), 192.

<sup>72</sup> Collier, “Scripting the Radical Critique of Science: the Morrill Act and the American Land-Grant University,” 185.

Elsewhere, the second Morrill Act fulfilled the promise of the first by expanding the land-grant philosophy into fields other than agriculture, which had been the vision of Morrill, and Turners, and even as far back as Benjamin Franklin. Engineering, as Roger L. Williams tells it, was one of the first disciplines to profit from the system. “The act proved to be a boom to the engineering disciplines, which were becoming mainstays at many land-grant colleges,” Williams writes. “At the Pennsylvania State College, the total instructional staff increased from twenty-eight in 1890-91 to forty by 1893-94, with the bulk of the new faculty being added in engineering. They were sorely needed. By 1893-94, some 128 of 181 undergraduates at Penn State (70 percent of the student body) were enrolled in engineering programs.”<sup>73</sup>

The last act came in 1914, when the Smith-Lever Act established the national Cooperative Extension Service. Connected to the land-grant colleges, the extension services brought the information developed by the research there to the people in the states, including instruction in subjects like agriculture and what became known as home economics. As George McDowell explains, this completed the mission of the original Morrill Act, and it also made permanent the changes in American higher education – a dedication to practical learning, and to public service, and an expanded federal role – that it had wrought. “After agricultural scientists demonstrated their abilities to solve some of the practical agricultural problems, both the scholarly agenda and the access to knowledge

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<sup>73</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 154.



were inextricably entwined at the land-grant colleges around 1900,” McDowell writes. “By this time, farmers, hungry for solutions to their problems, clamored for the insights of the scientists. The claims on scientists’ time became so great that the outreach function of the university was formalized as the Cooperative Extension Service by the Smith-Lever Act of 1914.”<sup>74</sup>

Within the land-grant universities colleges of agriculture the Smith-Lever Act was widely interpreted to encompass a broad spectrum of subjects pertaining to the needs of individuals, households, businesses, and governments. “Most importantly,” McDowell claims, “this earliest mandated public service function in American higher-education is an active, usually nonformal, functional education activity based on the scholarship of the university and directed to widely dispersed and varied audiences beyond the campus.”<sup>75</sup>

Gradually, the land-grant schools had defined themselves and, behind the leadership of people like Daniel Coit Gilman, they’d begun to work together for their common interests, as well as diversifying their curricula. As Roger L. Williams points out, Gilman had been there in 1871, when the land-grant institutions had first come together, and he had been central to the effort by the land-grant colleges to present themselves in one voice. “...In the fall of 1871,” Williams writes, “Gilman completed the first comprehensive national study of

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<sup>74</sup> George R. McDowell, *Land-Grant Universities and Extension into the 21st Century: Renegotiating or Abandoning a Social Contract*. (Hoboken, N.J.: Wiley, 2001), 7.

<sup>75</sup> McDowell, *Land-Grant Universities and Extension into the 21st Century: Renegotiating or Abandoning A Social Contract*, 17.

land-grant institutions for the commissioner of education, whose office was in the U.S. Department of the Interior. To gather information, Gilman visited the colleges in eight states and had ‘prolonged conversations’ with the presidents of eight others ... He criticized the disparity of names attached to these institutions and suggested again that the qualifying terms ‘national’ and ‘science’ be incorporated into a generic name to give the schools a stronger identity.” The same issues - strategies for moving a bill to establish federally funded agricultural research stations, and the desirability of forming a permanent organization – would persist into the 1880’s, William explains. It was not until July 1885, at the preliminary convention of the Association of American Agricultural Colleges and Experiment Stations in Washington, DC that they would find resolution.<sup>76</sup>

One of the areas that expanded was that of public service and, as James Collier writes, the land-grant schools quickly began encouraging their students to bring their expertise to bear on the issues of the day. “Throughout the 1870’s and 1880’s consideration began in earnest about the social obligations of land-grant students,” Collier writes, “Cornell’s president, Andrew D. White, proposed that in order to overcome their lack of proportionate political representation, farmers and mechanics take courses in history, political science and public speaking. Daniel C. Gilman, the first president of Johns Hopkins University and the Carnegie Foundation, called for technical students, in his 1872 California inaugural, to be able to ‘pronounce opinions’ on current social issues affecting statecraft. As

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<sup>76</sup> Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement*, 52.

industrialism took root in the United States, so did an interest in economics. In 1870, two years before Horace Greeley's death, Morrill urged the journalist to prepare a textbook on economic theory to defend American trade protectionism."<sup>77</sup>

As they gradually defined themselves, the land-grant universities began to diversify their course offerings and to develop a system within which everything that was taught in their classrooms could blend into a seamless whole consonant with their original mission. Earle D. Ross describes how Gilman, then at what would become the University of California at Berkeley, was a pioneer in this effort, as well. "When caused to organize and direct the land-grant university in California [Gilman] was impressed with the strategic opportunity to train formulators and directors of public opinion in a region where the economy and society were still in the plastic stage. Consequently, young men here even more than in older regions, he pointed out in his inaugural, should be thoroughly

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<sup>77</sup> Collier, "Scripting The Radical Critique of Science: the Morrill Act and the American Land-Grant University," 188.

grounded in sound governmental principles, whatever their occupations,” Ross writes:

But with their special training he anticipated that, whether they were ‘merchants, manufacturers, farmers, or miners,’ they would be called to make and administer laws for policies of increasing size and complexity...Gilman furthered this cause by bringing in scholars of established reputation and lecturing himself on history, economics, and geography. Thus, in his brief tenure at the Golden Gate, Gilman laid the foundations of one of the greatest graduate schools in history and the social sciences in the Western World.”<sup>78</sup>

In fact, as Caroline North wrote in celebration of its centennial, the original Morrill Act, the legislation that grew out of it, and the institutions that grew out of the legislation, utterly transformed both the nation and the universities within it:

The influence of the system of education set in motion by the Morrill Act in 1862 can be observed in every phase of modern life. Although the Land-Grant institutions in the U.S. and Puerto Rico number only 68, they enroll 20 per cent of all students in four-year accredited colleges. But at the graduate level they award 40 per cent of all doctoral degrees in the United States, including 60 per cent of those in home economics; 100 per cent in agriculture, almost half of all those in the biological sciences; one-third in education; 55 per cent in the health professions; 38 per cent in mathematics; 42 per cent in the physical sciences. The record in the social sciences and humanities is at least consistent with their proportion of U.S. educational enrollment. Thus about 20 per cent of all advanced degrees in the fine and applied arts; 35 per cent in geography, nearly 30 per cent in the social sciences; 38 percent in psychology; 22 percent in English and journalism; 20 per cent in foreign languages and literature, come from Land-Grant universities.<sup>79</sup>

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<sup>78</sup> Earle D. Ross, “Contributions of Land-Grant Education to History and the Social Sciences,” *Journal of Agricultural History* 22, no 2 (April, 1948), 52.

<sup>79</sup> Caroline North, “The Land Grant Universities: The First Centennial.” *Marriage and Family Living* (1962): 187.

There has been an impulse both towards accessible and practical education that runs through the entire course of American history. But it was not, as Merle Curti and Vernon Carstensen note, until the federal government made the massive grants in 1862 that what was largely theory became a realized movement. “Even thereafter the battle, whether against the wily politicians, the indifferent farmers, or the champions of classical education, was won only after countless skirmishes,” they observe. “As a result, the venerable ideas of autonomy of knowledge, of the antipathy between theory and practice, and the notion of an intellectual elite largely gave way to the practical, the democratic, the relativistic scheme. The struggle was more significant because it took place at the very time when the family, the church, and industry were all restricting their educational functions. The qualities of American civilization were all involved in the process.”<sup>80</sup>

### **The Wisconsin Idea**

The Wisconsin Idea – “The boundaries of the University are the boundaries of the State” – is the bumper sticker-ready philosophy guiding the relationships between state government, the state university, and the citizens of the state. It represents, in the estimation of David C. Trechter, “one of the seminal changes in higher education.”<sup>81</sup> And in practice it requires two long

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<sup>80</sup> Merle Curti and Vernon Carstensen, *The University of Wisconsin, 1848-1925: A History* (Madison, WI: University of Wisconsin Press, 1949), 29.

<sup>81</sup> David Trechter, “The Wisconsin Idea” (*Survey Research Center Report* Madison WI: University of Wisconsin Extension Paper, April 2005), 1.

bumper stickers: University of Wisconsin expertise and research should serve state needs and be brought to bear on current issues facing the government and citizens of Wisconsin. And, in return for its service to the state, the citizens of Wisconsin should provide adequate financial support to the university. “Just as the state of Wisconsin invested in building roads and other forms of physical infrastructure as a means of enhancing the well-being of citizens,” Trechter explains, “so it invested in the University of Wisconsin to expand the intellectual infrastructure of the state with the same end in mind.”<sup>82</sup>

The founding of the University of Wisconsin – which was founded in concert with the state capital – predates the Morrill Act.<sup>83</sup> Even at that early date, state legislators anticipated the act’s mandate. In 1859, the Wisconsin Legislature defined the university’s primary mission as adapting to “the popular needs, that its courses of instruction shall be arranged to meet as fully as

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<sup>82</sup> Trechter, “The Wisconsin Idea,” 1.

<sup>83</sup> In May 1829 territorial Judge and land speculator James Duane Doty bought 1,200 acres for \$1,500 and platted a grid of streets for what would become Madison proper (these “paper cities” were quite common, showing “highways and byways, squares and streets, location of the various public buildings, business and residence portions,” all laid out as if posed to spring into actual being. The area that would eventually become greater Madison was actually platted and recorded as eight paper cities.)

In 1836 Doty convinced the territorial legislature to designate his paper city (with a square in the middle housing the Capitol and streets radiating diagonally from it like spokes in a wheel, the layout was the same as Pierre Charles L'Enfant's street plat of Washington, D.C.) as the site for the new capital. Doty named the city Madison for President James Madison, who had died on June 28, 1836, and he named the streets around the capitol square for the other signers of the U.S. Constitution. David Atwood, “Madison Springs Into Being From Group of Eight ‘Paper Cities’,” *Wisconsin State Journal*: 26 November 1919; “Madison: History,” <http://www.city-data.com/us-cities/The-Midwest/Madison-History.html>.

possible the wants of the greatest number of our citizens.”<sup>84</sup> The Morrill Act codified a belief that the nation’s problems could be solved by the systematic application of the scientific method with academic rigor. “While this belief would prove to be true to an amazing degree, the original conception had a major design flaw,” points out Trechter. “At the time the Land-Grant Universities came into existence, no clear means existed to move the results achieved on the university campuses out to the people of the state who could put them to practical use.” The Wisconsin Idea and the creation of the state Extension Service in 1913 “were both responses to the need for a conduit through which the intellectual capital of the universities could be placed at the service of the citizens.”<sup>85</sup>

However, the Wisconsin Idea also seems imbued with a sense of social responsibility that defies codification. J. David Hoeveler, Jr. has argued persuasively that the seedbed for the Wisconsin Idea can be found in the Social Gospel movement, particularly as it was embodied by three of its most vigorous proponents, John Bascom, Richard T. Ely, and John R. Commons. Each man,

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<sup>84</sup> Jack Stark, “The Wisconsin Idea: The University’s Service to the State,” (*Wisconsin Blue Book*, Madison WI: Legislative Reference Bureau, 1995-96), 110.

<sup>85</sup> Trechter, “The Wisconsin Idea,” 3.

Hoeveler contends, found in the new role of the University of Wisconsin “the logical and critical vehicle of their ideals: the perfection of the Christian state.”<sup>86</sup>

Little remembered today, the Social Gospel, in the words of Charles Howard Hopkins, was “America’s most unique contribution to the great ongoing stream of Christianity.”<sup>87</sup> John Bascom, says Hoeveler, was heir to this tradition when he came to the University of Wisconsin as its fifth president in 1874. Born in the burned-over district of western New York in 1827,<sup>88</sup> “In many ways, he set the future course of the institution,” Hoeveler explained, “and one of his students, Robert M. LaFollette,<sup>89</sup> credits Bascom as the true originator of the Wisconsin Idea.”<sup>90</sup>

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<sup>86</sup> J. David Hoeveler, Jr. “The University and the Social Gospel: The Intellectual Origins of the “Wisconsin Idea,” *Wisconsin Magazine of History* 59, (Summer, 1976): 283.

<sup>87</sup> Charles Howard Hopkins, *The Rise of the Social Gospel in American Protestantism 1865-1915* (New Haven CT: Yale University Press, 1940.)

<sup>88</sup> A fuse ignited in Albany, N.Y by Mother Ann Lee and the Shakers burned up the Erie Canal until it exploded western New York State in the second quarter of the nineteenth century, sparking not only Charles Finney and more conventional evangelism but unique religious expressions such as the brief appearance of Mormonism’s golden tablets, the Adventist Millerites, the utopian Oneida Community, and Lily Dale’s Spiritualism. See Whitney R. Cross, *The Burned-over District: The Social and Intellectual History of Enthusiastic Religion in Western New York, 1800-1850*, (Ithaca, N.Y.: Cornell University Press, 1950) and Linda K. Pritchard “The Burned-over District Reconsidered: A Portent of Evolving Religious Pluralism in the United States,” *Social Science History* 8, no. 3 (Summer, 1984): 243-265.

<sup>89</sup> As will be discussed in greater detail, La Follette, an 1879 graduate of the University of Wisconsin, served variously as a member of the U.S. House of Representatives as well as the state’s governor and U.S. senator.

<sup>90</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the “Wisconsin Idea,” 285.



According to Hoeveler, Bascom was a pioneer in many ways. Intellectually, he was one of the first North American religious thinkers to embrace the main outline of evolutionary science, and to establish upon it an entirely new theology, “what he himself labeled the ‘New Theology.’”<sup>91</sup> Under his stewardship, moral philosophy, a course he taught to every individual student in the University, took the field in important new directions. “His own moral philosophy textbook, written while he was at Wisconsin and used by Bascom in his classes, accorded 117 pages, significantly more than any other similar text, to the problems of government and politics and the need for expanded public authority,” Hoeveler explains. “And he pushed moral philosophy still farther by writing the first academic sociology text, a moral treatise more than a scientific one, but embracing the causes of temperance, women’s rights, and the right of labor to organize.”<sup>92</sup> Bascom supported co-education at the University and advocated women’s suffrage and other feminist causes. Bascom’s stance derived directly from his New Theology, Hoeveler contends. “He did not pose the issue in terms of natural rights, but in terms of spiritual powers in the evolution of society. Rights merely loom larger as the world progresses and moves toward full spiritual integration. Women must now be admitted, Bascom believed, to the ongoing spiritual and social progress of the world. And in this matter, too,

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<sup>91</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea,’” 286.

<sup>92</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea,’” 286.

because it was one of great moral consequence, the state must assume an active role.”<sup>93</sup>

Bascom used his national visibility and influence as Wisconsin’s president to advance a new national philosophy of state, “a doctrine of enhanced moral powers for government and public institutions, including the state university.”<sup>94</sup> This reflection led Bascom to one of his most important ideas, Hoeveler said, “the doctrine of state power ... which he developed and impressed forcefully upon the minds of the students at Wisconsin.” Bascom was literally obsessed with the problem of organizing social power as outlined in his *Sociology*. Bascom described for his students an age he judged to be destructive in its use of power, a ruthlessly competitive society with aggregated power in the hands of a few individuals. Such an arrangement of forces was unethical and un-Christian in nature, and ultimately debilitating to society as a whole. When Bascom therefore called for “harmonious power” as the truest expression of “beneficent power,” he turned directly to the state, the agency of public power, for its exercise. The state, Bascom wrote in *Sociology*, must create social power, surpassing the work of isolated individuals. Furthermore, the state must give power to the weaker elements in its midst, a concern that suffused most of the reform measures that Bascom endorsed. Bascom was in fact making an important modification of the

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<sup>93</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea,’” 289.

<sup>94</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea,’” 286.

evangelical format; he now turned to the state as a surrogate for churches and voluntary societies.<sup>95</sup>

Under this new scenario, Hoeveler says, Bascom accorded place and prominence to the function of the state university above all other public institutions. “This view directly extended his efforts to achieve evangelical objectives by new methods. As the volunteer principle yielded to the doctrine of state initiative, so also, in Bascom’s mind, did the new state universities assume an importance greater than the small sectarian schools – the old-time colleges.”<sup>96</sup>

Bascom was using familiar language – “spiritual and moral advancement,” “spiritual law,” – while widening its application. “Because his theology so

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<sup>95</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea,’” 289.

<sup>96</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea,’” 292.

thoroughly merged the natural and the supernatural, when he spoke of moral law, and joined that to the objectives of the state university, he intended no mere abstractions,” Hoeveler explains.

Bascom, who presided over a noticeable expansion of the curriculum at Wisconsin, saw this growth as one means of increased moral power in public life. For it was precisely the new academic concerns of the modern university – and Bascom named political science, economics, constitutional law, sociology, and others – that would best unite the university’s social and academic missions....His philosophical argument that brought him to this point leads directly to the message he impressed most indelibly upon the students at the University of Wisconsin. He believed that evolutionary progress dictated the spiritual and moral improvement of the race, but required for its fulfillment the enlarged influence and activity of the state. The university was especially critical to this endeavor, for its work most successfully combined a mastery of spiritual and social laws and the means to apply them to specific problems. But if this were true, then there could be no higher calling in life than service to the state in some capacity.<sup>97</sup>

As LaFollette later recalled about his training under Bascom at Wisconsin:

“He was forever telling us what the state was doing for us and urging our return

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<sup>97</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the ‘Wisconsin Idea’,” 293.

obligation not ... for our own selfish benefit, but to return some service to the state.

The graduates of the state university must be the intellectual vanguard of the state; they must supply the ideas that would bring about the just state and inaugurate the new era of collective power. On this point, too, the evangelical refrain echoed; for there was, Bascom believed, no higher 'calling' than that of public life, 'but none for which the soul needs first so thorough a cleansing in the fountain of truth.' The state university must find its role in dispensing this truth. Bascom was never closer to the full statement of the Wisconsin Idea than when he stated, in one of his major public addresses at Madison, 'The time will come and public education will hasten it, in which educational men will gather influence within their own field, and become the servants of the state to counsel action as well as to carry it out.'<sup>98</sup>

Ultimately, the Wisconsin Idea was defined in a book by that same name<sup>99</sup> that was published in March of 1912 by Charles McCarthy,<sup>100</sup> the head of the Wisconsin Legislative Reference Library.<sup>101</sup> Providing non-partisan legal publishing, research and library services to the legislature and the public, the

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<sup>98</sup> Hoeveler, "The University and the Social Gospel: The Intellectual Origins of the 'Wisconsin Idea'," 294.

<sup>99</sup> Charles McCarthy, *The Wisconsin Idea*, (New York: Macmillan ,1912).

<sup>100</sup> To pay for his tuition at the University of Georgia law school, McCarthy served two seasons as the university's football coach. UGA historian Thomas Walter Reed would note with some bemusement that while McCarthy trained some of Georgia's best gridiron leaders, "football fever did not last with him. He went on to achieve national distinction in another field." *History of the University of Georgia by Thomas Walter Reed; Chapter XVII: Athletics at the University from the Beginning Through 1947*, 21. University of Georgia Online Archives.

<sup>101</sup> In 1914, Wisconsin Senator Robert LaFollette and Representative John M. Nelson, inspired in large part by Wisconsin Legislative Reference Library, promoted the inclusion in an federal appropriations act of a provision directing the establishment of a special reference unit within the Library of Congress, what is now known as the Congressional Research Service (CRS).

library was itself an institution founded on the principles of open democratic government that Wisconsin had come to embody. Even though McCarthy himself warned that “no one categorical explanation of the Wisconsin Idea can be given,” as Vernon Carstensen observes, “It would probably be impossible to get complete agreement on what the Wisconsin Idea embraced, even in 1912, but many persons would agree that experimental reform based on detailed research, the extensive use of academic and other experts in government, agriculture, and industry, and an enlightened electorate were all prominent elements. All would agree that the University of Wisconsin played an important part, directly through the work of faculty members on various advisory and administrative boards and agencies, and indirectly through the extension work of the University.”<sup>102</sup>

Whatever the Wisconsin Idea came to mean, its national reach became obvious through its influence on the fiery three-way 1912 presidential campaign between Democrat Woodrow Wilson, Republican William Howard Taft, and Theodore Roosevelt, campaigning on his own Progressive – or “Bull Moose” – party ticket. McCarthy’s book was an immediate sensation, and its ideas reached not only a national audience, but also became the basic *raison d’être* for the

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<sup>102</sup> Vernon Carstensen, “The Origin and Early Development of the Wisconsin Idea,” *Wisconsin Magazine of History* 39, no. 3 (1956): 182.

Roosevelt campaign, Roosevelt having contributed the book's forward. As Roosevelt explained

As Professor Simon N. Patten<sup>103</sup> says, 'Without means of attainment and measures of result an ideal becomes meaningless. The real idealist is a pragmatist and an economist. He demands measurable results and reaches them by means made available by economic efficiency. Only in this way is social progress possible.' Mr. McCarthy's purpose is to impress not only every real reformer, but every capable politician, with the fact that the people are more concerned about 'good works' than about 'faith.'<sup>104</sup>

That October, while campaigning in Milwaukee, Roosevelt was shot in the chest by a man named John Schrank, who claimed to be acting on orders from the late president, William McKinley. Roosevelt's life was saved in part because the bullet had to pass through the 50 pages of the speech he had come to give.

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<sup>103</sup> Patten, a professor of economics at the University of Pennsylvania's Wharton School, proposed a more equitable distribution of wealth as the basis for a healthy society. Necessary social reform was best achieved through such established and conservative institutions as the Republican Party and the Presbyterian Church acting with only minimal governmental control. See Daniel M. Fox, *The Discovery of Abundance: Simon N. Patten and the Transformation of Social Theory*, Ithaca N.Y.: Published for the American Historical Association, Cornell University Press, 1967.

<sup>104</sup> Theodore Roosevelt, "Introduction," in McCarthy, *The Wisconsin Idea*.

Bleeding and pale, Roosevelt insisted on delivering his address anyway. He appealed to his audience

...to read the Progressive platform and especially to read the planks on social and industrial, on the right of the people to vote on business and corporations. You will find therein set forth the doctrines of such leaders of thought here in Wisconsin as President Van Hise and Dr. McCarthy, both of whom we consulted before drawing up these planks and by whose advice I profited in making my 'confession of faith.'<sup>105</sup>

The ideas that Roosevelt incorporated into the Progressive platform – the sum of which can be seen as the Wisconsin Idea itself – were the product of a long intellectual march in Wisconsin and the conspicuous religiosity of the way Roosevelt expressed them (“confession of faith” linked to works) was no accident. As we have seen, through Bascom, the Wisconsin Idea had its roots a half-century earlier in the great evangelical Protestant fervor that swept what became known as the “burned-over district” of upstate New York. (Again, as with the Morrill Act, the idea of “internal improvements” was a powerful driving force in the evangelicalism of the time. The construction of the Erie Canal brought newfound wealth and an energetic capitalist economy to the area.) The evangelical movement arose in response to the displacement of the existing social and political order that resulted from economic and technological innovation. Consequently, the evangelicals of the time – unlike those of today – looked to the state and to the government to confront the moral dilemmas of this

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<sup>105</sup> “Roosevelt Makes His Appeal to Wisconsin Progressives,” *New York Press*, 15 October 1912: 6.



new economy. As Edward Doan writes, “Both the religious Seekers and the political Progressives have in common an unshakable belief in the democratic principle of self-government.”<sup>106</sup>

As David Trechter notes, these impulses – both sacred and secular – merged in what became known as the Wisconsin Idea even before anyone thought to give it a name, and before Teddy Roosevelt found them politically powerful. “The practices associated with the Wisconsin Idea predate the phrase that has come to describe them,” Trechter writes. “Starting in the late 1880’s, the university started offering ‘Farmer Institutes’ and ‘Short Courses,’ which were designed to address the practical needs of the state’s farm population. These courses were the first such educational offerings in the country. In 1890, Dr. Stephen Babcock, a University of Wisconsin professor, developed a quick and relatively simple way to test milk for butterfat content, and hence its quality for cheese making. The Babcock Test was said to save the state’s cheesemakers more than twice the annual budget for the University of Wisconsin. So, nearly 20 years before the term the Wisconsin Idea was coined, the university was intimately involved in the issues facing the state.”<sup>107</sup>

In addition, under Bascom’s successor, Thomas Chamberlin, the university launched a program of “mechanics institutes” in a number of Wisconsin

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<sup>106</sup> Edward N. Doan, *The LaFollettes and the Wisconsin Idea*. (New York: Rinehart and Company, 1947),3.

<sup>107</sup> Trechter, “The Wisconsin Idea,” 3.

towns, which were not initially successful, but which led to the development of a program of general extension courses. Again, the extension courses began promisingly, but faded after a year. The farmers' institutes thrived. "At this juncture," writes Vernon Carstensen, "several important events occurred.

Robert M. LaFollette was elected to the governorship in 1900. A graduate of the University, he had been profoundly influenced by President John Bascom ... He declared that Bascom's teaching was 'among the most important influences in my early life.' Of the University, he said: 'For myself, I owe what I am and what I have done largely to the inspiration I received while there.' In 1901, Charles McCarthy was appointed to a minor post in the Wisconsin Free Library Commission. In 1903, Charles R. Van Hise became president of the University. Van Hise had been a classmate of LaFollette's at the University and was a friend and supporter."<sup>108</sup>

Under President Van Hise and Governor LaFollette, both of whom had studied under Bascom, the University became an informal brain-trust for the Progressive political and social ideas that had been crucial to LaFollette's election. The cross-pollination was so thick that, as Carstensen notes, "In 1912, McCarthy listed forty-six men who were serving both the university and the state."<sup>109</sup> The conspicuous involvement of professors in the grubby business of politics amused out-of-state reporters and, among LaFollette's detractors, as Edward Doan notes, turned "The Wisconsin Idea" into something other than what

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<sup>108</sup> Carstensen, "The Origin and Early Development of the Wisconsin Idea," 184-185.

<sup>109</sup> Carstensen, "The Origin and Early Development of the Wisconsin Idea," 185.

it had been intended to mean. “It was used to explain a new technique in public administration,” writes Doan. “It was used to smear anything that might upset the status quo.”<sup>110</sup> Nevertheless, acting on his concept of the Wisconsin Idea, with the help of the professors and experts from the University, and barnstorming the state with an evangelical zeal that Bascom would have appreciated, LaFollette managed to pass a raft of progressive legislation, much of which was aimed at bringing privately owned utilities – most notably, the railroads – under public control. It was this success that Roosevelt eventually would hijack for the campaign that brought him to Milwaukee. This, as William Hesselstine writes, summarizing the Wisconsin Idea as the flowering of the Progressive movement, “was the essence of the Progressive movement – intelligently planned reforms which restored government to the people. This was a wedding of the soil of Populism with the seminars of the social scientists.”<sup>111</sup>

LaFollette’s political reforms, based as they were on the use of democratic institutions to rein in private greed, also were influenced by the work at the university of Richard T. Ely, who had come to Wisconsin in 1892 as director of university’s School of Economics, Political Science, and History. Ely was another refugee from the burned-over district of New York – his father was, in Murray

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<sup>110</sup> Doan, *The LaFollettes and the Wisconsin Idea*, 11.

<sup>111</sup> William Hesselstine, “Robert Marion La Follette and the principles of Americanism,” *Wisconsin Magazine of History* 31, no. 3 (1948): 264.

Rothbard's estimation, an "extreme Sabbatarian"<sup>112</sup> – who, like Bascom, had immersed himself in the precepts of the Social Gospel. Ely was also a devotee of the "New Economics" which, as Hoeveler points out, was "literally a new gospel of hope for the eradication of the ills wrought by laissez-faire, and one whose message Ely worked with evangelical zeal to carry to the land."<sup>113</sup> Ely saw the state as the vehicle through which this new gospel could be brought to fruition. "We regard the state," Ely wrote, "as an ethical agency whose positive aid is an indispensable condition of human progress."<sup>114</sup> However, it was one of Ely's students at Johns Hopkins,<sup>115</sup> John R. Commons, who, once he joined his former professor at Wisconsin,<sup>116</sup> had the most impact on the specific pieces of Progressive legislation that were passed under the LaFollette administration, including the Civil Service Law of 1905, the Public Utility Act of 1907, and the

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<sup>112</sup> Murray N. Rothbard, "Richard T. Ely: Palladian of the Welfare-Warfare State," *Independent Review* 6, no. 4 (Spring 2002): 586.

<sup>113</sup> Hoeveler, "The University and the Social Gospel: The Intellectual Origins of the Wisconsin Idea," 295.

<sup>114</sup> Hoeveler, "The University and the Social Gospel: The Intellectual Origins of the Wisconsin Idea," 296.

<sup>115</sup> Future President Woodrow Wilson was another Johns Hopkins student who claimed to be deeply influenced by Ely.

<sup>116</sup> It was a fruitful relationship that would endure for decades. See David Herzberg, "Thinking Through War: The Social Thought of Richard T. Ely, John R. Commons, and Edward A. Ross during the First World War," *Journal of the History of the Behavioral Sciences* 37, no 2 (2001): 123-141.

Industrial Commission law.<sup>117</sup> (Like many Progressives of the time, Commons also was a staunch Prohibitionist. “Temperance,” Hoeveler argues, “still remained an end in itself, but the issue carried Commons directly from evangelicalism to Progressivism.”)<sup>118</sup>

While LaFollette was tapping the brains of the university’s faculty to reform Wisconsin’s politics, his old classmate, Charles Van Hise, set himself to reinvigorate the university’s dormant extension programs, bringing the expertise of the university to the general public the way that LaFollette was using it in state government. Part of that was Charles McCarthy’s work in expanding the state library and the state’s legislative reference bureau. As Vernon Carstensen observes, McCarthy used the reference bureau to make the case for the expansion of the extension programs. “He [McCarthy] found that some 35,000 people in the state were enrolled in [private correspondence schools] and that approximately \$800,000 was paid annually for this instruction ... Meanwhile, Van Hise had become converted. Late in 1905, he told a Washington audience that ‘a state university should not be above meeting the needs of the people, however elementary the instruction necessary to accomplish this.’...The next year University extension work was begun again on a small scale.”<sup>119</sup>

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<sup>117</sup> Lafayette Harder, Jr., *John R. Commons: His Assault on Laissez-Faire* (Corvallis, OR: Oregon State University Press, 1962), 69.

<sup>118</sup> Hoeveler, “The University and the Social Gospel: The Intellectual Origins of the Wisconsin Idea,” 297.

<sup>119</sup> Carstensen, “The Origin and Early Development of the Wisconsin Idea,” 186.

Through the decades, the Wisconsin Idea remained the moving target that Charles McCarthy suggested it would be. It was malleable and multigenerational. It surfaced in different ways and at different times and places. You could find elements of it in FDR's New Deal, Harry Truman's Fair Deal, John Kennedy's New Frontier, and Lyndon Johnson's Great Society. John Witte writes that, in 1942 and 1943, under his grandfather, Edwin Witte, the National War Labor Board in Detroit had so many Wisconsinites on its staff that, "You could empty its offices by yelling down the hall, 'To hell with Wisconsin.'" Witte also points out that one of his grandfather's students, Robert Lampman, established the Institute for Research on Poverty in 1964 as part of President Johnson's call for a War on Poverty.<sup>120</sup>

Perhaps the most vivid illustration of the durability of the Wisconsin Idea was a twin set of speeches in Madison and Milwaukee by another presidential candidate, almost fifty years to the day from when Teddy Roosevelt took a bullet in his chest. Adlai Stevenson, then the Democratic candidate, and under siege from another Wisconsin politician named McCarthy, repeatedly summoned up the Wisconsin Idea as a living tradition, a "willingness to try things out, to

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<sup>120</sup> John Witte, "Wisconsin Ideas: The Continuing Role of the University in the State and Beyond," *New Directions for Higher Education*, no. 112 (2000): 11.

experiment in ways to meet the changing needs of America.” As he explained,

The Wisconsin tradition meant more than simple belief in the people. It also meant a faith in the application of intelligence and reason to the problems of society. It meant a deep conviction that the role of government was not to stumble along like a drunkard in the dark, but to light its way by the best torches of knowledge and understanding that it could find.”<sup>121</sup>

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<sup>121</sup> Associated Press, “Text of Governor Stevenson’s Talks at Madison and Milwaukee” and “Governor Criticizes G.O.P. Program as ‘Same Old Political Hokum.’” *New York Times*, 9 October 1952.

### CHAPTER THREE: SOUTH DAKOTA DAYS FROM PIERPONT TO BROOKINGS

“I began life in 1911 on a family farm that had grown from an 1882 homestead in northeastern South Dakota to a very successful enterprise by 1907,”<sup>1</sup> Van Rensselaer Potter remembered in 1996 essay for the Iowa State *Ag Bioethics Forum*.<sup>2</sup> “But by 1934 all the trees were dead and the farm was abandoned after seven crop failures – the seven lean years that were not foreseen.”<sup>3</sup> Protracted drought had killed many of the trees that early settlers had planted and tended some three decades earlier. Annual grasshopper infestations of biblical proportions reduced promising grain and cornfields to rubble in a matter of hours. Poison had proved ineffective, so farmers, under the direction of both the Agriculture Department and their local extension agents, were trying what would later be considered green methods of control. Discing, or tilling the soil so as to expose the grasshopper egg pods to the air, was encouraged and attempts were made to reintroduce a thirty-year old folk method of exposing the grasshoppers to fungus.<sup>4</sup> Farmers and sportsmen were in the unusual position of

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<sup>1</sup> In 1909, 803 acres of land in North Andover Township were in V. R. Potter’s name. *Standard Atlas of Day Co., SD* (Chicago, IL: Geo. Ogle & Co 1909).

<sup>2</sup> Van Rensselaer Potter “What Does Bioethics Mean?,” *Ag Bioethics Forum* 8, no. 1 (1996), 3.

<sup>3</sup> Potter “What Does Bioethics Mean?,” 3.

<sup>4</sup> This now appears to be a folk method with scientific rationale. Grasshoppers thrive in hot weather; their natural history of boom and bust cycles in wet years coincide with the naturally occurring fungi to control the grasshopper population. See



joining together in urging the state to declare a closed season on prairie chickens, a known grasshopper predator.<sup>5</sup>

“Today a new owner has destroyed the beautiful old home and the other vacant buildings,” Potter recalled. “The site has now been put under cultivation and is part of a cornfield. Is this,” asked the man who became a disciple of Aldo Leopold, “sustainable agriculture?”<sup>6</sup>

Things were not always that way. When Van Rensselaer “V.R.” Potter and Jennie Tobin Potter<sup>7</sup> came west from Kewaunee, Illinois to North Andover Township, South Dakota in 1883 the young couple had no problem growing their claim into a profitable operation. They christened their homestead “Broadacres,” and, by 1907, they were able to celebrate their 25<sup>th</sup> anniversary, “in style, sending out engraved silver-embossed invitations and hiring an orchestra for the

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“Grasshoppers and Locust Control” in *Encyclopedia of Entomology, Volume 4*, ed. John H. Capinera (Springer 1990), 1689-1693.

<sup>5</sup> “Protest Open Season on Prairie Chickens,” *The Pierpont (S.D.) Signal* Thursday, 24 September 1931: 6. The Greater Prairie Chicken or Pinnated Grouse (*Tympanuchus cupido*) is a large bird in the grouse family. Once abundant, it has become extremely rare or extinct over much of its range due to habitat loss. It is not native to most of South Dakota, but first appeared in the northern part of the state, as well as North Dakota, in the 1880s, probably in concert with human migration. While greatly diminished in numbers, conservation efforts have made South Dakota one of the birds’ last strongholds. Robert Alison “The History of Prairie Chickens in South Dakota” *South Dakota Country Magazine* (2 March 2012.)

<sup>6</sup> Potter “What Does Bioethics Mean?,” 3.

<sup>7</sup> Both were 23 when they married on Christmas Eve, 1882. It appears that V.R.’s family was not happy with his choice of bride. He eventually lost all contact with them, including his six siblings - a brood that included Happy, Ingabee, and King David Potter. *Pierpont Centennial: 1887-1987*, 311.

occasion.”<sup>8</sup> Potter’s grandfather did not live to celebrate very many more anniversaries. He died of cancer in 1910 at the age of 51, not quite a year before his grandson was born,<sup>9</sup> a child that was given his grandfather’s name.

A.H. “Herbert” Potter was, by his son’s account, a reluctant farmer. “My father wanted to attend college,” Potter recalled in 1983, but, with only one brother, his mother and father insisted that he work on the farm. Herbert had been able to attend a short course in steam engineering at the state college in Brookings, and was able to use that knowledge to the benefit of the farm, operating not only a steam powered plow but a steam powered thresher. <sup>10, 11</sup> Still, what he really longed to be was an architect, but his opportunities were limited to redesigning various family-owned structures.<sup>12</sup>

Herbert Potter was determined that his only son have more opportunities, a determination that only intensified after Potter’s mother, Julia Eva “Bobby”

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<sup>8</sup> *Pierpont Centennial: 1887-1987*, (Pierpont S.D.: Langford Bugle, 1987), 311.

<sup>9</sup> Unless otherwise indicated, all direct quotes are from the University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983 (9 hours over multiple sessions.) In the UW oral history Potter says “about a month.” However since his grandfather is known to have died in 1910, it is likely Potter misspoke.

<sup>10</sup> *Pierpont Centennial 1887-1987*, 309.

<sup>11</sup> Herbert was not the only family innovator. While he farmed wheat and other crops his older brother, Floyd, “always very progressive in his plans,” was a dairy farmer. His milking set-up “was the pride of the county. People used to come at milking time to watch the milking machines at work.” *Pierpont Centennial 1887-1987*, 310.

<sup>12</sup> *Pierpont Centennial 1887-1987*, 310.

Herpel Potter,<sup>13</sup> died when the child was six. It was already wintry on the night of November 10, 1917, when the young couple drove into the nearby town of Pierpont to take in a movie. On their way home, the lights from an oncoming car blinded them, and their vehicle slid off the road. Eva Potter was thrown from the car and killed instantly.<sup>14</sup>

“My father and my grandmother then became the basic influences in my life,” Potter explained decades later. “They both idolized me and I idolized them.” In the years immediately following Eva Potter’s death, the family was financially comfortable, and Herbert Potter took his mother and young son by “car or Pullman” to Texas, Minneapolis and Jennie Potter’s hometown in Macomb, Illinois.<sup>15</sup> Apparently determined for his son to know a world beyond the plow, Potter’s father “programmed me to attend college ... to fulfill his ambition.”

Still, wrote a reporter for *PIC* magazine in 1947, belatedly marking Potter’s being named one of the Jaycee’s 10 Outstanding Young Men of 1945, “[t]here was a lot of work on a South Dakota farm 30 years ago. Dust blew in clouds across the treeless expanse of powdery earth,” while Potter, only six, “tried to keep the little house clean, the chicken fed, and do all he could do to help his father.” Potter’s doting grandmother conveniently disappeared from this narrative,

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<sup>13</sup> She was apparently known as Bobby to the Herpel family, and possibly to her husband; to the wider community she was known as Eva. As Lennon and McCartney noted in 1968, this multiple naming appears to be a South Dakota tradition.

<sup>14</sup> *Pierpont Centennial 1887-1987*, 310.

<sup>15</sup> *Pierpont Centennial 1887-1987*, 310.

as the writer continued, “It was lonesome, too. For an only child who had lost his mother; and there were no neighbors closer than two miles across the wheat field.”<sup>16</sup>

But still there was a glimmer of hope on the horizon. “My father had such intense ambitions for me,” Potter acknowledged much later. At a time when area schools did not rank their students, Potter remembered with a trace of amusement, his father would stop people on the street and say, “This is my son – he’s at the head of his class.”

Herbert Potter moved his family into town when his son was in fifth grade, bringing with him his second wife, Anna Silvertson, a pharmacist whom he had married in December 1919. He continued to farm, but also tried a number of ultimately unsuccessful ventures, including a café and a couple of grocery stores.<sup>17</sup>

Van Potter was enrolled in Pierpont’s small school, where all grades were housed in one building. Additional boarding students were enrolled at the high school level, where four teachers taught all subjects. In 1924 the school caught fire, destroying all records and leaving only its brick walls standing. Potter and his classmates were moved to the Masonic Temple until a new building could be

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<sup>16</sup> “Battled Nature on Farm, Now He’s Fighting Cancer; University of Wisconsin Scientist, at 36, is one of Nations’ Top Chemists.” *PIC Magazine*, April 1947, reprinted in *Milwaukee Journal*, 9 April 1947, 3.

<sup>17</sup> *Pierpont Centennial 1887-1987*, 310.

constructed using the shell of the old.<sup>18</sup> For years after his graduation in 1928, Potter made regular trips back to his small hometown not only to see relatives but also to visit his high school and encourage students to explore the world beyond the confines of their small farming community.

“My closest friends were Donald and Ronald Potter, neighbors, and from time to time their uncle Van would visit,” remembered David B. Wake, now a professor of Integrative Biology and Curator, Museum of Vertebrate Zoology, at Berkeley.<sup>19</sup> “Van's arrival would be an event because we all knew he was a famous professor. He was, to the townspeople, eccentric. He dressed strangely and talked about odd topics. I was fascinated.” Wake's mother's first year of teaching high school at Pierpont was Potter's senior year yet, Wake recalled, decades later, Potter would remember both of Wake's parents by name. On his trips back home, “Van would visit the High School to tell students there was more to life than farming and they could do whatever they wanted if they worked hard. He was weird and I loved the experience of hearing him talk.”

But in 1927, Potter was still having his own horizons broadened. He had just entered his senior year in high school when a teacher told him about the

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<sup>18</sup> *Pierpont Centennial 1887-1987*, 77-81.

<sup>19</sup> All Wake quotations are from correspondence with the author. Wake's research, “emphasizes analysis of evolutionary patterns and the processes that produce them”. According to his Berkeley webpage, “Two large multi-year NSF-funded projects are underway: 1. AmphibiaTree, a consortium of four universities focused on production of a robust phylogenetic hypothesis for all species of amphibians using combinations of molecular, morphological and other data, and 2. HerpNet, a biodiversity informatics project to produce a fully geocoded distributed digital database of amphibians and reptiles in 40 North American museums.” <https://ib.berkeley.edu/people/faculty/waked>.

American Chemical Society's prize essay contest and the chance it offered for a full scholarship to college. The contest was launched in 1923, when Mr. and Mrs. Francis Garvan offered the ACS \$10,000 to organize a national essay contest for high school students. Proposed as a memorial to their daughter Patricia, who had died at the age of five from rheumatic fever, the annual contest was intended to give "the youth of our country ... an intelligent appreciation of the vital relation of the development of chemistry to our national defense, to the intensification and purification of industry and agriculture and to the progress of medicine through the 'Age of Chemistry' upon which we have entered." The Garvans themselves would underwrite the costs of the winner's education at either Yale or Vassar. (The restriction was later broadened to include any four-year college.) The inspiration for the contest was found in Francis Garvan's post-World-War-I experience. A lawyer by training and a chemist by avocation, he became the Federal Government's Alien Property Custodian in 1919, seizing and administering the dye, pharmaceutical, and other chemical patents held by German companies. In the course of his work Garvan, like many others, grew concerned that America was falling far behind in applied chemical research. The contest was designed to stimulate student awareness of the value of chemical technology as well encourage interest in careers in chemistry.<sup>20</sup>

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<sup>20</sup> For more information on the genesis and history of the ACS Prize Contest, see "The ACS Prize Essay Contest," *Chemistry Student* 6, no. 10 (October 1929) 1803-1806; "The ACS Prize Essay Contest," *Journal of Chemical Education* (October 1929): 1805-06; "The ACS Prize Essay Contest," *Journal of Chemical Education* (November 1929): 2030-2032; David H. Wilcox, Jr. "The American Chemical Society Prize Essay

After the first years of the contest, the sponsors became aware that many students lacked sufficient resources to write acceptable essays. The ACS printed a series of five books designed to give students a background in chemistry. Well over 10,000 copies were distributed, free of charge, to schools and libraries. Individuals were also given the opportunity to purchase their own set, at cost. “Five hard covered books for the sum of two dollars and a half so students could prepare for the essays,” Potter recalled. The money was well spent. More than half a century later he still kept some of them on his office bookshelves, pointing at volumes like *Chemistry in Medicine*, *Chemistry in Agriculture*, and *Life of Pasteur* with pride.<sup>21</sup>

“I entered the contest. If you won for the US you would have four years of college education at Yale,” Potter remembered. “If you won the state contest you won a \$20 gold piece.”

Potter took home the gold piece.

Undaunted, he wrote the president of the ACS a letter, asking “four specific questions” and hoping for advice on where an aspiring young chemist should prepare himself. “I got one of the finest letters you’ll ever see in return,” he recalled. The young student was reassured that most colleges could give him

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Contest 1923-31,” *Journal of Chemical Education* 39, no. 2 (February 1962): 72-82; Richard Rice, “ACS Prize Essay Contest, *Journal of Chemical Education* 82, no. 12 (December 2005): 1765-66.

<sup>21</sup> These are an interesting series of books. Instead of presenting historical information, textbook style, they lean towards essays on ethical issues and imperatives.

adequate training. Even when it came to graduate school, he was told, it didn't matter where he went so much as whom he studied with.

"Times were pretty tough in the spring of 1928 when I graduated from high school," Potter remembered in 1983. "I had sold popcorn at the local movie, which was Wednesdays and Saturdays. I had saved up about \$450 for college, and along about June or so the bank closed and deposits were lost ... the bank failed." Things looked pretty grim. Potter's father had remarried, and now had a wife and two young daughters to support. "My father's ambitions for me were frustrated in a sense ... [he had] no way to send me to university." But Potter's paternal grandmother, Jennie Tobin Potter, despite her own declining resources, "went to another bank and borrowed \$500 on her signature and gave me the \$500 and sent me off to college." At least six months passed before Potter, who by then had started classes at South Dakota State College and was working in the cafeteria, again began to feel strapped for cash. "I had another grandmother [who had moved back to] Michigan, and I wrote and told her what the other grandmother had done...and she sent me \$300 – she didn't have a lot at the time."<sup>22</sup> That would be the last money Potter would ask for.

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<sup>22</sup> Potter's maternal grandparents had come from Michigan to Andover, S.D. in the fall of 1882, seeking a drier climate for his grandfather's "lung fever" (tuberculosis). Potter's father and his brother, Floyd, married sisters, and Potter's aunt, Daisy Herpel Potter, was known for being the "first white child" born in Andover. In a memoir, Daisy Potter wrote of her mother, Julia Ann Ellis Herpel, a high school graduate who had taught school before her marriage, and her regret that she had not had the opportunity to further her own education. "She often said what she would have enjoyed was to have gone on in chemistry which she got in H.S.," Herpel Potter remembered. "She lived to see two of her grandsons get their P.H. Degrees in Biochemistry, one of whom was [later] awarded one of the ten outstanding young men in the U.S. in 1946 for



### **South Dakota State College: The First Land-Grant Encounter**

When Potter arrived in Brookings in the fall of 1928, the stock market crash was still more than a year away. But Potter was not the only student who had already confronted serious financial setbacks. In his yearbook message to the rising seniors in the spring of 1929, President C. W. Pugsley affected a philosophical tone. “It is to be regretted that all who entered with you could not have carried through,” the president told the surviving scholars, “but that is the way with life.”<sup>23</sup>

Despite the disquieting signs, “more and better” continued to be the order of the day. The college was still basking in the glow of a 1927 visit from President and Mrs. Coolidge, where an estimated 15,000 people turned out to see the president dedicate the new Lincoln Memorial Library, and plans were underway for a 167-foot-tall campanile – no mere bell tower here, but one to rival Brown, Yale, and even the 110-foot campanile at Iowa State.

“I forgot what the campanile was going to cost when we got started,” the yearbook staff quoted the donor, Charles L. Coughlin '08, a four sport athlete and now treasurer and general manager at Milwaukee’s Briggs-Stratton Company as

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distinguished work in cancer research.” Julia Herpel would die of cancer in 1936 at the age of 77; her husband, having survived lung fever, died five years earlier, of lung cancer. (Daisy Potter “A South Dakota Pioneer Woman: Mrs. John C. Herpel, Andover, S.D.” (1950) General Federation of Women’s Clubs, Pioneer Daughters Collection, South Dakota State Archives. Also “Personals: Mrs. Floyd Potter departed...” *The Pierpont (S.D.) Signal* Thursday, 24 September, 1931, 5).

<sup>23</sup> *The Jackrabbit* 1930. The Class of 1930 (South Dakota State College, Brookings, South Dakota, 1929), 18.

saying, “and I am sure we are going to forget what it costs when it is finished if it pleases my old friends and does some good for the student body.”<sup>24</sup>

Other indices were looking strong. The total Ag school enrollment was at an all-time high of 294, and the engineering students were eager to demonstrate both their “Application of Theory” and their “Practical Training.” And in the athletic department they were showcasing their innovative approach to intercollegiate football. “A unique but workable system of having a different captain for every game has been tried out by the State College Athletic Department,” the *Jackrabbit* staff reported. “Each senior has the opportunity of showing his worth as a captain during one game of the year.”<sup>25</sup>

Alone among his classmates in the Class of '32, Van Potter chose to be photographed in full profile. That, coupled with his distinctive, light colored jacket, gave the General Science<sup>26</sup> student an air of studied nonchalance. It may have served him well when he went out for intercollegiate debate: Potter joined two young women in being named “freshmen debaters who did highly satisfactory

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<sup>24</sup> *The Jackrabbit 1930*, 173. Coughlin might well have wished for amnesia. The campanile, originally planed at a cost of \$18,000, topped out at \$75,000 when it was completed. John C. Miller, “The South Dakota State University Campanile: Building a Sense of Place,” *South Dakota History* 23, no. 4 (Fall, 1993).

<sup>25</sup> *The Jackrabbit 1930*, 250.

<sup>26</sup> In 1923, South Dakota State College’s instructional program was organized under five divisions: Agriculture, Engineering, General Science, Home Economics, and Pharmacy. At SDSU the General Science division included “so-called service departments” (sic) like Chemistry, Mathematics and English, as well as some technical, or applied learning, departments like Commercial Science and Printing and Rural Journalism (a combined department, possibly because rural journalists, must, of necessity, run their own presses.) *Jackrabbit*. 193.

work.” The portrait itself is even more distinctive when it appears again among the likenesses of the 15-member *Industrial Collegiate* staff, which had just been awarded first place for best all-around paper in the North Central Press Conference (Prospects for future honors looked bright, as the staff was going all-out on the campanile story.) *The Industrial Collegian* even had its own float in the annual Hobo Day parade, but it was clearly eclipsed by the Evolution float, which featured a couple of monkey-masked students, a palm tree, and a very large, fish-tailed, lizard.

“By June of 1929, when I was finishing my freshman year, I was encouraged to apply for a job in the Experiment Chemistry Station,” Potter recalled. He was hired by Experiment Station Chemistry Department Director Kurt W. Franke, and put to work washing rat cages.<sup>27</sup> “And this was a God-send, because I worked during the summers. ... I worked 12 months out of the year.” The time commitment would mean that it would take Potter an extra year to

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<sup>27</sup> Franke and his son had designed a special individual rat cage that allowed for waste to fall through a screen, allowing for easy disposal. Kurt W. Franke and A.E. Franke, “A Metabolism Cage For Rats,” *Laboratory and Clinical Medicine* 19, (1934): 669. When Potter later arrived at Wisconsin, he found himself “somewhat appalled” by the caging at Wisconsin. Potter contrasted it with Franke’s design, which was an “absolutely unique and individual design, operating like a drawer in a filing cabinet but with a screen bottom.” Potter’s sense of fairness was also engaged, as he explained, “It could easily have been patented, but patenting was not even considered. At the very least it should be known today as the Franke cage but unfortunately it is not. The case design was adopted in Madison after my arrival and they were fabricated by the U.W. shops. Now these cages are made commercially and used all over the world.” Van Rensselaer Potter, “Years With Conrad Elvehjem,” in David L. Nelson and Brook Chase Soltvedt, eds. *One Hundred Years of Agricultural Chemistry and Biochemistry at Wisconsin: A Steenbock Symposium* (Madison, WI: Science Tech Publishers, 1989), 108.

graduate, but the experience was both financially and intellectually rewarding. Although beginning by washing cages and making up rat diets, he was soon feeding and weighing the animals and dissecting them when they died. Eventually Potter was allowed to design and carry out experiments lasting several months, and co-authored several papers in the *Journal of Nutrition* on work done as an undergraduate.

“When I was an undergraduate, I wanted to do everything,” Potter remembered nearly half a century later, pretty much confirming what his yearbook documents. “I went out for the debate team, the extemporaneous speaking team, and engaged in intercollegiate activities in both of those ... and had a lot of speaking experiences, which I’d had in high school also.” Potter also had the brief opportunity to live another dream. “I also wanted to be a newspaperman, and I became news editor of the college paper for about a semester when [Franke] called me into his office and said, ‘Young man, you’re doing too many things. You have to decide whether you’re going to be a newspaperman or a chemist.’ And he was my boss, and I was getting paid to work there. I didn’t argue for a minute, I just went over and resigned.”

“I didn’t regret that I had the experience for a semester,” he added.

Potter’s academic career nearly blew up, however, when some classmates asked his assistance – “of course, I was the ‘expert chemist’” – in pulling a prank in the livestock pavilion. He supplied the pranksters with a chemical which, when sprinkled on a dry floor, should have resulted in satisfying

bangs when the animals stepped on them. But when the time came, the floor of the pavilion was wet, the chemical was “scattered a bit generously,” and the result was something more than what was anticipated. However, according to Potter, that was not the real reason the administration came down on him. “I was placed on probation was for voicing views on the lack of talent in the body of the Dean of Agriculture,” Potter explained. The president told him, “Your political views you better keep on ice until you’re a professor.” Duly chastened, “I don’t think I ever expressed any views to any great extent until I was an assistant professor.”

Although the Experiment Station lab and research facilities were located on the bottom floor of the chemistry building, the chemistry department had been separated from the Experiment Station Chemistry group since 1926. Experiment Station Director, Kurt W. Franke, began his career as a University of Virginia-trained industry chemist. After five years in the field, though, he decided to further his studies at the University of Minnesota, eventually receiving a Ph.D. in agricultural biochemistry. Shortly after graduation in 1927, he accepted the offer to head the new SDSC Experiment Station department.

In those days, Experiment Station departments were encouraged to concentrate on one single problem, preferably one of significance to the state’s agricultural constituencies. Franke chose to focus on “alkali disease” or “blind staggers,” a condition afflicting farm animals in certain parts of the state. The disease, which had first been reported in the 1860s among cavalry horses that

foraged in certain parts of South Dakota, Nebraska and Wyoming, had both acute and chronic manifestations.<sup>28</sup> In addition to horses, cattle, swine, mules, even chickens could be afflicted by the disease, which caused emaciation, overgrowth and then loss of hooves, hair loss, fetal loss and even death.<sup>29</sup> Early settlers believed the condition was caused by “alkali”, or high salt content, in the water in semi-arid regions. Although that belief had been disproven, no cause had been identified. Franke initially suspected an element like thallium or arsenic might be the causative agent.<sup>30</sup> During the next four years, cooperative research with the USDA led to the identification of selenium as the causative agent. Plants differ in their ability to pick up selenium, which is the only mineral known to be absorbed from the soil by food plants in sufficient quantities to be lethal.

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<sup>28</sup> Experiment Station student and later director Al Moxon believed he found evidence suggesting that Marco Polo had encountered alkali disease during his travels through western China in about 1295. Traveling party horses experienced hoof overgrowth and shedding; the area is known to have naturally high levels of selenium in the soil. Alvin L. Moxon, “Alkali Disease or Selenium Poisoning,” *Bulletin*, Brookings South Dakota Agricultural Experiment Station, 311.

<sup>29</sup> Blind staggers and alkali disease, as the names suggest, manifested somewhat differently, possibly as a result of the type or duration of exposure. L. F. James, K. E. Panter, H. F. Maryland, M. R. Miller, and D. C. Baker. “Selenium Poisoning in Livestock: A Review and Progress.” In *Selenium in Agriculture and the Environment* (Madison, WI: American Society of Agronomy, Inc, 1989.)

<sup>30</sup> For more on Kurt W. Franke and the SDSC Experiment Station Chemistry group see “A.L. Moxon Honorary Lectures” Special Circular 16799 *Ivan S. Palmer Ohio State University Extension Research Bulletin*; Robert H. Burris “Breaking the N = TKN Bond” *Annual Review of Plant Physiology and Plant Molecular Biology* 46 (1995) 1-19, and Ross Aiken Gortner “Obituary: Kurt Walter Franke, 1889-1936” *Science* 84, n. 2182 (October 23, 1936): 365-366.

Sometime in 1930 or 1931, Potter, through the combined efforts of the school of pharmacy dean and Franke, was sent to the Mayo Clinic in Rochester, Minnesota,<sup>31</sup> to show them slides of blood from rats fed on wheat and corn made toxic by the still unidentified selenium. “This was a fantastic experience,” Potter remembered. “I was there for two weeks. They welcomed me with open arms .... I ate with the interns and residents and I copied chemical methods out of their notebooks - there were no good texts on chemical methods at the time.” (This experience was without a doubt with Potter in 1948, when he edited the widely acclaimed, inaugural – and ultimately the only – edition of *Methods in Medical Research*, an attempt to assist in reproducibility of research results by standardizing research methods.)

Potter found the Mayo Clinic researchers “just as baffled as I was by these smears. It was the most bizarre collection of blood cells that anybody’s ever seen. There were cells in there that couldn’t easily be classified.” For all the

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<sup>31</sup> The Mayo Clinic’s roots are found in the frontier practice of Dr. William Worrall Mayo, a Southern Minnesota enrollment board surgeon charged with examining recruits for the Union Army. After a devastating tornado in 1883, Mayo and his two physician sons joined with nuns from the Sisters Of St. Francis to build the first general hospital in southeastern Minnesota. The Mayo family developed the concept of the practice of medicine as a cooperative science, uniting the clinician, the specialist and the laboratory workers in a common goal: the good of the patient. Teamwork was emphasized and individualism was rejected as no longer practical for medicine. At the time of Potter’s visit, the two Mayo sons still served on the Clinic’s Board of Governors. See Leonard L. Berry and Kent D. Seltman, “Building a Strong Services Brand: Lessons from Mayo Clinic,” *Business Horizons* 50, (2007): 199–209; Roberto Anaya-Prado, and Marisol Godinez Rubi, “William and Charles Mayo: Their Influence on American Medicine.” *Investigative Surgery* 20, no. 6 (2007): 325-329; Paul S. Mueller “Incorporating Professionalism into Medical Education: The Mayo Clinic Experience” *Keio Journal of Medicine* 3, no. 58 (2009) 133-143, and *Sketch of the History of the Mayo Clinic and the Mayo Foundation*, (Philadelphia: W.B. Saunders Company, 1926.)

interest and encouragement Potter received at the Mayo Clinic, he recognized, and appreciated, that it “was not just philanthropy on their part. They wanted to be in on any discovery that was made, because the phenomenon of wheat or corn that was poisonous was something that could effect humans, and if they picked up any patients from that area it would be helpful for them to know something” about the condition.

Potter returned to Brookings and the rats inspired, if not enlightened. Waiting to welcome him back was Kurt Franke, “a diamond in the rough if there ever was one” (or, as Franke’s mentor at Minnesota, Ross Aiken Gortner, recalled in an odd but affectionate tribute after Franke unexpectedly died of undulant fever<sup>32</sup> in 1936, “He had a forceful personality.... His friendships were the sort that grow with time.”<sup>33</sup>) Unbeknownst to Potter, Franke had written up the results of some of their toxic foodstuff rat experiments, and submitted it to the *Journal of Nutrition*. “They promptly rejected it – whoever heard of toxic wheat and corn?” Potter recalled. “And he was really depressed. He called me into the office and he showed me the letter from the editors and he showed me the manuscript.” To Potter, the problem was immediately obvious. Franke had written up an experiment with only ten rats. “I said, my God, Karl, they’re not going to accept a result based on ten rats.” Pointing out they’d done multiple

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<sup>32</sup> Undulant fever is now known to be brucellosis, a zoonotic bacterial infection primarily transmitted by drinking unpasteurized milk. In 1954, B. Suis was the first biologic agent weaponized by the United States.

<sup>33</sup>Gortner, “Obituary: Kurt Walter Franke, 1889-1936,” 366.



experiments involving 400 rats, Potter offered to redraft the paper. Franke reluctantly accepted Potter's offer. "He didn't want the other undergraduate<sup>34</sup> [employed by the station] to know what he was doing," Potter explained years later. As a barely established faculty member, Franke told Potter "he just couldn't afford his reputation." Instead, "he had me come to his home and lay things out on the dining room table and rewrite the paper and redraw the graphs." The rewritten and resubmitted paper was accepted. Potter's assistance was not acknowledged, but, he said, "I didn't care – I was so happy to see my product in print."<sup>35</sup> Potter offered to assist Franke on a second paper, helping him put the results of Station experiments into conventional journal format. Again, his contributions went unacknowledged. But by the third paper, Franke said Potter could join him as a credited second author, although "I'm sure the paper doesn't indicate I was an undergraduate."<sup>36</sup>

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<sup>34</sup> Potter was likely referring to Alvin Moxon, who would become the Experiment Station chief after Franke's death. Moxon went on to earn a Ph.D. from Wisconsin while continuing his SDSC experiment station work. He eventually accepted a joint appointment at Ohio State University and the state Agricultural Extension Station, where, after it had been established that trace amounts of selenium is actually essential for growth and development, he help to establish standards for selenium fortification of animal feed.

<sup>35</sup> See Kurt W. Franke, "A New Toxicant Occurring Naturally In Certain Samples of Plant Foodstuffs. I. Results Obtained In Preliminary Feeding Trials." *Journal of Nutrition* 8, no 5 (1934) 596-608.

<sup>36</sup> And indeed, it doesn't. Kurt W. Franke and Van Rensselaer Potter, "A New Toxicant Occurring Naturally in Certain Samples of Plant Foodstuffs, III. Hemoglobin Levels Observed In White Rats Which Were Fed Toxic Wheat," *Journal of Nutrition* 8, no. 6 (1934): 615-624. See also Kurt W. Franke and Van Rensselaer Potter, "The Effect of Selenium Containing Foodstuffs on Growth and Reproduction of Rats at Various Ages," *Journal of Nutrition* 12, no. 2 (1936): 205-214.

Franke and Potter's results gained some significant exposure in the national press, when the wire service Science Service picked up a report of their selenium experiments that appeared in *Science*.<sup>37</sup> The work, Science Service suggested, was scientific proof of folk beliefs about the wisdom of animal behavior. "The experiments seem to give scientific foundation for the popular belief that animals will select foods most beneficial to them when a choice is offered," the dispatch ran, taking note of Frank and Potter's experiments that demonstrated laboratory rats could discriminate between food rations with toxic levels of selenium, and non-toxic rations. "They also bear out the opinion of residents of selenium-affected regions who claim that range animals are able to recognize and avoid as far as possible the vegetation containing selenium."<sup>38</sup>

By the 1931-32 academic year, it appears that Kurt Franke had loosened his grip on Potter's time – or at least had come to acknowledge that Potter's time seemed capable of almost infinite expansion to accommodate all the young man wished to do. Potter was once again engaged in a number of extracurricular activities. He was elected secretary of Pi Kappa Delta, the SDSC chapter of the national honorary forensic fraternity. Eligibility was based on "credible work in

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<sup>37</sup> Kurt W. Franke and Van Rensselaer Potter, "The Ability of Rats to Discriminate Between Diets of Varying Degrees of Toxicity," *Science* 83, no. 2153 (1936): 330-332.

<sup>38</sup> Science Service, "Rats ARE Smart - They Know When Food is Poisoned," *Berkley (CA) Daily Gazette*, 8 April 1936, evening edition section 1: 8.

intercollegiate competition, scholarship.”<sup>39</sup> The group met two times a month and sponsored the local Toastmaster’s Club. Potter was also member, along with fellow Experiment Station student employee Al Moxon, of the SDSC chemical society, The Benzene Ring. The monthly meetings featured demonstrations of a “novel piece of apparatus, a working model of an industrial process or a unique reaction,” the last of which had been worked out by student or faculty members.<sup>40</sup> There was an enthusiastic evangelization of chemistry on campus; for the annual Hobo Day parade a giant motorized hopper on wheels was constructed, bearing the slogan “Chemistry Turns Waste into Dollars”<sup>41</sup> Potter’s junior class photo was accompanied by the motto “A quitter never wins and a winner never quits.”<sup>42</sup>

But perhaps most important to the development of Potter’s notion of university service was his presence on the college’s Board of Control, where he sat with the college president, the deans of both men and women, and five other voting student members.<sup>43</sup> The stated purpose of the Board of Control was to regulate student body affairs; representatives from several student organizations

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<sup>39</sup> *The Jackrabbit 1932*, 252-3

<sup>40</sup> *The Jackrabbit 1932*, 235.

<sup>41</sup> *The Jackrabbit 1932*, 163.

<sup>42</sup> *The Jackrabbit 1932*, 163.

<sup>43</sup> The student body president in 1931-32 was Ben Reifel, who became the first Lakota to ever serve in the U.S. House of Representatives. Elected to the Eighty-Seventh Congress and to the four succeeding Congresses (3 January 1961- 3 January 1971) as a Republican, Reifel retired from elective office in 1971. AP, “Ben Reifel, 83, Dies; Former Congressman,” *New York Times*, 4 January 1990.

also sat as non-voting members, as well as serving as a “connecting link” between students and faculty.<sup>44</sup> The Board Potter served on, the *Jackrabbit* staff recalled, was “one of the most active in several years, among its accomplishments the establishment of a new absence system and the creation of a student loan fund.”<sup>45</sup> The Depression was by now taking a significant toll on the entire student body. The opportunity to work in a cooperative setting to identify and provide solutions for real world problems doubtless left an indelible impression on Potter.

In 1933, after the anticipated five years of study were complete, Potter received his BS degree with high honors, majoring in chemistry and biology. He continued in the Franke laboratory, taking some courses at the graduate level while seeking a fellowship to work on a Ph.D. – no easy task, for in these Depression-era years universities, responding to the limited employment prospects, were extending support for their current fellows. During this period he met and courted SDSC undergraduate Vivian Christensen, daughter of legendary South Dakota State College band director Carl “Christy” Christensen. Christy Christensen directed the band for the better part of half a century, and was one

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<sup>44</sup> *Jackrabbit* 1932, 181-182

<sup>45</sup> *Jackrabbit* 1932, 181-182.

of the first inductees into the South Dakota Bandmaster's Association Hall of when it was established in 1992.<sup>46</sup>

During this period, SDSC produced an impressive number of first-rate chemists – not only Potter and Al Moxon, but also Henry Lardy<sup>47</sup> and Robert Burris, who both went on to earn graduate degrees from Wisconsin and join the

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<sup>46</sup>Potter was marrying into South Dakota royalty. Christensen was thirteen years old when he came with his family from Copenhagen to the United States. His career at SDSC began in 1906 when he took a position on the faculty as a violin instructor and orchestra leader. In 1918 he was appointed head of the music department. From 1911 until 1954, Christensen conducted both the marching (military) and concert band programs, bringing “international recognition” to the college 1939, when the marching band performed for King George VI and Queen Elizabeth in Winnipeg, Canada. In Winnipeg, the band was awarded first prize as the best marching band in the field of 18. *A History of the 147th Army Band of the South Dakota Army National Guard*, Terry Keith Beckler (Ph.D. Thesis - University of Minnesota, 2007; “State Band To Appear Here; Prof. Carl Christensen To 'Direct' Organization March 29,” *Daily Plainsman* (Huron, SD), 21 March 1940, 10, and *Jackrabbit* (Brookings, SD) - Class of 1955, 140.

<sup>47</sup> Henry Lardy was born in Day County, S.D., which also turned out its share of impressive scientists. In 1998, as David B. Wake, who received his Ph.D. in biology from the University of Southern California, recalled, “I was elected to membership in the National Academy of Sciences, and in late April, 1999, went to the induction ceremony in Washington. The NAS is not a large organization, but I knew that Van [Potter] was a member. I had no idea that most members do not show up for the Annual Meeting, and so I looked forward to seeing him. He was then nearly 90 I think. He was not there. I found myself in the member's room standing next to an elderly man reading a newspaper and I noticed his name tag: Henry Lardy, Univ Wisconsin Madison. So I introduced myself and asked him if he knew Van Potter. He responded enthusiastically, saying that they were best friends. Then he added, ‘We grew up together’. I was dumb-founded, but then I remembered my father telling me about Henry and how he too had become a professor. So I said: ‘I, too, am from Pierpont!’ Henry responded ‘My God, there are three of us!’ It was a memorable moment for me, and for Henry for that matter.” Correspondence with the author.

Lardy, who discovered of a mixture to preserve the vitality of sperm, revolutionizing livestock breeding by making artificial insemination practical, became the second team leader at the Enzyme Institute. Lardy was still an active bench scientist when he died in 2010 at the age of 92 of prostate cancer – ironically, he was working on an anti-prostate cancer compound at the time of his death. Doug Erickson, “Noted University of Wisconsin-Madison Researcher Henry Lardy Dies at 92,” *Wisconsin State Journal*, 6 August 2010.

UW faculty. “At one time I chaired the NIH panel awarding training grants in biochemistry,” Bob Burris recalled years later. “During our visit to Cornell University I was being given the ‘pitch’ by a staff member who said ‘We get excellent grad students at Cornell, we don’t get them from places like South Dakota.’ This was not quite the right pitch to make to a loyal South Dakotan like me, but it brings up the indefensible concept that you can judge people by their point of origin, race, religion or gender. Nonsense! It’s in the genes.”<sup>48</sup>

In late August of 1933, Potter, Moxon, and two other friends made the spontaneous decision to take off in Moxon’s car to visit the World’s Fair in Chicago.<sup>49, 50</sup> For the budding young scientists, the trip to Chicago’s Century of Progress exposition must have been a heady experience. Exhibits everywhere extolled both the progress and the promise of American science. Indeed, the exposition opened with a spectacular display of the boundless potential to be

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<sup>48</sup>Robert H. Burris “Breaking the N = TKN Bond” *Annual Review of Plant Physiology and Plant Molecular Biology* 46 (1995): 17. In the role of unofficial “talent scout,” a role that was part of Potter’s self-definition, he had suggested Burris apply for a staff position in biochemistry at UW.

<sup>49</sup> Potter was hardly alone in calling the exposition a “world’s fair”; however technically it was an exposition, and not a world’s fair. “Science Theme Carried Out Through 1933 World’s Fair,” *Science News Letter*, (1933): 341.

<sup>50</sup> In an interesting footnote to the Fair, in the early 1980s chemists analyzed a sample of Milorganite fertilizer that had been sealed in glass for exhibition at the fair. The sample showed a broad range of chlorodibenzo-p-dioxins remarkably similar to that of more recent material, causing researchers to speculate that the compounds were formed mainly by condensation reactions after chlorination of phenolic substances in the water supply and wastes. The researchers, it should be further noted, were all employed by Michigan Division of Dow Chemical Company Analytical Laboratories. L.L. Lamparski, T.J. Nestrick, V.A. Stenger, “Presence of Chlorodibenzo Dioxins in a Sealed 1933 Sample of Dried Municipal Sewage Sludge,” *Chemosphere* 13, no.3 (1984): 361–365.

tapped in the combined efforts of basic and applied science. Observatories around the globe were coordinated to collect beamed light from the star Arcturus and deliver it to photocells that, in turn, would produce electrical impulses that were carried, via Western Union telegraph lines, to power a dramatic light show. “Arcturus, or Job’s star, was not just any star; it was chosen for symbolic reasons,” explained Robert W. Rydell in “The Fan Dance of Science: American World’s Fairs in the Great Depression.” “The light received by the observations had left Arcturus forty years earlier – at precisely the moment President Grover Cleveland had opened the 1893 World’s Columbian Exposition.”<sup>51</sup>

Directly inside the main entrance to the grounds was a massive fountain entitled *Science Advancing Mankind*. The sculptured fountain featured a giant stylized robot, his huge hands on the backs of figures of a man and a woman in an apparent effort to “advance” them. Visitors could “thrill to the ‘romance of oil’” when viewing a working model of an oil refinery,<sup>52</sup> look skywards in the Adler Planetarium, the nation’s only “mechanical show of the stars,”<sup>53</sup> and visit the “handsome” chemical robot, whose upper garments were pulled aside to expose his digestive area. “Illuminated dynamic pictures” of the robot’s stomach and intestines were displayed while he droned, “Now, ladies and gentlemen I shall

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<sup>51</sup> Robert W. Rydell, “The Fan Dance of Science: American World’s Fairs in the Great Depression,” *Isis* 76, no. 4 (1985): 542.

<sup>52</sup> Rydell, “The Fan Dance of Science: American World’s Fairs in the Great Depression,” 533.

<sup>53</sup> “Science Theme Carried Out Through 1933 World’s Fair,” *Science News Letter*, 341.

swallow ... Now you see the swallow entering the top door of my stomach. Watch my stomach contract to churn up the food.” Those viewers who still had the stomach to listen could hear the robot give “practical advice on nutrition” and suggest kinds of food to eat.<sup>54</sup>

The road trip was extended, however, at Potter’s request. “For my benefit they agreed to let me visit the Agricultural Chemistry Department in Madison and the Biochemistry Department at Purdue University where our former chemistry instructor [Ted Tripp] was working on his PhD under a Professor Corley.” The first stop was in Madison, where Potter had some vaguely-conceived plan of interviewing with “the only Wisconsin name I knew,” Harry Steenbock, famous for his discovery that irradiation by ultraviolet light increased the vitamin D content of milk and other organic materials (thereby affording an inexpensive rickets preventative). As Potter would later recall, an element of chance then played a role in what he considered the most important event in his professional career: Conrad Elvehjem’s becoming his major professor. Steenbock was out of town, and Potter, wandering around the building, found Elvehjem in his office and willing to talk with him.<sup>55</sup> He told Elvehjem about his selenium papers, which

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<sup>54</sup> “Two Mechanical Men Explain the Body’s Mechanisms,” *Science News Letter*, (1933): 344.

<sup>55</sup> Van Rensselaer Potter, “Years With Conrad Elvehjem,” in David L. Nelson and Brook Chase Soltvedt, eds. *One Hundred Years of Agricultural Chemistry and Biochemistry at Wisconsin: A Steenbock Symposium* (Madison, WI: Science Tech Publishers, 1989), 107. Elvehjem would later become chairman of the department of biochemistry, graduate school dean and president of the university before dying of a heart attack he suffered while sitting at his desk in the summer of 1962. A noted bench scientist as well as an administrator, Elvehjem discovered that nicotinic acid cured black



“were of interest to Dr. Elvehjem as a trace metal phenomenon presumably with a connection to some biocatalyst, while I was fascinated with the new field of enzymology in relation to nutrition.”

In February 1935, the big break came when Potter was awarded a Wisconsin Alumni Research Foundation (WARF) Fellowship to work with Elvehjem. Some years earlier Steenbock had tried to get the university to patent his vitamin D discovery; when it was slow to respond he patented it himself, eventually convincing the university to accept the license and use considerable proceeds to fund the foundation.

The WARF fellowships were a new use of foundation funds. “All of these students of science are selected for the special fellowships after a search extending through a score of states in the entire central portion of the country, from Maryland and Pennsylvania on the east to Montana, Utah and Arizona on the east,” the *Wisconsin Alumni Magazine* breathlessly explained. “They are chosen from small villages and large cities – wherever they are found.” In selecting candidates, “emphasis is placed on unusual scholarship and originality

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tongue in dogs, an analogous disease to the human disease pellagra. His discovery was almost immediately translated into clinical practice by Tom Spies, Marion Blankenhorn, and Clark Cooper who established that niacin also cured pellagra in humans. For their efforts the three were named *Time* magazine’s 1938 Men of the Year in comprehensive science. An indignant Potter fired off a letter to the editor, complaining that they had overlooked Elvehjem’s more significant contribution. Van Rensselaer Potter, *UW Oral History*, #257. See also R.D. Simoni, R.L. Hill, M. Vaughan, “Copper as an Essential Nutrient and Nicotinic Acid as the Anti-Black Tongue (Pellagra) Factor: The Work of Conrad Arnold Elvehjem,” *Journal of Biological Chemistry* 277, no. 34 (August 2002).

in their various fields of study.”<sup>56</sup> Potter and another student were only the second cohort to receive WARF fellowships, bringing the total to nine; Potter’s was the first awarded in agricultural chemistry.<sup>57</sup>

With the award, Potter felt financially secure enough to marry Christensen on August 3, 1935. However, the newlyweds did not immediately set up housekeeping. The new Mrs. Potter was still an undergraduate, and as Potter later recalled somewhat bemusedly, the couple felt it was important to take advantage of the in-state tuition resident tuition SDSC offered. Vivian Potter stayed in South Dakota while Potter took up residence in one of the dorms at Wisconsin.<sup>58</sup>

It was while working under Elvehjem that Potter invented the Potter-Elvehjem pestle homogenizer, the first mechanism to produce, repeatedly and on a large scale, cell isolates and cell-free homogenates for the study of cellular metabolic processes.<sup>59</sup> The device consists of a cylindrical glass pestle that

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<sup>56</sup> While the Clock Strikes the Hour,” *Wisconsin Alumni Magazine* 36, no. VI (1935): 180.

<sup>57</sup> While the Clock Strikes the Hour,” *Wisconsin Alumni Magazine* 36, no. VI (1935): 180.

<sup>58</sup> Eventually the young couple would not only establish joint residency, but have three children: Karin Evangeline, John Howard, and Carl “Toby” Tobin.

<sup>59</sup> Potter coined the word homogenate in 1941 (*Journal of Biological Chemistry* 141:775) to refer specifically to suspensions or animal tissues that had been ground in the all-glass “homogenizer” as described by Potter and Conrad Elvehjem in 1936 (*Journal of Biological Chemistry* 114:495) In the inaugural volume of *Methods in Medical Research Vol 1*, (Van Rensselaer Potter, editor-in-chief, Chicago: Yearbook Publishers, 1948: 317) Potter noted that the term had since been used by various investigators to refer to tissue preparations that have been “ground in mortar, with or without sand, or

rotates in a close-fitting tube, submitting a suspension of the tissue particles and a buffer to shearing forces as the pestle moves up and down. The suspension is pressed through the space between the rotating pestle and the tube, disrupting the cellular membranes.<sup>60</sup> "It produced impressive, interpretable results (clear differentiation of enzymes between different fractions)," William Bechtel explained in 2006.<sup>61</sup> The Potter- Elvehjem pestle homogenizer is still used in laboratories today, and versions are offered by a number of scientific instrument companies. But when it came to developing the prototype, "I wasn't a very good glass blower," Potter admitted. Instead he went to a more skilled colleague, and "sketched what I had in mind."<sup>62</sup>

"There's no question that my early recognition was related to the homogenate technique and its contribution to the study of enzymes in animal

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disintegrated in a Waring blender, or produced by methods not described." Although these preparations are probably no less appropriately called homogenates, Potter said, in line with the stated goals of *Methods in Medical Research*, "it seems desirable to promote a nomenclature that is as meaningful as possible, and it is suggested that the method of preparation be specified." The chief significance of the term, he continued, was that "it serves to distinguish the preparation from slices, minces and extracts....the homogenate technique accepts the fact that the cells in the tissue are no longer living and attempts to obtain surviving groups of enzymes [word "enzymes" emphasized] without loss of in vivo properties." After the definition of "homogenate" from biology online, written by the author. <http://www.biology-online.org/dictionary/Homogenate>.

<sup>60</sup> William Bechtel, *Discovering Cell Mechanisms: The Creation of Modern Cell Biology*, (New York: Cambridge University Press, 2006):132.

<sup>61</sup> Bechtel, *Discovering Cell Mechanisms: The Creation of Modern Cell Biology*, 132-133.

<sup>62</sup> University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983.

tissue,” acknowledged Potter. “This homogenate technique has played a very major role in the development of biochemistry, and was the basis of my Paul-Lewis award.”<sup>63</sup> (A *significant* award, Potter went on to explain, not like “the business” of being named one of the Jaycee’s 10 Outstanding Young Men of 1945, which “was not really a recognition of anything...it was more of a case of being nominated, and being the only guy who was working in cancer.”<sup>64</sup>)

“The introduction of the glass homogenizer,” recalled Henry Lardy in 1983, “was a classic contribution,”<sup>65</sup> which was “certainly...very widely quoted....Everybody still uses a Potter-Elvehjem homogenizer [but] the recognition that it is a classic has been forgotten in the folklore of biochemistry.”<sup>66,67</sup>

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<sup>63</sup> University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983.

<sup>64</sup> University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983.

<sup>65</sup> Van Rensselaer Potter and Conrad A. Elvehjem, “A Modified Method for the Study of Tissue Oxidations,” *Journal of Biological Chemistry* 114, no. 2 (1936): 495–504.

<sup>66</sup> Henry Lardy and Van Rensselaer Potter, joint interview, University Of Wisconsin-Madison Archives Oral History Project, Interview # 267, 1983.

<sup>67</sup> “It really revolutionized the field,” Potter acknowledged years later. But, “despite Wisconsin’s significant track record of lucrative patents, apparently no one thought to patent the homogenizer,” he recalled. “If I had patented the damn thing with the WARF – 10-cents apiece for every one that was sold – I’d be rich.” University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983. Indeed, many people assume Potter did patent the device. In an unfortunate example of sloppy science, it is not unusually to find research papers attributing the Potter-Elvehjem homogenizer to Potter Instruments, a now-defunct company located in Plainview, Long Island. (See, for example Daniel Billen and Ann C. Olson, “DNA Replication in Chinese Hamster Ovary Cells Made Permeable to Nucleotides by Tween-

Potter received a Ph.D. in Agricultural Biochemistry with a minor in Medical Physiology in 1938. For post-graduate study he was able to secure a National Research Council Post-Doctoral Fellowship. Sailing on the Queen Mary in August, the young couple traveled to Stockholm, Sweden, where Potter began a year's work with Nobel laureate Hans von Euler-Chelpin in the Biokemiska Institute. A second year of work was arranged with Hans Krebs, a pioneer in intermediary metabolism and its regulation, in England. The Potters were in Edinburg, en route to Krebs's lab in Sheffield, when, on September 1, 1939, Hitler invaded Poland. The Rockefeller Foundation's office ordered their immediate return to the United States.<sup>68,69</sup> The loss of the opportunity to work for a year with a scholar of Krebs' stature must have been a deep disappointment for

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80 Treatment," *Journal of Cell Biology* 69 (1976): 732-736 ["six strokes in a Potter homogenizer (Potter Instrument Co., Inc., Plainview, NY)"]; Peter Laurberg and Niels Boye, "Outer and Inner Ring Monodeiodination of Thyroxine by Dog Thyroid and Liver: A Comparative Study Using a Particulate Cell Fraction," *Endocrinology* 110, no. 6 (1982): 2124-2130 ["two strokes with an all-glass Potter Elvehjelm homogenizer (Potter Instrument Co., Plainview, N.Y.)"]; Niels Boye, "Thyroxine monodeiodination in normal human kidney tissue in vitro." *Acta endocrinologica* 112, no. 4 (1986): 536-540. ["a handdriven teflon Potter Elvehjelm homogenizer (Potter Instrument Co., Plainview, NY, USA)"] According to former employee Daniel Klang, Potter Instruments manufactured a wide variety of digital computer products, but never anything resembling a homogenizer. Daniel Klang, correspondence with the author. This inexcusable conduct would, if he knew of it, be particularly vexing to Potter. Certain that the key to reproducible research result was standardization of methods, he conceived of and edited *Methods in Medical Research*. [Potter, *Methods in Medical Research, Volume I.* ]

<sup>68</sup> Potter, "Years With," 110.

<sup>69</sup> On Monday, October 2, 1939 the *Wisconsin Journal* reported that Mrs. Vivian C. Potter and Van Rensselaer Potter were among a handful of Madison residents who were aboard the liner Manhattan when it docked in New York on September 21, although it reported perplexedly, that "They are not listed, however, in either the city or university directory." Unbylined, "More City's War Visitors Return Home," *Wisconsin State Journal* (Madison, WI.) Monday, 2 October 1939, 7.

Potter<sup>7071</sup>. Krebs, himself a trainee of Otto Warburg, who'd won the Nobel prize in 1931 for elucidating the nature and function of the respiratory enzyme, was no stranger to the devastating impact of the Nazis on scientific inquiry. A German secular Jew whose parents sent him to Lutheran schools, Krebs practiced clinical medicine as well as conducted research. He had just identified the urea cycle in 1933 when the Nazis terminated his appointment. Krebs fled to England, where he eventually found an academic home at the University of Sheffield. In 1937 Krebs identified the citric acid cycle – commonly known as the Krebs cycle and colloquially known as the Wheel of Fortune – a discovery that would earn him a Nobel prize in 1953.

Finding a safe harbor at the University of Chicago with Professor Thorfin Hogness, Potter renewed contact with Elvehjem in Madison, and in December 1939 he was invited to come to Madison to give a symposium on “Newer Studies With Tissue Enzymes.”<sup>72</sup> He talked with Medical School Dean William S.

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<sup>70</sup> By some accounts, including his own, Potter did have a chance to work with Krebs; however the date between the invasion, September 1, 1939 and Potter's documented return to the U.S., September 21, 1939 means that he could have made only the briefest of appearances in Sheffield in September, 1939. Possibly Potter spent additional time with Krebs earlier that year while he, Potter, was formally at the Biokemiska Institute.

<sup>71</sup> “Even when I was in Krebs' lab he was using a tissue mince. I was trying to get him to the homogenate technique,” Potter explained much later. “One of my greatest joys was, in about 1940-41, to see a paper in *Nature* by Krebs using the homogenate technique.” University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983.

<sup>72</sup> Harold Rush, *Something Attempted, Something Done*, (Madison, WI: Wisconsin Medical Alumni Association, 1984), 59.

Middleton, who requested a summary of his research plans. Shortly thereafter, Potter was offered a position in the new McArdle Laboratory for Cancer Research as the second staff member, after Dr. Harold Rusch.<sup>73</sup> “I was really overjoyed,” by the offer, Potter remembered years later, although he was disappointed by the proposed salary. “I had been getting more as a Rockefeller post-doc.” Chicago countered with a position offering \$3,000 but, in the end, Potter decided “I would much rather be in Madison than in Chicago.”<sup>74</sup>

The McArdle Laboratory was established in 1940 as both the first basic science cancer center at an academic institution in the United States and as one

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<sup>73</sup> In Rusch’s account, “In 1938 the dean called me to his office and said that Mr. Michael McArdle, who had been president of the Sunbeam Corporation [actually Chicago Flexible Shaft, which later became the Sunbeam Corporation] and was born and educated in Wisconsin, had died of cancer and bequeathed funds for research on the disease to the University of Wisconsin. The dean thought that with additional funds, which he later obtained from the Federal Public Works Administration, there would be enough to construct a modest-sized building for cancer research. When asked what I thought of the idea, I was overwhelmed and quickly agreed.” Harold P. Rusch, “The Beginnings of Cancer Research Centers in the United States,” *Journal of the National Cancer Institute*, 74 (1985): 391-403. See also Sidney Weinhouse, “Cover Legend,” *Cancer Research* 50, no. 20 (October 15, 1990). Rusch’s article was a revision of a speech he gave at an event celebrating the 75<sup>th</sup> anniversary of the American Association for Cancer Research on April 28, 1982 in St. Louis. A handwritten note on Rusch’s annotated podium copy reads “[Leonard] Zahn picked this up....TH [W.T. “Tom” Hoyt,” Executive Director, The Council for Tobacco Research.]” Zahn, who will be discussed in detail later, was a tobacco industry operative masquerading as a freelance reporter. Presumably Zahn picked up Rusch’s discarded text and passed it on to his employers. A facsimile of the original can be found online in the Legacy Tobacco Documents Library, University of California, San Francisco.

<sup>74</sup> University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983.

of the first basic cancer research facilities in the world. Potter began his career at McArdle as a Jonathan Bowman Fellow on February 1, 1940.<sup>75</sup>

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<sup>75</sup> Potter, "Years With Conrad Elvehjem," in David L. Nelson and Brook Chase Soltvedt, *One Hundred Years of Agricultural Chemistry and Biochemistry at Wisconsin: A Steenbock Symposium*, (Madison, WI: Science Tech Publishers, 1983).



## CHAPTER FOUR: WALK TO THE BRIDGE

When Potter arrived in Madison he found much of the McArdle building “still unfinished, [with] an odor of fresh paint everywhere.”<sup>1</sup> Potter “agreed to check equipment as it arrived and organize the storeroom,”<sup>2</sup> and by the end of the month the rest of the staff had completed the move into the new facility.

“The new McArdle lab was just starting out and there was plenty of room at the top,” Potter said of his decision to join McArdle as the number-two man behind co-founder Harold Rusch<sup>3</sup>. “The other point there was the McArdle Laboratory was mission oriented and it was not just pure biochemistry, but it was biochemistry targeted on the cancer problem.<sup>4</sup> McArdle offered Potter the “opportunity to do the kind of basic research I wanted to do with total freedom.”<sup>5</sup>

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<sup>1</sup> Harold Rusch, *Something Attempted, Something Done* (Madison, WI: Wisconsin Medical Alumni Association, 1984), 59.

<sup>2</sup> Rusch, *Something Attempted, Something Done*, 59.

<sup>3</sup> The other co-founder was Dr. William S. Middleton, dean of the University of Wisconsin Medical School.

<sup>4</sup> University of Wisconsin-Madison Archives, Oral History Project, Van Rensselaer Potter, Interview #257, 1983.

<sup>5</sup> “Perhaps if I've done anything it is to select—or in the beginning when I was really the only one who made the decision for some of the early people, although I had...advice from others later on... but from the beginning in getting Potter and [then] the Millers [James and Elizabeth] and [Roswell K.] Boutwell...” Director Rusch would recall in 1982. “Van Potter was one of our very leading lights at McArdle,” Harold P. Rusch, University of Wisconsin-Madison Archives Oral History Project, Interview #224, 1982.

In its early years, a major focus of McArdle's research program centered on studies of chemical carcinogenesis. McArdle scientists established the basis of the chemical induction of various cancers and discovered how known carcinogens initiate the genetic changes in cells that result in tumor formation. Early studies also focused on the biochemistry of cancer cells and how they differ from normal cells.

“Once America got into the war,” in December, 1941, “then I was sort of carrying water on both shoulders,” Potter explained. “I became convinced that the problem of irreversible shock in wounded soldiers or civilians that had been caught in bombed-out<sup>6</sup> buildings was basically a problem in this oxidative phosphorylation business. It was almost the classic biochemical and physiological problem in connection with the war. People worked on traumatic shock in World War I [and] dropped it in peacetime. I could see that the methodology and the findings that we would get in the area of the so-called shock problem would be directly applicable and would be building toward similar research on the cancer problem after the war.” Important to Potter, “we would not be losing time.”

Medical School Dean Middleton left town almost immediately to join General Dwight D. Eisenhower's staff in figuring out a way to handle the mass

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<sup>6</sup>Van Rensselaer Potter, G. Alvin LePage and H. L. Klug, "The Assay of Animal Tissues For Respiratory Enzymes VII. Oxalacetic Acid Oxidation and the Coupled Phosphorylations In Isotonic Homogenates," *Journal of Biological Chemistry* 175, no. 2 (1948): 619-634.

casualties in the European theater – but he told Rusch<sup>7</sup> that he and Potter were to stay in Madison and keep the McArdle lab as intact as possible. “Cancer research is kind of a long-range thing,” Potter explained, with experimental animals maintained in cages for as long as two years.<sup>8</sup>

“And I suppose it was also a matter of escaping the draft ... if you were doing medical, war-related research as a principal investigator and you had these people working on that project you could [all] escape the draft. I wouldn’t deny that was probably part of the motivation.”<sup>9</sup>

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<sup>7</sup> And, in Rusch’s account, the local draft board. “Before leaving, Dr. Middleton informed the local draft board which members of the medical school faculty should be deferred from military duty,” Rusch remembered. “He told me that he would like to have the research at McArdle continue without interruption; as a result, Dr. Potter and I were two among the younger faculty whose work was rated “essential to the general health and welfare of the country.” Rusch, *Something Attempted, Something Done*, 62.

<sup>8</sup> Unfortunately, Rusch’s request for funds to air-condition the fourth-floor animal room was refused on the grounds that, in war-time, it was a luxury. As a result many animals died from the heat, causing significant setbacks for experiments. Rusch, *Something Attempted, Something Done*, 62.

<sup>9</sup> Potter may have felt conflicted for a reason he does not discuss here – indeed, for a reason he is not known to have publicly discussed anywhere. Potter had a younger “double cousin” – their fathers were brothers, their mothers, sisters – with whom he was quite close. Richard Potter followed him first to South Dakota State College, where he worked at the Experiment Station with Al Moxon, extending some of his older cousin’s work with Franke, and then to the University of Wisconsin, where he began studying biochemistry with Conrad Elvehjem in 1940. “The national disaster at Pearl Harbor on December 7, 1941, had the effect of making biochemistry seem abstract and academic to him,” remembered colleague Eugene P. Frenkle in a 1967 tribute published in *Radiation Research*, “and he could not continue his work under the then existing circumstances.” After receiving his master’s degree the following June, Dick Potter abandoned his doctoral studies, volunteering for active duty instead. As Marine Corps pilot flying a “single-seater Corvair” [sic – likely a Corsair] on combat bombing missions from the Marine base at Eniwetok, Dick Potter was decorated for what “we would consider in the context of heroism, but which to him merely represented his duty to his country,” Frenkle recalled. After the war Potter returned to Wisconsin to resume work on his Ph.D. It was during this period that the younger Potter made a discovery “that clearly

Further west, South Dakotans were also feeling the stress of more than two years of war. Gas rationing and a national 35-mile-an-hour speed limit had put a notable dent in the carloads of tourists caravanning to see the seven life-size concrete dinosaurs in Rapid City and the four giant granite presidents a stone's throw away towards Keystone. In the fall of 1944, Rapid City booster Paul Bellamy convinced the Chamber of Commerce to adopt a resolution calling for the United Nations, whose creation was anticipated but not yet a reality, to make its permanent home in Rapid City and the Black Hills. "Perhaps the most remarkable thing about Bellamy's proposal," historian Charlene Mires reflected in 2013, "was that his neighbors did not consider it the least bit remarkable. The boosters of the Black Hills had cultivated a tourism industry in this remote

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seems to have been the first that could have been labeled a 'feedback control mechanism,'" Frenkle wrote. Potter published his results with collaborators Henry Lady and Robert Burris, but "[u]nfortunately the report lacked either the word control or the word feedback, and the title did not suggest the important contribution to the literature on metabolic controls that was contained," Frenkle explained. "Thus a footnote to the history of science may be here noted, along with the observation that a discovery that is not exploited by an author is likely to be overlooked by his contemporaries." Potter moved on, first as a post-doctoral student at newly organized Enzyme Institute at the University of Wisconsin and then to a faculty position at the University of Michigan Medical School. Potter never had a chance to realize the "promise and potential" of his early years," noted Frenkle, as "his desire to maintain a research and academic tradition at the level set by his predecessors was one of the heavy burdens that eventually proved overwhelming for him." He died, in 1960, at the age of 41.

"It is always difficult to review the stimuli that represent the 'making' of a man," Frenkle observed in his delayed tribute, but "it was patently clear to all who knew him that the long and close association with his revered friend and mentor Dr. Van R. Potter of the University of Wisconsin served as the major basis for his scientific astuteness, his enthusiasm for research, and his established level of excellence." Eugene P. Frenkel, "Richard Louis Potter (1918-1960)," *Radiation Research* 31, no.1 (1967): 182-185, and correspondence with the author. See also Richard L. Potter, Kenneth P. DuBois and Alvin L. Moxon, "A Comparative Study of Liver Glycogen Values of Control, Selenium and Selenium-Arsenic Rats," *Proceedings of the South Dakota Academy of Science* 19, (1939): 99-106.

southwest corner of South Dakota, they had attracted international publicity with Mount Rushmore and Calvin Coolidge's summer in residence, and they had lured an army air force base to the outskirts of Rapid City ... To invite these world leaders to the Black Hills seemed to be not much more than a gracious extension of hospitality – indeed, one that might generate more publicity and help revive tourism after the war.”<sup>10</sup> South Dakota governor Merrell Quentin Sharpe quickly recognized not only those potential benefits, but also the chance to attract attention to another cause he cared about, conservation.<sup>11</sup> The Second District Congressman was already on board but now, especially in light of rumblings from states like Pennsylvania, Michigan, New Mexico, and California who might also like to claim the prize, Sharpe broadened his base by pulling in the governors of Nebraska and Wyoming.<sup>12</sup>

Over the months that followed, the South Dakotans tried a combination of enticement and fear-mongering to ramp up national support. An elected official had never seen Mount Rushmore? Please come as guest of the good people of South Dakota.<sup>13</sup> Need more convincing? How about a free map of the United States that gave a clear picture of the danger, and the South Dakota advantage? “United Nations of the atomic age locate headquarters furthest inland,” one

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<sup>10</sup> Charlene Mires, *Capital of the World: The Race to Host the United Nations*, (New York: NYU Press, 2013), 10.

<sup>11</sup> Mires, *Capital of the World: The Race to Host the United Nations*, 54.

<sup>12</sup> Mires, *Capital of the World: The Race to Host the United Nations*, 53.

<sup>13</sup> Mires, *Capital of the World: The Race to Host the United Nations*, 55.

spelled out, telegraph-style, “thereby have most time to detect and deflect projectiles.” Locating the new headquarters smack in the middle of the country not only headed off “that gruesome thought of a bandit nation sneak of the sea atomic bomb into coastal city vaporiz[ing] everything,” but it had “Pure Air Galore.”<sup>14</sup>

The South Dakotans thought they had an inside track. Not only had Paul Bellamy been Roosevelt’s personal driver/tour guide in 1936 when the President came to the Black Hills to dedicate Thomas Jefferson’s likeness on Mt. Rushmore, but the South Dakotans believed they’d had some personal indication that Roosevelt favored the South Dakota site.<sup>15</sup> While it would be many more months before South Dakotans learned of it, the fix was already in (and Roosevelt, what ever his true sentiments were, was dead). In the summer of 1945, an internal State Department memo dropped South Dakota from the list of potential candidates because of its “remoteness from any important center.”<sup>16</sup>

In May 1944, South Dakota State College arranged for Potter to be the after-dinner speaker at the annual meeting of South Dakota Academy of Sciences.<sup>17</sup> No formal record appears to have been kept of his discussion of

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<sup>14</sup> Richard R. Chenoweth, “The Black Hills – United Nations Capital,” *South Dakota History* 5, no. 2 (1975): 163.

<sup>15</sup> Chenoweth, “The Black Hills –United Nations Capital,” 152-54.

<sup>16</sup> Mires, *Capital of the World: The Race to Host the United Nations*, 51.

<sup>17</sup> “Minutes of the 29th Annual Meeting of the South Dakota Academy of Sciences.” In *Proceedings of the South Dakota Academy of Science XXIX May 5-6, 1944*. It is possible in the lean war years SDSC offered to absorb whatever expenses

“Recent Progress in Cancer Research,” although the Academy did thank him for his “timely address.”<sup>18</sup> However, in February, 1945, *Science* published Potter’s “The Role of Nutrition in Cancer Prevention,”<sup>19</sup> a paper they indicated was an “[a]dress given at the annual meeting of the South Dakota Academy of Sciences.”<sup>20</sup> This paper is interesting in that it spells out quite clearly medicine’s obligation to society, the responsibility individuals bear for their own well-being, and the benefits of a proactive, rather than reactive, medicine. In the *Science* paper, Potter laid out a radical new approach to the cancer problem, a problem with only two possible solutions: chemotherapy or prevention.<sup>21</sup> “For my part I have deliberately turned my back on the search for chemotherapeutic agents,”<sup>22</sup>

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were associated with Potter’s talk in return for a chance to showcase their nationally prominent alumnus.

<sup>18</sup> *Proceedings of the South Dakota Academy of Science XXIX May 5-6, 1944: 6-7.*

<sup>19</sup> Van Rensselaer Potter, "The Role of Nutrition in Cancer Prevention," *Science* 101, no. 2614 (1945): 105-109.

<sup>20</sup> Again, since no record is known to exist of the original talk, it is not known how closely this paper follows the original talk. The first title suggests nothing about its contents.

<sup>21</sup> Potter did not consider x-ray and radium treatments, surgery or controlled chemosurgery curative as they are “amputative in nature”; that is the integrity of the body is disrupted by tissue destruction or removal. A “cure” would be a chemotherapy that restored the body to its intact state, much a sulfa antibiotic destroys an infection, fully restoring the body to its pre-infection state. As chemotherapeutic treatment developed, it became evident that that drugs which would meet that definition of curative were few and far between. While such interventions might leave a patient cancer free, there was often collateral damage, sometimes significant, to solid organs and other bodily systems. Not infrequently chemotherapy causes secondary cancers.

<sup>22</sup> Potter, "The Role of Nutrition in Cancer Prevention," 105.

Potter explained. "But if, as I suspect, the answer to degenerative diseases such as cancer lies in prevention through appropriate self-discipline, then it is possible that under such a program mankind would reap even greater benefits."<sup>23</sup>

There will always be cancers that can't be prevented, Potter allowed, with induction caused by radiation (including solar or ultra-violet), viruses, hereditary defects, and chemical carcinogens. However, in many cases, these conditions exist without the resulting in tumor formation. The body has a innate ability to regulate abnormal cell growth, as evidenced by its ability to "turn off" normal cells involved in tissue repair once an injury is healed. That ability, Potter suggested, also helps to control the growth of abnormal, or cancerous, cells. However, Potter postulated that individual cells' susceptibility to cancer formation could be modulated with diet and exercise. "The nature of the calorie effect and the exercise effect involves the metabolic response which is mediated by pharmacological control," he explained. In the lab, the response "appears to be due to the increased efficiency of the trained animal working at a lower concentration of fuel and building blocks than can be tolerated by the cancer. In other words, the trained organism can compete with cancer during the critical period. In the absence of exercise and in a flood of nutrient there is no competition and the cancer thrives."<sup>24</sup>

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<sup>23</sup> Potter, "The Role of Nutrition in Cancer Prevention," 106.

<sup>24</sup> Van Rensselaer Potter, "Evolution and the Cancer Problem," *Abstract of Academy Lecture Proceedings of the South Dakota Academy of Science*, XXXV, (1956 33-34): 109.



Potter presented evidence for his hypothesis in the uptick in cancer cases in the United States. During the 10-year period from 1930 to 1940, the population increased 7 percent, the number of deaths increased 2 percent, while the number of deaths attributable to cancer increased an alarming 35 percent. Even taking into account confounding factors such as improved accuracy in diagnosis and an increase in the average age of the population, Potter suggested, the incidence of cancer did appear to be increasing. That increase, Potter continued, coupled with objective statistical information, such as demonstrating that people who were overweight at the time life insurance was taken out were more likely to develop cancer, and that diabetics, who tended to be overweight prior to disease onset, have a significantly higher rate of cancer, suggested that the increase was actual. And correlating that increase with weight, almost inevitably a result of increased caloric intake, Potter continued, suggested that nutrition may play a role in initiating cancer – or in preventing it.<sup>25</sup> Restricting intake was not the only way to reduce that risk, however. Potter cited statistics showing that between 1920 and 1930 the incidence of diabetes, a disease correlated with obesity, was

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<sup>25</sup> Van Rensselaer Potter, "The Role of Nutrition in Cancer Prevention," 106. Potter went on to observe "[P]erhaps if no chemotherapy [e.g., chemical therapy] were available, the demand for quarantining syphilis cases would be as forceful as the demand for quarantining cases of scarlet fever and other contagious diseases for which no chemotherapy was available." A treatment for scarlet fever and other streptococcal infections, the new antibiotic, penicillin, was not recognized until 1948. Prior to that time, strep infections could be crippling, even fatal. In about 1920, a scarlet fever epidemic swept through Pierpont, causing many households to be quarantined for over a month. See: Campbell Ward, "Penicillin Treatment of Scarlet Fever," *British Medical Journal* 1, no. 4559 (1948): 100; *Pierpont Centennial 1887-1987*, 126.

reported to have doubled. Not so coincidentally, Potter added, “between 1910 and 1920 this country changed from a horse-and-buggy stage to the automotive era. That decade occurred during the youth of many people who are now cancer patients.”<sup>26</sup>

Potter acknowledged the likelihood of public resistance to his proposal. “As a general proposition, prevention is always preferable to cure, but the public is much more impressed with Dr. Ehrlich’s ‘magic bullet’<sup>27</sup> than they are by the hard and simple facts of syphilis prevention.”<sup>28</sup> And, he also acknowledged, prevention had little marketplace appeal. “Without impugning the motives of those who chose the chemotherapeutic approach in research, it can be said that the profit motive alone will guarantee that the search for chemotherapy will continue,” he wrote, “and it is appropriate that the cost of this research be carried by the commercial organizations that are most likely to profit from it.”

Researchers “who carry on in State institutions at public expense are in a real sense obligated to carry through the type of research which has no profit motive. For, make no mistake; there will be no reward for a program of cancer

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<sup>26</sup> Potter, “Evolution and the Cancer Problem,” 105.

<sup>27</sup>In 1909, Nobel laureate Paul Ehrlich, working with Sahachiro Hata, discovered Salvarsan, the first effective treatment for syphilis. See Allan M. Brandt, *No Magic Bullet: A Social History of Venereal Disease in The United States Since 1880* (New York: Oxford University Press, 1987).

<sup>28</sup> Potter, “Evolution and the Cancer Problem,” 106.

prevention. We cannot hope to sell it, and in fact I expect we will have difficulty in giving it away.”<sup>29</sup>

On the one hand, Potter’s thesis is a logical extension of the work he had begun in the experiment station at Brooking and continued under the tutelage of Conrad Elvehjem; on the other it seems a radical anticipation of the late 20<sup>th</sup> century emphasis on nutrition and health.<sup>30</sup>

Potter’s piece in *Science* also attracted the attention of Associated Press science editor Howard W. Blakeslee. In a dispatch sent to newspapers across the country, Blakeslee wrote, “The idea that cancer may be prevented, possibly by nutrition, is one of the four outstanding hopes of this national cancer control month.” Blakeslee took particular note of Potter’s claim that “people who were overweight at the time insurance was taken out were more liable to cancer late in life.” As Blakeslee explained it, “some groups of human beings who have more cancer than others can be classified as overeaten and under exercised.”<sup>31, 32</sup>

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<sup>29</sup> Potter, “Evolution and the Cancer Problem,” 106.

<sup>30</sup> While studies of the effect of caloric intake on tumorigenesis date back at least until 1909, correlating those studies with human health were slow in coming. The increasing focus on tobacco in the 1950s as the number one causative agent of cancer, and the concern on the 1970s of environment factors, led to the neglect of nutritional factors. W. Philip T. James, “The Role of Nutrition in Cancer Prevention.” *Epidemiologic Studies in Cancer Prevention and Screening*. Springer New York, 2013. 121-139. Interestingly, the early work on vitamins done in places like Wisconsin is also receiving renewed attention. See Cedric F. Garland, Frank C. Garland, Edward D. Gorham, Martin Lipkin, Harold Newmark, Sharif B. Mohr, and Michael F. Holick. “The Role Of Vitamin D In Cancer Prevention,” *American Journal of Public Health* 96, no. 2 (2006): 252-261.

<sup>31</sup> Howard W. Blakeslee, “Research In Diet May Help Lead to a Cancer Cure.” Ellensburg (WA.) *Daily Record*, 11 April 1945: 3. See also: “Where Do We Stand On Cancer? Nutrition Has Not Prevented Cancer But Progress Shown. Some Humans Who

In 1946, Potter was named one of 10 Outstanding Young Men in America<sup>33</sup> by the U.S. Junior Chamber of Commerce (Jaycees), a national honor of no little significance in its day.<sup>34</sup> “In the opinion of his colleagues, he does rank among these men,” Dr. Walter J. Meek, assistant dean of the medical school, told the *Badger Quarterly*. “His chief contribution is in the application of his knowledge of enzymatic processes to the practical problems of human health.”<sup>35</sup> Among those honored with Potter were Henry Ford, II, the president of Ford Motors, James Linen, publisher of *Time* magazine, and Abe Fortas, undersecretary of the interior, Lyndon Johnson confidante and future associate justice of the Supreme Court.

That fall, Potter addressed a joint meeting of the Omaha section of the American Chemical Society and the Chemistry Club of the University of Omaha

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Have More Disease Found To Be Overeaters, Underexercisers,” *Toledo Blade*, April 1945: 5.

<sup>32</sup> Blakeslee’s account found itself in ironic juxtaposition with a celebration of “Bigger and Better” in the Ellensburg (WA.) *Daily Record*, when it was played up against notice of local families’ welcoming new entrants in what would eventually become known as the “baby boom.” Two of the three of the infants weighed in at an impressive 8 lbs., 4 oz., and 9 lbs., 5 oz.

<sup>33</sup> He was actually one of the Ten Outstanding Young Men of 1945; as was then the custom, the award was made in early 1946.

<sup>34</sup> Indeed, it was of enough significance that Joseph P. Kennedy, Sr., in an early foray into vote fixing, arranged for his son, Rep. John F. Kennedy, to be selected one of the outstanding young men the following year. See John F. Kennedy Library archive, “Outstanding Young Man of the Year Award, 1947” 33 digital pages, 5 December 1946-27 January 1947 <http://www.jfklibrary.org/Asset-Viewer/Archives/JFKPP-005-008.aspx>. Kennedy was actually one of the 10 Outstanding Young Men of 1946; as of this writing the file is mislabeled.

<sup>35</sup> Unbylined, “Named One of 10 Outstanding Young Men,” *Badger Quarterly* (1946): 12.

(now the University of Nebraska – Omaha). According to the account in the student newspaper, Potter had used the findings of hundreds of chemists on fundamental enzyme research as “a blueprint for work on the enzymes of cancer.” Potter said those chemists were “studying the mystery of life itself.”<sup>36</sup> What the audience was more interested in, at least in the newspaper’s account, was how cancer research compared with research to develop the atomic bomb.

“You can’t compare the curing of cancer with producing the bomb,” Potter answered. The war interfered with fundamental cancer research, he noted, while applied research, as exemplified by the atomic bomb, was accelerated. “The difficulties in finding a cure for cancer,” he added, somewhat cryptically, “are more comparable to finding the solution to the problems which the production of the bomb have raised.”

When 11,000 members of the American Chemical Society met in New York in September 1947, Potter received the Paul-Lewis award for enzyme chemistry,<sup>37</sup> which was accompanied by a bronze medal and a \$1,000 honorarium.<sup>38</sup> He was only the second winner of what was already a prestigious

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<sup>36</sup> Joy Stute, “‘Enzymes Clue to Cancer’ – Potter” *Gateway* Tuesday, 15 October, 1946: 5. Also Unbylined, “Chem Club to Hear Potter on Cancer” *Gateway* Tuesday, 8 October 1946: 4.

<sup>37</sup> Unbylined, “Chemists Gather for Sessions Here; 11,000 Will attend Convention Opening Tomorrow, Largest in Professions’ History.” *New York Times*, 14 September 1947.

<sup>38</sup> William L. Laurence, “5 New Atoms Split; Useless for Bombs; Lead, Bismuth Among Them, but World is Assured None Can Give Chain Reaction,” *New York Times*, 16 September 1947: 1, 26. A similarly sedate account of Potter’s work was found in the

award. At the conference, Potter presented his research showing that “cancer cells lack a key factor necessary for the burning of body fuels to provide heat and energy.” *The New York Times* hailed Potter’s discovery as a “new beachhead in the war on cancer,”<sup>39</sup> while *Science News Letter* reported that Potter’s paper conjured up a “Dickensian picture” wherein “Cancers in the body may be like half-stifled slums in a city, where people sicken and go wrong for lack of enough clean air to breath, for inability to utilize properly the food they get.”<sup>40</sup> Potter’s research shed new light on the “anarchic mob-like piling up of cells” long recognized as characteristic of cancer by suggesting that cancer growth is connected the absence of enzymes necessary to slow down the “fires” of cellular growth.<sup>41</sup> Potter’s Paul-Lewis Award was followed by recognition in the November 1947 issue of *Chemical Bulletin*, where he was named one of the ten

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*Chicago Daily Tribune*. Chicago Tribune Press Service, “Hints Enzymes May Be Clew [sic] to Cancer’s Cause,” *Chicago Daily Tribune*, 18 September 1947: 7.

<sup>39</sup> But not nearly as significant, in the *Times*’ account, as the discovery of a new element rounding out the periodic table, and the debate over what to name it. It is interests to find here the descriptive “war on cancer” used far in advance of what is commonly supposed. William L. Laurence “Last Gap is Filled in Element Table; Chemists at Oak Ridge Report Synthesis of Element 61, Prepared in Pure Form; 4 Rival Names Offered; Presence of Uranium in Shale Promises New 100-Year Oil Supply, Research Shows.” *New York Times*, 18 September 1947.

<sup>40</sup> Unbylined, “Oxygen Related to Cancer, Slowing down of oxidation process belived connected with cancer growth. Enzyme which promotes oxidation lacking in cancer tissue,” *Science News Letter*, 27 September 1947: 204.

<sup>41</sup> “Oxygen Related to Cancer,” *Science News Letter*, 27 September 1947: 204.

outstanding chemists in biological chemistry.<sup>42</sup> Potter's piling up of accomplishments did not go unnoticed by the university. That year, still in his mid-30s, Potter advanced to full professor.

In 1948, the McArdle Laboratory was granted University departmental status, with the academic title of the Department of Oncology. Howard Rusch became department chair as well as director<sup>43</sup> of McArdle, while Potter, the associate director of McArdle, assumed the title of professor of oncology.

In 1949, Potter, together with Walter Schneider and simultaneously with Albert L. Lehninger and E. P. Kennedy at the University of Chicago, isolated cellular organelles called mitochondria using biophysical techniques.<sup>44</sup> Mitochondria were then discovered to be the main sites of cell respiration, acting as the cell's "power plants" or "energy furnaces." In the early 1950s, Potter developed the concept of alternative metabolic pathways for cellular compounds. Competing for the same substrate, enzymes may at times force key components through alternative pathways. In 1951, his study of enzyme inhibitors and the

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<sup>42</sup> Unbylined, "The State Of the University," *Wisconsin Alumnus* 49, no. 4(January 1948), 6.

<sup>43</sup> While Rusch had functioned as the director of McArdle since its opening in 1940, it was not until 1945 that he was formally recognized as such.

<sup>44</sup> Walter C. Schneider and Van Rensselaer Potter, "Intracellular Distribution of Enzymes: IV. The Distribution of Oxalacetic Oxidase Activity in Rat Liver and Rat Kidney Fractions," *Journal of Biological Chemistry* 177 (1949): 893–903; Eugene P. Kennedy and Albert L. Lehninger, "Oxidation of Fatty Acids and Tricarboxylic Acid Cycle Intermediates by Isolated Rat Liver Mitochondria," *Journal of Biological Chemistry* 179 (1949): 957–72. Lehninger received the Paul-Lewis Award in Enzyme Chemistry in 1948, the year after Potter received it.

quantitative measurement of enzyme products in the presence and absence of specific inhibitors led to the demonstration of the effects of two different inhibitors acting on the same overall system. Potter proposed that such sequential block inhibition could be use to treat cancer more effectively. Instead of using a single agent, several chemotherapeutic agents, chosen for their sites of action on various metabolic pathways, might be administered to target cancer cells. Potter's proposal is now foundational to modern combination therapeutic treatment <sup>45</sup>

### **Evolving Definitions**

"Biochemistry," says Ton van Helvoort, "can be defined as the science that deals with the chemistry of living things. As such, it may be regarded as an *interdisciplinary* or *transdisciplinary* science between chemistry and biology. Notoriously, interdisciplinarity is a hotly debated scientific policy issue: On the one hand it is hailed because many societal problems are at the interface between disciplinary approaches; on the other hand, scientific progress is characterized by increasing specialization, irrespective of whether the scientific research is disciplinary or interdisciplinary."<sup>46</sup> In van Helvoort's analysis,

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<sup>45</sup> Van Rensselaer Potter, "Sequential Blocking of Metabolic Pathways In Vivo," *Experimental Biology and Medicine* 76, no. 1 (1951): 41-46. An earlier publication suggested that the selective inhibition of an enzyme not unique to cancer tissue was theoretically possible. W. W. Ackermann and Van Rensselaer Potter, "Enzyme Inhibition in Relation to Chemotherapy," *Experimental Biology and Medicine* 78, no. 1 (1949): 1-9.

<sup>46</sup> Ton van Helvoort, "Institutionalizing Biochemistry: The Enzyme Institute at the University of Wisconsin," *Journal of the History of Medicine and Applied Science* 57, no. 4 (2002).



biochemistry was attempting to become an independent discipline after World War II by concentrating on the study of enzymes, in an effort to “bridge the gap” between chemistry and biology by taking enzymes as its preferred object of study.<sup>47</sup>

In mid-1945, a conference on “Intracellular Enzymes of Normal and Malignant Tissues” was held in Hershey, Pennsylvania, under the auspices of the International Cancer Research Foundation and the Jane Coffin Childs Memorial Fund. As the conference’s name indicates, it was based on the assumption that enzymes might play a role in the origin of cancer. Potter found himself sharing a hotel room with graduate school dean Conrad Elvehjem. “That lucky accident gave us time to talk,” Potter remembered decades later.<sup>48</sup> Lying awake one early morning in the hotel he shared with Elvehjem, Potter was struck by the observation that the great labs of Europe, the traditional post-doctoral training ground, were no more. Buildings had been destroyed by either German or Allied bombs, and “some scientists had fled Europe [and others] were either refugees in this country or had labs that were in shambles in Europe.”<sup>49</sup> It occurred to Potter that “this would be a good time to establish world leadership in enzyme work.”<sup>50</sup> As Potter remembered it, “I don’t recall planning this talk [with

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<sup>47</sup> van Helvoort, “Institutionalizing Biochemistry,”

<sup>48</sup> Van Rensselaer Potter, Oral History #257, University of Wisconsin.

<sup>49</sup> Potter, Oral History #257, University of Wisconsin.

<sup>50</sup> Potter, Oral History #257, University of Wisconsin.

Elvehjem,]” although “I could see the whole package as an Enzyme Institute at the University of Wisconsin.” Under gentle prodding from an interviewer, Potter conceded he had likely had an Eureka! feeling, much like that which years later, as he told Warren Reich, would lead him to coin the word bioethics.<sup>51</sup>

In the analysis of van Helvoort, the founding of the Enzyme Institute at the University of Wisconsin provides new insight into the way biochemistry managed to develop into an independent discipline after World War II, as well as insight into how practically oriented research is restructured into basic research. It is illustrative of the way American universities became “true research universities,” with research, education, and training all part of the institutional program. The University of Wisconsin was uniquely positioned to catalyze the study of biochemistry, as it sat in the interface between applied and basic sciences without fragmenting it.<sup>52</sup>

Van Helvoort concluded that the Enzyme Institute exemplified three distinct “tendencies” in the development of both American universities and post-war science.<sup>53</sup> Potter’s goal to have a domestic institution replicating the prewar training opportunities offered to young American scientists was certainly part of that reimagining of the American research university. Enzymes also became

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<sup>51</sup> Potter, Oral History #257, University of Wisconsin.

<sup>52</sup> Van Helvoort, “Institutionalizing Biochemistry,” 464.

<sup>53</sup> Van Helvoort, “Institutionalizing Biochemistry,” 477.

recognized as “research objects,” acting “as focusing or reference points for the institutions of biochemistry.”<sup>54</sup> Finally, biochemistry was established as one independent discipline of basic science “by keeping medicine and agricultural science at bay.”<sup>55</sup>

This last achievement ran counter to Potter’s original hope of a collaborative institution that would have significant interactions with other UW colleges and departments that were conducting their own research, both applied and theoretical, with enzymes.<sup>56</sup> Van Helvoort finds it “somewhat ironic that at the very moment that biochemistry had established itself as a pure science, societal developments such as the introduction of science policies in the second half of the 1960s made it necessary for biochemistry to address societal problems.” Potter likely thought it mentionable, and further proof of the urgent need to build a bridge between the sciences and the humanities.

It is interesting to note that while most of Potter’s ideas about what fostered scientific inquiry and production, from the team approach to the design of laboratories, were realized in the Enzyme Institute, Potter himself had no

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<sup>54</sup> Van Helvoort, “Institutionalizing Biochemistry,” 477.

<sup>55</sup> Van Helvoort, “Institutionalizing Biochemistry,” 478.

<sup>56</sup> There was even a hope for collaboration with other Madison institutions. As one intra-university memo noted, the proposed Institute would benefit from its proximity to a local slaughterhouse, and its steady supply of cellular materials.

desire to leave his already comfortable niche at McArdle for the Institute.<sup>57</sup> Like so many Potter projects in years to come, he was content to conceive of and assist in the delivery of the project before sending it off to make its own way in the world. He was not finished, however, in imaging the potential of Enzyme Institutes. Where he once sought to make America the new center of enzyme research and training, he now thought of its international potential. During the winter of 1953-53, Potter took a leave to organize an enzyme research lab in Lima, Peru for the study of the physiology of adaptation at high altitude (“That was like a rejuvenation,” Potter recalled of the experience years later. “There was no telephone, no committee.”)<sup>58</sup>

In the spring of 1956, Potter was invited to return to South Dakota to deliver the Academy Address at the 41<sup>th</sup> annual meeting of the South Dakota Academy of Science. Only the abstract of Potter’s talk was archived by the Academy, but it suggests that Potter gave a talk with which he was by now familiar, tailored to science generalists and specialist from other divisions of

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<sup>57</sup> When the appointment of David Green as the Institute’s first team leader proved troublesome, “Van volunteered go out and be a team leader,” as part of a “rescue operation”, Henry Lardy remembered in 1983. “The people at McArdle refused to hear of the possibility that he might leave McArdle.” In short order Lardy was installed as the second team leader, and Green’s administrative activities were supervised by a University committee. Henry Lardy and Van Rensselaer Potter, joint interview, University Of Wisconsin-Madison Archives Oral History Project, Interview # 267, 1983.

<sup>58</sup> Van Rensselaer Potter, Oral History #257, University of Wisconsin.

science.<sup>59</sup> In “Evolution and the Cancer Problem,” Potter described the process of drug-resistant cells – a problem confounding cancer researchers and treatment providers, and to which Potter had introduced sequential blocking – as being essentially similar to the process of evolution. In carcinogenesis an extrinsic factor leads to the selection of new strains of resistant cells. Successful chemotherapy must therefore encompass the control of the parent strain and also all possible derived strains. Carcinogenesis was pictured as the conversion of normal cells to various gain or loss mutations, a process that could, Potter theorized, account for all known types of carcinogenic factors.

What is interesting about the Academy meeting is not so much Potter’s talk, but the address given by the Academy president, a biologist from Yankton College.<sup>60</sup> Although no reference to Frank W. Jobes’ talk has been found in Potter’s writings, and indeed it cannot be said with absolute certainty that Potter heard it,<sup>61</sup> there is so much in it that anticipates the direction Potter’s thought would later take that it is worth considering in some detail.<sup>62</sup>

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<sup>59</sup> Van Rensselaer Potter, “Evolution and the Cancer Problem,” *Abstract of Academy Lecture Proceedings of the South Dakota Academy of Science*, XXXV (1956): 33-34.

<sup>60</sup> Yankton College was the first institution of higher learning in Dakota Territory. Founded in 1881 by Congregational Christian Churches pastor Rev. Dr. Joseph Ward, Yankton College closed in 1984, and its campus became a federal minimum-security prison.

<sup>61</sup> If he did not, it is also possible he could have read it later, in the Academy Proceedings.

<sup>62</sup> Little has been learned about Jobes, who died in 1969 at the age of 65. In 1951, Jobes and a colleague presented a paper at the annual meeting on the revision of

“We are now in an era in which science is the dominating area of effort,” Jobses told his audience. For Jobses, a professor at a small college in a largely rural state dominated by three large universities, two of whom – South Dakota State College and the South Dakota School of Mines and Technology – were regional science powerhouses, the trend towards educating “scientific technicians” was a disturbing one. It’s possible, he suggested, that as a nation we had lost our perspective by “streamlining curricula” and narrowly channeling students into the sciences. If the future is viewed as “unending succession of crises between opposing ideologies with superiority in means of mass destruction holding the balance of power,” the rapid delivery of students with highly refined technical skills is arguably expedient. But taking the long view, Jobses argued, the national interests are better served by the production of scientists who have an appreciation of “the finest in the arts and literature, and their meaning to man ... had occasion to trace the causes of the rise and fall of

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the Yankton College Curriculum to emphasize “the acquisition of knowledge and discriminating understanding, and the development of the capacity for effective living [that last being] a major, if not primary, objective of the institute.” [“Natural Sciences in the Core Curriculum at Yankton College.” Frank W. Jobses and Gregg M. Evans, *Proceedings of the South Dakota Academy of Science XXX*, (1951): 36-39. A 2011 Yankton College Facebook post by his daughter, Frances J. Stachour, remembers a diverse group of bicoastal and international students who used to come to the Jobses home for holiday dinners, giving her the opportunity “to know and appreciate many different cultures and people when I was growing up.” In Jobses’ student-friendly household, “some of the Bio majors who were pheasant hunters brought their game for my mom to cook for a Sunday night supper.” [https://www.facebook.com/Yankton.College/posts/305525269465761?comment\\_id=4330599&offset=0&total\\_comments=3](https://www.facebook.com/Yankton.College/posts/305525269465761?comment_id=4330599&offset=0&total_comments=3)].

civilizations through recorded history.... to struggle through the background from which were evolved philosophies and ethical standards.”

A humanities-infused scientific future – so reminiscent of Potter’s own later articulations of bioethics – is a wisely empowered one. “A future in which our fantastic scientific advances and control over undreamed of natural forces may be applied to human preservation certainly is more attractive than the current race to maintain superiority in mass destruction,” Jobses observed. Civilizations tend to decline, he continued, when their leaders narrow their vision and allow one area of human endeavor to dominate – much as science does now. “Further advances well could destroy our civilization unless kept in sharp perspective and intelligently related to other forms of activity. The breath of vision necessary to maintain balance with each area of effort can be supplied only by those Individuals who in some way have acquired a broad education”<sup>63</sup> – education that leavens fact with possibility.

For Jobses, “the view of the future that sees at best a stalemate between ideologies and an interminable series of armed conflicts is unthinkable since it requires the abandonment of two of the finest qualities that set man apart from other animals. Those qualities are hope and vision. ...” Hope, “for the future” and vision, “to extricate ourselves from our dilemmas.” But, “Even in such a world it must be remembered that the survival of mankind – if not actual survival, his

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<sup>63</sup> Frank W. Jobses, “Presidential Address: The Role of Liberal Arts Colleges in the Training of Scientists,” 31.

well-being – depends not only on the amount of natural forces unleashed, but also how those forces are used”<sup>64</sup>

In the mid-1950s, Potter began thinking along Jobesian lines. He’d come to believe the routine time pressures imposed by academia were having a negative impact on scientific advances and discovery. The identification of creative reflection in supporting practical action operates at two levels, Potter said, in a guest editorial he contributed to *Cancer Research* in the fall of 1956.<sup>65</sup> Most scientific discoveries are constructions built by combining new information with existing information. Creative reflection allows the scientist to envision new possibilities. However, Potter continued, contemporary researchers faced a rapidly growing, immense “pool of knowledge.” The pressures scientists felt - real, implied, or self-imposed - to produce and find funding made it impossible for them to be familiar with its contents, let alone reflect on it creatively.

“In a very real sense, each of us has been very thoroughly indoctrinated with the conclusion finally reached by *Candide* that ‘We must cultivate our gardens,’ and by his friend, Martin, who said, ‘Let us work without theorizing, ‘tis the only way to make life bearable,’” Potter observed. Environmental factors inhibiting creative thinking have a direct negative impact on productivity.<sup>66</sup>

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<sup>64</sup> Jobes, “Presidential Address: The Role of Liberal Arts Colleges in the Training of Scientists,” 31.

<sup>65</sup> Van Rensselaer Potter, “Guest Editorial: A Plea for Formal Support for Study and ‘Reflection,’” *Cancer Research* 16, no. 8 (1956): 725.

<sup>66</sup> Potter, “Guest Editorial: A Plea for Formal Support for Study and ‘Reflection.’”



But Potter was not simply content to rest with that conclusion, or to reflect on its implications. Instead, Potter took it off the page, proposing special support in the form of Advanced Study Fellowships for MDs and PhDs who have already completed post-doctoral work. In Potter's vision, these would not be standard fellowships, but instead would be given to groups of four fellows who would work collectively in Advanced Study Groups at an institution of higher learning. Potter expected these fellows to be well funded, probably in a private or semi-private form, and have a post-Advanced Study Group promise of an academic appointment. The fellows would have no obligation other than to organize a specific area of knowledge that would form the basis of their own investigations as well as study as many contiguous areas as possible "in order to achieve maximum significance from their future efforts." The benefits to other scientists might be expected to occur five or 10 years afterwards in a mature publication.

Potter took into account even the smallest detail that might be necessary for the successful implementation of his proposal. Fellows would receive a liberal stipend, "one in which marriage is recognized as a normal phenomenon in scientists." (Indeed, the happily-married Potter suggested that selection committees might consider the character of the candidate's wife, "for no scholar can escape from a wife who places personal gain above scholarship and

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personal values, and an understanding wife can be one of the scholar's greatest assets.")<sup>67</sup>

Potter had an interest in nutrition and cancer dating back to his undergraduate days. He now was becoming concerned that not only calories, but also additives, could be implicated in the development of cancer. In the spring of 1957, the Wisconsin legislature took up the question of whether to allow artificial coloring in fruit canned in the state. As was the long-established tradition, state legislators turned to their land-grant college for guidance. At the request of a Madison senator, "expert" Dr. Potter weighed in on the safety of food colorants. In a letter to the legislators, the *Milwaukee Journal* reported, "Potter said ... that in a discussion with the cancer research laboratory staff ... they were all unanimous in opposing the bill."<sup>68</sup>

### **Science, Religion and Inspiration**

As Potter recalled it in 1995,<sup>69</sup> the "triggering event in my epiphany" did not occur until 1957, when, at 46, he encountered anthropologist Margaret Mead's essay, "Towards More Vivid Utopias."<sup>70</sup> Originally presented as the Phi

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<sup>67</sup> Potter, "Guest Editorial: A Plea for Formal Support for Study and 'Reflection.'"

<sup>68</sup> *Milwaukee Journal*, 16 May 1957, 6.

<sup>69</sup> Indeed, he gave roughly the same version of this account going at least as far back as 1971, in his introduction to *Bioethics: Bridge to the Future*: "I have always been interested in philosophy [but] it was not until I read "Toward More Vivid Utopias" by Margaret Mead that I became activated in a well-defined effort outside my discipline.

<sup>70</sup> Margaret Mead, "Towards More Vivid Utopias." *Science* 126, no. 3280 (8 November 1957): 957-961.

Beta Kappa Lecture to the meeting of the American Association for the Advancement of Science in New York, December 1956, Mead's essay was reprinted in *Science* the following November. However, it was not Mead's concern for survival, which, as Potter noted, "concerned everyone in those days because of the atomic bomb that had been constructed and used over Hiroshima and Nagasaki," that inspired Potter, but her re-envisioning of the role of the university in insuring human survival. "[W]e need in our universities," as Potter quoted Mead, "which must grow and change with the world, not only chairs of history and comparative linguistics, of literature and art - but *we also need Chairs of the Future, chairs for those who will devote themselves*, with all the necessary scholarship and attention *to developing science to the full extent of its possibilities for the future....*" [Potter's emphasis added to Mead's original] <sup>71</sup>

Having already read Harrison Brown's 1954 *The Challenge of Man's Future*, Potter was now "inspired to act on the side in a new direction, while devoting full time to my role as Professor of Oncology."<sup>72</sup> Briefly put, Brown's thesis was that all the foreseeable difficulties that threaten the survival of

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<sup>71</sup> Van Rensselaer Potter, "Global Bioethics: Origin and Development" in C. Richard Cothorn, ed. *Handbook for Environmental Risk Decision Making: Values, Perceptions, and Ethics* (Boca Raton, FL: CRC Press, 1995), 365. Potter had the concluding essay in the volume, where he discussed the history and evolution of his bioethics. The handbook grew out of a one day symposium of the same name, held by the Environmental Division at the National Meeting of the American Chemical Society in Washington D.C., August 24, 1994. It is unclear as of this writing whether Potter actually attended the meeting, which grew out of another symposium, "Ethical Dilemmas of Chemists", presented at the ACS national meeting in Boston in 1990.

<sup>72</sup> Potter, "Global Bioethics: Origin and Development," 365.

industrialized civilization - among them over-population and depletion of natural resources - also threatened the achievement of stability and the maintenance of individual liberty. Brown's book, if not a call to arms, was a plea for the blending of man's creativity with the creativity of nature in an effort to maintain only the positive aspects of industrial society.

Before following Potter any further, brief note should be made of the first known, to date, public record of Potter's engagement with science, religion, evolution and what would become the foundation of his bioethical thought. On March 20, 1957, the *Vancouver Sun* ran a small account of Potter's appearance at the University of British Columbia. Under the headline "More Science in Religion: Religious leaders should work modern science into their philosophy, a leading US researcher says," the paper gave a short account of a lecture at the university, where Potter explained the "scientific theory of evolution" and challenged theologians to find a way to accommodate it. "This does not liberate us from the need of Christian ethics and philosophy," Potter reportedly said, adding that modern theologians need to examine biology and science and "give us a modern philosophy that tolerates this knowledge"<sup>73</sup> If Potter is right in his

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<sup>73</sup> "More Science in Religion: Religious Leaders Should Work Modern Science Into Their Philosophy, A Leading US Researcher Says," Unbylined, *Vancouver Sun*, 20 March 1957, 73. The story was buried deep in the paper, appearing over a Haney Correctional Institution advertisement calling for a new arts and crafts instructor. Archivists at the University of British Columbia could locate no information pertaining to Potter's visit. However, in a note on the bottom of a letter dated 18 March 1957, to Arthur Kornberg from H. Gobind Khorana, then at the British Columbia Research Council, Khorana has handwritten: "P/s. Van Potter is here for three days." [H. Gobind Khorana to Arthur Kornberg, Arthur Kornberg Papers, Profiles in Science Collection, National Library of Medicine.] In 1952, Khorana began his independent scientific career as a

recollection that he first read Mead's essay when it appeared in *Science*, and did not somehow come across it when she first delivered it as Phi Beta Kappa lecture talk, then it could not have influenced his own lecture, as the Mead essay appeared in *Science* some nine months after his visit to Vancouver.

Mead's essay may have prompted Potter to take some directed action, however. In late 1957, Potter wrote to James Shannon, director of the National Institutes of Health, to express his concern about the lack of discussion at the federal level concerning the relationship between science and society.

Unfortunately, Potter's original letter has not been retained, and the content can only be surmised by the response he received. At Shannon's request,<sup>74</sup> Charles V. Kidd, chief of the office of research and planning, responded, "The question

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nonacademic researcher at the British Columbia Research Council, beginning a "seminal string" of scientific contributions, beginning focused on nucleotides and nucleic acids. He used a carbodiimide (i.e. dicyclohexylcarbodiimide) to form pyrophosphate bonds, which eventually led to the first synthesis of coenzyme A and ATP. Soon, Khorana wrote to Van Potter, asking if he would test his synthetic ATP in rigorous biochemical assays. (Potter not only obliged with the experiments, but eventually succeeded in bringing Khorana to the Institute for Enzyme Research, a vanguard of chemical biology at UW-Madison. From 1960 to 1970, Khorana was co-Director of the Enzyme Institute and a member of the Department of Biochemistry at UW-Madison.) Before the year 1957 was out, however, Kornberg would jointly receive the Nobel Prize in medicine, for "discovery of the mechanisms in the biological synthesis of ribonucleic acid and deoxyribonucleic acid." Khorana would become the Enzyme Institute's third team leader in 1960, where, in 1968, he would be the joint recipient of the Nobel Prize for "Interpretation of the Genetic Code and its Function in Protein Synthesis". Aseem Z. Ansari, Marsha Rich Rosner, and Julius Adler "Obituary: Har Gobind Khorana: 1922–2011," *Cell* 147, no. 23 (December, 2011): 1433-1435.

<sup>74</sup> Shannon doubtless had other things on his mind. In 1955, a committee of inquiry, inspired by the Secretary of Health, Education and Welfare, concluded NIH should lose its independence and be placed under another agency. Shannon rallied his supporters, and a blue ribbon panel of academics and business people, as well as a Congressional probe, concluded in 1958 that NIH should remain independent. See

you raised has stimulated great deal of discussion around NIH, and this accounts for the excessive delay in responding to your letter.” Kidd continued:

I have a personal conviction that the relationship between science and society - of which one aspect is governmental activity in science and the relationships between universities and the Federal Government - is of such general significance as to be a worthy area for exploration in an academic atmosphere.

The philosophical problems involved in the reciprocal relationships between science and society are, in my opinion, a productive starting point for an academic area of interest. As a matter of fact, I think that several universities should seriously consider the establishment of a chair and the development of cooperative teaching relationships required to deal with this question of the mutual dependence and in a sense the conflict between science and the pressures of society. ... If this idea appeals to you might wish to explore it at Wisconsin.... I know that I have not answered your question satisfactorily, but perhaps in asking other questions we may proceed towards some productive end.<sup>75</sup>

Kidd’s answer may have indeed been unsatisfactory, but Potter was not easily discouraged. Inspired by Mead’s vision, Potter organized an informal group of like-minded professors including Merle Curti, a Pulitzer-Prize winning historian, law school professor Willard Hurst, who would become widely recognized as the father of American legal history, and chemistry professor Farrington Danielson, considered one of the pioneers of direct, applied solar

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Donald S. Fredrickson “James Augustine Shannon (9 August 1904-20 May 1994).” *Proceedings of the American Philosophical Society* 140, no.1 (March 1996).

<sup>75</sup> Charles V. Kidd to Van R. Potter, 5 February, 1958. National Library of Medicine.

energy.<sup>76</sup> The group dubbed itself The Interdisciplinary Seminar on the Future of Man. (In 1962 University President Fred Harrington suggested the inclusion of Reid Bryson, a professor of metrological sciences and someone whom Potter had never met, and formally recognized the group as an official University committee, the Interdisciplinary Studies Committee on the Future of Man.)<sup>77</sup>

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<sup>76</sup> Farrington Daniels was a staff member of the Chicago Metallurgical Laboratory, a division of the Manhattan Project's World War II effort to develop an atomic bomb, and was elevated to the directorship some five weeks before the bomb was dropped on Hiroshima. Daniels had barely settled into his new job when he was asked to poll the 250 or so scientists at work under him as to how any new weapons should be used in the Japanese war. The results of the secret ballot were open to interpretation, but they seemed to suggest that the majority of the scientists favored some sort of controlled demonstration of the bomb's power, followed by a renewed opportunity for Japanese surrender, before using an atomic weapon. For his part Daniels agreed, reluctantly, that the bomb should be used. In September 1945, Daniels became a founding member of the Atomic Scientists of Chicago, established by Met Lab scientists to educate the public and the government in the political, social, and international implications attending the national and international development and exploitation of atomic energy. [See "A Poll of Scientists at Chicago, July 1945," *Bulletin of the Atomic Scientists*, (February 1948): 44, 63, and Jessica Wang, *American Science in an Age of Anxiety: Scientists, Anticommunism, and the Cold War* (Chapel Hill: University of North Carolina Press, 1999), esp. pp. 74, 92, 115 and 315.] While a member of the Atomic Scientists of Chicago, Daniels became unduly concerned about Communist infiltration of the organization, a concern that seems to have followed him well into the era of McCarthyism and the Second Red Scare. In 1953, Daniels, by then president of the American Chemical Society, rejected Nobel Prize winner Irene Joliot-Curie's application for membership, claiming "Certainly it appears to be a communist trap designed to embarrass us." Future double-Nobel prizewinner Linus Pauling was prompted to respond "It seems to me that the only thing that embarrasses the American Chemical Society is the action of its Membership Committee." Letter from Linus Pauling to Farrington Daniels. 17 December, 1953. Oregon State University Libraries' Ava Helen and Linus Pauling Papers.

<sup>77</sup> At some point the relationship between Potter and Bryson appears to have become strained, possibly because of the publication of a Committee Report in *Science*, and/or the establishment of the Institute of Environmental Studies, both topics that will be touched on later. Bryson later gained a certain degree of notoriety for insisting climate change was not due to human activity, but because the earth was moving out of a Little Ice Age.

The inspiration for Potter's selection of his original committee members may have well come from the April 11, 1958 dedication of the new \$2.4 million Wisconsin Center. Potter's status as one of Wisconsin's senior scholars was cemented when, at the age of 46, he was asked to be one of the University's "world renowned authorities" participating in the dedication events.

The most ambitious project of the University of Wisconsin Foundation to date, the three story structure featured lecture, conference, discussion and meeting rooms all completely funded by the donations of "public spirited citizens and loyal alumni" to the foundation. The building was planned "solely to serve the 'Wisconsin Idea'" a university press release explained, "of extending the educational benefits of the University to all the citizens of the state," becoming the "meeting point for hundreds of adult groups coming to campus to share common interests with University faculty members."<sup>78</sup> An estimated 50,000 to 60,000 Wisconsin citizens were expected to use the Wisconsin Center's facilities for seminars, conferences, and short courses each year.

In an address officially presenting the building to the University, University of Wisconsin Foundation board Chairman Howard I. Potter (no apparent relation) said the new facility would help UW "carry on the Wisconsin Idea of service." Not quite three years before exiting President Dwight D. Eisenhower would warn of

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<sup>78</sup> UW News, "Wisconsin Center," (Press Release), 27 February 1958.



the dangers of the growing military-industrial complex<sup>79</sup>, his concerns were foreshadowed in the selection choice of “principal speaker” for the event, Earl D. Johnson, a Wisconsin graduate and former undersecretary of the army who was now a senior vice president of General Dynamics Corporation, the American aerospace and defense company.

Potter was tapped to appear on a panel section moderated by University President E.B. Fred. His topic was “New Horizons in Cancer Research,” while his fellow panelist Harry L. Ahgren took up ‘Serving Agriculture Through Education.’ Among those “distinguished” faculty members also appearing on panels throughout the day were Farrington Daniels (“Chemistry and Energy”) and J. Willard Hurst (“Law and Society”).<sup>80</sup> In a day of self-congratulatory celebration, noted historians E. David Cronon and John W. Jenkins,<sup>81</sup> there was a “small but prophetic dissent.”<sup>82</sup> At the opening day forum, distinguished historian Merle Curti expressed concern that UW’s once path-breaking social studies program had lost ground. The university, Curti said, “appears to have no ordered guiding social

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<sup>79</sup> Eisenhower originally included “academic” in the draft of his speech on the military-industrial-complex. See Henry Giroux, *The University in Chains: Confronting the Military–Industrial–Academic Complex*, (Boulder, CO: Paradigm Publishers, 2007).

<sup>80</sup> UW News, “Dedication Program at a Glance,” (Press Release), 9 April 1958; “Dedication: Wisconsin Center Building,” *Wisconsin Academy Review* 5, no. 2 (Spring 1958): 56.

<sup>81</sup> E. David Cronon and John W. Jenkins, *The University of Wisconsin: A History, 1945-1971: Renewal to Revolution Vol IV*, (Madison, WI: University of Wisconsin Press, 1999), 107.

<sup>82</sup> Cronon and Jenkins, *The University of Wisconsin: Renewal to Revolution*, 107.

purpose,”<sup>83</sup> this at a time when “only the social sciences and humanities can give us guidance in this world revolutionized by the natural sciences.”<sup>84</sup>

Just days later, Potter was in Philadelphia, presenting his theory of cancer to a joint session of the Federation of American Societies for Experimental Biology. “No single cure for cancer is possible,” the Associated Press reported Potter as saying, “for there is no single cause of the disease.”<sup>85</sup> The biochemical approach to cancer – the recognition that cancer is the result of the inherent tendency of normal cells to make errors when they reproduce – not only means that the virus theory of cancer cannot explain all aspects of cancer formation, but that “the treatment of cancer with chemical drugs will be difficult because of the many types of the disease.”<sup>86</sup> Potter foresaw a day when chemical treatments (e.g., “chemotherapy”) would be “tailor-made” to combat the increasing number of recognizable “cancer strains.” According to the AP, Potter “emphasized, however, that the tendency of cells to make mistakes ‘will continue to produce new and bizarre forms of cancer, and under the influence of new forms of therapy, resistant cancer cells will continue to arise’.”<sup>87</sup>

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<sup>83</sup> Cronon and Jenkins, *The University of Wisconsin: Renewal to Revolution*, 107.

<sup>84</sup> Cronon and Jenkins, *The University of Wisconsin: Renewal to Revolution*, 108.

<sup>85</sup> Associated Press, “Insists There Is No Single Cancer Cure,” *Chicago Daily Tribune*, 16 April 1958: 8.

<sup>86</sup> Associated Press, “Insists There Is No Single Cancer Cure,” 8.

<sup>87</sup> Associated Press, “Insists There Is No Single Cancer Cure,” 8.

It was also in 1958, as Potter explained in years later in his *Zygon* essay “The Ethics of Nature and Nurture,”<sup>88</sup> that he made “a fortuitous purchase” of a secondhand copy of the sixth edition of Darwin’s *Origin of Species* (6th edition) at Blackwell’s, the legendary Oxford bookseller.

In his conclusion Darwin commented that since ‘no cataclysm has desolated the whole world ... we may look with some confidence to a secure future of great length.’ And, he continued, ‘as natural selection works solely by and for the good of each being [surely an exaggeration], all corporeal and mental endowments will tend to progress towards perfection.’ As Darwin contemplated the future, he saw a world in which “a grand and almost untrodden field of inquiry will be opened, on the causes and laws of variation, on correlation, on the effects of use and disuse, on the direct action of external conditions, and so forth.” In this one sentence we can see the germ of the whole subject of *nature* and *nurture*, the two forces that must be reckoned with if humanity is to survive and progress.”

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The period from the mid 1940s to the late 1960s has often been called the golden age of academia. State and federal funding hit record highs, and business and government were easy partners in supporting - and reaping benefits from - America’s institutions of higher education. Richard M. Freeland has identified a debate on the development of the post-World War II university: were universities active agents of their own evolution, or were they passively shaped by external forces?<sup>90</sup> In 1963, University of California President Clark Kerr argued that

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<sup>88</sup> Van Rensselaer Potter, “The Ethics of Nature and Nurture,” *Zygon* 8 no.1 (1973): 36–47.

<sup>89</sup> Potter, “The Ethics of Nature and Nurture,” 36.

<sup>90</sup> Richard M. Freeland, *Academia’s Golden Age: Universities in Massachusetts, 1945-1970* (New York: Oxford University Press, 1992), 8.

universities were passively shaped by outside pressures, most specifically government policies and demographic shifts, that they were helpless to control. Christopher Jenks and David Riesman advanced an opposing, and influential, analysis in 1968, arguing the increasing power of faculty was the driving force in effecting change.<sup>91</sup> Both accounts downplay the significance of executive leadership, although, as Michael Cohen and James March suggested in 1974, campus officials are more apt to be “hapless mediators buffeted by contending forces than powerful leaders of academic communities.”<sup>92</sup>

Clearly, Potter felt empowered to insist that the university be an instrument not only of reflection but also of change. In turn the university, shaped both by the land-grant and the Wisconsin Idea traditions, was receptive to his gentle but persuasive demands.

This was a productive period professionally for Potter as well, both in the lab and on the road, as he continued to spread his developing understanding of the role of signaling in carcinogenesis. During one such lecture at the University of Illinois in the late winter of 1958, James Watson, then at Harvard but visiting UI to give his own talk, was intrigued by Potter’s explanation that, unlike bacteria, so-called higher cells need specific signals to divide. At any given time, most of the cells in the body are at rest, not dividing, with DNA synthesis not occurring.

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<sup>91</sup> See Christopher Jenks and David Riesman, *The Academic Revolution* (New York: Doubleday, 1968).

<sup>92</sup> Freeland, *Academia's Golden Age: Universities in Massachusetts, 1945-1970*, 9.

However, cancer cells are in an almost perpetual state of division, in a constant state of DNA synthesis. Potter stressed the potential significance of work enzymologists like Arthur Kornberg and Seymour Cohen were doing in beginning to demonstrate that the DNA of phages carried the code for many of the enzymes needed to reproduce the viral DNA in an infected host cell. “He was thinking along the lines of Umbarger and Pardee on feedback inhibition,” Watson would remember in 1978, when he gave the Lymen lecture.<sup>93</sup> “I got quite excited.”<sup>94</sup> According to Watson biographer Victor K. McElheny, for Watson, “This discovery opened my mind to the possibility that animal viruses might have some similar genes, and soon I was telling everyone within reach that the cancer-causing (oncogenic) capacity of the DNA tumor viruses must arise through their possession of genes that turn on DNA synthesis.”<sup>95,96</sup> Potter’s talk, and the potential implications for cancer causation, occupied much of Watson’s thought through the spring of 1959, culminating in a talk at Boston’s Museum of

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<sup>93</sup> The Lymen Lecture at the Miami Winter Symposium, "In Further Defense of DNA" (9 January, 1978) Cold Springs Harbor archives.

<sup>94</sup> James Watson, *A Passion for DNA: Genes, Genomes and Society* (Cold Springs Harbor, NY: Cold Springs Harbor Laboratory Press, 2001), 49.

<sup>95</sup> Victor K. McElheny, *Watson and DNA: Making a Scientific Revolution* (New York: Basic Books, 2009), 108.

<sup>96</sup> For his part, Potter’s continued preoccupation with signaling and cell development led, more than fifteen years later, to his now-classic proposal of “blocked ontogeny”, or the idea that tumors arise from maturation arrest in tissue-specific stem cells. For an over view of the conceptual development, see Van Rensselaer Potter, “Phenotypic diversity in experimental hepatomas: the concept of partially blocked ontogeny. The 10th Walter Hubert Lecture,” *British Journal of Cancer* 38, no. 1(1978): 1-23.

Science where he speculated on the virus-cancer connection. But ultimately, McElheny said, “Watson ran into the general conviction that cancer was a researcher’s graveyard...”<sup>97</sup> He would not revisit the topic for another decade.<sup>98</sup>

Potter himself had developed his own interest in Watson and Crick’s DNA. One of the clearest examples of Potter’s commitment to translatable – e.g. “practical” – knowledge emerges at this point, with his development of a 3-D DNA model kit. Theorists were still struggling with how to make the idea of the invisible visible. Watson and Crick had tried wire and metal plate models, Rosalind Franklin and Maurice Wilkins used x-ray diffraction to create complex images on photographic film. But a simple, accessible design seemed elusive until Potter began tinkering with an idea. An acknowledged lover of diagrams and charts, Potter envisioned an inexpensive kit of paper cutouts, which, once assembled, would render an elegant depiction of the molecule.

Burgess Publishing in Minneapolis first rolled out Potter’s DNA kit in the summer of 1959.<sup>99</sup> It remained a steady seller for many years. “It is a rare biological research laboratory that doesn’t have this paper cutout model of the

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<sup>97</sup> McElheny, *Watson and DNA*, 109.

<sup>98</sup> It’s unclear from McElheny’s account what kind of speculation Watson was doing. Potter had first advanced an enzyme-virus notion of cancer in 1943; it is not obvious how it related to Watson’s considerations. See Van Rensselaer Potter “The Genetic Aspects of the Enzyme-Virus Theory of Cancer”: *Science* 101, no. 2633 (June 15, 1945): 609-610.

<sup>99</sup> Van Rensselaer Potter. *DNA Model Kit for Preparing - Dimensional Models of the Deoxyribonucleic Acid Double Helix According to the Watson-Crick Theory*. (Minneapolis MN: Burgess Publishing Co., 1959).

DNA molecule within handy reach and inspection,” enthused *American Biology Teacher* in 1961. “It presents in a clever, three-dimensional way this famous teaching model. The printing on the famous helix is important and makes it a real teaching aid.”<sup>100</sup> (Immediately following the *American Biology Teacher* review of the DNA model kit is a review of Potter’s *Nucleic Acid Outlines, Vol. 1*. by Dean Fraser. “It is indeed a pleasure to review a book that one can recommend as unreservedly as this one,” he wrote. “It is rare indeed that one finds a book in which a semi-philosophical or, at least, a secular viewpoint is combined with a thoroughly up-to-date treatment.”<sup>101</sup>)

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<sup>100</sup> PK: “Review: DNA Model Kit, Van R. Potter,” *American Biology Teacher* 23, no. 6 (1961): 379.

<sup>101</sup> Dean Fraser, “Review: *Nucleic Acid Outlines, Vol. 1*” *American Biology Teacher* 23, no. 6 (1961): 379.

Potter continued to fiddle with the design, though. In the spring of 1960, he wrote Arthur Kornberg at Stanford, who had earlier wondered to Potter if there was an easy way to separate the model's double strands into single strands:

I finally thought of a simple way to do this utilizing the connectors I use to plug in my loudspeakers at various points in my home. These connectors are #321 Moseley 300 ohm polarized plugs available from any electronic distributor for about ten cents per plug. They can be cemented to the colored nucleotide pairs using polystyrene cement. By using polarized connectors, it is possible to completely code the pairs so that a prong = NH and a note is a = o or -N=. By settling the connectors ¼ inch over the midline for pyrimidine the coding can be complete. Moreover, the pre-existing color code provides extra insurance for proper coding.<sup>102</sup> I am enclosing 4 pairs for your examination. Please use a screwdriver to separate the nucleotides if they stick at first. I also enclose a template that

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<sup>102</sup> Potter was a hi-fi enthusiast. In March 1953, a U.S. Patent for issued for his "Acoustical Device," a small dimension horn loud speaker for reproducing the entire audible range of frequencies including low frequency sound vibrations with high fidelity (the Wisconsin Alumni Research Fund was the original assignee. It is unclear why WARF chose this, apparently alone among Potter's many patentable innovations and inventions, to patent). According to the patent application, Potter's invention provides "a horn loud speaker of relatively small dimensions and simple and inexpensive construction, which embodies the advantages of the horn and infinite baffle, and is capable of reproducing efficiently and with high fidelity the entire audible range of frequencies and particularly the lower range of frequencies of the audio spectrum. My loud speaker unit produces directly transmitted sound with a substantial absence of reverberant sound. Also my horn loud speaker is capable of large scale sound production, particularly when my unit of small dimensions is so located as to cooperate with proximate surfaces such as the walls of a room." Not surprisingly, given Potter's acknowledged fondness for charts and diagrams, the application continues, "These and other advantages of my loud speaker unit will be more fully apparent from the following description considered in connection with the accompanying drawing, which is an oblique view, partly in section, of a preferred form of the invention."

In a Cold Spring Harbor Laboratory oral history, Richard Burgess, professor of oncology at McArdle, remembered "Actually there is another person that had a big influence on me at Wisconsin and his name is Van Potter. Van is almost ninety, but I remember, [when I was] a very young professor, there was this person who was one of the oldest members of the department and who was one of the youngest minded people in the department. And to me that was impressive, a very Renaissance guy; he invented high fidelity speakers before Fisher." <http://library.cshl.edu/oralhistory/interview/james-d-watson/memories-jim-watson/jim-watson-and-cold-spring-harbor-laboratory/>. Recorded: 23 Apr 2001.



was used to mark the pairs so they could be properly cut into mononucleotides.

Do you think a supplemental sheet or directions would be appreciated by users of the Kit?<sup>103</sup>

Unfazed by such unbridled enthusiasm, Kornberg wrote back a few weeks later, saying, "I have had a chance to study it and play with it a little. While it is a most ingenious way of showing the hydrogen bond connections...I seriously doubt that these modifications will be of sufficient usefulness to the average student to warrant the extra expense and combination." Lest Potter be disheartened, though, Kornberg was quick to add, "I'd like to tell you again how popular and valuable the models were in our general biochemistry course. We distributed four nucleotide pairs gratis and invited those who wished to build a large-scale model to buy their own. On this basis, we sold fifty or more models to a class of about one hundred ..."<sup>104</sup>

By 1964, Potter's model had become so universally popular that when designers at New York's famed Museum of Natural History wanted a DNA model for a new hall devoted to the Biology of Invertebrates, they knew just where to look. Working with Potter, they crafted a giant section of a DNA molecule that reached to the ceiling of the massive hall. In an exhibit preview luncheon in May 1964, Potter tried to put it all into context for the attendees, including *New York*

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<sup>103</sup> Van R. Potter to Arthur Kornberg, National Library of Science Archives.

<sup>104</sup> Arthur Kornberg to Van R. Potter, 5 July 1960. National Library of Science Archives.

*Times* reporter Walter Sullivan. Noting that “[t]oday’s visitors to the museum are exposed to far more basic science than those a decade ago,” Sullivan quoted Potter’s explanation that if “the entire molecule were shown on this scale, it would stand as tall as the Empire State Building.” But that’s nothing, reported Sullivan, compared to the “sub-microscopic” scale of actual DNA molecules. “If those in a single man were strung together,” Dr. Potter said, “the strand would reach to the sun and back many times.”<sup>105</sup>

But Potter still had not exhausted his desire to see the abstract rendered tangible. In 1960s, Potter chaired the building committee for what would be the medical school’s Middleton Library<sup>106</sup>, named in honor of William S. Middleton,

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<sup>105</sup> Walter Sullivan, “History Museum Exhibit Depicts Basic Molecular Origin Of Life,” *New York Times*, 20 May 1964, 87.

<sup>106</sup> During this period Potter was also tinkering with the design for another University of Wisconsin building, McArdle Laboratory’s new facilities. The new building was designed to be 10 stories high, with extensions to hide the elevator shaft and exhaust fans. “When Dr. Van Potter learned of this upward extension,” recalled Howard Rusch, “he proposed that all the exhaust fans be located on one side of the roof, leaving the other side free for equipment. The space could be used for conference rooms and offices simply by adding a roof and partition to the top of the tenth floor to separate the fans from the proposed rooms.... Thus we gained a fine lounge for informal conferences, another small conference room, and three spacious offices with a beautiful view of Lake Mendota.” The funds for the new building were obtained, in part, as a result of Rusch’s own familiarity with one of the more practical arts. When Rusch realized McArdle was outgrowing its space in the late 1950s, he turned to Wisconsin Congressman Melvin Laird, ranking Republican on the House Appropriations Committee and a close friend of Committee Chairman John Fogarty. “I told Mr. Laird that the lack of space was impeding progress and that most universities did not have sufficient money to match available amounts for construction from the National Cancer Institute and suggested the National Cancer Institute provide funds that did not require matching,” Rusch remembered. Laird and Fogarty added an amendment of \$5 million to the appropriations bill for this purpose. “I should add that Mr. Laird had introduced me to Mr. Fogarty, who had been a bricklayer before becoming a Congressman. I also had been an apprentice bricklayer while a premedical student, and I believe Mr. Fogarty respected such a background.” Rusch applied and received a construction grant of \$2.5 million for the new building.

who served on the medical school faculty for sixty-three years, twenty of them as dean. As the UW story goes, some time after the building was completed, Potter and his wife happened to go to the Madison Art Fair On The Square, where he became intrigued by the small copper tubing water fountains made by a north Chicago hobbyist and architect, Tom Hibben. Mulling it over some weeks later, it occurred to Potter that his DNA paper model could be represented in a scaled-up copper tubing construct, functioning as a water fountain. With some difficulty, Potter tracked down the craftsman's address, drove to North Chicago, and enlisted him in the plan. Returning to Madison with Hibben's commitment, Potter then had to find money for the commission. An uncommitted medical school alumni donation of \$900 was identified, and Hibbens went to work (reportedly tearing down three models before he was satisfied).

The fountain was completed in 1967, but apparently the medical library staff had difficulty with its recirculating system. Once again, Potter involved himself, gently suggesting how the technical staff at the new Biotechnology Center had the requisite skills to keep it running. Richard Burgess, the director of the Biotechnology Center, enthusiastically received the gift; after all, when Burgess was a graduate student, he'd had a paper Potter DNA model hanging over his desk. In 1996, Burgess personally supervised the transport of the

fountain over to the newly completed building, where it was permanently installed in the atrium.<sup>107</sup>

During this period in the early 1960s, Potter had been pursuing not only his own cancer research as well as in combination with more scientific-philosophical reflection. In September 1960, as Hurricane Donna cut through downstate New York on relentless march up from the Lesser Antilles to Maine,<sup>108</sup> the American Chemical Society, held its annual meeting in New York City. Potter chaired a special symposium on “Modulation of Gene Expression by Chemical Feedback.” According to a *New York Times* account of the meeting, the symposium offered a “solution to the century-old nature-nurture dispute,”

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<sup>107</sup> “*Historical Notes On The DNA Fountain*”, University Of Wisconsin Informational Flyer [www.biotech.wisc.edu/Education/pdfs/dnafountainhandout.pdf](http://www.biotech.wisc.edu/Education/pdfs/dnafountainhandout.pdf). The University now bills it as “the oldest and most accurate DNA Fountain in the cosmos.”

<sup>108</sup> On September 13, 1960, Hurricane Donna created a nearly 11-foot storm surge in the New York Harbor, flooding not only portions of the subway system but the future site of the World Trade Center. Thousands of children were trapped in their schools. Nobel prize winning author John Steinbeck, waiting to begin his *Travels With Charley*, rode out the storm in Sag Harbor. “The wind stopped as suddenly as it had begun,” Steinbeck remembered, “and although the waves continued out of rhythm they were not wind-tattered, and the tides rose higher and higher. All the piers around our little bay had disappeared under water, and only their piles or hand rails showed. The silence was like a rushing sound. The radio told us we were in the eye of Donna, the still and frightening calm in the middle of the revolving storm.” At least 364 deaths were attributed to the hurricane. Leonard Buder, “Floods Maroon 2,479 in 13 Public Schools,” *New York Times*, 13 September 1960:1; John Steinbeck, *Travels With Charley*, (New York: Viking Press, 1962); Gordon E. Dunn, “The Hurricane Season of 1960,” *Monthly Weather Review* (March 1961): 99, 104–107.

presenting new evidence “that it is neither environment nor heredity alone but a combination of both that is vital.”<sup>109</sup>

“Over a century ago,” the *Times* explained, “Darwin was troubled by the implication in his work that life should evolve toward a perfect form. He was in doubt about some of the aspects of life’s apparent ability to adapt itself to the environment.” These doubts, the *Times* continued, “led Darwin to weaken his original stand that characteristics are not inherited and that organisms are born with an ability to adapt.” However, the discovery of chemical feedback – a process “akin to electronic feedback” whereby the end products of a series of chemical reactions are enabled to regulate their own production through “feedback of a controlling signal” – offered an account that supported evolutionary regulation without resorting to teleology.

According to the *Times* account, Potter, chairman of the symposium, had no doubts as to how Darwin would have received the new findings. “I believe that the discovery of chemical feedback in biological systems is the most significant finding since the development of the gone [sic] concept.<sup>110</sup> It opens up a new world that Darwin never dreamed of, yet it is a world that would have pleased him

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<sup>109</sup>Robert K. Plumb, “New Light is Shed On Hereditary Role: Neither It Nor Environment, But Combination is Vital, Chemists Report Here” *New York Times* 14 September, 1960: 39, 87.

<sup>110</sup> The *Times* story, which contains several obvious typos, says “gone theory.” I believe the writer meant *gene* theory. See Peter Portin, “The Concept of the Gene, Short History and Present Status” *Quarterly Review of Biology* 68 no. 2 (June 1993):173-223, and E. M. East, “The Concept of the Gene,” in *Proceedings of the International Congress of Plant Sciences*, Ithaca, New York, August 16-23, 1926, vol. 1 (Menesha WI: George Banta Publishing, 1929): 889-895.

immensely.”<sup>111</sup> Potter went on to explain that feedback regulation causes the cell to behave in an “intelligent” manner. The end products of cellular machinery control their own production, as the very presence of an end product signals the machinery to slow down or stop. An altered or mutated cell that lacks feedback regulation, on the other hand, behaves like an “idiot,” producing excessive or unrequired materials. Un- or mis-regulated cells can become malignant, forming tumors or otherwise disrupting normal cell functioning.

The hard news discovery presented at the symposium was the first documented instance of a feedback mechanism at work in human beings - an infant whose unspecified genetic defect prevented the synthesizing of a particular chemical, uridylic acid.<sup>112</sup> The administration of uridylic acid bypassed the metabolic block, allowing the infant’s blood marrow and blood to return to normal.

There were significant “implications for man” extending far beyond a new treatment for a sick infant, the reporter noted. Such experiments proved that an individual’s genetic potential was mutable by external forces. “The implications for man of these studies, as summarized by Dr. Potter,” the reporter concluded, “are these: an individual may have the genetic potential to be a great musician,

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<sup>111</sup> Robert K. Plumb, “New Light is Shed On Hereditary Role: Neither It Nor Environment, But Combination is Vital, Chemists Report Here” *New York Times* 14 September, 1960: 39, 87.

<sup>112</sup> The reporter’s description suggests the infant was suffering from what we now know as a hereditary autosomal recessive disorder called UMP Synthase Deficiency.

but unless this potential is developed by the environment, it will never emerge.”<sup>113</sup>

The reporter from United Press International had a slightly different take-away. “If you had been alive in the age of dinosaurs and had looked around at these animals, you might have believed that dinosaurs constituted the highest possible development of life, said Dr. Van R. Potter of the University of Wisconsin,” the wire service account ran. “People looking at other people could be just as mistaken, but there are hopes of justifying their optimism,” the account continued somewhat confusedly. Readers who assume that humanity will end in extinction will be “gladdened by scientific hopes of heading it off.”<sup>114</sup> If the chemical feedback that could lead to extinction could be spotted, Potter said, it could be interrupted before humanity dies out.

“Potter was purposefully remote because the astonishing wonders of feedback chemistry are only beginning to appear,” the reporter explained. “But Potter and his colleagues couldn’t have been more enthusiastic.... in [Potter’s] the discovery of chemical feed-back is the most important biological finding since the discovery of the chemistry of inheritance.”<sup>115</sup>

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<sup>113</sup> Plumb, “New Light is Shed On Hereditary Role: Neither It Nor Environment, But Combination is Vital, Chemists Report Here,” 87.

<sup>114</sup> UPI, “Seeks to Halt Extinction of Human Race,” *Pacific Stars & Stripes*, September, 1960: 11.

<sup>115</sup> UPI, “Seeks to Halt Extinction of Human Race,” *Pacific Stars & Stripes*, September, 1960: 11.

Sometime in 1960, Hudson Hoagland, co-founder and executive director of the Worcester Foundation for Experimental Biology,<sup>116</sup> and Ralph W. Burhoe, then Executive Director of the American Academy of Arts and Sciences and a founder the Institute on Religion in an Age of Science (IRAS),<sup>117</sup> decided to devote a series of three small conferences to exploring “Evolutionary Theory and the Human Program.” The impetus for the conferences was the felt need to anticipate the potential disasters and opportunities in the application of new knowledge. As Hoagland and Burhoe explained, waxing darkly poetic in the introduction to a compilation of some of the papers from the meetings, the “mushrooming clouds of new notions and new patterns of behavior are altering the nature and circumstances of human life more within a few years than they were altered in centuries in the past.”<sup>118</sup> The two asked Potter if he would assist in the planning of one of the conferences, a gathering to examine “The Dynamics and Direction of Social Progress.” For Potter, it must have been a heady experience. The opportunity to spend a three days in conversation with speakers

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<sup>116</sup> The Worcester Foundation for Experimental Biology was an independent research facility located in Shrewsbury, MA. Formally incorporated in 1944 by Hudson Hoagland and Gregory Pincus, it was best known for the development of the combined oral contraceptive pill by Pinus and scientist Min Cheuh Chang, in concert with John Rock of the Rock Reproductive Clinic. After running into severe financial troubles, the institution was taken over by the University of Massachusetts Medical School in 1997.

<sup>117</sup>At this point, Burhoe had already helped found the journal of the American Academy of Arts and Sciences, *Daedalus*, and was a few years away from founding *Zygon: The Journal of Religion and Science*.

<sup>118</sup> *Evolution and Man's Progress*, Hudson Hoagland and Ralph W. Burhoe, eds., (Columbia University Press; New York and London, 1962).



whose thought interested him, had greatly influenced his own, and who might even become future collaborators – among them Theodozius Dobshansky, Ward H. Goodenough, Garrett Hardin, Ernst Mayr, B.F. Skinner, Demitri B. Shimkin, Talcott Parsons and, of course, Margaret Mead<sup>119</sup> – was surely unlike anything he had experienced in his career.<sup>120</sup>

Potter credited Burhoe with introducing him to Anthony F. C. Wallace's 1961 paper "Religious Revitalization," a paper Potter seems to have found nearly as insightful as Mead's. "Wallace alerted me to the idea that both religion and science attempt in characteristic ways to distinguish order and disorder through "a process of maximizing the quantity of organization in the matrix of perceived human experience,"" Potter explained.

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<sup>119</sup> Theodozius Dobshansky, geneticist and evolutionary biologist, published his work on the modern evolutionary synthesis, *Genetics and the Origin of Species*, in 1937. Ward H. Goodenough, the son of Erwin Ramsdell Goodenough, (a biblical scholar noted for his work with Jewish symbolism), was a pioneering cultural anthropologist who taught two years at the University of Wisconsin before moving to Penn in 1949, where he would spend the rest of his career. Garrett Hardin was an American ecologist whose classic exposition of the "Tragedy of the Commons" argued that the only way we can "preserve and nurture other and more precious freedoms is by relinquishing the freedom to breed." Ernst Mayr helped define the modern synthesis of evolutionary theory, proposing the "Biological Species Concept." B.F. Skinner was a behavioral psychologist and social philosopher whose concept of operant conditioning made him one of the leaders of behaviorism. Demitri B. Shimkin was an applied anthropologist who used mechanisms of sociocultural evolution to explain how cultures and societies change over time. Talcott Parsons was a social theorist who, among other things, worked to utilize multiple social-science disciplines to create one single universal theory of human relationships. Margaret Mead was both a respected academic and a popularizer of cultural anthropology. Not a bad dinner party, that.

<sup>120</sup> For a complete list of conferees in "Conference B," held November 4-6, see *Evolution and Man's Progress*, 181.

As Potter himself would remember this period in 1971, “ I began as a chemist, then chose biochemistry, then the biochemistry of cancer, then the biochemistry of one kind of cancer, and am presently interested in special aspects of that biochemistry. It is only recently – the last 10 years – that I have taken the time to look around me.”<sup>121</sup>

### **Service to the University: Religious Freedom and Reaching for the Moon**

Even at a university where service was a significant part of institutional self-identity, Potter established early on a record of unusual service to the institution. In the early 1960s, Potter served on the university’s faculty-student Committee on Human Rights.<sup>122</sup> The Committee chair was Gladys Borchers, a professor of speech and education who was slated to retire soon. A dynamic woman long remembered for introducing her students to the mechanics of the larynx by dissecting a pig in class,<sup>123</sup> Borchers would, years later, admit her own

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<sup>121</sup> Van Rensselaer Potter, *Bioethics: Bridge to the Future*.

<sup>122</sup> During the 1960-61 committee year, the committee had three faculty members – Potter, chair Gladys L. Borchers, and Robert C. Davis – and two student members, Gerald Conklin and Karen Isaksen. Karen Isaksen Leonard received the Ph.D. from the University of Wisconsin in 1969. An anthropologist at UC Irvine, she has published on the social history and anthropology of India, and on Punjabi Mexican Americans, South Asian Americans, and Muslim Americans.

<sup>123</sup> Thayer (Ted) Thompson. Wisconsin Alumni Association Class Stories –1960s <http://www.uwalumni.com/home/waamembers/insidemagazine/buckywardrobe/1960sC.S.aspx>.

failure to consciously acknowledge institutional discrimination against UW women faculty members.<sup>124</sup>

Of particular concern to University administrators during those years were fraternities whose national charters allowed, even encouraged, discrimination on the basis of race or creed. Some of the fraternities negotiated waivers with national officers allowing the Wisconsin chapter freedom from discriminatory clauses. Others disaffiliated and became local organizations, or voluntarily suspended on-campus activities. One case that came before the committee must have been particularly vexing for Potter. In early 1961, news broke that the chapter of Phi Delta Theta at the Presbyterian-affiliated Lake Forest College in Illinois, acting on orders from the fraternity's national council, de-pledged David C. Schiller because he was Jewish.<sup>125</sup> The Human Rights committee immediately

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<sup>124</sup> Agate Krouse, Harry Krouse, and Audrey Roberts, "Gladys L. Borchers," 37-41 in J. Marian and Audrey J Roberts, *They Came To Learn, They Came To Teach, They Came To Stay* (Vol. 1 University Women: A Series of Essays) (Madison WI: Office of Women, University of Wisconsin System, 1980) and B. Dinnerman, "Sex Discrimination in Academia," *Journal of Higher Education* 42, no. 4 (1971): 255.

<sup>125</sup> The Lake Forest chapter originally pledged Schiller in deliberate defiance of the national organization, in the apparent hopes of forcing institutional change. When that failed, chapter officers said they were prepared to seek a court injunction to prevent the national fraternity from removing or suspending their charter. See "Lake Forest College Fraternity Ousts Jewish Student from Membership" *Jewish Telegraphic Agency* 10 February 1961; "Ousting of Jew from Fraternity Linked to 'Christian Principles'" *Jewish Telegraphic Agency* 15 February 1961; "Fraternity Ousts Jew" *Wisconsin Jewish Chronicle*, 17 February 1961, p. 1; "Illinois Phi Delt Defy Order By Pledging Jewish Student" *Brown and White* (Lehigh college student newspaper, 21 March 1961: 3; "Five Sororities Lose National Charters for Rejecting Discrimination" *Jewish Telegraphic Agency* 3 October 1961; "Three Fraternities in University of Minnesota End Blas; Two Maintain It" *Jewish Telegraphic Agency* 10 November 1961; "Check on Integration Acts Involving Greek Societies" Susanna McBee, Washington Post News Service, *Lawrence [KS] Journal-Word*, 18 February 1964, p.1 The Lake Forest chapter had a tradition of flouting the national council. In the late 1950s, they accepted as a "social affiliate" the

began an investigation of possible discriminatory practices at the UW chapter of Phi Delta Theta. They requested that the Wisconsin chapter not only investigate the accuracy of Madison newspaper reports regarding the Lake Forest chapter's de-pledging Schiller "because of his beliefs regarding religion," but provide the committee with certification by the Wisconsin chapter president and by a responsible national officer that "the Wisconsin chapter is free to choose its own members without restrictions as to race, nationality or creed."<sup>126</sup>

What followed was a rapid, and contradictory, flurry of responses. First, the committee received a copy of a letter from Robert J. Miller, Executive Secretary of Phi Delta Theta to Lake Forest Alumni Secretary Jerry Patterson, explaining that the student was dropped "not because he was of Jewish origin but because he was not a Christian."<sup>127</sup> In short order, copies of letters from Miller to Paul D. Carter, advisor to Academic Fraternities at the University of Minnesota, explaining that "the boy was dropped not because he was Jewish but

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Jewish, flamboyant but not yet openly homosexual Allan Carr (ne Solomon) Robert Hofler, *Party Animals: A Hollywood Tale of Sex, Drugs, and Rock 'n' Roll Starring the Fabulous Allan Carr*, (Cambridge MA: Da Capo Press, 2010): 55-59. A half-century of change has not had much impact on many, if not most, of the fraternity's chapters, however. See "Fraternity at University of Chicago Involved in Racist, Homophobic Prank," Mary Mitchell, *Chicago Sun Times.com*, 12 June, 2013, an account of how fraternity member 'prank' required an African-American postal carrier to deliver 79 postal supply boxes addressed to a fictional person whose name was the reverse-spelling of two racial and homosexual slurs. <http://www.suntimes.com/news/mitchell/20701383-452/mitchell-fraternity-at-university-of-chicago-involved-in-racist-prank.html>

<sup>126</sup> "1960-61 Annual Report of the Committee on Human Rights" Document 1497. 2 October 1961.

<sup>127</sup> "1960-61 Annual Report of the Committee on Human Rights." Document 1497. 2 October 1961: 5.

because he was agnostic,” and from Rev. Clem E. Binger,<sup>128</sup> president of Phi Delta Theta, explaining that “the Lake Forest matter” would be explained by University of Oregon Dean Donald DuShane (and not so incidentally, general council reporter for Phi Delta Theta) after the general council’s April meeting, adding that “the “boy in question” was living in the Lake Forest Phi Delt house as a social member, arrived.<sup>129</sup> Barely a week later, yet another letter arrived, this one from Eugene P. Nicholson, president of the Wisconsin Alpha chapter, to Dean Zillman, explaining that Schiller “was depledged because he laid no claim to being a Christian and not because he was Jewish.” Nicholson went on to explain that Phi Delta Theta Constitution had “no restrictions on membership as to race, color or religious attitude.”<sup>130</sup>

More than a month passed – we are now deep into April 1961 – when the Committee received a copy of a letter sent to Dean Zillman from Dean DuShane at the University of Oregon. DuShane explained “men of Jewish parentage who are willing to accept Christian principles in good conscience and good faith are acceptable for membership in Phi Delta Theta.” He went on to clarify, presumably

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<sup>128</sup> Binger was a Princeton-trained Presbyterian theologian, who later affected the title “Dr.” apparently after receiving an honorary doctor of divinity degree from his undergraduate institution, Centre College in Kentucky. In 1956, Binger was named to *Sports Illustrated’s* first annual Silver Anniversary All-American Squad for former college football lettermen who have achieved outstanding success. Binger went on to serve as Phi Delta Theta’s international president and as chaplain for the convention which celebrated the 100th anniversary of its founding.

<sup>129</sup> “1960-61 Annual Report of the Committee on Human Rights.” Document 1497. 2 October 1961: 5.

<sup>130</sup> 130 “1960-61 Annual Report of the Committee on Human Rights.” Document 1497. 2 October 1961: 6.

with helpful intent, that the Lake Forest chapter had been suspended not only for having pledged a non-Christian, but also for its “intransigent attitude.” DuShane took pains to point out that the previous fall Phi Delta Theta’s General Council has unanimously agreed to eliminate the “socially acceptable to all other chapters” clause as a pledging standard; however the change could not be codified until it was affirmed at two successive General Conventions, the first of which would not be held until September 1962.<sup>131</sup>

That same spring, however, the committee received two copies of Phi Delta Theta’s official publication, *The Scroll*. In April the committee reviewed the first, dated January 1958, Paul H. Hawley, President of the General Council, explained that “Jews, Negroes, and Orientals” were ineligible for membership because “many chapters do not regard them as acceptable.”<sup>132</sup> In the aftermath of the Lake Forest incident, the May 1961 issue of *The Scroll* reported the General Council’s urgings “that all chapters...observe and maintain Phi Delta Theta’s traditional membership qualifications with or without a clause.”

On review of the evidence, the five-person committee, which included two students, recommended that the Wisconsin chapter of Phi Delta Theta be

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<sup>131</sup> “1960-61 Annual Report of the Committee on Human Rights.” Document 1497. 2 October 1961: 6.

<sup>132</sup> “1960-61 Annual Report of the Committee on Human Rights.” Document 1497. 2 October 1961, 6.

suspended “until changes in the national constitution make possible the selection of members without violation of the University of Wisconsin Legislation.”<sup>133</sup>

The committee also had jurisdiction over housing owners posting on the University Housing list, investigating allegations of discrimination and removing property owners found in violation of the University’s anti-discrimination policies. In true Madison style, then, several property owners “interested in integration approached the committee suggesting the repeal of university legislation forbidding requests for information on application blanks regarding race, creed and national origin.” After two special meeting with the homeowners, the committee decided to uphold the university legislation, encouraging instead interested homeowners to state on the application blank “that this house aims at integration.” The committee concluded “such procedures should encourage the development of socially diversified private housing units, without categories.”<sup>134</sup> (Madison – and the University – had had not always been so welcoming. In 1944, The University Club refused to accommodate Arthur E. Burke, a black graduate student planning to complete his doctoral studies in English. After faculty and student protests – during which period, according to Merle Curti, a professor of Burke’s, he took refuge in the black section of town, known colloquially to many white Madisonians as “The Jungle” – Burke was allowed to rent a room. )

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<sup>133</sup> “1960-61 Annual Report of the Committee on Human Rights.” Document 1497. 2 October 1961, 1.

<sup>134</sup> 1960-61 Annual Report of the Committee on Human Rights.” Document 1497. 2 October 1961, 1.

President John F. Kennedy's 1961 promise to put an American astronaut on the moon by decade's end – and the consequent rapid expansion of the National Aeronautics and Space Administration (NASA) budget – attracted attention of UW administrators. In April, 1963, NASA director James Webb indicated to university president Fred H. Harrington that the agency would be interested in funding a broadly-based, university-wide effort on space science needs, funding that would provide full-cost facilities grants. UW Vice President Robert L. Clodius quickly responded to Harrington's request for action by appointing a "high-level interdisciplinary faculty committee on space sciences." Chaired by chemist and newly appointed graduate school Dean Robert A. Alberty, the initial committee members included Van Rensselaer Potter and Reid W. Bryson.<sup>135</sup> "It seems clear that the University will have a major role and responsibility in this field," Clodius wrote in his charge to the new committee members, "and a faculty committee is needed to help define this role and to establish the policies as well as the programs to be pursued."<sup>136</sup>

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<sup>135</sup> In 1946 Bryson, a Ph.D. Candidate from the University of Chicago, was appointed an assistant professor of geology and geography at Wisconsin. While serving as a meteorologist with the Army Air Corp in Guam during the war, the "ambitious and entrepreneurial" Bryson had, with a colleague, discovered what we now know as the jet stream. Bryson still had not received his Ph.D. when he was appointed chair of the new meteorology department two years later because he "has written a thesis during the war but upon his return to graduate work had difficulty getting his peripatetic Chicago major professor to approve one of several drafts." E. David Cronin and John W. Jenkins, *The University of Wisconsin: A History, 1945-1971; Renewal to Revolution Vol. IV* (Madison WI: University of Wisconsin Press 1999), 275.

<sup>136</sup> Cronin and Jenkins, *The University of Wisconsin: A History, 1945-1971*, 266.



Potter and the rest of the committee were quickly schooled in the vagaries of creative government financing. Understanding the task to be the quick delivery of a spade-ready proposal, their planned request was for the comparatively small sum of \$300,000 for a proposed meteorology building. An informal run past NASA elicited a negative reaction and the suggestion that the committee should come back with something more substantial and “imaginative.” The response had the effect of “quickly revving up the Space Science Committee’s juices,” and they came back with a \$3-million Space Science and Engineering Center (with meteorology facilities),<sup>137</sup> plus an additional \$540,000 institutional grant. This time the fly-by elicited the opposite response. NASA “would choke on a \$3.0 million request,” but could manage “about \$2.5 million plus or minus \$250,000.” Still operating at warp speed, the committee offered to combine the state and National Science funding they already had in-hand for a new meteorology building with \$1,750,000 in NASA-provided funding to build the Space Science and Engineering Center.

When finally green-lighted by NASA, the institutional grant was for \$500,000 spread over three years and a \$1.7 construction grant to partially fund a 15 story combined meteorology and space science building.<sup>138</sup>In a 1964 memo

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<sup>137</sup> Wisconsin had always been somewhat sensitive about the university’s comparative weakness in fulfilling the engineering part of the land-grant mandate.

<sup>138</sup> Cronin and Jenkins, *The University of Wisconsin: A History, 1945-1971*, 268.

to President Harrington, Karl E. Krill, the president's special assistant for federal grants, pegged the realities of dealing with the space agency this way:

"NASA is an 'agency in a hurry' and seeks to put its money into items as close to an end product as possible. I have not encountered anyone from NASA who is at all apologetic about incompatibilities between NASA's short-run goals and the university's long-run goals. Their position is pragmatic and simple: 'NASA has a job to do; if NASA money is bad for your campus, don't take it (This doesn't answer, however, another criticism voiced frequently, by scientists particularly: NASA's crash program is not in the long-run best interests of the country.)'<sup>139</sup>

### **Building The Bridge**

The first solo articulation of Potter's 'new direction' came when he was invited to be a keynoter at convocation at Brookings celebrating not only the founding of what would become South Dakota State College<sup>140</sup> by Dakota Territorial Legislature on February 21, 1881 but also the Centennial of the signing of the Land-Grant College Act<sup>141</sup> on February 12, 1962.<sup>142</sup> It is not clear why

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<sup>139</sup> Karl E. Krill to Fred H. Harrington, Memo, 25 September 1964.

<sup>140</sup> First known as Dakota Agriculture College, after statehood in 1883 the institution became South Dakota Agricultural College, then South Dakota State College of Agriculture and Mechanical Arts in 1907 and finally South Dakota State University in 1964.

<sup>141</sup> Van Rensselaer Potter. *The Concept of Human Progress: Delivered February 12, 1962 at Founder's Day Convocation commemorating the founding of South Dakota State College by Dakota Territorial Legislature on February 21, 1881 and the Centennial of the signing of the Land-Grant College Act by President Abraham Lincoln* (Brookings, SD: South Dakota State College of Agriculture and Mechanic Arts, 1962).

<sup>142</sup> On Tuesday, February 6, 1962 the Huron, S.D. *Daily Plainsman* ran Potter's picture with a short notice inviting the public to attend his February 12 Founders Day

Potter was tapped to make this address, but the college had already recognized him with an honorary degree in 1959. Potter, who saw the invitation as both a “real opportunity as well as obligation,”<sup>143</sup> delivered a talk entitled “Bridge to the Future: The Concept of Human Progress.”<sup>144</sup>

The South Dakota Potter returned to in 1962 was undergoing a subtle but significant transformation. Since the days of Lewis and Clark, who first found the bones of a 45-foot dinosaur in South Dakota, dinosaur bones had been found under South Dakota soil. Since 1920s, giant concrete dinosaurs had dotted the landscape, tourist attractions as familiar a landmark as the evolving face of Mt. Rushmore. For Thomas Jefferson, the president who sent Lewis and Clark west, dinosaurs were a patriotic representation of America, a symbol of her strength and her superiority to Europe. “Dinosaurs lend a grandeur to American history,” explained Michael Prietes, “they were big animals in a nation obsessed with bigness.”<sup>145</sup> But, in 1962, there was something new sinking into, and rising up

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address. The talk, scheduled for 10 am in the South Dakota State College auditorium, was “geared to the observance of the Land-Grant College Centennial.” “Speaker” *Daily Plainsman* (Huron, S.D.), 6 February 1962), 2.

<sup>143</sup> Van Rensselaer Potter, “Global Bioethics,” in *Handbook for Environmental Risk Decision Making*, ed. by C. Richard Cothorn. (Washington, DC: CRC Press, 1995), 365.

<sup>144</sup> For the published text, see Van Rensselaer Potter “Bridge to the Future: The Concept of Human Progress”. *Land Economics* 38, no. 1 (February, 1962): 1-8.

<sup>145</sup> Michael Prieto, “Tourism and Nationalism,” *Annals of Tourism Research* 30, no. 1 (2003): 138.

from the South Dakota soil, something that symbolized not only patriotism and strength, but also impermanence and uncertainty.

One hundred and fifty holes, each approximately 90 feet deep, were being cut into the rural landscape. Once finished, they would house individual Minuteman II missiles, the first line of defense in a new kind of war. There were some positive aspects to South Dakota's involvement in this effort – the hundreds of construction workers and their associated support staff had given a satisfying bump to the state's economy<sup>146</sup> – and as such they could be seen simply as symbolizing American patriotism, technological prowess, and military superiority. Still, all but the most determinedly oblivious could not also recognize them as a subterranean stand-in for the specter of nuclear holocaust, and human extinction.<sup>147</sup><sup>148</sup>

In his talk, Potter placed the establishment of the Land-Grant Colleges in 1862 in the context of what would become another engagement for him, Darwin's

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<sup>146</sup> In the extremely close 1962 South Dakota U.S. Senate race, the state's newest residents, the heavily unionized construction workers, were credited with delivering the winning margin for George McGovern. Ironically, ten years later McGovern would run, and lose, as the Democratic Party's anti-war presidential candidate.

<sup>147</sup> For more on the South Dakota missile silos, see Gretchen Heefner, *The Missile Next Door: The Minuteman In The American Heartland*, (Cambridge, MA: Harvard University Press, 2012).

<sup>148</sup> In late 1961 and early 1962, Potter joined an "influential segment of the nation's intellectual and academic community" in signing a series of newspaper advertisements urging President Kennedy to abandon the nation's nuclear fallout shelter program, directing instead the nation's efforts and energies "toward a positive program of peace with freedom." Hugh A. Mulligan, AP, "Do Fallout Shelter Save Lives? Plan Attacked." *Daily Capital News* (Jefferson City, Mo.) Friday, 9 February 1962:16.

theory of evolution (Darwin's *On the Origin of Species*,<sup>149</sup> was first published in England in 1859, the year the Morrill Act was reintroduced in Congress.)

Progress, Potter noted, was deeply rooted in American tradition, and was an expected and legitimate goal. Potter identified three separate, distinct and conflicting notions of progress: the religious, the material (or, as Potter would later clarify, the consumption lifestyle) and the scientific-philosophic. They are interrelated, and exist in both societies and individuals in varying proportions.<sup>150</sup> Individuals and societies tend to move first from the religious to the materialistic, with the scientific-philosophic becoming manifest only, but not necessarily, after sufficient materialistic development has occurred.<sup>151</sup><sup>152</sup> The religious concept of progress, Potter noted, almost always includes speculation about the nature of death. Individual courage in the face of hardship or death is fostered by the belief that in dying is a progression to a better world. As such he suggested, but does

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<sup>149</sup> The book's full title was *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. For the sixth edition of 1872, the title was shortened to *The Origin of Species*. Harvard botanist and Darwin friend Asa Gray arranged for the publication of the first American edition in 1860.

<sup>150</sup> Van Rensselaer Potter, "Bridge to the Future: The Concept of Human Progress," *Land Economics* 38, no. 1 (February 1962): 1.

<sup>151</sup> The developmental progression is somewhat reminiscent of James Fowler's stages of faith development, although more frank about the value accorded the different stages of development.<sup>151</sup> James W. Fowler, *Stages of Faith: The Psychology of Human Development and the Quest for Meaning* (New York: Harper and Row, 1981).

<sup>152</sup> "On the world scene, "Potter noted," the United States, Western Europe, and Russia are the materialistic giants while India is a country with essentially the religious attitude toward progress. In Russia the question of whether a country can develop a respectable scientific-philosophy without a religious foundation is being tested before our very eyes." Potter, "Bridge to the Future: The Concept of Human Progress," 2.

not explicitly say, that temporal human survival is inconsequential to the concept of religious progress. The Christian conflict with progress, he argued, is best illustrated in the Gospel of Matthew, especially Chapter 19, which he understands as a simple rejection of the accumulation of earthly wealth and material goods.<sup>153</sup>

The materialistic concept of progress, Potter next argued, is a challenge to the religious notion of progress. Quoting extensively from E.D. Eddy's book on the Land-Grant idea, *Colleges for Our Land and Time*, Potter says that mid-19<sup>th</sup>-century America was about to make a defining break from orthodox religion to embracing a new belief in materialism. The credo of American life, with "more" and "better" as Eddy noted, only needed methods and institutions (both embodied in the concept of the Land-Grant Institutions) to perfect the materialistic belief. "The words...became the guiding symbols of men who believed that anything was possible in the new nation. Man was considered both capable and close to perfect. He needed only the methods and the institutions by which to work out his ultimate perfection."<sup>154</sup> But to the juggernaut of more and better, Potter continued, there always had been a minority "plead [ing] for the long-range view," or what he called the scientific-philosophic concept of

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<sup>153</sup> Somewhat surprisingly, for someone as widely read as Potter, he does not indicate any familiarity with the Social Gospel movement.

<sup>154</sup>Potter, "Bridge to the Future: The Concept of Human Progress," 3.

progress<sup>155</sup>, something he wished to distinguish for the scientific-materialistic concept.<sup>156</sup>

“We are accustomed to hear people speak as if there were only two alternatives in defining progress, the religious or the materialistic; and the materialistic is always equated with science,” he explained. “Scientific materialism has been embraced by both capitalism and communism and neither has made any real attempt to develop a scientific-philosophic concept of progress. However, we Americans have a much better chance for doing so than the Russians, because we cherish the rights of individuals to express new ideas and to influence public opinion.”<sup>157</sup> The scientific-philosophic concept of progress recognizes that Man is the “sole product of evolution who knows that he has evolved and who is capable of taking steps that might help to insure survival, which is the first requirement for progress.” Rather than embracing Social Darwinism, it advocates “the use of the scientific method in seeking wisdom; that is, we assume that wisdom can be found in the same way that other knowledge

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<sup>155</sup> “The conservationists have always stood in this corner,” Potter noted, “and it was Teddy Roosevelt who said: ‘The material progress and prosperity of a nation are desirable chiefly so far as they lead to the moral and material welfare of all good citizens.’” This remark is interesting in that it suggests that while Potter has not given any indication he has yet encountered the thought of Aldo Leopold, he does have a growing environmental consciousness. He may well have engaged with Roosevelt in the context of the Wisconsin Idea. Potter, “Bridge to the Future: The Concept of Human Progress,” 3

<sup>156</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 5.

<sup>157</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 3.

can be found,”<sup>158</sup> and used to “evangelize”<sup>159</sup> for a definition of progress “that permits every man to develop to the maximum of his inherited talents not only in this country but everywhere in the world.”<sup>160</sup>

For a century, Potter reminded his audience, Land-Grant colleges have played a key role in increasing agricultural production. However, what “was once a pride in possession and achievement has given way to mixed feelings and confusion as to whether local surpluses here and general under-consumption elsewhere can be justified in a shrinking world whose overpopulated cities and underfed millions are crying the words *more* and *better*, that we believed were the heritage of anyone who would do as we did.”<sup>161</sup> Now, Potter said, Land-Grant college academia must realize that more and better are not enough. The materialistic concept of progress is the necessary “stepping stone” from the primitive religious to the scientific-philosophical concept of progress, and students at the Land-Grant colleges must combine “productive and scientific know-how in order to take that step.”<sup>162</sup> Unless university research is, in part, “devoted to the seeking of wisdom, it has served no useful purpose.”<sup>163</sup> The list of

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<sup>158</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 6.

<sup>159</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 7.

<sup>160</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 8.

<sup>161</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 3.

<sup>162</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 5.

<sup>163</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 8.



problems that need attention is long: There are many problems that are crying to be solved and which if solved would go a long way toward lessening world tensions.” Potter then went on to present his Top Ten Educational Goals and Methods: race relations, overpopulation, overconsumption, religious intolerance, conservation of natural resources, capture of solar energy,<sup>164</sup> desalinization of salt water, liberation of creative talent, and the reexamination of the role of advertising in our society. Only “by combining a knowledge of the sciences and of the humanities in the minds of individual men,”<sup>165</sup> he concluded, “can we hope to build a ‘bridge to the future.’”<sup>166, 167</sup>

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<sup>164</sup> Although among the stated purposes of the Smith-Lever Act was “diffusing among the people of the United States useful and practical information on subjects [like]... uses of solar energy with respect to agriculture,” this idea likely gained prominence in Potter’s thought as a result of his association with Farrington Daniels.

<sup>165</sup> Interestingly, some of what Potter identifies as a new concern may in reality be a part of a recurring cycle of technological over-emphasis and pull back in the land-grant institutions. According to Earl D. Ross, the great historian of the land-grant colleges, the first such occurrence was during the “depressed years of the 1890s, “when distressed farmers were demanding immediate relief, and when general education [i.e., the humanities], guaranteed in the Act, were held to deliberate imposture.” Ross identifies the phenomenon again during the early years of the 20th century when “the boom spirit gave emphasis to the opportunities and the immediacy of highly specialized technical training. Students were urged to use their scant electives for subjects closely allied to their field of concentration, and, when a general degree was required for professional training, breadth and balance were often sacrificed for “supporting subjects” in the narrowest sense.” Earle D. Ross “The Great Triumvirate of Land-Grant Education: Gilman, White and Walker” *Journal of Higher Education* 32, no. 9 (December 1961): 480-488.

<sup>166</sup> Potter, “Bridge to the Future: The Concept of Human Progress,” 8.

<sup>167</sup> Later, Potter would remember that “[i]n my innocence it never occurred to me that the concept of progress was inherently fictional, if not actually sinful, in the minds of many scholars who had devoted a great deal of thought to the subject.” Cultural relativists were rejecting the notion that there was any universally valid standard for determining “progress.” Technological determinists insisted that individuals and cultures

Potter's address appeared in *Land Economics*,<sup>168</sup> a quarterly journal published by the University of Wisconsin. "It is fitting that *Land Economics*, nourished in the tradition of a land grant college, the University of Wisconsin, should take note of this century of progress by publication of this paper," explained the introductory note. "What lends peculiar significance to the paper is

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were no longer able to make decisions that weren't in the service of technology. A true land-grant ideologue, Potter "never doubted the validity of the concept as a goal, it was just that I assumed there were several kinds of progress and that all of them came at a price." Van Rensselaer Potter, "The Ethics of Nature and Nurture." *Zygon* 8 (1973): 36.

<sup>168</sup> *Land Economics* was founded by UW professor and progressive economist Richard T. Ely. Yet another product of New York's burned-over district, Ely counted among his friends and associates leading spokesmen for the Social Gospel movement Washington Gladden and Walter Rauschenbusch, historian Frederick Jackson Turner, and economist John R. Commons. Ely was founder and the first Secretary of the American Economic Association, a founder and first president of the American Institute for Christian Sociology, a founder and secretary of the Christian Social Union, and the first president of the American Association for Labor Legislation As a part of Gov. Robert M. La Follette's Progressive brain trust, Ely was a major force in the articulation of the Wisconsin Idea. Ely nonetheless split with then-Senator La Follette over the latter's failure to support America's involvement in World War I, and actively campaigned to remove him from office.

In 1894, in one of the most famous incidents in University of Wisconsin history, Ely's academic interest in socialism and support for a local printer's strike led state superintendent of public instruction Oliver E. Wells to charge him with "teaching and supporting alien and revolutionary doctrines" as well as "of fomenting unrest and violence generally." An investigating committee appointed by the University Board of Regents exonerated Ely in a report which concluded with the oft-quoted "sifting and winnowing" affirmation of academic freedom: "In all lines of academic investigation it is of the utmost importance that the investigator should be absolutely free to follow the indications of truth wherever they may lead. Whatever may be the limitations which trammel inquiry elsewhere we believe the great state University of Wisconsin should ever encourage that continual and fearless sifting and winnowing by which alone the truth can be found." Called by Ely the university's Magna Carta, the words are now inscribed on a plaque affixed to the university's Bascom Hall. See Benjamin G. Rader, "Richard T. Ely: Lay Spokesman for the Social Gospel," *Journal of American History*, 53, no. 1 (June, 1966), 61-74; Henry C. Taylor and George S. Wehrwein, "Richard T. Ely," *Journal of Land & Public Utility Economics*, 19, no. 3 (August, 1943): 387-390; Murray N. Rothbard, "Richard T. Ely: Palladian of the Welfare-Warfare State," *Independent Review* 6, no. 4 (Spring 2002): 585-589.

that the author is not a land economist, nor indeed a social scientist as one finds that term used in university catalogues of curricula. It is written by an eminent physical scientist...who has a continuing record of achievement in theoretical and experimental contributions to the biochemistry of cancer. Dr. Potter's research, performed for the most part on a land-grant college campus, exemplifies the important role of land-grant institutions."<sup>169</sup>

Potter's address likely found a home at *Land Economics* through the efforts of editor Mary Lescohier, his compatriot in the effort to realize native son Frank Lloyd Wright's vision for a Madison civic center on the shores of Lake Mendota. First advanced in 1938, and delayed by World War II, the project was granted new life when Lescohier and Helen Groves ("Professor's wives," as they were commonly identified in the press), led the winning drive in 1954 to get Madison voters to approve Wright's Monona Terrace civic center, retaining Wright as the architect. However, the support for the project quickly deteriorated largely along town/gown lines with the legislature approving, and Governor Gaylord Nelson countering with a veto, of legislation that would have effectively killed the project by imposing prohibitive height restrictions. Potter, who had become active in the Monona project in 1960, became an officer of Citizens for Monona Terrace in 1962 and eventually chair of Mayor Otto Festge's auditorium committee, where he conceived and advanced his vision of a Monona Basin

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<sup>169</sup> Introduction, "Bridge to the Future: The Concept of Human Progress," *Land Economics* 38, no. 1 (February 1962): 1.

Project, coupling the Terrace building with a congruent structure on the opposite shore.<sup>170</sup> Despite nearly decade's worth of effort, during which Potter was widely recognized as a voice of patient reason<sup>171</sup>, the committee failed to broker a lasting compromise. The project was tabled and assumed dead until it was resurrected in the early 1990s by Madison Mayor Paul Soglin, a former UW student anti-war and civil rights activist who had served his first stint as mayor in the 1970s.<sup>172</sup>

Some sixty years, ten designs, thousands of drawings, five local referenda, ten lawsuits, and several acts of the state legislature later after Wright first unveiled plans for his Madison civic center, a version of Wright's design was finally built. As part of its coverage of the July 18, 1997 Monona Terrace

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<sup>170</sup> See John Rattenbury and Jerry Nestingen, "Guest Column 'Many Unsung Terrace Heroes'," *Capital Times*, 16 July 1997: 9A; Thomas W. Still, "Soglin Rains on Terrace Ceremony," *Wisconsin State Journal*, Sunday 20 July 1997: 1B; Editorial, "Disorder Prevails on City Council Largely because of Mayor," Editorial Page, *Capitol Times*, 6 March 1962; David V. Mollenhoff and Mary Jane Hamilton, *Frank Lloyd Wright's Monona Terrace: The Enduring Power of a Civic Vision* (Madison, WI: University of Wisconsin Press, 1999).

<sup>171</sup> Patience and reason were completely without effect during the tenure of Madison Mayor William Dyke (1967-73) an ideologue who refused to compromise on issues as minor as a block party ordinance. In a classic of town/gown politics Dyke, after being defeated for re-election by one-time anti-war student activist Paul Scoglin, accepted the second spot on the 1976 American Independent Party presidential ticket with Lester Maddox, the segregationist former governor of Georgia. The Maddox/Dyke team lost the election to another former Georgia governor, Jimmy Carter. For an account of Madison's various mayors and their relationships to the Frank Lloyd Wright project, see Myron A. Levine, "Goal-Oriented Leadership and the Limits of Entrepreneurship" *Western Political Quarterly* 33, no. 3 (September, 1980): 401-416.

<sup>172</sup> Elected to Madison's top office seven times, Soglin has been the 51st, 54th and 57th mayor of Madison. Soglin as student activist took a featured role in David Maraniss' *They Marched Into Sunlight: War and Peace Vietnam and America, October 1967*, (New York: Simon & Schuster, 2003).

dedication, the *Wisconsin State Journal* featured a front-page photograph of an unidentified elderly man strolling with a cane along the Monona Terrace walkway as a bicycle bore down on him. The walker, who continued on unscathed, was Potter.

In 1964, the same year he was elected president of the American Society for Cell Biology,<sup>173</sup> Potter published an essay in *Science*, “Society and Science: Can Science Aid in the Search for Sophistication in Dealing With Order and Disorder in Human Affairs?”<sup>174</sup> <sup>175</sup>“How can science contribute to the betterment of the human condition?” Potter asked. “This is the dominant question that must be asked in any discussion of science and society.” For years, Potter noted, the obvious answer to the question was that science should contribute to the increased material well-being of mankind. “Science has been considered to be

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<sup>173</sup> Three of Potter’s more than 90 graduate students and post-doctoral fellows would later preside over ASCB: Alex B. Novikoff (1963), Philip Siekevitz (1967) and Nobel Laureate Günter Blobel (1990).

<sup>174</sup> Van Rensselaer Potter, “Society and Science: Can Science Aid in the Search for Sophistication in Dealing With Order and Disorder in Human Affairs?” *Science* 146, no. 3647 (20 November 1964).

<sup>175</sup> An earlier version of this essay, “Science and Society”, appeared in *Wisconsin Alumnus* in February 1963. The essay was an adaptation of a speech originally presented at the Wisconsin Community Newspaper Conference, Friday, October 12, 1962. Years later, Potter recalled that he made several like-themed addresses at the urging of University President Fred Harvey Harrington. (Harrington, who became president following the untimely death of Potter’s friend and mentor President Conrad Elvehjem on July 27, 1962, was not inaugurated until October 20, 1962. However, Harrington, who had announced his planned resignation as UW’s vice president to accept the presidency of the University of Hawaii shortly before Elvehjem’s death, had been acting as president well in advance of that date. See Unbylined, “Science is not Wisdom, U. Man Says,” *Capital Times*, Saturday 13 October 1962: 9; Van Rensselaer Potter, “Science and Society,” *Wisconsin Alumnus* 64, no. 5 (February 1963):12-15.

an organizing force in society,” he wrote. “A large proportion of the human race is psychologically incapable of coping with large doses of disorganization and uncertainty. Mankind has an inborn desire to have some degree of organization in life, and this leads many to gravitate in the direction of religion or science, both of which are identified as being mechanisms for bringing order out of disorder.”<sup>176</sup>

Potter also used the essay to develop another theme that was becoming of increasing concern to him: the “dangerous knowledge” created by science. In the article he discussed not only the environmental havoc wreaked by indiscriminate use of pesticides, but the unintended consequences of medical interventions. He pointed to the example of a “young married couple who challenged the abortion laws because their unborn baby had been exposed to the effects of thalidomide.” The “new realization” Potter wrote, that “science could produce chemical substances that had potentially dangerous consequences not intended by their designers, as in the case of thalidomide [makes] clear that science can produce unforeseen complications in our lives and can challenge our traditional ways of thinking.”<sup>177</sup>

According to Potter, the uneven application of scientific knowledge results in both contemporary and long-range problems affecting the human condition. “Science is not wisdom,” he wrote, “but we can use the scientific method to seek wisdom. Wisdom is the knowledge of how to use knowledge to better the human

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<sup>176</sup> Potter “Society and Science,” 1018.

<sup>177</sup> Potter “Society and Science.” 1019.

condition, and it is the most important knowledge of all.” Potter proposed seeking wisdom by consensus of interdisciplinary groups, a continuing exchange of new ideas between scientists and humanists. “We need to develop a new breed of scholars, men who combine a knowledge of new science and old wisdom.... there must be continuing group discussion, and conclusions must be continually subject to amendment.”<sup>178</sup>

Potter’s essay struck a responsive chord in a variety of places. One was with Indiana University government professor Lynton K. Caldwell. Writing in the *Journal of Higher Education* in 1965, Caldwell expressed concern that the knowledge being used to shape the human environment was for the most part being accumulated in universities and related institutions with little thought as to how that knowledge should be used. A deliberate environmental focus - the focus on human beings in interaction with their environment - would seek criteria for making constructive choices. “Wisdom has been defined as the knowledge of how to use knowledge to better the human condition,” Caldwell wrote, citing Potter’s “Society and Science” article. “This definition implies knowledge that is not only valid but is also operational.”<sup>179</sup> And in 1967 David Madsen looked to Potter’s essay when he identified a need for thorough consideration of the

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<sup>178</sup> Potter, “Society and Science,” 1022.

<sup>179</sup> Lynton K. Caldwell, “The Human Environment: A Growing Challenge in Higher Education,” *Journal of Higher Education* 37, no. 3 (1966): 153.

relation between scholarship, particularly scientific scholarship, and society.<sup>180</sup> Scientists, claimed Madsen, have created as many problems as they have solved, “problems that threaten all life on this planet - and have then sidestepped responsibility by saying that they cannot be charged with the solution of those problems, that solutions must come from some other agencies of society.”<sup>181</sup> To his credit, the scientist is most “troubled by doubt”<sup>182</sup> about his responsibility to society. However, what is true for the scientist must be “surely true for the poet, the painter, the historian, the educator, the psychologist, the musician, and the philosopher.”<sup>183</sup> Two questions must then be answered. First, how can man engage in “a coordinated attempt to solve the mysteries of himself and his universe which, if it succeeded, would free enough talent and treasure for the study of the problems of social man and artistic man, as well as for those of the atom, of viruses, and of weapons.”<sup>184</sup> Second, how can this be undertaken so as to “avoid the calcifying effects of complex human organizations while preserving the integrity of the lonely scholar?”<sup>185</sup>

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<sup>180</sup> David Madsen, “The Scholar, the Scientist, and Society: Unifying the Intellectual Community,” *Journal of Higher Education* 38, no. 2 (1967): 96-101.

<sup>181</sup>Madsen, “The Scholar, the Scientist, and Society,” 96.

<sup>182</sup>Madsen, “The Scholar, the Scientist, and Society,” 98.

<sup>183</sup> Madsen, “The Scholar, the Scientist, and Society,” 98.

<sup>184</sup>Madsen, “The Scholar, the Scientist, and Society,” 99.

<sup>185</sup> Madsen, “The Scholar, the Scientist, and Society,” 99.



“It may be,” wrote Madsen, “that Van Rensselaer Potter has the answer ” to dangerous knowledge, a major problem of society whose only solution to dangerous knowledge is more knowledge.<sup>186</sup> Potter’s recommendations? “To create interdisciplinary groups . . . to examine all the old ideas by means of the scientific method, . . . to establish a continuing exchange of new ideas between scientists and humanists, . . . [and] to develop a new breed of scholars, men who combine a knowledge of new science and old wisdom, men who have the courage of the men of the Renaissance who thought truth was absolute and attainable.”<sup>187</sup>

In April 1964 at the annual meeting of the American Association for Cancer Research,<sup>188</sup>Potter received the G.H.A. Clowes memorial award in “recognition of outstanding research accomplished in some recent period.” In his memorial address, “Biochemical Perspectives in Cancer Research,”<sup>189</sup> Potter advocated a “reconciling hypothesis of cancer causation,” ushering in “...an era in which we will never again be content with hypotheses that give no hint as to possible mechanisms of conversion of normal cells to cancer cells.”

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<sup>186</sup> Madsen, “The Scholar, the Scientist, and Society,” 99.

<sup>187</sup> Madsen, “The Scholar, the Scientist, and Society,” 99.

<sup>188</sup> “Dr. Potter is widely known among cancer scientists for his research on biochemical differences between normal cells and cancer cells, particularly with reference to enzyme content.” Press Release, “The American Association for Cancer Research 55<sup>th</sup> Annual Meeting, Chicago, Illinois, April 9-11, 1964,” National Cancer Institute.

<sup>189</sup> Van Rensselaer Potter, “Biochemical Perspectives in Cancer Research,” *Cancer Research* 24, no. 7 (August 1964): 1085-1090.

“This is a time for steady nerves and an abiding faith in the ethics and methods of our scientific community,” he said. “As oncologists we are on a collision course with an army of molecular biologists, biochemists, embryologists, microbiologists, immunologists, cytologists, and many others.”<sup>190</sup> Biochemists’ efforts to describe the difference normal cells and malignant ones, based on general biochemical differences, now seemed inadequate to explain the conversion process. Biochemical differences relevant to mechanisms affecting specific transformed cells properties remained significant, but oncologists should now shift the focus of their concerns to primary biochemical events of cell conversion by carcinogenic agents, including viruses. In this last regard Potter, as a respected authority in the field of carcinogenesis, gave important recognition to, and affirmation of, the controversial work of young colleague at McArdle, future Nobel laureate Howard Temin, by spending a significant portion of his lecture discussing Temin’s DNA provirus hypothesis.<sup>191</sup> Temin theorized that some viruses carry their genetic information in the form of RNA, which is then copied into DNA in infected cells, challenging what then was considered the

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<sup>190</sup>Potter, “Biochemical Perspectives in Cancer Research,” 1088.

<sup>191</sup> See Susie Fisher, “Not Beyond Reasonable Doubt: Howard Temin’s Provirus Hypothesis Revisited,” *Journal of the History of Biology* 43, no. 4 (2010): 661-696. When Temin received the Nobel prize for his work in 1975, he “bowed to the King and then turned and scolded members of the audience at the ceremony for smoking when he was being honored for his efforts to combat cancer.” Lawrence K. Altman, “Dr. H.M. Temin, 59, Cancer Research Laureate, Die (sic),” *New York Times*, 11 February 1994. Potter’s granddaughter, Lisa Potter Bonvicini, recalls how deeply Temin’s death in 1994, at the comparatively young age of 59 of a non-smoking related adenocarcinoma of the lung, affected Potter. Conversation with the author.

"central dogma"<sup>192</sup> in biology, that that deoxyribonucleic acid (DNA) always passed information on to ribonucleic acid (RNA) and never the reverse. The provirus hypothesis attempted to explain the mechanism by which a cancer-producing virus containing only RNA infects and transforms cells.

"This exposition, presented by an eminent cancer researcher at an important event," wrote Susie Fisher, "as well as the fact that a provirus hypothesis was seriously considered by Potter as supporting his own theory of cancer development could have lent Temin's provirus hypothesis credibility [and] provided Temin with valuable academic and intellectual support."<sup>193</sup><sup>194</sup>

In Potter's account, cells that have persisted through ages of natural selection have a "rational" explanation for each enzyme they contain. However since tumor cells do not have surviving progeny after the death of the host, Potter

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<sup>192</sup> In correspondence with Potter as well as many others, Francis Crick repeatedly pointed out that it was James Watson's, and not his, contention that the Central Dogma necessarily specified a one-way information flow. Crick's version did not rule out the possibility of RNA to DNA information transfer. However in the mid-1960's Watson's version was the accepted paradigm. "As to the Central Dogma," Crick wrote Potter in 1969, "the trouble is that few people understand exactly what I meant. It does not say that that you cannot translate from RNA to DNA. On that point it is silent....It does not state...that changes in the proteins, making up the machinery of protein synthesis cannot produce errors in translation in the forward direction....when I invented the term Central Dogma I was aware of this possibility...and tried to frame my definition to include this. Obviously I failed!" Francis H. C. Crick to Van Rensselaer Potter, 14 April 1969.

<sup>193</sup> Fisher, "Not Beyond Reasonable Doubt, 682, 664.

<sup>194</sup> In 1983, Potter said simply, "I couldn't have had that in my Clowes lecture without being aware of the implications of what he was saying." Potter also said that while Temin believed "science is not a Eureka! thing....If even there was a Eureka! experience [it was] when Howard Temin had the idea that opposed the Central Dogma...."Potter, Oral History #257, University of Wisconsin.

pointed out that their evolution is not progressive. As a result, Potter believed, classical biochemical studies on transplantable solid or ascites tumors would not result in useful information about carcinogenesis.<sup>195</sup>

Recent advances in the biochemistry of cancer did provide a basis for optimism, Potter said. “But it must give us a real feeling of humility to realize how much has changed since Dr. Clowes<sup>196</sup> passed from the scene. How little did he know what was to come! How little do we know of what the future holds!”<sup>197</sup>

In early 1965, Potter made his first attempt to present his thought to an intellectually engaged but general, not exclusively scientific, audience. *The Nation*,<sup>198</sup> a liberal periodical devoted to coverage of politics and culture, featured Potter’s “Council on the Future” on the cover of its February 8 issue.<sup>199</sup> Potter began by setting out his motivation for writing his essay. As a scientist whose present and former students were involved in a government-funded fight against

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<sup>195</sup> Potter, “Biochemical Perspectives in Cancer Research,” 1097.

<sup>196</sup> Clowes was a founding member of the American Association for Cancer Research and a research director at the pharmaceutical giant Eli Lilly, where, in the 1920s, he was responsible for the mass production of the newly discovered insulin. He was also an accomplished researcher in the field of cancer metabolism, publishing nearly up until his death, one day short of 81, in 1958. See Michael Bliss, *The Discovery of Insulin*, (Chicago, IL: University of Chicago Press, 2013).

<sup>197</sup> Potter, “Biochemical Perspectives in Cancer Research,” 1097.

<sup>198</sup> *The Nation*, which currently holds the distinction of being the oldest continually published periodical in the United States, is a successor to William Lloyd Garrison's anti-slavery weekly, the *Liberator*.

<sup>199</sup> Van Rensselaer Potter, “Council on the Future,” *Nation*, (8 February 1965) 133-135.

cancer to the tune of more than a million dollars a year, Potter wrote, "I am intensely concerned with the impact of science on society and the problem of 'dangerous knowledge.'" As a professor at a major state university, "I possess academic freedom in the highest degree, yet I feel accountable to society for the direction and consequences of my work."<sup>200</sup> And as a person living in a comfortable "microcosm" Potter was nonetheless concerned about the larger world he would leave to his children and their generation. "The feeling grows that scientists are finding it increasingly difficult to predict the consequences of their work," he wrote, "that technology has become the sorcerer's apprentice of our age.

The concept of dangerous knowledge appears in a variety of images - the mushroom cloud, the usurping robot, the armless child of thalidomide. Many scientists object violently to the idea of dangerous knowledge, taking the position that all increases in knowledge are inherently good. This idea is undoubtedly interwoven with our religious heritage, which assumes that the world exists for the benefit of mankind and that human suffering and evil serve part of a greater purpose.<sup>201</sup>

However, as a scientist and as a citizen, Potter believed the concept of dangerous knowledge - defined as knowledge that has accumulated faster than the wisdom to manage it, producing a temporary imbalance by outpacing other branches of knowledge - was valid. The problem arises, Potter explained, "from the gulf that is driven between the knowers or scientists, and the doers or

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<sup>200</sup> Potter, "Council on the Future," 133.

<sup>201</sup> Potter, "Council on the Future," 133.

technologists.”<sup>202</sup> The knowers may hesitate “because knowledge is never final, and the number of possible combinations of hazards is always greater than the number of individual hazards.”<sup>203</sup> But while the knowers delay, another force presses onward. “[P]ragmatism has always been the test of success in our culture, and our technology has proceeded on the basis almost of a single motto: ‘If it can be done, and sold at a profit, let’s do it.’”<sup>204</sup> Such an outlook appears “conservative,” when “in fact it has been most responsible for changing the world.”<sup>205</sup>

The danger of new knowledge, Potter stressed, lies only in its application. Its unpredictability prevails because no dedicated effort is made to anticipate the consequences and interactions that may result from its application. The American political system - Democratic/liberal, Republican/conservative - had proven unwilling or unable to grapple with what Potter identified as the dominant political concern, the use and supervision of dangerous knowledge. “Yet no other form of political organization is inherently as suitable for such a development,” Potter maintained. “Our basic devotion to the dignity of the individual, to nonviolent change, to the right of the minority to be heard, are minimal guarantees that must be maintained in any attempt to foresee the consequences

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<sup>202</sup>Potter, “Council on the Future,” 133.

<sup>203</sup>Potter, “Council on the Future,” 134.

<sup>204</sup>Potter, “Council on the Future,” 134.

<sup>205</sup>Potter, “Council on the Future,” 134.

implicit in the application of new knowledge, *and to take more vigorous political action to control technology* while at the same time preserving its magnificent potentials.”<sup>206</sup>

But with the existing political structures inadequate and with communication between scientists in different fields, or between scientists and humanists, sporadic and insufficient to arrive at complex dangerous knowledge decisions involving both facts and values, no democratic process for knowledge oversight existed. To predict more effectively the consequences of the application of dangerous knowledge, Potter proposed the creation of a fourth arm of the federal government, a “Council on the Future,” to consider the consequences of major research programs and recommend support in accordance with national needs. The Council on the Future, comprised of “insiders” representing various associations from both the sciences and the humanities, would have no legislative power but would recommend legislation to Congress in published reports. Potter suggested that such a council would be able to do a job that could not be accomplished by the existing political system. “The country and the entire world suffers from political systems that penalizes the group in power if it initiates a program that will not come into fruition until the other group is in power, especially if the program involves a sacrifice at its

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<sup>206</sup>Potter, “Council on the Future,” 134. Italics original.

inception.....” Potter explained.

In general it appears that conservatives make all decisions on the basis of the profit system, while liberals feel that if someone is making a profit there is something wrong with the project. The conservatives are pragmatists with the present in mind. The liberals are pragmatists with the future in mind and the present never quite in hand.<sup>207</sup>

A necessary corrective to conservatism or liberalism, Potter proposed, is realism – realism about both the nature of man and the nature of the world we live in. “There is not presently available within a single cover any reliable authoritative summary of what one would hope a college graduate, or even a high school graduate, might be expected to know about man and his world and the relationship between order and randomness in each,” Potter complained.<sup>208</sup> Realism requires knowing, knowing which “involves knowing what we don’t know as well as what we do know, and there is little doubt that if a group of the best minds from seven continents were mobilized they could come up with surprisingly large areas of agreement on knowledge and ignorance.”<sup>209</sup>

Religious taboos on dangerous knowledge, dating back to Eve’s apple in the Garden of Eden, which made science “less than holy,”<sup>210</sup> have been “progressively weakened by onslaughts of Darwinism and neo-Darwinism, and

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<sup>207</sup>Potter, “Council on the Future,” 134.

<sup>208</sup> Potter, “Council on the Future,” 134.

<sup>209</sup> Potter, “Council on the Future,” 134.

<sup>210</sup> Potter, “Council on the Future,” 134.



while all of the Christians have managed to incorporate evolution as ‘the technique of creation’...into their beliefs”:

The modern biologists have gone far beyond the simple man-from-monkey image that was debated in the Scopes trial. They now take the position that ‘if you believe a little evolution you have to believe in all of it’...The basic mechanisms of evolution continually generate novelty and the asks of the product, will it work? will it do a job, will it survive, will it reproduce? If this is design, it is a design that is not concerned with the destiny of man.<sup>211</sup>

If no intelligent design, divine or evolutionary, is guiding human progress, what is? Along with “most scientists”, Potter believed that “progress consists of movement towards a society of free individuals in which all, through their own work, contribute to the liberation and enrichment of society as a whole. I believe that a revitalization of our value system is both necessary and possible.”<sup>212</sup>

Having proposed a domestic Council on the Future, an “insider” organization, Potter then suggested an “outsider” effort to arrive at specific value judgments: an international publication called *The Journal for Mankind*. Rather than a static journal, Potter envisioned an interactive effort, where dozens of symposia, essays and letters would be circulated, responded to and recirculated in a kind of endless round-robin of debate and discussion. Views from all sides of the academic community would be solicited in an effort that could provide a source of expert testimony that could supplement the Council on the Future.

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<sup>211</sup>Potter, “Council on the Future,” 135.

<sup>212</sup> Potter, “Council on the Future,” 135.

<sup>213</sup>Not for the last time, Potter's vision far outstripped reality. Potter's proposal would have been well-suited to the Internet era; in a time that relied on mimeograph machines and costly air mail for rapid dissemination of published information it is hard to see how Potter's proposal could have been realized in 1965.

In 1966, the *Wisconsin State Journal* profiled Potter as a "well known ... 'scientist-philosopher' [who has] published material on the role of science and the scientist in our rapidly changing society."<sup>214</sup> The reporter set out to answer the rhetorical question: "Why would anyone ever want to be a scientist?" but Potter deftly steered the conversation in the direction of the question of science as a corporate, or cooperative, effort. "Each scientist has to depend upon the thoughts, techniques and machines developed by his colleagues to some degree," Potter explained, "Scientific endeavor has become a group effort." There is still room for scientific prima donnas, the "highly individualistic, brilliant scientific thinker, Potter acknowledged, "Yet even this kind of scientist must be more than ever ready to give way, change his ideas when the evidence goes against him."<sup>215</sup>

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<sup>213</sup> Potter, "Council on the Future," 135.

<sup>214</sup> Dan Shaw, "UW's Dr. Potter Explains Motivation, Scientists Look, Hesitate to Leap," *Wisconsin State Journal*, Sunday, 27 February 1966, section 1, 17.

<sup>215</sup> Shaw, "UW's Dr. Potter Explains Motivation," *Wisconsin State Journal*, 17.

This necessity, Potter offered, is what distinguishes scientists from theologians, historians or philosophers who, in the reporter's paraphrase, "often try to establish individual ideas without reference to their colleagues." A comparison of 100 basic scientists to a random sample of 100 persons, Potter said, would "certainly" find that "the scientists are a little more ready than the average man to listen to all points of view, even opposing ones, about their work." He continued, "Being a scientist is almost the opposite of being 'final.'"<sup>216</sup>

Science had become such an "immense field" that young scientists needed training "to be able to piece together diverse research findings into a meaningful whole," Potter explained. The established scientist faced a different challenge, "[T]he mature scientist today more than ever needs to have a real appreciation of the arts and humanities, to be a leader as well as a specialist," adding that the reverse held true for humanities specialists and administrative leaders who need to keep abreast of scientific developments."<sup>217</sup>

In March 1966, Ralph Burhoe launched *Zygon, the Journal of Religion and Science*. Among those joining Potter on the editorial advisory board were Ian Barbour, then professor of physics and chair of the department of religion at Carleton College, Theodosius Dobzhansky at the Rockefeller Institute, future Nobel Prize winner and anti-war activist George Wald, Anthony F. C. Wallace

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<sup>216</sup> Shaw, "UW's Dr. Potter Explains Motivation," *Wisconsin State Journal*, 17.

<sup>217</sup> Shaw, "UW's Dr. Potter Explains Motivation," *Wisconsin State Journal*, 17.

and Ward Goodenough, professors of anthropology at Penn, and Hudson Hoagland, executive director Worcester Foundation for Experimental Biology.

As Burhoe explained in his reflections at *Zygon's* Twentieth Anniversary symposium in January 1986, he believed “if one looked at religion in the full light of today's much more advanced sciences, rather than as merely a phenomenon not examinable by the sciences and not connectible with the reality being explored by them, one would find that religions basically could be fruitfully explored by the sciences. I felt one would find that the basics of traditional values not only were *scientifically* valid but, exactly because of this, were more than ever *religiously* true and compelling.”<sup>218</sup>

It would not be until 1968 that Potter would make his first editorial contribution, when the journal devoted two issues, September and December, to Teilhard de Chardin, with articles by scientists Potter, Dobzhansky, Francisco Ayala, and Donald Genter, by theologian George Riggan, and by philosopher Alfred Stiernotte.<sup>219</sup> Potter's contribution was “Teilhard De Chardin and the Concept of Purpose.”<sup>220</sup> His subsequent *Zygon* contributions would include “The Ethics of Nature and Nurture”, which referred back to his South Dakota State

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<sup>218</sup> Quoted in Philip Hefner, “Editorial,” *Zygon* 30, no. 1 (1995): 3.

<sup>219</sup> Teilhard was a perpetual favorite at *Zygon*. An article by psychologist Mihaly Csikszentmihalyi on Teilhard appeared in June 1970; the June 1992 issue featured pieces by Karl Schmitz-Moormann (theology) and Lodovico Galleni (zoology).

<sup>220</sup> Van Rensselaer Potter, “Teilhard De Chardin and the Concept of Purpose” *Zygon* 3, no. 4 (1968): 367–376.

address,<sup>221</sup> and "Disorder as a Built-in Component of Biological Systems: The Survival Imperative."<sup>222</sup>

One interesting glimpse into how Potter was coming to be perceived by his peers can be found in *The University of Wisconsin Medical School: A Chronicle 1848-1948*. Written in 1967 by Paul F. Clark, medical school emeritus professor of medical microbiology, the narrative extends far past 1948 to consider the careers of some of the medical school faculty still affiliated with the university. In writing of Potter, Clark calls him “biochemist, philosopher and enthusiast.”<sup>223</sup> Medical school Dean William S. Middleton’s forward is dated March 1966; presumably Clark wrote those words prior to that date. While Clark does not expand on why Potter is considered a philosopher – or an enthusiast, for that matter – it is interesting that at this early date, significantly before Potter had established a presence in *Perspectives in Biology & Medicine*, let alone written *Bioethics: Bridge to the Future*, his peers recognized him as a ‘philosopher.’

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<sup>221</sup> Van Rensselaer Potter, “The Ethics of Nature and Nurture”, *Zygon* 8, no. 1(1973):36–47.

<sup>222</sup> Van Rensselaer Potter, "Disorder as a Built-in Component of Biological Systems: The Survival Imperative, *Zygon* 6, no. 2 (1976).

<sup>223</sup> Paul F. Clark, *The University of Wisconsin Medical School: A Chronicle 1848-1948*, (Madison, WI: University of Wisconsin Press, 1967), 211.

### Conferences, Committees and Community

The decade of the 1960s was marked by a number of significant conferences that attempted to engage with questions of medicine, new technology, and ethics. In September of 1960, Dartmouth College hosted a Convocation on Great Issues of Conscience in Modern Medicine where among the featured speakers was writer and scientist C. P. Snow, who just a year earlier had decried the divide between the sciences and the humanities in his famous lecture, "The Two Cultures and the Scientific Revolution." A 1962 CIBA foundation symposium in London gathered 27 scientists, mainly from the field of biomedical research, to discuss the subject of "Man and his Future."

"The scientists who gathered at the conferences of the early 1960s," explained Albert R. Jonsen, "confessed their concerns about their concerns about the problems raised by the new medicine and biology and they often called these problems 'ethical.'

Like their fellow scientist Van Rensselaer [sic] Potter, they probably understood that word in the broadest sense, describing the values that should frame human life. When scholars from the classical disciplines of theology and philosophy joined these early conversations, they brought a sharper concept of ethics, one more like that of Andre Hellegers: the critical, analytical study of the norms for human behavior. These professional studies of ethics molded these conversations into a shape designed by their disciplines, their traditions, and their personalities. The bioethics that began to appear in the 1970s, while generated by the new medicine and science encountering human values, was their creation."<sup>224</sup>

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<sup>224</sup> Albert R. Jonsen, *The Birth of Bioethics*, (New York: Oxford University Press, 1998), 34.

In the fall of 1968, a week in which the Soviet Union, signatory to the newly Nuclear Non-Proliferation Treaty (NPT) Test Ban Treaty, performed a nuclear test in eastern Kazakhstan, France – a non-signatory – prepared to follow up with its first multi-stage thermonuclear test with another, and Nigerian troops conquered Aba Biafra, a consultation of biologists, pharmacologists, professors in medicine and theologians met in consult at the Ecumenical Institute Chateau de Bossey to discuss “Experiments With Man.”

“One aspect of human existence needs close scrutiny now, “ explained Hans-Ruedi Weber in the official record of the consultation, “namely man’s power to discover, control, consciously influence and change his environment [raising questions which] assume an even greater urgency as soon as one reflects not only on man’s dominion over his environment, but on his growing power to influence and change his fellow human beings.”<sup>225</sup>

The participants<sup>226</sup> did not “attempt to discuss all the questions raised by man's power over man,” noted Weber. “Only the criteria which must guide bio-medical experiments on human beings were discussed.” The subject was

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<sup>225</sup> Hans-Ruedi Weber, ed., *Experiments With Man: Report of an Ecumenical Consultation held September 2-7, 1968 at the Ecumenical Institute, Château de Bossey, Céligny, Switzerland, World Council Studies No. 6*, (New York: Friendship Press, 1969).

<sup>226</sup> It is not known how Potter came to become included among the invited participants. An article in the Great Britain-based Catholic newsweekly, *The Tablet*, says only that invitations to Consult participants has been sent out in early 1967. Bernard Towers, “The Right to Life - and to Death,” *Tablet* 28, (28 September 1968): 959-960.

introduced by the dean of the medical school at SUNY Stony Brook, Edmund Pellegrino, in a lecture entitled “The Necessity, Promise and Dangers of Human Experimentation.” In his now-classic address, Pellegrino suggested that, “by their very nature new technologies must challenge existing social values and institutions.”<sup>227</sup>

“Human experimentation is a special case of this conflict of technological possibilities and human values, “ he explained. “Indeed, it is the paradigm of the larger question of how man deals with the value decisions induced by technological progress and the powers it confers.”<sup>228229</sup>

Potter, then a self-identified Unitarian, chaired one of three working groups;<sup>230</sup> the one charged with reviewing the World Medical Association’s 1964 Helsinki Declaration concerning the ethics of human experimentation.<sup>231</sup> “The

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<sup>227</sup>Weber, ed., *Experiments With Man*, 31.

<sup>228</sup> Weber, ed., *Experiments With Man*, 31-32.

<sup>229</sup> Pellegrino explicitly engages Teilhard in his discussion of efforts to expand man’s experiences as a free individual and as a social being. “A crisis between these values is inevitable, but must not be resolved as an antimony of individual *versus* society. Indeed, as Teilhard de Chardin has so admirably suggested, the interdependence and convergence of human life which he envisioned can presage an even more precious kind of individual life...” Weber, ed., *Experiments With Man*, 55.

<sup>230</sup>Potter acknowledges his participation in a brief footnote in *Bioethics, Bridge to the Future*. However he does not go on to discuss his participation in any detail.

<sup>231</sup> Contemporary Western articulations of the rights of human subjects, or participants, in research are grounded in the Nuremberg Code, the set of ten principles included in the final legal verdict delivered on July 19, 1947 at the trial of 23 Nazi physicians at the Palace of Justice in Nuremberg, Germany. The doctors were convicted of war crimes and war crimes against humanity, including sadistic, predominantly military-related medical or pseudo medical research on human beings.



consultation did not aim at producing a statement,” Weber noted. While most of the study groups reported some of their “convictions and questions,” the working group “which worked on an amended version of the Helsinki Declaration on experiments with human subjects,” the group Potter chaired, “presented their unanimously accepted report. The consultation felt it wise, however, not to adopt even this report as its own, because the subject discussed still needs much more study.”<sup>232</sup> Potter’s group<sup>233</sup> expressed no such reservations, however, noting that their report “represents the unanimous opinion of that group and its members

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The Nuremberg Code exists mainly as a historical document. Its limitations were recognized almost immediately. In 1954 three World Medical Association accepted a five-principle "Resolution on Human Experimentation: Principles *for Those in Research and Experimentation*" A decade later, in June 1964, a new code was adopted at the 18<sup>th</sup> World Medical Association meeting in Helsinki, Finland. Nowhere in the “Declaration of Helsinki,” as it came to be known, was the Nuremberg Code explicitly engaged, although it asserted that clinical research on humans must conform to the moral and scientific principles that justify medical research.

<sup>232</sup>Weber, *Experiments With Man*, 10.

<sup>233</sup> The members of Potter’s group (my identifications added, when known) included Prof. J. C. van Es; Dr. J. Holden; Dr. J. Hilbner; Dr. S. G. Lavery; Dr. J. de Moerloose, Chief, Health Legislation, World Health Organization; Prof. J. Robert Nelson, Boston University School of Theology; Dr. V. K. G. Pillay, a physician with the University of Illinois College of Medicine; Rev. J. Sontag; Dr. A. Stuart Mason, a British endocrinologist, medical historian and editor; Dr. J. Toth; Dr. Bernard Towers, a physician and fellow of Jesus College in Cambridge (Towers would shortly contribute an essay, “The Scientific Revolution and the Unity of Man” to a volume Nelson was editing, *No Man is Alien: Essays on the Unity of Man*, (Leiden, Netherlands: E.J. Brill, 1971); and Prof. O. L. Wade. There is no known record of how Potter came to chair the group, but the decision to produce a report with practical suggestions, ready for implementation, was no doubt inspired by him.

expressed the desire to make this document freely available to national and international groups working on codes for bio-medical research.”<sup>234</sup>

Well before the U.S. federal government brought the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research into existence, Potter’s group laid out a detailed program annotating the Helsinki Declaration and reforming the conduct of human experimentation. “Every clinical research project should be preceded by careful assessment of inherent *risks* and *costs* in comparison to foreseeable benefits to the subject or to others,” the report noted. Among the reforms called for:

- Substantial reward or payment to subjects or patients who cooperate in experiments is undesirable for it may constitute a form of coercion. If as a consequence of the experimentation injuries, disability or death result, there is then an obligation for appropriate compensation.
- Ethical aspects of experimentation should be subject to effective social scrutiny, and one practical, way of achieving this goal is the establishment of local, regional and/or national committees to assess the ethical aspects of each project and its results. Each committee should be composed of ethically perceptive persons, representing medicine, other sciences, and humanities, who are not a part of the research team.
- Consent of the patient and/or the volunteer is normally an essential prerequisite and should not be obtained by duress. As a rule informed consent can only be obtained from mentally competent persons. An essential condition for valid consent is the full disclosure of the general nature and the Special care must be taken in the case of minors, mentally handicapped and old people, who are unable to give fully informed consent and in the case of persons who might be considered to be under any type of duress. Free, valid, or informed consent does not reduce the investigator's responsibility.
- Experimentation should avoid unnecessary suffering or danger.
- When considerable risk of permanent disability or death exists experimentation should not be allowed except by the experimenter on himself.<sup>235</sup>

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<sup>234</sup> Weber, *Experiments With Man*, 23.

Potter's group did not limit itself to a consideration of codifiable ethics, though. Instead, it suggested an unprecedented program for the "Development and Promotion of Responsible Attitudes,"<sup>236</sup> to guide groups that directly and indirectly affect the practices of human experimentation. Medical schools, universities and teachers should ensure that every future doctor and related research workers are made familiar with the ethics of experimentation including the factors which influence its decision making process. Entities that have an indirect influence on the practice of human experimentation should accept their share of the responsibility for the "social climate of human experimentation" making public their guiding policies in the "ethical connection." Members of indirectly influential groups including editorial boards of medical and other scientific journals, granting agencies that support human experimentation, and the pharmaceutical industry and their advertising departments, and the national governing bodies that supervise the introduction and use of drugs.<sup>237</sup>

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<sup>235</sup> Weber, *Experiments With Man*, 26-27 (paraphrased by the author).

<sup>236</sup> Such a program would not only promote responsible science but address a growing fear in the scientific community, shared by Potter, that governmental incursion into the conduct of research would unnecessarily limit and even prevent free scientific inquiry. As the report suggested, "In the development and promotion of responsible attitudes it is here emphasized that the development of guidelines for experiments on human beings may be more effective than rigid legislation."

<sup>237</sup> Weber, *Experiments With Man*, 27.

Finally, Potter's group took note of the implications that new knowledge could have for human experimentation. Historically the patient involved in clinical treatment or clinical research would give consent and remain under observation. Now, however, there was "the possibility, for instance, that experiments will be undertaken which will involve the manipulation of basic genetic material, which could possibly affect future generations," Potter's group warned. "If and when such experiments become possible, their design and possible unpredictable consequences should receive the closest consideration by appropriate supervisory groups and new ethical guidelines should be developed."<sup>238</sup>

Unlike many of the other like-themed conferences of the 1960s, the consult has been paid scant attention in the canon of historical bioethics. Similarly, there is an absence of contemporary accounts.<sup>239</sup> However, one appeared in the September 28, 1968, edition of international Catholic weekly newspaper, *The Tablet*. Written by *Tablet* contributor and Consult participant

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<sup>238</sup>Weber, *Experiments With Man*, 27.

<sup>239</sup> The apparent neglect may be attributable to nothing more than its place in time. In a year that began with the Tet offensive, where nearly 70,000 North Vietnamese troops brought the battle from the jungles to the cities, and went onto witness the assassinations of civil rights leader Martin Luther King and Democratic presidential candidate Robert F. Kennedy, "Bloody Monday," one of the most violent days of the Parisian student revolt, the violent response of police and military troops response to student protests in Mexico City's Tlatelolco Square, riots at the Democratic National Convention in Chicago, the invasion of Czechoslovakia by the Soviet Union (effectively extinguishing the "Prague Spring,") and finally finishing with launch of Apollo 8, the first U.S. manned spacecraft to orbit the moon, there was considerable news competing for the public's attention.

Bernard Towers,<sup>240</sup> the article pointed out that the Consult, long in the planning, was “no panic response” to recent events, like human heart transplantation, where the “ethics are fairly straightforward” but was inspired by issues like genetic engineering and neuropharmacology which require “much deeper analysis.”<sup>241</sup>

Ruth Porter, the Deputy Director of CIBA who edited most of that foundation’s symposia proceedings, wrote in *Theology* that although “there is little new in this booklet it stimulates the reader to think again about ethical problems within the changing scientific framework of our times”<sup>242</sup>. Although Porter praised Bernard Towers’ “excellent report” on the Consultation, she had somewhat different read on the significance of Consultation’s own report.<sup>243</sup> “Perhaps the most important part of this record,” she suggested, concerns Potter’s group and the Helsinki Declaration discussions. In Porter’s recap, the Declaration concerns the “right of the patient, doctor and community in human experimentation, and binds the doctor to always make his primary consideration

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<sup>240</sup> In the article Towers does not identify himself as a consultation participant. At the time of the Consult, Towers was a lecturer in anatomy and medicine and a fellow and tutor of Jesus College at the University of Cambridge in England. He eventually came to the United States, where he spent the last 30 years of his career at the UCLA School of Medicine, functioning as professor of psychiatry and biobehavioral sciences and as a biomedical ethicist. Bernard Towers, “The Right to Life - and to Death,” *Tablet* 28, (September 28, 1968): 959-960.

<sup>241</sup> Towers, “The Right to Life,” 959.

<sup>242</sup> Ruth Porter, “Book Reviews: Experiments with Man: Report of an Ecumenical Consultation,” *Theology* 73, no. 595 (January, 1970): 33.

<sup>243</sup> Porter, “Book Reviews: Experiments with Man” 33.

the health of his patient.” Among Potter’s proposed amendments that Porter found most interesting is the suggestion that “universities, hospitals and other appropriate organizations (editorial boards, granting agencies, the pharmaceutical industry and so on) be required to educate professional and public opinion so as to promote responsible attitudes to medical experimentation.”<sup>244</sup>

Porter next turned her attention to Edmund Pellegrino’s talk, but she was less interested in its substance than she was by the reactions of the four respondents. She wryly notes that it was “strangely interesting” that the ideas of the Marxist philosopher, Dr. Jan Kamaryt, of the CSSR, were more in tune with the Europeans in the group than with the Americans, particularly as regards payment and the use of prisoners as volunteers for human experimentation. (Most members from the United States were in favor of using payment and prisoners. Most Europeans were not.)<sup>245</sup> Perhaps even more surprisingly, she went on to note, the “views of the Marxist appeared to this reviewer to represent, in many ways, the Christian ethic.”<sup>246</sup>

A dozen years later, by then an admitted Consult participant and a past president of the Institute on Human Values in Medicine, Bernard Tower would

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<sup>244</sup> Porter, “Book Reviews: Experiments with Man,” 32.

<sup>245</sup> It should be noted that Pellegrino did not present what Porter considered the “American” viewpoint.

<sup>246</sup> Porter, “Book Reviews: Experiments with Man,” 33.

revisit his experience at Bossey in connection with a conference on human rights in relationship to forensic science organized by Centro Internazionale di Ricerche e Studi Penale e Penitanzari, Messina, Italy, in cooperation with UNESCO.<sup>247</sup> “I am very much disturbed by the wave of legalism and bureaucratic controls which, developing especially in the last decade, now threatens to engulf medical science and to prevent its further advance,” Towers told his fellow attendees. “I recognize the current need for legislation on abuses, but I deplore its necessity. If the wave of criticism forces the medical profession to re-evaluate its positions and attitudes towards human rights, human freedom, human values, then all may not be lost, and we may at some time in the future experience the full flowering of the art and science of medicine dedicated to the well-being of individual persons and to that collective personality that represents society.”<sup>248</sup>

Towers identified four factors fueling the rise in legislative controls: a commitment to objective, quantifiable science that “*tends* to dehumanizes practitioners where they may regard the patient as an experimental creature,” the inevitable competitiveness for grants and promotions and “the ultimate goal of the Nobel Prize,” the reliance of biomedical research on government funding, funds that are “essentially political and subject to all the vagaries of public opinion” and the failure of the medical-scientific-industrial complex to resolve its

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<sup>247</sup> Bernard Towers, “Medical Experiments on Human Beings,” *Journal of Medical Ethics* 7 (1981): 19-23.

<sup>248</sup> Towers, “Medical Experiments on Human Beings,” 19.

conflicts of interest and “put its ethical house in order.”<sup>249</sup> Here, Towers’ language is strikingly reminiscent of the Consult report. “The ambiguity of the situation appears already in the person of the biomedical investigator. His motives for research may be scientific curiosity and search for truth, the betterment of mankind the wish to be recognized (perhaps even through a Nobel Prize) or other less lofty reasons.” Moreover, it had to be recognized that investigators work under duress through the expectation of both the public and research fund granting agencies, through appointment policies, and through the attitude of “publish or perish.” Furthermore, investigators know that whatever good motives they may have, the outcome of their research is outside their control.<sup>250</sup>

“In 1968, I attended an international conference on human experimentation at the Chateau de Bossey, Switzerland,” Towers recalled. “We drew up and published suggested modifications to the Helsinki Code, some of which were incorporated into the 1975 Tokyo revision. A whole new section was added, but this was ignored in Tokyo. This section concerned the need to educate medical students and practitioners concerning human values and human rights....<sup>251</sup>

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<sup>249</sup> Towers, “Medical Experiments on Human Beings,” 22.

<sup>250</sup> Towers, “Medical Experiments on Human Beings,” 22.

<sup>251</sup> Towers, “Medical Experiments on Human Beings,” 22-23.



“We also suggested, at Bossey, that the promulgation and implementation of guidelines concerning human experimentation<sup>252</sup> would obviate the need for extensive legislation. I wish that I wish that action had been taken on that wise suggestion.”<sup>253</sup>

Potter was in a reflective mood when he addressed the Canadian Cancer Research Conference in 1969. “The biochemistry of cancer is a subject that evokes a strong feeling of continuity and a feeling of belonging to a community of effort that has direction,” he explained to his audience. “It is, in short, an organizing force in my life and so it has been for some 30 years, ever since Prof. H. von Euler persuaded me to make a homogenate of Jensen sarcoma in his laboratory.”<sup>254</sup> His own persistence was tempered with a patience that was not

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<sup>252</sup> Also on the subject of human experimentation, Towers offered a chilling account of the first heart transplant, at once obvious and yet one I have never heard before, one that immediately underscored the need for an ethic informed by biological knowledge that enables action informed by true wisdom. “One recalls the media-blitz that followed Christiaan Barnard’s first human heart transplant,” Towers remembered. “I personally will never forget the horror I felt when I saw the smiling face of Mr. Washkansky on my TV set in England a few days after his ‘successful’ operation. He was sitting up in bed cracking a boiled egg and joking with the nurses. It was a miracle, he said. And yet, to anyone with biological knowledge there were only two courses ahead of him at that time and both involved an early death: either his immunological system was not properly suppressed, in which case his new heart would soon be rejected. Or his immunological system was suppressed, and he was prey to all the attendant germs of the nurses and doctors and camera crew and everyone else who crowded round him for publicity purposes. Was it ignorance or self-aggrandizement that led Dr. Barnard to do what he did?” Towers, “Medical Experiments on Human Beings,” 21.

<sup>253</sup> Towers, “Medical Experiments on Human Beings,” 23.

<sup>254</sup> Van Rensselaer Potter, “Recent Trends in Cancer Biochemistry: The Importance of Studies on Fetal Tissue,” *Proceedings of the Canadian Cancer Research Conference 2*, no. 8 (February 1969): 9. “Fetal Tissue,” in this instance, refers to non-human animal fetal tissue.

shared, he admitted, by his funders. “When one is committed to a lifetime of investigation along on a particular line, a question that frequently comes up is ‘What are you going to do when this problem is solved?’ and if you answer ‘It will never be totally solved because it is the problem of life itself,’ the people who supply the money are likely to look for someone who will give a different answer.”<sup>255</sup> But Potter was all for taking the long view, as he divided 50 years of cancer biochemistry history, beginning in 1913, into five decades. “It should be noted that the knowledge gathered in every decade is not discarded or washed away by events in succeeding decades but must in fact be reinterpreted and modified by new knowledge.”<sup>256257</sup>

Early in 1967, the University of Wisconsin’s Board of Regents posed four questions to its Interdisciplinary Studies Committee on the Future of Man, relating to the purposes of higher education, the goals for the university as an entity, the goals for each segment of the university, and the extent to which

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<sup>255</sup>Potter, “Recent Trends in Cancer Biochemistry,” 9.

<sup>256</sup> Potter, “Recent Trends in Cancer Biochemistry,” 11.

<sup>257</sup> It was also at this conference that Potter introduced the concept of oncogeny as blocked ontogeny, as further evolution of the feedback theory of cancer. Potter’s view of neoplasia as altered feedback control resulting from blocked ontogeny provides the rationale for seeking specific alterations in feedback controls that would render cancer cells “sufficiently” free of inter-tissue ontogenic controls to persist as neoplasm. Potter, “Recent Trends in Cancer Biochemistry,” 11, 28. He would go on to refine the concept as oncogeny as partially blocked ontogeny. Van Rensselaer Potter, “Oncogeny as Partially Blocked Ontogeny,” *British Journal of Cancer* 38:1-23,1978.

students and student organizations should be involved in university government.

<sup>258</sup> In 1969<sup>259</sup>, the then Potter-chaired Committee responded to the first question,

"What are the purposes of higher education?" in classic Potterian blank verse:

The primary purpose of the University  
Is to provide an environment  
In which faculty and students  
Can discover, examine critically,  
Preserve, and transmit  
The knowledge, wisdom, and values  
That will help ensure the survival  
Of the present and future generations  
With improvement in the quality of life.

The report "was a golden opportunity to pursue the agendas I had vocalized in the 1962 talk on 'The Concept of Human Progress,'" Potter recalled in 1995. "The opportunity also permitted a review of the agendas of Margaret

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<sup>258</sup> In October of that same year, the University of Wisconsin would be rocked by violent protests of the presence Dow Chemicals, the manufacturers of napalm, recruiters on campus. It was the first time in the nation that tear gas was used on anti-war demonstrators. Dozens of students were beaten and bloodied, and 19 police officers were treated for injuries at local hospitals.

<sup>259</sup> The minutes of the Board of Regents meeting for August 22, 1969, recorded that "Regent Dahlstrom reported that he had received from Professor Van R. Putter [sic], a copy of Madison Campus Faculty Document 279 entitled, "The Purpose and [f]unction of the University", which was a response by the Interdisciplinary Studies Committee on the Future of Man (UW-Madison) to questions raised by the Special Regent Committee on the University of Wisconsin of the Future, said document being dated May 20, 1969. He suggested that this document be distributed to the rest of the Regents for their interest and evaluation; and he noted that this document will come before the Madison Faculty for its review and consideration, and subsequently to the Regents. He pointed out that it had some very interesting suggestions, in terms of policies for the future of the University of Wisconsin, which, if accepted, would bring some rather unusual changes in the University. President Harrington agreed that copies would be circulated to the Regents." Clarke Smith, Secretary, "Minutes of the Regular Meeting of the Board of Regents of the University of Wisconsin: 22 August 1969".

Mead and John R. Platt.” The resolution was presented to the faculty and unanimously approved on December 1, 1969, as an “appropriate and timely supplement to previous statements of University purpose and function,” specifically endorsing the statement of primary purpose.<sup>260</sup>

At Potter’s direction, the Committee also gave a lengthy account of its deliberations in the March 20, 1970 issue of *Science*.<sup>261</sup> Published as it was in

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<sup>260</sup> Van Rensselaer Potter, “Global Bioethics: Origin and Development,” in *Handbook for Environmental Risk Decision Making: Values, Perceptions, and Ethics* C. Richard Cothorn, ed.

<sup>261</sup> V. R. Potter, D. A. Baerreis, R. A. Bryson, J. W. Curvin, G. Johansen, J. McLeod, J. Rankin and K. R. Symon “Purpose and Function of the University” *Science*, New Series 167, no. 3925 (Mar. 20, 1970): 1590-1593. The article was already in press on April 30, 1970, when President Richard M. Nixon announced U.S. forces had begun an incursion into Cambodia. Response was swift: student anti-war demonstrators announced plans for a massive strike, shutting down campuses across the nation. On May 4, Ohio National Guardsmen opened fire at Kent State University, killing four and wounding nine students, including those who were demonstrating protesting of the Vietnam war into Cambodia, those who were watching the demonstrators, and those who just happened to be passing by. Eleven days later, following days of overt racial tension, city police and Mississippi state police opened fire on Jackson State students – protesting not the war but rumors that Fayette, Mississippi Mayor Charles Evers, brother of slain civil rights activist Medgar Evers, and his wife, had been killed – killing two non-protestors and injuring more than a dozen others. (As Sanford Jay Rosen rightly noted in 1971 – underlining the some of the core issues in the 1968 Columbia protests in the process – “if only the two at Jackson state had been killed, there would probably have been neither a national student strike nor a Scranton Commission. Kent was special because the victims were *white* students.” Sanford Jay Rosen, “Review Report of the President’s Commission on Campus Unrest; The Greening of America,” *Columbia Law Review* 71, no. 6 (June, 1971): 1120.) All told, from May 1 through 15, there were violent clashes between students and police at 26 schools, and the National Guard was mobilized at 21 campuses in 16 states. Thirty ROTC buildings went up in flames or were bombed. According to the Urban Research Corporation, at least 760 campuses, or 30 percent of all colleges and universities, participated in the student strikes.

In the early morning hours of August 24, 1970, a bomb targeting the Army Mathematics Research Center, located in a building that also housed the University of Wisconsin physics department, exploded, killing a young physics post doc, Robert Fassnacht. The physics department sustained significant damage; AMRC was barely touched. (See also *The Report of the President’s Commission on Campus Unrest*. [Also

the context of heavy self-examination at universities across the nation,<sup>262</sup> it sounded an urgent call for Universities to take a leadership role in addressing problems: "We can no longer afford the luxury of assuming that the future will take care of itself. The question is whether previous statements of University purpose provide goals, which, if faithfully pursued, would contribute adequately to man's survival and improvement, or whether these statements of purpose need to be made more explicit. We believe that the statements do indeed need to be made much more explicit, and we propose to revise the statements of University purpose in terms that are compatible with the University's heritage, and at the

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known as the Scranton Commission] US Government Printing Office: Washington DC 1970).

<sup>262</sup>See, for example, *Crisis at Columbia: Report of the Fact-Finding Commission Appointed to Investigate the Disturbances at Columbia University in April and May, 1968* (New York: Vintage Books 1968). Student protests over the university's continued eviction of Harlem residents from Columbia-controlled properties, coupled with the university's plans to construct a gymnasium with limited community access in the city-owned Morningside Park, inspired different, and sometimes differing, groups of student protestors to occupy a number of university buildings and administrators being taken hostage. Student counter-protestors engaged violently with some of the demonstrators, as did members of the New York Police Department. James Simon Kunen, student occupier and author *The Strawberry Statement*, a student chronicle of the events, went on to become a *PEOPLE* magazine correspondent and eventually the director of communications for Time-Warner. A wider-lensed view can be seen *The Closed Corporation: American Universities in Crisis* by James Ridgeway (1968, Ballantine Books, New York.) At the time, Ridgeway was perhaps better known for an article detailing how, after consumer advocate Ralph Nader testified during an 89th congress senate subcommittee hearing on automotive safety, GM hired private detectives to dig up information on his personal life to discredit him. Those being somewhat gentler times, Ridgeway's March 12, 1966 *New Republic* article was simply titled "The Dick." GM chairman James Roche was called to Washington to explain himself to a seething Senator Robert F. Kennedy. The Senate efforts culminated in the passage of the 1966 National Traffic and Motor Vehicle Safety Act.

same time cognizant of the University's responsibility to future generations of man.”

This report was sharply critical of the 1968 committee report, which had asserted “the benefits can be achieved only if the search for truth is accepted as the ultimate purpose of an institution of higher learning” because “the modern institution of higher education is the only one in our society in which this search, untrammelled by the need for specific solutions, can possibly take place.”<sup>263</sup> To the contrary, the new report stated, “We believe that, in fact, the universities have undertaken a multitude of directed searches for specific solutions, but we suggest that at this time a distinction between society's immediate problems and society's future is required.” In (re)defining the primary purpose of the University, the committee explained, “We acknowledge the legitimacy of other purposes of the University and do not wish to interfere with them. Rather than alter these other purposes or interfere with academic freedom in any way, we seek positive incentives and procedures by which future-oriented programs would be encouraged. Ways should be found to allow students and faculty to engage in the interdisciplinary efforts that are implied by the statement of purpose. Such an

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<sup>263</sup> As of this writing, it cannot be said with any certainty, but only as a reasonable guess, that the criticism of the 1968 report and/or the publicity surrounding the Potter-chaired committee report is at the root of the apparent rift between Potter and one-time committee chair Reid Bryson. Potter himself down-played suggestions of an estrangement in an oral history interview, replying mildly that Bryson was an individual dedicated to achieving certain goals. Potter, UW Oral History #257.

orientation might help to close the ‘relevance gap’ that now that now exists between faculty and students.”<sup>264</sup>

Potter said the report highlighted “some of the dangers in the ambivalence in previous reports in claiming priority for the ‘search for truth’ on the one hand, and the trend to assume responsibility for finding solutions to problems of the *immediate present* on the other. We pointed out the danger that in the later case universities could become merely “public utilities.”<sup>265</sup>

Looking back years later, Potter said, “the entire report remains in itself very close to a statement of Global Bioethics.”<sup>266</sup> Unfortunately, the committee ceased operations soon after delivering this final report. The regents authorized the formation of an Institute for Environmental Studies,<sup>267</sup> naming Reid Bryson its founding director and keeping Potter on as a member of its executive committee. The new institute boasted a number of faculty members with outside departmental affiliations, and a number of courses, including one on environmental ethics, were assembled into a teaching program. “However,” rued Potter, “the goals of the old committee on the future of the human species were not pursued.”<sup>268</sup> Environmental ethics was not bioethics in the sense of

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<sup>264</sup> Potter, “Global Bioethics: Origin and Development,” 367.

<sup>265</sup> Potter, “Global Bioethics: Origin and Development,” 367.

<sup>266</sup> Potter, “Global Bioethics: Origin and Development,” 368.

<sup>267</sup> Since re-named the Gaylord Nelson Institute for Environmental Studies.

<sup>268</sup> Potter would later second-guess his decision not to pursue – unlike as he had done years earlier, in the founding of the Enzyme Institute – outside funding from the

acceptable survival in the long term based on integrating health care (medical bioethics) and earth care (environmental ethics)”<sup>269</sup>

It is worth noting that among those intrigued with the committee’s 20<sup>th</sup>-century updating of the Land-Grant ideology was the *Journal of the American Medical Association*. Editorializing under the headline “Mission Impossible?”<sup>270</sup> *JAMA* observed, “The last three lines of that statement have a special relevance to medical colleges, the American Medical Association, and all segments of medicine. The task of ensuring the future is no easy one in this era of expanding knowledge and rapid technological advance.”<sup>271</sup> While the committee could not deny that the university must be also concerned with some of society’s immediate problems, the editorial writer observed, it emphasized that it “must avoid the danger of inundation with requests for ‘now’ solutions [leaving the institution] free to searching the future.” If the search “be diligent and rewarding,” the writer concluded optimistically, despite the headline writer’s pessimism, there can be found “ ‘an air in which man can breathe and grow, a true and a more abundant life.’ ”<sup>272</sup> It is especially ironic, then, that little more than

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Rockefeller Institute to create a true Bioethics Institute at Wisconsin. Van Rensselaer Potter, Oral History #257 1983, University of Wisconsin-Madison Archives, Oral History Project, and Van Rensselaer Potter and Henry Lardy, Joint Interview #267, 1983 University of Wisconsin-Madison Archives, Oral History Project.

<sup>269</sup> Potter, “Global Bioethics: Origin and Development,” 368.

<sup>270</sup> Editorial, “*Mission Impossible?*,” *JAMA* 212, no.8 (1970): 1368-1369.

<sup>271</sup> “*Mission Impossible?*,” *JAMA*, 1368.

<sup>272</sup> “*Mission Impossible?*,” *JAMA*, 1369.



a year later, a group of politicians, ethicists and theologians at Georgetown would conclude that Potter's bioethics had nothing to offer medical professionals

## CHAPTER FIVE: CROSSING OVER

Insight into the development of Potter's bioethical thought during the run-up period to the publication of *Bioethics: Bridge to the Future* can be found in F. Kenneth Hare's "How Should We Treat Environment: University Organization Presently Permits Only Piecemeal Considerations of Environmental Problems,"<sup>1</sup> which appeared in the January 23, 1970 issue of *Science*.<sup>2</sup> Hare had been a conversational partner of Potter's, possibly in connection with the Committee on the Future of Man.<sup>3</sup> Not only does Hare state that it was in conversations with Potter and Reid Bryson that he came to realize that special interest university institutes and programs, typically dominated by a single institute and legitimized by a committee, rarely survive the departure of the individual, but he also specifically cites Potter's 1962 publication "*Bridge to the Future*" in *Land*

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<sup>1</sup> It should probably not go without noting that that just six months earlier, on June 22, 1969, the Cuyahoga River on the southern shore of Lake Erie caught fire – and not for the first time – neatly encapsulating the nation's environmental problems. Christopher Maag, "From the Ashes of '69, a River Reborn," *New York Times*, 20 June 2009.

<sup>2</sup> F. Kenneth Hare, "How Should We Treat Environment: University Organization Presently Permits Only Piecemeal Considerations of Environmental Problems," *Science* 167, ( 23 January 1970): 352-355.

<sup>3</sup> Hare, a Canadian geographer and climatologist, had connections to the University of Wisconsin and was the featured speaker when the University's meteorology department celebrated its 30th anniversary in November 1978. On hand for the festivities was the department's founding chair, Reid A. Bryson. "Celebration of 30th Anniversary, Department of Meteorology, University of Wisconsin–Madison, November 17-18, 1978," *Bulletin of the American Meteorological Society* 60, no.10 (1979): 1165-1166.

*Economics* when he asks how a more stable kind of interdisciplinary organization can be created.<sup>4</sup>

Universities are increasingly going to be called upon to solve social problems, Hare predicted, and, in response, most will be willing to develop new, rigorous “disciplines of synthesis,”<sup>5</sup> recognizing that “no important social problem is ever simple and none ever lies within the competence of a single academic discipline.”<sup>6</sup> When a university accepts goals of this kind, Hare suggests, the faculty must accept a greater degree of “common-directed action” (teamwork) than they are used to. “Doctors and engineers do this all the time,” Hare noted. “It will be in the humanities and social science areas where the shock will be most felt, because these are the chief homes of the lone wolf.”<sup>7</sup>

Having established the need for and mode of action, Hare then backs into the question of how environment is to be defined. As befits one trained as a geographer, Hare maps out several possibilities: the national environment, which means the physical world outside society, and human interactions within it, the social environment, arising from “the obvious fact that each of us has to survive in a matrix of our fellow men, and that each society must co-exist with

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<sup>4</sup> F. Kenneth Hare, “How Should We Treat Environment,” n. 4, 355.

<sup>5</sup> F. Kenneth Hare, “How Should We Treat Environment,” 535.

<sup>6</sup> F. Kenneth Hare, “How Should We Treat Environment,” 532.

<sup>7</sup> F. Kenneth Hare, “How Should We Treat Environment,” 532.

surrounding societies,”<sup>8</sup> and the built environment, the man-made structures that accommodate work, sleep and play, the built element that extends into the countryside, and, finally, the total environment in which the first three understandings are all understood as part of the environment.

Like Potter, Hare understands environment as something more than the natural world. So too, do they both understand ecology as something more than the interplay of biotic systems. “The framework of a unified program of environmental studies is ecological in the largest sense,” Hare explained.

It is made up of the links that in the real world connect a man’s work and play with the people that surround him, his society with neighboring societies, and human society at large with the rest of the natural world. These links allow flows of energy and mass between domains, the kind of thing that some ecologists deal with in the ecology of the biota. They also represent, for those connecting man with man directly, links in some kind of intellectual domain; if I were as obscure as Teilhard, I would call these strands of the noosphere. And finally, and in concrete terms, these links represent, for civilized as well as barbarous societies, lines along which some of man’s most important institutions must operate. We have achieved the proper outlook for environmental studies when and if we can see, or want to see, these links in a unified ecological framework.<sup>9</sup>

Hare’s complex understanding of environment, and environmental studies, was not unique to him; indeed the whole concept of “human ecology” was largely original to the land-grant institutions, where it evolved from an understanding of home economics as a discipline that encompassed sanitation, nutrition, economics, child development, textile science, and food chemistry. And as Hare

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<sup>8</sup> F. Kenneth Hare, “How Should We Treat Environment,” 534.

<sup>9</sup> F. Kenneth Hare, “How Should We Treat Environment,” 534.

acknowledged that discussions with Potter and others helped in the evolution of his own thought, so did discussions with similarly concerned individuals.

Also of interest here is Hare's awareness of the Western value system, and how it shapes the agenda for an ecological agenda. "We have to admit that our view point is that of Western industrialized society," he wrote, "and that we shall be working out our program in the light of that society's past mistakes and assumptions for its own future."<sup>10</sup> However, he cautioned, "we must not make the mistake of assuming that other societies have similar relationships with the environment, nor should they be expected to have Westernized ambitions for the future. Rather, in fact, the reverse. It should be a major objective of those involved in environmental studies to alter the Western outlook on such questions. We shall solve our environmental problems only by deep-seated changes in society itself."

Hare's interest is in setting up "broad synthesizing effort[s]" like environmental studies in the large, structurally complex universities that are scattered across the Midwest. Characterized by a conservative quality, "where nothing can easily be done for the first or last time, the status quo is protected not only by the largely analytic departments of the traditional disciplines, but the numerous special institutes and centers that have been created in spite of departmental resistance."<sup>11</sup> At a minimum, Hare suggests, the political interest in

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<sup>10</sup> F. Kenneth Hare, "How Should We Treat Environment," 534.

<sup>11</sup> F. Kenneth Hare, "How Should We Treat Environment," 532.

the environment demands proposals for action “on all time scales, from the immediate assault on pollution problems and other festering sores of today, to the long term reconstruction of society in a better relationship with environment” – something the modern university is not equipped to do.”<sup>12</sup> Action demands “getting ourselves involved in planning society’s future, and mending its present broken bones [which] does indeed threaten the selfish individualism and pursuit of our own private thing that we call academic freedom.”<sup>13</sup>

### **Earth Day and Bioethics: Science and Survival**

The very first national observance of Earth Day was celebrated as a "Life Style on Trial" E-Week in Madison. Kicking off on Friday, April 17, 1970 with an environmental art exhibit and environmental readings by a UW Oral Interpretation class, the week featured days and nights of panel discussions, protests, trash pick-ups, displays, lectures and films by UW and Madison participants.<sup>14</sup> An Earth Day eve forum “Life Style on Trial: the Government Responds” featured Wisconsin Senator Gaylord Nelson, Alaska Senator Mike Gravel and an “environmental light show,” while Earth Day itself broke early with a 4:45 a.m. “Earth Service” at Lake Mendota’s Picnic Point. Sponsored by the Wisconsin

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<sup>12</sup> F. Kenneth Hare, “How Should We Treat Environment,” 532.

<sup>13</sup> F. Kenneth Hare, “How Should We Treat Environment,” 532.

<sup>14</sup> UW Organizations and Madison Civic Groups, “Earth Week: Life Style On Trial April 17-26 (event program booklet,)” Wisconsin Historical Society, Gaylord Nelson collection.

Hoofers and the Wisconsin Union Committee,<sup>15</sup> the service drew a community of some 200 to listen to an “Invocation to Dawn” delivered in Sanskrit and to confess man’s sins against the environment.<sup>16</sup>

As the week drew to a close, Potter was part of the Life Style on Trial summary panel, which convened on Friday evening at the Madison Area Technical College auditorium.<sup>17</sup> Potter was joined by several other UW professors, as well as research assistant and local E-Day chair Kenneth Bowling but, not surprisingly, it was Potter who captured the reporters’ imaginations. “The roots of a new religion - a kind of ‘bio-ethics’ - are taking hold in the trial [sic] of this past week’s environmental mania,” wrote Whitney Gould in a Madison *Capital Times* piece headlined “‘Bio-Ethics’ Creed Emerges From ‘E-Week’

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<sup>15</sup> The Wisconsin Hoofers, which traces its roots back to 1919 when a group of Norwegian students built their own wooden ski jump, is an umbrella organization for a number of UW outdoor recreational clubs. The Wisconsin Union Committee is now the Wisconsin Union Directorate, a student organization that plans, programs and promotes hundreds of recreational, art, community service and cultural events on campus. “Hoofers History Review, 1959 version” [hoofers.org/historyreview1959](http://hoofers.org/historyreview1959).

<sup>16</sup> Unbylined, “Man’s Sins Against Environment, Earth Service Sets Tone Here,” *Capital Times*, Thursday, 23 April 1970: 2.

<sup>17</sup> Earth Day afforded a modest bump to a word Potter had coined the year before, “litterbird.” “‘Not a bug,’” Potter “emphatically” told the *Capital Times*, “A littlerbug drops litter. Be a bird. A litterbird picks it up.” The following year, the Walla Walla Washington *Union-Bulletin* was cheered to learn that Potter’s efforts to keep the McArdle courtyard litter-free was contagious, inspiring others in Madison to tidy-up. Ann Tiemann, “Dr. Potter Pushes the Positive Approach: Be A Litterbird, Says U. Scientist,” *Capital Times*, Thursday 10 July 1969; Claude M. Gray, “Twice Told in Walla Walla, One Man’s Cleanup Role,” *Walla Walla Union-Bulletin*, Monday, 27 April 1970: 4.

Observance; As A New Type of Religion.”<sup>18</sup> “The creed of the new faith centers on the need for harmony, not conflict, between man and nature, and on a more humane life-style. A thing is seen as ‘good’ if it tends to preserve the integrity of the web of life which links man inextricably with all other living creatures, and ‘bad if it threatens to collapse the web.”<sup>19</sup>

The panelists, Gould reported, were “groping to articulate the tenets of the new faith.” It was Potter who “proposed the term ‘bio-ethics,’” expressed in a “creed” which, he explained, “must respect the balance of nature, with the kind of humility in the ancient notion that fear of the Lord is the beginning of wisdom.”<sup>20</sup> Gould “broadly” summarized Potters guidelines for the *Capital Times* readers:

...the acceptance of the finality of death, and the inevitability of some human suffering resulting from natural disorders, but a rejection of suffering growing out of man’s inhumanity to man; a respect for the uniqueness of the individual coupled with a recognition that the survival of life on earth depends on the subordination of personal consumptive urges to the collective good.

It was the fallout from compulsive consumption, the “omnipresence of the pollution problem,” the panelists agreed, that might prevent “the current swell of concern [expressed in Earth Week] from subsiding into the oblivion of the hula

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<sup>18</sup> Whitney Gould, “‘Bio-Ethics’ Creed Emerges From ‘E-Week’ Observance; As A New Type of Religion,” *Capital Times*, Saturday, 25 April 1970: 9.

<sup>19</sup> Gould, “‘Bio-Ethics’ Creed Emerges From ‘E-Week’ Observance,” *Capital Times*: 9.

<sup>20</sup> Gould, “‘Bio-Ethics’ Creed Emerges From ‘E-Week’ Observance,” *Capital Times*: 9.



hoop.”<sup>21</sup> It won’t go away, Potter promised the audience. “There’s just no place to hide.”

Over at the *Wisconsin State Journal*, reporter Franklin W. Iossi also took note of Potter’s “bioethical creed for individuals.” And he added that Potter sounded a note of what Iossi characterized as “optimism” for those concerned about a post E-Week environmental awareness fatigue. “The march of events is going to keep beating us on the heads,” Potter said. “The cause for environment is not going to be lost after this week.”<sup>22</sup>

The *Capital Times* and *State Journal* articles may well be the first documentation of Potter’s public utterance of the word “bioethics.” However, Potter had already begun to use the word in private correspondence. On April 9, 1970, Potter wrote Dwight J. Ingle, founding editor of *Perspectives in Biology & Medicine*, to inquire if the journal would be interested would be interested in “publishing chapter one of my forthcoming book, *Bioethics: Bridge to the Future*.”<sup>23</sup> Potter indicates that the book is in press, with an anticipated

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<sup>21</sup> Gould, “‘Bio-Ethics’ Creed Emerges From ‘E-Week’ Observance,” *Capital Times*: 9.

<sup>22</sup> Franklin W. Iossi, “New Lifestyle Urged for Survival,” *Wisconsin State Journal*, 25 April 1970: 25.

<sup>23</sup> Van Rensselaer Potter to Dwight J. Ingle, 9 April 1970, courtesy of *Perspectives in Biology and Medicine*. I am deeply appreciative of the efforts of all those at *PBM* who indulged my repeated requests and finally located the Potter/Ingle correspondence. The correspondence, long thought to have been lost or destroyed, authoritatively settles not only Potter’s claim to authorship of “bioethics,” but provides important insight into his thought processes.

publication date of “about January 1971.”<sup>24</sup> The timing of the letter suggests he may have been using the word “bioethics” as early as late 1969, and certainly in early 1970. According to Potter, he was all ready “exploring with Prentice-Hall [his publisher] the possibility of prepublishing Chapter 1 with you and 12 or 13 elsewhere.”<sup>25</sup>

Potter’s letter seems to imply a certain confidence about Ingle’s response, and indeed he goes on to explain that McArdle director and *PBM* editorial board member Harold P. Rusch “has been after me for some time to write a paper for your journal, and he has seen this manuscript.”<sup>26</sup> However, Potter is quick to add that even if Ingle is not interested in publishing the article, he would welcome his comments or those of any anonymous referee. “I hope you may have seen the paper by Potter and committee on The Purpose and Function of the University in Science for March 20, 1970 so you will understand I feel a sense of urgency about the points I make,” Potter explained, “and you may excuse my desire to prepublish certain chapters.”<sup>27</sup>

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<sup>24</sup> To date, no record of Potter’s correspondence with Prentice-Hall concerning the book’s title or his use of the word “bioethics” has been discovered.

<sup>25</sup> The other chapters were published in *Zygon*. Indeed, in his letter Potter indicates chapters 1, 7, 12 and 13 were new. This information puts some of the criticisms of *Bioethics* – that it was an often-redundant compilation of articles published elsewhere – in a somewhat different light.

<sup>26</sup> Potter to Ingle, 9 April 1970.

<sup>27</sup> Potter to Ingle, 9 April 1970.

Ingle's response was swift and enthusiastic. "Dear Van," he wrote on April 13, "I would be more than pleased to publish your Chapter 1 in PBM. First, because I regard you as an outstanding scientist-philosopher, and second, because I like the Chapter very much."<sup>28</sup> If Potter could manage to supply a copy for publication quickly, "we can squeeze it into the autumn [1970] issue," Ingle explained. A delay until the winter 1971 issue ran the risk that the book would appear in print first, although, as Ingle noted, "most publishers fail to meet their scheduled publication dates."<sup>29</sup>

Potter managed a quick turnaround, putting the manuscript back in Ingle's hands on April 27. In his cover letter he mentions that he now understands that Prentice-Hall is "putting the book on a rush schedule printing for December 1970 or January 1971."<sup>30</sup> Three days later Ingle responded that *Perspectives* had the manuscript in hand "and will make every effort to publish it before the book appears. ... We are pleased indeed to have this paper and I predict that you will have an excellent reader response."<sup>31</sup> On the file copy Ingle added a typewritten

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<sup>28</sup> Dwight J. Ingle to Van Rensselaer Potter, courtesy of *Perspectives in Biology & Medicine*, 13 April 1970.

<sup>29</sup> Ingle to Potter, 13 April 1970.

<sup>30</sup> Van Rensselaer Potter to Dwight J. Ingle, 27 April 1970, courtesy of *Perspectives in Biology & Medicine*.

<sup>31</sup> Dwight J. Ingle to Van Rensselaer Potter, 30 April 1970, courtesy of *Perspectives in Biology & Medicine*.

note: “Claire, [Landau, managing editor], No [peer] review needed. We should make an effort to get this in the autumn issue.”<sup>32</sup>

Ingle did indeed get “Bioethics, the Science of Survival”<sup>33</sup> into the autumn 1971 issue, and Prentice-Hall did manage roll out *Bioethics, Bridge to the Future* in January 1971. Confident of a big seller and aiming to capitalize on the environmental enthusiasm inspired by the inaugural Earth Day in 1970, the publishing house took out ads in publications like *BioScience*<sup>34</sup> and sent hundreds – in Potter’s understanding, close to a thousand<sup>35</sup> – complimentary instructor’s copies to professors across America. According to Prentice-Hall, which published the book as part of its long-running biological science series, within short order, the book was in classrooms at 130 colleges and universities nationwide.

The American Academy for the Advancement of Science was already split by internal controversies when the group gathered for its annual meeting in Chicago in late December 1970. The nomination of Nobel laureate Glenn T.

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<sup>32</sup> Ingle to Potter, 30 April 1970.

<sup>33</sup> Van Rensselaer Potter, “Bioethics, the Science of Survival,” *Perspectives in Biology & Medicine* 14, no. 1 (1970): 127-53.

<sup>34</sup> In an unpaginated advertising section in *BioScience* 21, no. 3 (February 1971) Prentice-Hall touts *Bioethics: Bridge to the Future* as an effort to “encourage a more humanistic outlook among scientists and a more scientific outlook among humanists.” Then, after listing the numerous scientific luminaries Potter quotes, the ad continues, “BIOETHICS is an ideal source book for science courses or the liberal arts curricula.”

<sup>35</sup> I have been unable to pin down where this figure comes from. It seems unlikely, although it is possible they were less-expensive publisher’s proofs.

Seaborg, chairman of the Atomic Energy Commission for the presidency-elect of AAAS<sup>36</sup> had proved so contentious that the normally low-key process of selecting the organization's officers had become national news. The editor-in-chief of *Science*, the official publication of AAAS, had killed a story on controversy prepared by the news section: news editor Daniel S. Greenberg resigned in protest.<sup>37</sup> The organization's control over the story ended right at its doorstep. Papers from the *New York Times* to the *San Francisco Chronicle* ran with the story, with AAAS's hometown paper, *The Washington Star*, headlining a piece on the controversy "Science Association's Internal Rot."<sup>38</sup>

An inversion layer hung over Chicago as the conference began, and the air pollution was so severe that authorities suggested citizens curb automobile usage and industries limit emissions by cutting back on production. Compliance appeared to be negligible, with no noticeable improvement in air quality.<sup>39</sup> Things were no better inside the hall. Some 6,000 persons attended the conference: one in every four was a scheduled presenter. However, it was the unscheduled speakers that attracted most of the attention. In the estimation of *Science News*,

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<sup>36</sup> The presidency of AAAS is a three-year succession process; "president elect" is only the first step.

<sup>37</sup> Eventually *Science* did have to acknowledge the controversy. Philip M. Bossey, "AAAS Presidency: Controversy Flares Over Seaborg Candidacy," *Science* 170 no 3963 (11 December 1970): 1177.

<sup>38</sup> Milton Viorst, "Science Association's Internal Rot," *Washington Star*, 3 December 1970.

<sup>39</sup> Unbylined. "Nixon Signs Bill: Action Toward Cleaner Air," *Science News* 99 (9 January 1977): 22.

some 250 “dissidents,” generally young scientists or ex-scientists, most at least loosely associated with what was known as the ‘Science for the People’ movement, were involved in “dramatic and highly visible [disruptions] setting the tone, if not the substance of the convention.”<sup>40</sup> An address at a symposium on the “Generation Gap” in science by Edward Teller, the scientist known both supporters and detractors as the “father of the hydrogen bomb,” was disrupted by demonstrators accusing him of being a war criminal. Glenn T. Seaborg, by now president-elect in what was reported to be a very close election, did not even attempt to make his remarks after another protester grabbed the microphone and began an indictment of Seaborg for the crime of “science against the people.”<sup>41</sup> There was some pushback, however. When another group of demonstrators tried to take control of a morning session on crime, violence, and social control, Jane Swanson Hardin, wife of ecologist and Potter correspondent Garrett Hardin,<sup>42</sup> struck back by jabbing her knitting needle into the arm of protester Frank Rosenthal, a graduate student in nuclear physics at Columbia.<sup>43</sup>

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<sup>40</sup> Unbylined, “AAAS: Conflict, Confrontation, Consideration,” *Science News* 94 (9 January 1971): 21.

<sup>41</sup> Unbylined, “AAAS: Conflict, Confrontation, Consideration,” 22.

<sup>42</sup> On September 14, 2003 Jane and Garrett Hardin, both suffering from ill health, committed suicide together at their home in Santa Barbara, California. Stuart Lavietes, “Garrett Hardin, 88, Ecologist Who Warned About Excesses, Dies,” *New York Times*, 28 October 2003; Scott Steepleton, “Pioneering Professor, Wife Die In Apparent Double Suicide,” *Santa Barbara News-Press*, 18 September 2003.

<sup>43</sup> Unbylined, “AAAS: Conflict, Confrontation, Consideration,” 22.

Ralph Wendell Burhoe organized a panel for the History and Philosophy Science track. The George Sarton Memorial Lecture – “Attitudes Towards Nature in Medieval England: The Alphonso and Bird Psalters” – did not exactly set the tone for the rest of the track’s symposia, which included a multi-session consideration of World Cities of the Future and a panel arranged by Nobel laureate and anti-war activist George Wald on “Hiroshima – 25 years later.” Burhoe’s offering was entitled “Science and Human Values: Thermodynamics, Information, Evolution and Ethics.”

“When science is being accused of destroying human values, and when traditional values of all cultures of the world are in crisis and ill-adapted to changes brought about science and technology,” Burhoe wrote for the conference program book, “it seems appropriate to examine some of the recent contributions of the sciences that suggest that life’s values arise out of and are integral with the processes of the physical cosmos and that the sciences may have developed a touchstone for ethics.” Slated to join Burhoe on the panel to discuss, among other things the “cybernetic mechanisms by which life’s order or information is maintained,” were Van Rensselaer Potter, R.B. Lindsay, Anthony F. C. Wallace and Aharon Katchalsky.<sup>44</sup> The panelists were all prepared to

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<sup>44</sup> Aharon Katchalsky, or Katzir-Katchalsky, was an Israeli chemist and biophysical thermodynamicist. A self-identified humanist, Katchalsky believed that the infiltration of science into modern society “obligated a new form of ethical adjustment which can only be achieved through the concentrated efforts of philosophers and scientists, educators and counselors.” Orna Mokady Shavitt, “Aharon Katzir-Katchalsky: 30 years since his death, *Chemistry in Israel (Bulletin of the Israel Chemical Society)* 10 (September 2002): 17. He died during the May 30th, 1972 Lod Airport massacre at Tel

discuss “the prevailing Western myths that man is alone, alienated from nature, a freakish accident in an indifferent or inhospitable cosmos and that the sciences are either neutral or destructive for human values.” However, the reporter from the *Milwaukee Sentinel* focused her reporting on Potter’s remarks alone. “New Ethics Called Key to Survival,” the headline read and, though the story did not say so, Potter almost certainly used the word “bioethics.”

“A new ethical code based on certain ‘biological imperatives,’ is needed if man is to survive the next 20 years, the assistant director of the University of Wisconsin’s McArdle Cancer Research laboratory said here Sunday,” the story ran. “Van Rensselaer Potter ... said he believed the survival of mankind was threatened by exploding populations and ‘compulsive consumption.’ The ethical code designed to foster survival would, Potter said, include removal of religious opposition to populations control, permitting a state of ‘positive health in harmony with environmental constraints’; discouragement of ‘conspicuous consumption’ by both public discussion and excise taxes; reorganization of the educational system to re-educate people as to their responsibilities in terms of man’s survival; and examination of both negative and positive aspects of disorder.” The

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Aviv when three members of Japanese Red Army, armed with submachine guns and grenades, killed 24 people and wounded more than 70. His younger brother, Ephraim Katzir, became the President of Israel the following year. F.O. Schmitt and R. B. Livingston, “Aharon (Katzir) Katchalsky,” *Annual Review of Biophysics and Bioengineering* 2 (June 1973): 1-7.



reporter added that Potter believed that there are “positive features involved in ‘creative explosions or disorders’ which can contribute to man’s survival.”<sup>45</sup> *Zygon* would not publish the symposium papers until six years later. By then Potter’s offering had become “Disorder as a Built-in Component of Biological Systems: The Survival Imperative.” It is “high time that considerations of the relation of science and human values ... attempt to derive and disseminate a sophisticated perception of the *uses* of disorder,” he wrote. Among the possible uses of disorder Potter identified was the “implementation of the survival imperative.”<sup>46</sup>

### **What’s in a Word?**

“In coining goal-oriented words,” Garret Hardin observed in 1969, “scientists are like magicians trapped by their own magic. Rachel Carson disclosed the danger of such magic when she pointed out that the proper word for what is called an ‘insecticide’ is a ‘biocide’.”<sup>47</sup> Who then was the magician who coined the word “bioethics”? And was he trapped by his own magic or by the transmogrifying magic others cast on his word?

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<sup>45</sup> Special to the *Sentinel*, “New Ethics Called Key to Survival,” *Milwaukee Sentinel*, (28 December 1970): pt 1, 4.

<sup>46</sup> Van Rensselaer Potter, “Disorder as a Built-in Component of Biological Systems: The Survival Imperative,” *Zygon* 6, no. 2, (June 1976).

<sup>47</sup> Garrett Hardin, “What Price Progress,” in *Science, Conflict and Society: Readings from Scientific American*, (San Francisco: W.H. Freeman and Co., 1969).

In the early 1990s, Warren T. Reich, the founding editor of Georgetown-affiliated *Encyclopedia of Bioethics*, set out authoritatively to settle increasingly contentious claims about who coined the term “bioethics.” In a pair of articles that were published in another Georgetown publication, the *Kennedy Institute of Ethics Journal*, Reich not only demonstrated conclusively that it was Potter who had naming rights, but suggested that, in 1971, it was the founders of Georgetown’s Kennedy Institute for the Study of Human Reproduction and Bioethics, and its Center for Bioethics, who, after being exposed to the word, may have either consciously or unconsciously appropriated it as their own.<sup>48</sup>

“It is noteworthy that the dominance of the Georgetown over the Potter idea of bioethics,” observed Reich in 1995, “was accompanied by a failure on the part of the scholars of the first group to acknowledge the pioneering role of Van Rensselaer Potter in coining and publishing the word ‘bioethics,’ repeatedly promoting the establishment of a new field of bioethics, and contributing scholarly writings to the area of the ethics of environmental health.”

One notes, for example, that a number of the significant, early publications on the meaning, scope, and/or origins of the field of bioethics fail even to mention Potter's role. These include foundational, first-of-a-kind works by Reich (1978), Callahan (1973), Walters (1975), Beauchamp and Walters (1978), and Fox (1990), where one might have expected such an acknowledgement. The omission may be attributable to the authors' vague and confused impressions about the precise origin of the word and to the

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<sup>48</sup> Warren T. Reich, “The Word ‘Bioethics’: Its Birth and the Legacies of Those Who Shaped It.” *Kennedy Institute of Ethics Journal* 4 (1994), 319-35 and Warren T. Reich, “The Word ‘Bioethics’: the Struggle Over Its Earliest Meanings” *Kennedy Institute of Ethics Journal* 5, no. 1 (1995), 19-34.

attitude that they were contributing to a field that was totally different from Potter's. Yet, by contrast, it is remarkable how frequently foreign-language introductions to and surveys of bioethics begin with an acknowledgement of the founding role of Potter.<sup>49</sup>

In an unpublished interview with Reich, Potter explained that he came up with the word "bioethics" after he learned his planned title *Biology and the Bridge to the Future* was too similar to another book that was coming out. (Potter told Reich only that he thought it was a book by the unnamed president of the National Academy of Sciences. I believe the book was *Biology and the Future of Man*, edited by NAS president Philip Handler.<sup>50</sup> In 1966, the National Academy of Sciences' Committee on Science and Public Policy appointed a Survey Committee on the Life Sciences to address the "state of the art" in the life sciences. Twenty-one scientific panels made up of authorities in specific disciplines, as commissioned by the survey committee, endeavored to provide a "pithy summary" of the status of each life science subfield. Their efforts, presented as a series of essays and reports, were collected and published in 1970 as *Biology and the Future of Man*. Potter had several good friends on the panels, and he might well have learned of the forthcoming volume's name from one of them.

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<sup>49</sup> Warren T. Reich, "The Word "Bioethics": The Struggle Over Its Earliest Meanings," *Kennedy Institute of Ethics Journal* 5, no. 1, (March 1995), 23-24.

<sup>50</sup> Philip Handler, ed. *Biology and the Future of Man*, (New York: Oxford University Press, 1970). For background on the book, see "Book Reviews: Biology and the Future of Man," *Science* 169 no. 3947 (21 August 1970): 752-753.

"As to the question what led me to coin the term 'bioethics,' I can only say that 'Necessity is the mother of invention,'" Potter told Reich. "As I mentioned to you, the title I wanted to use for the book had been coopted by someone else. The word 'bioethics' just came to me. It was just a Eureka<sup>51</sup> feeling. I walk to and from work every day. One day I was walking home and pulled out an envelope and wrote it down."

Reich was struck by the difference in the imagery used in Potter's account, and that used by Sargent Shriver, who also laid claim to coining bioethics. "Professor Potter's description of his 'Eureka experience' in coining the term suggests a real breakthrough, whereas Shriver's self-effacing comment that inventing the term was as easy as falling off a log does not highlight (but neither does it rule out) imaginative inventiveness."<sup>52</sup>

"A science of survival must be more than science alone," Potter explained in introducing the word in *Perspectives in Biology & Medicine*, "and I therefore propose the term "bioethics" in order to emphasize the two most important ingredients in achieving the new wisdom that is so desperately needed: biological knowledge and human values . . . . Man's survival may depend on ethics based on biological knowledge, hence bioethics."<sup>53</sup> The proposal of new terminology

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<sup>51</sup> Reich's notes do not punctuate "Eureka;" however in Potter's published writings he commonly writes it this way: "Eureka! experience."

<sup>52</sup> Reich, "The Word "Bioethics": 326.

<sup>53</sup> Van Rensselaer Potter, "Bioethics: The Science of Survival," *Perspectives in Biology & Medicine* 14, no.1: 127–53.

seemed commonplace to Potter. As he observed back in 1962, in the course of his career he had “seen terminologies change from biochemical genetics to molecular biology, from cell regulation to negative feedback and repression....”<sup>54</sup>

The word biology itself, as Potter doubtless knew, had evolved from the Greek word *bios*, "life" and the suffix *-logia*, "study of." The Latin form of the term first appeared in 1736 when Carl Linnaeus used *biologi* in his *Bibliotheca botanica*. It underwent several significant iterations before the term came into its modern usage with the six-volume treatise *Biologie, oder Philosophie der lebenden Natur* (1802–22) by Gottfried Reinhold Treviranus, who defined biology (biologie) as the doctrine of life, the scientific study of which concerned “the different forms and manifestations of life, the conditions and laws under which these phenomena occur, and the causes through which they have been effected.”<sup>55</sup>

Reich’s notes indicate his understanding that Potter came to the attention of Prentice-Hall, the eventual publisher of *Bioethics: Bridge to the Future* when editor Carl P. Swanson<sup>56</sup> heard Potter’s address at South Dakota State College.

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<sup>54</sup> Van Rensselaer Potter, “Bridge to the Future: The Concept of Human Progress,” *Land Economics* 38, no. 1 (1962): 7. Throughout his career Potter would be comfortable coining his own words and phrases, including “homogenate,” (1936) and “ontogeny is blocked ontogeny” (1978).

<sup>55</sup> See Robert J. Richards, *The Meaning of Evolution: The Morphological Construction and Ideological Reconstruction of Darwin's Theory*, (Chicago: University of Chicago Press, 1992.): 17, 18, 45-46; David Cahan, ed., “From Natural Philosophy to the Sciences : Writing the History of Nineteenth-century Science,” (Chicago: University of Chicago Press, 2003):17,18.

<sup>56</sup> In addition to his work with Prentice-Hall, Swanson was on the Johns Hopkins faculty from 1946-1971, where he served as professor of biology and dean of

While this is possible, I think it is unlikely.<sup>57</sup> Instead, I think a clue can be found Swanson's 1983 book *The Dual Informational Sources of Human Evolution*, where Swanson writes, "The genesis of this volume can be traced back some eighteen years to my reading of an article by V. R. Potter (1964) in *Science*, in which he discussed briefly the notion that ideas are the cultural analogue of DNA, that is, that ideas are the source of cultural information as well as the basic units of cultural information."<sup>58</sup> Swanson goes on to note that he had begun to put his own lecture material together for a book (published in 1973 as *The Natural History of Man*,<sup>59</sup>the "lecture material as book" approach may well have informed the structure of *Bioethics: Bridge to the Future*.) "Potter's point of view continued to intrigue me, and although I had dealt with the problem only briefly and rather

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undergraduate studies, In 1971 he joined the staff of the botany department at the University of Massachusetts, Amherst, where he remained until his retirement in 1981. "Carl P. Swanson, 86, former biology professor," *Baltimore Sun*, 4 October 1996.

In *Silent Spring*, Rachel Carson quotes at length from Swanson's personal philosophy of science: "Any science may be likened to a river. It has its obscure and unpretentious beginning; its quiet stretches as well as its rapids; its periods of drought as well as of fullness. It gathers momentum with the work of many investigators and as it is fed by other streams of thought, it is deepened and broadened by the concepts and generalizations that are gradually evolved." Carl P. Swanson, quoted in Rachel Carson, *Silent Spring: 40<sup>th</sup> Anniversary Edition* (Boston: Houghton Mifflin (Mariner Book), 2002): 279.

<sup>57</sup> Having conducted literally thousands of interviews over the course of my own career, I am aware of, and sympathetic to, the interviewer/interviewee disconnect that can occur in the exchange of information. The information the interviewee intends to convey and what is conveyed are not always the same.

<sup>58</sup> Carl P. Swanson, *The Dual Informational Sources of Human Evolution*, (Amherst: University of Massachusetts Press, 1983): ix.

<sup>59</sup> Carl P. Swanson, *The Natural History of Man*, (Englewood Cliffs, NJ: Prentice-Hall, 1973).

casually, I coined the term sociogene to identify those ideas that, maturing into shared concepts and interacting with the expressed information encoded in DNA, led to the emergence of the human phenotype with which we are all familiar. I still find the term appropriate.”<sup>60</sup>

The founding of the Institute at Georgetown seems to reflect the convergence of three separate visions: that of the Shrivvers, who desired to have significant influence on federal legislation and funding regarding issues concerning human reproduction and mental retardation; Andre Hellegers, whose "wider view" of a value-filled vision of a bioethics that was “self-consciously interdisciplinary” integrated and gave meaning to what “otherwise was disparate, precarious, and conflicting”<sup>61</sup>; and the wish of Georgetown President Robert Henle to expand the prestige and influence of what was then a second-rate University by positioning it as the go-to institution for federal legislative information and support. A word that was elastic enough to accommodate all these visions is hard to come by. No wonder a grab was made for “bioethics.”

Reich took note of the fact that the word “bioethics” does not appear in any documents relating to the establishment of the proposed Kennedy Institute until it appeared in a letter dated June 21, 1971, just ten days before the

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<sup>60</sup> Swanson, *The Dual Informational Sources of Human Evolution*,: ix. Swanson goes on to lean on Potter to justify coining sociogene, “add[ing] another term to the literature.”: 109.

<sup>61</sup> Warren T. Reich, “The ‘Wider View’: André Hellegers's Passionate, Integrating Intellect and the Creation of Bioethics,” *Kennedy Institute of Ethics Journal* 9, no.1 (1999), 25.

Institute's opening on July 1, 1971. This discovery enabled Reich to narrow down the window when the word "bioethics" apparently emerged and was attached to the new Institute to some time between March 8 and June 21, 1971.

"I then discovered that precisely during those weeks in spring 1971, the word "bioethics" appeared in the national media—probably for the first time—in a prominent collection of articles in the April 19, 1971, issue of *Time* magazine titled 'Man Into Superman: The Promise and Peril of the New Genetics.'", Reich wrote. "That issue of *Time*, which was widely read by those of us who were interested in the ethics of the "new medicine"—and which quoted the leading scientists and prominent ethics scholars of the time—included the word "bioethics" in a paragraph that began: 'Cancer Researcher Van Rensselaer Potter of the University of Wisconsin has suggested in a new book, *Bioethics*, that..."<sup>62</sup> Reich also discovered a letter from Eunice Kennedy Shriver to her brother, Massachusetts Senator Edward M. Kennedy, dated June 25, 1971, which indicated she was familiar with that issue.<sup>63</sup> "My conclusion, therefore, is that it is quite possible that Potter's word "bioethics" influenced the development and use of the term at Georgetown."<sup>64</sup>

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<sup>62</sup> Reich, "The Word 'Bioethics': Its Birth and the Legacies of those Who Shaped It," *Kennedy Institute of Ethics Journal* 4, no. 4 (December 1994), 325.

<sup>63</sup> Reich, "The Word 'Bioethics'," 328.

<sup>64</sup> In 2011, the Kennedy Institute of Ethics attempted to address the issue without attributing authorship to Potter: "Forty years ago, bioethics was only just beginning to shape up as a field: a 1971 *Time* magazine article brought the newly coined expression, 'bioethics', to the attention of popular audiences who were already beginning to wonder



Reich also found that he “could not rule out the possibility that André Hellegers, during one of his all-night reading sessions, might have read Potter’s 1970 article [in *Perspectives in Biology & Medicine*] or scanned Potter’s book which appeared about six weeks later.”<sup>65</sup> Indeed, I believe it is quite possible Hellegers read Potter’s article in *PBM*. He was a known reader of the journal; in a February 23, 1973 op-ed piece in the Georgetown student paper, the *Hoya*, he cited E.J. Murphy’s article, “A Scientific View of Normalcy,” which appeared in the Spring 1966 issue of *Perspectives*, and suggested “students and faculty should read and ponder” it.<sup>66</sup>

It’s really not surprising that Hellegers would be a *PBM* reader. In certain circles *Perspectives in Biology & Medicine* was not – indeed is not now – as obscure a publication as one might think. As bioethicist Arthur Caplan explained in an oral history interview with Judith Swazey and Renée Fox in 1997, “Over here, there’s this funny, odd journal [*Perspectives in Biology & Medicine*].... There was this sort of elite that culturally conversed. The average doc didn’t even know it existed. But it’s there. It’s playing a role, never credited in sociological or

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about how advances in medicine and technology would impact their lives -- and potentially change what it means to be human. What sorts of moral reflection would be required in the face of life-extending technologies, environmental challenges, new reproductive technologies, and resource scarcity? It is precisely at this moment -- October 1971, in fact -- when the Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics (now, the Kennedy Institute of Ethics) was created.” As of April 2014, this explanation remains prominently displayed on the KIE website. <https://kennedyinstitute.georgetown.edu/about/news/kie40th-hist.cfm.html>.

<sup>65</sup> Reich, 326.

<sup>66</sup> André Hellegers, “Rostrum,” *Hoya*, 23 February 1973: 4.

historical accounts of bioethics, but it's there doing something.” To which Renée Fox added: “I think it has to be seen in terms of something which I think is missed in most accounts of bioethics: not just the New York City intelligentsia, but also the Chicago intelligentsia, and [that’s] very important ... Most bioethicists are so eastern, and I don't think that they ever quite acknowledged that Chicago is... very important ...”<sup>67</sup>

Reich speculates that if Hellegers had encountered Potter’s word, bioethics, he might have used it, “in his characteristically fleeting style in one of his many daily conversations with Mr. Shriver and sometime later, Mr. Shriver, believing he originated the word, may actually have been recalling it from his own unconscious memory.”<sup>68</sup>

It does not appear that Shriver was amenable to this hypothesis. As the years went by, the Shrivens became more adamant that Sargent Shriver<sup>69</sup> had

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<sup>67</sup> Acadia Institute Project on Bioethics in American Society, Interview with Arthur L. Caplan; Judith P. Swazey; Renée C. Fox, 15 October 1997.

<sup>68</sup> Reich, “The Word “Bioethics,” 326.

<sup>69</sup> An interesting look at how Shriver envisioned the subject matter of the new institution can be inferred from a letter he sent Nobel laureate James Watson on July 6, 1971, in an effort to convince him to participate in the Kennedy Foundation’s upcoming “Choices On Our Conscience” symposium, an event being held in conjunction with the formal launch of the Kennedy Institute. “I...reemphasize that the tidal wave of uninhibited scientific and medical research must be confronted. No one can do that as well as basic scientists themselves. It is helpful for the likes of [futurist] Herman Kahn or [theologian] Paul Ramsey to inveigh against the processes of an unrestrained, technological manifest destiny, but their disciplines are discounted in the scientific world. For the purposes of our conference, moreover, we certainly don’t want to leave the field to Professor Edwards and Dr. Steptoe [Patrick Steptoe and Robert G. Edwards were working to develop in vitro fertilization; Louise Joy Brown, the first “test-tube” baby, would be born on July 25 1978] We must have a confrontation. No one is more qualified

originated the word. In the course of his research, Reich discovered an “unexpected” 1978 memo in which Eunice Kennedy Shriver wrote: “I can remember in the living room one evening, Sarge came up with the phrase, ‘bioethics.’ André Hellegers was there, and so were some others. We immediately latched on to that.”<sup>70</sup> Reich does not speculate as to what prompted Eunice Kennedy Shriver to document in 1978 her version of the coining of the word. It would be interesting to know if she was responding to a challenge to Shriver’s authorship. Reich then turned to Sargent Shriver to confirm the accuracy of his wife’s memos: “The reality of it is that none of us had even heard of Potter or his book...I was not familiar with the word, ‘bioethics.’”<sup>71</sup>

Reich also questioned Robert E. Cooke, scientific adviser to the Joseph P. Kennedy, Jr. Foundation and a close personal friend of Sarge and Eunice Kennedy Shriver. “Dr. Cook informed me that he had met Potter for the first time at the University of Wisconsin in 1973 or 1974. Potter told Cooke that he (Potter) had originated the word ‘bioethics.’ Cooke commented to me: It was the first time I had heard the word used in any sense than the sense used at the Kennedy Institute....Sarge, not Andre Hellegers, coined the term. Nobody connected with

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to speak in this area than you....I am sure that Senator Mondale and Dr. Knowles are only a few of the persons who would urge you to come. I guess I can only support their position by saying there are 100 million human beings, born and unborn, who depend upon intellectual and scientific leaders like yourself to make a super-human effort when stakes are so high.” Sargent Shriver to James D Watson, 6 July 1971, CSHL Archives Repository, James D. Watson Collection.

<sup>70</sup> Reich, “The Word “Bioethics,”” 325

<sup>71</sup> Reich, “The Word “Bioethics,”” 325.

the Shrivvers Knew of Potter's term....I can say with great certitude that I did not have any awareness of the Potter term 'bioethics'."72 It is true that Cooke served a comparatively brief, tumultuous term as vice chancellor for health sciences at the University of Wisconsin–Madison in the mid-1970s, and he and Potter did interact professionally during that period.73 However, I have discovered information that suggests Cooke's account may not be entirely accurate, and that he quite possibly was aware of both Potter and his word much sooner. In a paper Potter delivered at a conference on "The Social Responsibilities of Scientists," held at the New York Academy of Sciences in November 1971, he took note of the symposium, "Choices on Our Conscience," that was held in conjunction with the formal opening of the Kennedy Institute. In "Bioethics for Whom?" Potter discussed a post-symposium "call to action" issued by about 20 concerned

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<sup>72</sup> Reich, "The Word "Bioethics", 333, note 11.

<sup>73</sup> See Van Rensselaer Potter, "The Morality of Benevolent Intervention," *Wisconsin Medical Alumni Quarterly* 18, no. 2. "I have had occasion to discuss the problem of medical ethics in medical education with Dr. Cooke," Potter wrote. "In his opinion, and in mine, casual and informal ethical training will no longer suffice for the medical student. Instead a formal presentation of the principles involved." There is no indication that Cooke ever acknowledged Potter's authorship of the word bioethics, despite the fact that he had significant interactions not only with Potter but others at the McArdle Lab who knew history of Potter's bioethics. During his comparatively brief and apparently contentious tenure as Vice Chancellor for Health Sciences at Wisconsin from 1974-77, (during which time Cooke also served on National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. Although he was not on the Commission when it produced its report *Research on the Fetus* – an interest of both himself and the Shrivvers – he was on the iteration of the Commission that issued the *Belmont Report*) his relationship with mild-mannered Howard Rusch, former director of McArdle Laboratory and founding director of the new UW Clinical Cancer Center, suggests that Cooke did not always acknowledge or respect the expertise of others. See, for example, Rush, *Something Attempted, Something Done*, 189, 192, 200.

participants. “They called for informed inquiry ‘to explore the options which growing knowledge of man’s biology and of human society have made possible, and to consider the standards and the legal and social framework by which the choice among these options should be guided.’”<sup>74</sup> In the printed version of Potter’s talk, the footnote next to this sentence reads, “COOKE, R.E. Choices on Our Conscience. A call to action from the Kennedy International Symposium on human rights retardation and research. Dated October 20, 1971. Personal Communication.”<sup>75</sup>

How could Potter have learned of the Kennedy Symposium, and the appropriation of his word by the founders of the new Institute, so quickly? While I can offer no concrete proof, I can offer some extremely well-founded speculation. Among the panel section chairs was William D. McElroy<sup>76</sup>, director of the National Science Foundation<sup>77</sup>. McElroy, a biochemist, had known Potter at least as far

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<sup>74</sup> Van Rensselaer Potter, “Bioethics for Whom?,” 205.

<sup>75</sup> Van Rensselaer Potter, “Bioethics for Whom?,” 205, note 2.

<sup>76</sup> McElroy chaired a panel entitled “Fabricated Babies: The Ethics of New Technologies in Beginning Life.”

<sup>77</sup> At the time of his death in 1999, McElroy was a professor emeritus at the University of California, San Diego, having served as its chancellor from 1972 to 1980. Prior to coming to California, he was on the faculty at the Johns Hopkins University, where from 1946 until 1969 he was the founding director of the McCollum-Pratt Institute, (named in part for University of Wisconsin agricultural chemist Elmer Verner McCollum, famed for his Wisconsin work with fat soluble vitamins and infamous for allegedly letting all of the rats out of their cages when he left in a snit for Johns Hopkins in 1917) and from 1956 to 1969 the chairman of the biology department. J. Woodland Hastings, “William David McElroy January 22, 1917–February 17, 1999,”: 165-183 in *Biographical Memoirs*, Washington DC: National Academies Press (2004).

back as 1958, when they each chaired one of three sections at a symposium on “Subcellular Particles” held during a meeting of the Society of General Physiologists held at Woods Hole.<sup>78</sup> More importantly, though, since 1958 McElroy was, with Carl P. Swanson, editor of Prentice-Hall’s acclaimed Foundations of Modern Biology Series. As previously indicated, Swanson himself was editor of Prentice-Hall’s Biological Science Series, the imprint that brought out Potter’s *Bioethics: Bridge to the Future*<sup>79</sup> in January 1971. It is reasonable to suppose that McElroy took special note of the “new word, bioethics” allegedly coined by the Kennedy founders, and passed the information to Potter. Very probably they discussed whether a clarifying response was appropriate, which suggests that the October 20 “personal communication” from Cooke was a response to a letter or call from Potter.

Is Shriver’s claim that the “reality of it is that none of us had even heard of Potter or his book...” legitimate? There is ample evidence elsewhere that, despite his protestations to the contrary, Sargent Shriver may well have encountered Potter prior to the emergence of the word “bioethics” into the

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<sup>78</sup> *Subcellular Particles*, Teru Hayashi, ed., (New York: Ronald Press Company, 1959).

<sup>79</sup> Potter references both McElroy and Swanson in *Bioethics: Bridge to the Future*: McElroy with regard to paradigms in mechanistic biology, especially as elucidated in McElroy’s 1971 *Cell Physiology and Biochemistry*, 3<sup>rd</sup> ed., a publication in the Prentice-Hall Foundations of Modern Biology Series Foundations [13 (28)] and a personal communication regarding the rate of population growth to economic growth, and the implications for the war against poverty and famine [71 (740)]; Swanson in reference to his 1969 book *The Cell*, another publication in the Prentice-Hall Foundations of Modern Biology Series [13 (28)].

contemporary lexicon.

From the beginning of the establishment of what would become the Joseph P. Kennedy, Jr. Foundation, Joseph P. Kennedy, Sr. had been interested in funding schools and homes for children with mental retardation. However it was not until the late 1950s, when Eunice Kennedy Shriver and her husband Sargent began to assume more responsibility for the Foundation's direction that significant attention was directed towards public policy and scientific research to benefit the mentally retarded. Sometime in the spring of 1958, Joe Kennedy asked his daughter and son-in-law to take responsibility for organizing a research program for the Foundation on the cure of mental retardation. As it was envisioned, the program would be sited in universities. The Shrivens went about educating themselves about the scientific aspects of mental retardation and assembling a team of expert advisors.

The first two programs the Shrivens decided to fund were a laboratory for mental retardation research at Harvard University-affiliated Massachusetts General Hospital and a center for such research at the University of Wisconsin.<sup>80</sup> The University of Wisconsin made sense for a number of reasons. At the time the Shrivens were living in Chicago, less than a three-hour drive from Madison.

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<sup>80</sup> One-time Kennedy foundation advisor, pediatric neurologist Jerome Schulman, "put it more snidely but in language Joe Kennedy might have appreciated. Writing on the subject of Sarge's simultaneous negotiations with the University of Wisconsin, Schulman said, 'It appears to me that what we are 'buying' in this instance is quite different than in Massachusetts General. At Massachusetts we bought a man; that is Ray Adams [Raymond Adams, who came to MGH in 1951 as chief of neurology]. In Wisconsin we are 'buying' a medical school.'" Edward Shorter, *The Kennedy Family and the Story of Mental Retardation*, Philadelphia: Temple University Press (2000): 71.

Eunice Kennedy Shriver's older sister, Rosemary Kennedy, whose intellectual impairments were further aggravated by a failed pre-frontal lobotomy, lived in custodial care at St. Coletta School for Exceptional Children in Jefferson, Wisconsin.<sup>81</sup> Finally, and no less importantly, Dr. Harry Waisman was doing pioneering research at the University of Wisconsin on a treatable cause of mental retardation, PKU disease, an inborn error of metabolism that results in the brain-damaging build-up of phenylalanine and its derivatives

The foundation's initial gift of \$225,000 to the University was made official on April 27, 1961, when Sargent Shriver presented a check to "University officials, with the attorney general and other state officials on hand."<sup>82</sup> In a UW press release, Eunice Kennedy Shriver noted that the gift, in support of the first stage of mental retardation research under the direction of Henry Waisman, represented a developmental shift in the efforts of the Kennedy Foundation. "For some time now, our foundation efforts were directed to providing custodial institutions and hospitals for those already afflicted," Kennedy Shriver explained. "However, we are convinced that there must be...efforts to determine the causes of mental retardation. If this is accomplished, then developing methods of

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<sup>81</sup> Shorter, *The Kennedy Family and the Story of Mental Retardation*, Philadelphia: 20-34, 41.

<sup>82</sup> University of Wisconsin News Service, "U.W. News Press Release," 27 April 1961, 1.



treatment will be far less difficult.”<sup>83</sup>

Potter and Waisman were among Conrad Elvehjem’s very first graduate students and, in the account of his widow, among his favorites<sup>84</sup> (when he died unexpectedly in 1962, she asked the men to be two of her husband’s pallbearers.<sup>85</sup>) Potter and Waisman served on several University committees together, and Potter participated in at least one Waisman-chaired symposium with relevance to the causes of mental retardation.<sup>86</sup> When it came to the Wisconsin grant, Shriver was a very hands-on donor.<sup>87</sup> None of this proves contact, however, only opportunity.

During John F. Kennedy’s primary and general election bids for the presidency in 1960, Sargent Shriver, with an able assist from his wife Eunice,

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<sup>83</sup> University of Wisconsin News Service, “U.W. News Press Release,” 27 April 1961, 1.

<sup>84</sup> University of Wisconsin-Madison Archives, Oral History Project, Constance W. Elvehjem, Interview # 259, 1983.

<sup>85</sup> “Elvehjem...the Man.” *Wisconsin Alumnus* (October 1962): 11.

<sup>86</sup> In September, 1958, Waisman was the program chair for an international two-day symposium on Amino Acid and Protein Metabolism, targeting pediatricians and pediatric researchers. Potter was listed as “either” a speaker or discussion leader. U.W. News, Press Release, 29 August 1958. Earlier that year, Waisman and Potter were among the Medical School faculty members slated to be interviewed when a group of science writers, sponsored by the American Cancer Society, visited the University of Wisconsin. “Medical Center Activities,” newsletter, University of Wisconsin Medical School, 28 March 1958:1.

<sup>87</sup> To the occasional irritation of Wisconsin president Fred Harvey Harrington. “The Shrivens push us to get maximum publicity; they are impatient,” Harrington wrote his assistant, Robert Taylor, in late 1962. “I have told Waisman he should resist the efforts of the Kennedy Foundation to publicize their non-Wisconsin projects.” Fred Harvey Harrington to Robert Taylor, 4 December 1962.

was a political and organization coordinator in charge of several significant Wisconsin congressional districts, including the crucial 2<sup>nd</sup> district, which contained Madison.<sup>88</sup> Potter had recently become active in local politics, and he had friends working on the Kennedy campaign. A good political operative has a mind like a glue trap when it comes to remembering potentially useful names – and Sargent Shriver certainly had one of those. Still, as of yet no proof the two men met during the campaign has been discovered.

However, during the last week of January in 1961, Massachusetts General Hospital celebrated its 150<sup>th</sup> anniversary.<sup>89</sup> According to documents in the Massachusetts General Hospital archives, Sargent Shriver, acting on behalf of the Kennedy Foundation, had personally vetted nearly every detail of the festivities, including the invited speakers and the “To Heighten the Hope of Man” dinner. The newly inaugurated President John F. Kennedy taped a congratulatory interview with *Today* show host Dave Garroway, for broadcast on

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<sup>88</sup> See Scott Stossel, *Sarge: The Life and Times of Sargent Shriver* (Washington, DC: Smithsonian Books, 2004):142-168; Gary Donaldson, *The First Modern Campaign: Kennedy, Nixon, and the Election of 1960*, (Lanham, MD: Rowman & Littlefield Publishers, 2004):Chapter Four; John Nichols, “How Sargent Shriver Helped John Kennedy Become a Liberal,” *The Nation*,( 20 January 2011) <http://www.thenation.com/blog/157887/how-sargent-shriver-helped-john-kennedy-become-liberal>.

<sup>89</sup> The hospital did not open until 1821. However, MGH administrators, concerned that other area hospitals were gearing up to launch major capitol campaigns, decided to get the jump on them by recognizing the authorization of the state legislature in 1811 to build a General Hospital and an Asylum for the Insane (the actual construction was delayed by the War of 1812.)

January 31.<sup>90</sup><sup>91</sup> The Shrivvers were on hand, representing both the President and the Kennedy Foundation, which announced that it would be donating \$1 million to the hospital to establish the Joseph P. Kennedy, Jr. Memorial Laboratories for Mental Retardation. Both the *Boston Globe* and the *Boston Herald* carried lengthy stories about the celebration. According to the *Globe* account, Van Rensselaer Potter was a featured participant on a panel on “Frontiers in Cancer,” where he explained that “enzymatic control mechanisms seem to be missing in cancer cells,”<sup>92</sup> while the *Herald* noted that Potter, “a cancer researcher...seeking a clear-cut biological difference between malignant and non-malignant cells,” said the transition from normal cells takes place in successive steps that may take days or years.<sup>93</sup> Both the *Globe* and *Herald*, in their February 1, 1961

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<sup>90</sup> It was the first time a sitting president had appeared on a regularly scheduled television program. Stephen Battaglio, *Yesterday to Today: Six Decades of America's Favorite Morning Show* (Philadelphia: Running Press: 2012): 55.

<sup>91</sup> While the creation of a number of new facilities were announced during the festivities, including housing for new programs in radiation therapy and diagnostic radiology, the President's remarks focused on mental retardation and his family's efforts at MGH. “My family has been particularly interested in one kind of research,” Kennedy told Garroway, “and we now have at the hospital a center for research into the causes of mental retardation of children. This center is going to begin building as soon as the snow is off the ground.” John F. Kennedy: “Interview With Dave Garroway Recorded for the 150th Anniversary of the Founding of Massachusetts General Hospital,” 31 January, 1961. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. <http://www.presidency.ucsb.edu/ws/?pid=8078>. Also Herman D. Suit and Jay S. Loeffler, *Evolution of Radiation Oncology at Massachusetts General Hospital*, (Springer, 2011): 36, 37.

<sup>92</sup> Ian Menzies, “Doctor's Humor at MGH Rocks Solemn Conclave,” *Boston Globe*, 1 February 1961, 1, 2.

<sup>93</sup> Noah Gordon, “Possible Cancer Cure Told: Chemical Control Described Most Promising Path,” *Boston Herald*, 1 February 1961:1,9 Potter had to share the *Herald's* front page with Ham, the astronaut chimp, who despite being shot “too high and too far,”

editions featured a large photograph of some of the scientists who had been asked to speak, including Potter.<sup>94</sup>

It is difficult to believe that Shriver, involved as he was in the event planning, was unaware of Potter before he met him at the anniversary celebration. It is nearly impossible to believe Shriver wouldn't remember him afterwards. Already it was apparent that Kennedy would face a tough re-election bid in 1964; Shriver would need every friend he could find in Wisconsin – especially a locally prominent professor and citizen activist.

### **Who Was On First – How, and Why?**

The failure to recognize Potter's bioethics has often been justified with claims that the articulation of his bioethics was an obscure academic exercise that had never been successfully deployed. However, the evidence suggests otherwise, and supports the claim that well in advance of Georgetown's appropriation of the term bioethics Potter's bioethics had been widely and successfully deployed, not only with *Bioethics: Bridge to the Future* but through *Perspectives in Biology & Medicine*, AAAS, and possibly other, as yet undiscovered, outlets.

If they were at all so inclined, the scholars at Georgetown did not have far

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had been plucked from the Atlantic unharmed. AP, "Too High, Too Far: Chimp Safe Despite Space Overshoot," *Boston Herald*, 1 February 1961: 1.

<sup>94</sup>Photo Caption, "Cancer Research Was Described Yesterday at MGH," *Boston Herald*, 1 February 1961:9; Photo Caption, "Participants in MGH Symposium," *Boston Globe*, 1 February 1961:21.

to look. On September 29, 1971, the Hagerstown, Maryland *Daily Mail* announced that “Junior College Speakers Bureau Provides Lecturers Free of Charge.” Among the Hagerstown Junior College faculty and staff members volunteering their speaking services to civic and community groups was biology professor William D. Elliot, who “lists topics that concern bioethics and a biologists’ view of ecology.”<sup>95</sup> (More than a year later, Elliot would still be at it, addressing the members of the Hagerstown YMCA Ecology Club on “the subject of ‘Bioethics’.”<sup>96</sup>)

But it was happening even farther north. On September 14, 1971, the *Gettysburg Times* carried an interview with Dr. Neil Beach, chair of the Biology Department at Gettysburg College in Gettysburg, Pennsylvania. Beach – a “citizen-professor-scientist,” as the paper called him – talked about his interest “...in a field called bioethics.” While historically the scientific community had been “insensitive to their surroundings with little thought for the common good,....morality” had now become “very much a part” of the scientific process – and with good reason. “Science has developed so much knowledge and facts that we haven’t developed the wisdom it takes to handle them,” Beach

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<sup>95</sup> Unbylined, “Junior College Speakers Bureau Provides Lecturers Free of Charge,” *Daily Mail*, Hagerstown, MD, 29 September 1971: 36.

<sup>96</sup> Unbylined, “Ecologists to Study Bioethics,” *Daily Mail*, Hagerstown, MD, 11 December 1972:18.

explained.<sup>97</sup> Clearly something was happening, and it had nothing to do with the Kennedy Institute.

The *New York Times* appears not to have covered the founding of the Kennedy Institute; indeed no mention of the word “bioethics” appears in the *Times*<sup>98</sup> until March 5, 1972, when, ironically, it appeared in a Sunday magazine article by Willard Gaylin, co-founder of what the *Times* indexed as the “Institute of the Bioethics and the Life Sciences, Hastings-on- Hudson, N.Y.” (later the Hastings Center.)<sup>99</sup> The word does not appear in the *Times* again until January 16, 1973, when *Times* ran excerpts from “research scholar at the Kennedy Center for Bioethics at Georgetown University,” Warren Reich’s, congressional testimony.<sup>100</sup> After a flurry of coverage of events related to the founding of the Institute<sup>101</sup>, the *Washington Post* appears not to have engaged the word

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<sup>97</sup> James Kalbaugh, “Dr. Neil Beach, Chairman at Biology Dept., Sees Important Links among History, Ecology,” *Gettysburg Times*, Tuesday, 14 September, 1971: 6,7. Rather unusually, Kalbaugh’s byline identifies him as a “public information officer.” This issue of the *Gettysburg Times* contains a significant number of “Welcome Back Students” ads; presumably the college lent its public information officer to the *Times* in order to help supplement its back to school coverage.

<sup>98</sup> Electronic searches of newspaper archive databases are notoriously unreliable. That said, I am reasonably confident that, having done multiple searches with various combinations of key words, I caught most, if not all, references to ‘bioethics’.

<sup>99</sup> Willard Gaylin, “We Have the Awful Knowledge to Make Exact Copies of Human Beings; The Frankenstein Myth is Real,” *New York Times Sunday Magazine*, 5 March 1972.

<sup>100</sup> Warren T. Reich, “Dignity in Death and Life; The Art of Dying: II,” *New York Times*, 16 January 1973.

<sup>101</sup> Stuart Auerbach, “GU to Study Medicine’s Life and Death Decisions,” *Washington Post*, 2 October, 1971: A1-A2; Betty Medsger, “Panel Seeks Study Of Medical Ethics,” *Washington Post*, 21 October 1971: H2; Maxine Cheshire, “A Lesson

“bioethics” again until 1973, when debates over fetal research heated up<sup>102</sup>.

In the final understanding, the rapid dissemination of the Georgetown understanding of bioethics appears to have far less to do with Kennedy charisma and cash, or even Georgetown prestige, than it did with the largely unheralded efforts of a small news service called Editorial Research Reports.

The Washington, D.C. based Editorial Research Reports was co-founded by Richard M. Boeckel and Bertram Benedict in 1923. “As a young Capitol Hill correspondent for the *New York Tribune* covering the League of Nations debate after World War I,” Editorial Research Reports’ successor publication, *CQ Researcher* explains, “Boeckel realized how little he and his fellow reporters knew about the background of the issues they were following. Because of that “guilty conscience,” as he called it, he enlisted two veteran Washington newsmen, Burt P. Garnett and Homer Dodge, to help him establish *Editorial Research Reports*. With the first weekly issue, dated September 1, 1923, [it] began providing in-depth reports on important issues of the day to subscribing newspapers, primarily for the benefit of editorial writers.”<sup>103</sup>

As the *Charlotte News* explained in 1940, “To our desk regularly come –

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About Gratitude,” *Washington Post*, 24 October 1971: E1, Betty Medsger, “Clergymen Are Being Added to U.S. Medical School Staffs,” *Washington Post*, 1 January 1972: A10.

<sup>102</sup> Victor Cohn, “Live-Fetus Research Debated,” *Washington Post*, 10 April 1973: A1-A2; Victor Cohn, “Scientists and Fetus Research,” *Washington Post*, 15 April 1973: A1-A2.

<sup>103</sup> *CQ Researcher*, <http://photo.pds.org:5012/cqresearcher/static.php?page=about>.

for a consideration – the releases of Editorial Research Reports, 1013 Thirteenth Street, N. W. Washington, D.C. – an outfit devoted to the job of making the lives of editorial writers somewhat more bearable by digging up information for them on the questions and the personalities of the times.”<sup>104</sup> In 1956 *Congressional Quarterly* purchased Editorial Research Reports, continuing its tradition of “Timely Reports to Keep Journalists, Scholars, and the Public Abreast of Developing Issues, Events.” In the early 1970s, however, Editorial Research Reports was grinding out material for subscribing newspapers – mostly small-town newspapers or number-two newspapers in two-newspaper towns flung across America – to use to fill their editorial page hole. ERR editor William B. Dickson, a former U.S. Army Counter-Intelligence Corps and United Press International reporter, would send out op-ed columns that subscribers could use anyway they saw fit. When the press release crossed his desk, announcing not only the “Choices on Our Conscience” symposium but the establishment of the “Institute for the Study of Human Reproduction and Bioethics” at Georgetown, no doubt the seasoned editor knew he had something that would capture the attention of ERR subscribers.

The word “bioethics” is a headline writer’s dream – short, snappy, evocative – and many ERR subscribers took full advantage of it. “Anti-Life Science, Quandary of Bioethics,” ran the story in the *Northwest Arkansas Times*, who ran the item like a news account, with a “WASHINGTON (ERR)” dateline.

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<sup>104</sup> *Charlotte News*, Thursday, 1 August, 1940.



<sup>105</sup>“Bioethics Needs Study,” proclaimed the editorial in the Pasadena, California *Star-News*. <sup>106</sup>The *New Castle News* in New Castle Pennsylvania ran a staid “Bioethics Symposium”<sup>107</sup> signed editorial by William B. Dickson, Jr., while the *Ironwood Daily Globe*, Ironwood, Michigan, ran the same “Bioethics Symposium” headline without the byline credit.<sup>108</sup> “‘Bioethics’: Tall Order,” insisted the editorial page of the *Cedar Rapids Gazette*.<sup>109</sup> It is astonishing how quickly the newspapers became comfortable with this word no one had ever seen before.

Putting aside further discussion of what qualifies one to be considered an expert in ethics, bio- or otherwise, there seemed to be a marked disregard on the part of Georgetown scholars for what it takes to be considered an expert on the *subject* of bioethics. As Ellis B. Cowling pointed out at 2003, when the membership of the American Institute of Biological Sciences met to discuss *Bioethics in a Changing World*, “Potter was himself a *biomedical* [emphasis added] research scientist of considerable note.”<sup>110</sup> As such, in 1971 Potter had

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<sup>105</sup> WASHINGTON(ER), “Anti-Life Science, Quandary of Bioethics,” *Northwest Arkansas Times*, Sunday 9 October 1971:4.

<sup>106</sup> “Bioethics Needs Study,” *Star-News* (Pasadena, CA) 11 October 1971:10.

<sup>107</sup> William B. Dickson, Jr., “Bioethics Symposium,” *New Castle News* (New Castle, PA) Wednesday, 13 October 1971: 4.

<sup>108</sup> “Bioethics Symposium,” *Ironwood Daily Globe* (Ironwood, MI), Friday 8 October 1971:4.

<sup>109</sup>“‘Bioethics’: Tall Order,” *Cedar Rapids Gazette* (Cedar Rapids, IA) , Wednesday 6 October 1971:Editorial page.

<sup>110</sup> Ellis B. Cowling, “Educating the Next Generation of Biologists: The Need for Knowledge, Wisdom, and the Moral Dimension of Intelligence in the Realms of

contributed significantly more to increasing the scope and understanding of biomedicine than had some freshly minted PhDs and established theologians whose sensibilities were newly awakened by accounts in the popular press of the potential consequences of unfettered biotechnology and biomedicine. There is an odd sort of hubris – perhaps a hang-over from the Kennedy era, where the best and the brightest, as reporter turned popular historian David Halberstam sardonically called them<sup>111</sup>, spun out "brilliant planning that defied common sense" – that allowed these newcomers to confidently demarcate not only the

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Ecological and Medical Bioethics” presented during the 54<sup>th</sup> Annual Meeting of the American Institute of Biological Sciences, Washington DC, March 22, 2003. The general theme of the 2003 Annual Meeting was “Bioethics in a Changing World.” Ellis, University Distinguished Professor At-Large at North Carolina State, made his remarks as part of a panel presentation on the topic “Training the Next Generation.” The other panelists were Dr. Bruce Alberts, President of the National Academy of Sciences, Professor Richard Bochar, University of Nebraska, and Dr. David Magnus, Director of Graduate Studies at the Center for Bioethics in Philadelphia, Pennsylvania. Cowling continued his observation: “this usurpation of his original word and its long-term relevance to the survival of the human species was not a source of unqualified joy and satisfaction to Van Rennselaer Potter [sic]. In 1987, Potter wrote a gentle but firm rebuke in the same journal in which he had advanced his invention of the term bioethics seven years before: ‘Although Aldo Leopold had laid out a framework for an ecological and population-oriented bioethics of survival in his seminal essay *‘The Land Ethic’* ... and although in my articles in 1970 and in my 1971 book I had continued Leopold’s line of thought and had coined the word bioethics, there was an independent movement at Georgetown University that utilized the word bioethics and applied it exclusively to medical problems in a newly created Center for Bioethics that had no concern for *“overpopulation.”* Its director, LeRoy Walters, stated ‘bioethics is the branch of applied ethics which studies practices and developments in the biomedical fields...’ [Their] focus was on the ethics of individuals in relation to other individuals and not on Aldo Leopold’s ‘third step in a sequence.’”

<sup>111</sup> No surprise, really, that the phrase “the best and the brightest” has transmigrated into the popular lexicon as a complementary descriptive.

scope of inquiry but the credentials of the investigators.<sup>112</sup>

Potter wrote *Bioethics, Bridge to the Future*, he explained, to promote the formation of a new discipline, Bioethics, that would serve as a bridge between science and the humanities. He was quick to explain that his book was not such a bridge: “it is merely a plea that such a bridge be built.”

How did Potter understand what he was doing when he proposed the creation of a new discipline named bioethics? In their 2007 essay on disciplinary baptisms, Powell et al<sup>113</sup> suggest that understanding how scientific activities use naming stories to achieve disciplinary status is essential not only for gaining historical insight, but for evaluating current claims that new disciplines are emerging. They consider the baptismal stories of two recently formed disciplines, systems biology and genomics, with two earlier life sciences, genetics and molecular biology. Taken together the four disciplines span the 20<sup>th</sup> century, a period in which the processes of disciplinary demarcation fundamentally changed from that characteristic of the 19<sup>th</sup> century.<sup>114</sup> This period also spanned the length

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<sup>112</sup> Possibly it was something in the water. As Halberstam explained, in the 1960s it was the “predominantly liberal part of Washington which sets the tone of the city, deciding who is in and who is out, what is legitimate and what is not, who has power and who does not.” Likely that persisted, at least as an undercurrent, well into the 1970s. David Halberstam, *The Best and the Brightest*, 45.

<sup>113</sup> Alexander Powell, Maureen A. O'Malley, Staffan Mueller-Wille, Jane Calvert & John Dupré, “Disciplinary Baptisms: A Comparison of the Naming Stories of Genetics, Molecular Biology, Genomics and Systems Biology,” *History and Philosophy of the Life Sciences* 29, no. 1(2007), 5-32.

<sup>114</sup> Powell, et al, “Disciplinary Baptisms,” 5.

of Potter's 90 years, during nearly all of which he was intellectually curious and most of which he was professionally active.

In the 19<sup>th</sup> century, the authors observe, disciplinary development was characterized by a trend towards increasing specialization, with the subject matter being the "key criterion of demarcation."<sup>115</sup>In biology,

...we see disciplines emerging such as botany, zoology, and bacteriology emerging out of natural history, with each of those dividing into further specialties (zoology giving rise to, for example, vertebrate and invertebrate zoology)... Accounts of nineteenth-century disciplinary institutionalization have, therefore, been given in terms of the creation of chairs, departments, journals and societies that supported these specializations.<sup>116</sup>

By the start of the 20<sup>th</sup> century, however, "discipline formation began to be driven by something other than specialization, in the form of a trend towards disciplinary definition on the basis of general perspectives and levels of historical processes." Significantly, the authors note, "[t]his trend gave rise to new distinctions that could interact with or become superimposed upon preexisting disciplinary structures."<sup>117</sup> Reasoning, or "styles of scientific thought," is one way of individuating generalizing disciplines; "commitments to objects, technologies, and standards of scientific inquiry are as much about practice as they are about reasoning."<sup>118</sup>

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<sup>115</sup> Powell, et al, "Disciplinary Baptisms," 7.

<sup>116</sup> Powell, et al, "Disciplinary Baptisms," 7.

<sup>117</sup> Powell, et al, "Disciplinary Baptisms," 7.

<sup>118</sup> Powell, et al, "Disciplinary Baptisms," 7.

The fluidity of disciplinary boundaries is not nearly so common in the humanities, the authors say; indeed, Potter's familiarity with how it manifested in the life sciences may not only explain his comfort in suggesting a new discipline of bioethics, but also the discomfort felt by analytic philosophers and medical ethicists when he did so. For those scholars tacking "bio" onto an established discipline, widening its boundaries and redefining its content, was not only unorthodox, it was heretical. For them the discomfort could only be alleviated if the new word was applied and used to broaden only slightly the scope of a well established and recognized discipline, medical ethics.

Potter is so closely identified with early conservationist and University of Wisconsin professor Aldo Leopold that it is easy to forget that, beyond his dedication, Potter paid scant attention to Leopold in *Bioethics: Bridge to the Future*. Just as Potter understood any new scientific effort as necessarily building from work that preceded it, Potter recognized the need to found his ethic on something already clearly articulated, established and legitimized. In Leopold, who "anticipated the extension of ethics into bioethics," Potter found that foundation. Even better, Leopold laid out an evolutionary ethical sequence – from the individual/individual relationship to the individual/society relationship, to Leopold's own proposed individual/land, animal, plant relationship – that invited future expansion of the ethical sequence. Simply laying out Leopold's proposal in his dedication seemed, to Potter, enough of an explanation of the basis from which he proposes a fourth type of ethic in response to the modern threat to

human survival. “Bioethics is a ‘new wisdom,’” Potter explained, “that combines biological knowledge with human values as informed by the social sciences and the humanities, provides the knowledge to guide individuals and social action.”<sup>119</sup> It was only after Potter’s bioethics had been hijacked, his credentials challenged, and the legitimacy of his proposal questioned that Potter returned to embrace more vigorously the Leopold legacy.

In his 1988 follow-up work, *Global Bioethics: Building on the Leopold Legacy*, Potter traced the development of his early bioethical thought. “When I coined the word ‘bioethics’ in 1970, I was influenced by C. H. Waddington perhaps more than any individual,” Potter explained. “He became essentially a bioethicist before the word was invented, a man concerned with the need to develop ethical theory in light of biological knowledge, an aim similar to my own.”<sup>120</sup> Conrad Hal Waddington<sup>121</sup>, a British developmental biologist and animal geneticist, laid the foundations for systems biology. But what Potter was particularly taken with was Waddington’s demand that each generation develop

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<sup>119</sup> Van Rensselaer Potter, *Bioethics: Bridge to the Future*, (Englewood Cliffs, NJ: Prentice-Hall, 1971), 1-2.

<sup>120</sup> Van Rensselaer Potter, *Global Bioethics: Building on the Leopold Legacy*, (Lansing, MI: Michigan State University Press, 1988), 2.

<sup>121</sup> Waddington was also a self-styled philosopher and a coiner of words, introducing the term “epigenetics,” a melding of the words epigenesis and genetics, to describe, in essence, how gene regulation modulates development. C.H. Waddington, “The Epigenotype,” *Endeavour* 1 (1942): 18–20. For a full consideration of the complexities inherent in Waddington’s understanding of epigenesis, see Linda Van Speybroeck, “From Epigenesis to Epigenetics: The Case of C. H. Waddington,” *Annals New York Academy of Sciences* 981(December 2002): 61-81.

its own theory of ethics that is relevant to the problems of its time.<sup>122</sup>

Unsurprisingly, Potter next cited Margaret Mead<sup>123</sup>, whose 1957 essay in *Science* “asserting, ‘We need in our universities...Chairs of the Future,’...inspired me to assume the role if not the title....”<sup>124</sup> Finally he turned to Theodosius Dobzhansky, “who provided the lynchpin for the whole structure of bioethics in my mind.”<sup>125</sup> It was Dobzhansky’s 1958 article, “Evolution at Work,<sup>126</sup>” that “influenced all my subsequent thinking.” Three points – that no biological law guarantees the continued prosperity or even existence of the human species; that the human species is the only product of evolution that knows it has evolved and continued to evolve; and that the human species must supply the collective wisdom for evolutionary developments that nature cannot provide – inspired the “what ought to be” of Potter’s own bioethic: the continued *acceptable* survival of the human species.”<sup>127</sup>

Despite the persistent perception that Potter’s bioethics is simply an environmental ethic, medical health and environmental health cannot be separated in Potter’s schema. When he wrote *Bioethics: Bridge to the Future*

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<sup>122</sup> See C. H. Waddington, *The Ethical Animal*, (Chicago: University of Chicago Press, 1967.)

<sup>123</sup> Margaret Mead, “Towards More Vivid Utopias.” *Science* 8 126 no. 3280 (1957): 957-961.

<sup>124</sup> Potter, *Global Bioethics: Building on the Leopold Legacy*, 3.

<sup>125</sup> Potter, *Global Bioethics: Building on the Leopold Legacy*, 3.

<sup>126</sup> Theodosius Dobzhansky, “Evolution at Work, *Science* 127 (1958): 1091-98.

<sup>127</sup> Potter, *Global Bioethics: Building on the Leopold Legacy*, 4.

Potter clearly did not anticipate the day when his bioethics would become the narrow specialty of biomedical ethics. However, he was clear how specialization had caused a disconnect: Human beings were no longer conscious of how their health was dependent on the health of their environment. “In this age of specialization we seem to have lost contact with the daily reminders that must have driven home the truth to our ancestors: man cannot live without harvesting plants or killing animals,” Potter wrote. “If plants wither and die and animals fail to reproduce, man will sicken and die and fail to maintain his kind.” The scientists, engineers, technologists, and politicians who control human destiny have either forgotten or never knew these simple truths:

In our modern world we have botanists who study plants and zoologists who study animals, but most of them are specialists who do not deal with the ramifications of their limited knowledge. Today we need biologists who respect the fragile web of life and who can broaden their knowledge to include the nature of man and his relation to the biological and physical worlds. We need biologists who can tell us what we can and must do to survive and what we cannot and must not do if we hope to maintain and improve the quality of life during the next three decades. The fate of the world rests on the integration, preservation, and extension of the knowledge that is possessed by a relatively small number of men who are only just beginning to realize how inadequate their strength, how enormous the task.<sup>128</sup>

In attempting to understand what happened – or failed to happen – to Potter’s bioethics, it is helpful to look at the contemporary reviews of *Bioethics* to see how reviewers understood Potter’s effort, and how that understanding may have influenced the dissemination of Potter’s thought into the wider world.

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<sup>128</sup> Potter, *Bioethics: Bridge to the Future*, 2.



William W. Milstead began his review of *Bioethics, Bridge to the Future* in *American Biology Teacher* with the observation that with the 1962 publication of Rachel Carson's *Silent Spring*, America moved into an age of "scare biology." "To many this was another fad of American youth," he wrote, "but it has now spread throughout the world, has made 'ecology' a household word, and has even crept into the ponderous machinery of some of the world's more alert governments." During the 10 years since the publication of *Silent Spring*, most biologists had viewed the ecology movement "with a conflict of emotions": generally pleased with the public's growing environmental awareness but displeased with the "entropic activities" of some of the scare biologists and environmental action groups. "The displeasure has arisen from the fact that many biologists have been concerned with environmental problems for decades: they have learned that environmental problems have no simple solutions, but instead demand a more deeply intellectual approach."<sup>129</sup>

Milstead was quick to point out that Rachel Carson was hardly alone in sounding a general alarm. "By 1962 S. P. R. Charter was calling for a design theory for Man on Earth and Van Rensselaer Potter was calling for a bridge between science and philosophy," he reminded readers. "Now the avant-garde of the general public is beginning to either overtake Charter, Potter, and other thinking biologists, or else is beginning to tire of doomsday biology – and we

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<sup>129</sup> William W. Milstead, "Review: *Bioethics: Bridge to the Future* by Van Rensselaer Potter," *American Biology Teacher* 33, no. 9 (December, 1971): 560.

stand in danger of an "ecology backlash."<sup>130</sup> But rather than discredit the environmental movement, Milstead wanted to redirect its thoughts and activities, shifting public thinking from an unrealistic vision of a pollution-free existence to controlled-pollution existence. The step beyond that, he wrote, is a "short step, to focus public attention on the array of moral, ethical, and philosophic questions concerned with this."<sup>131</sup>

*Bioethics: Bridge to the Future* can aid in spanning the gap between science and philosophy, Milstead suggested. "Of particular interest is a list of seven points that Potter feels will define an optimum environment. The list makes no unreasonable demands, and it could serve as a nucleus for the future goals of the environmental movement."<sup>132</sup> But, Milstead cautioned, the book "is not for the general public. (The approach to the subject is not as exciting as the dust jacket would have us believe.) Rather, it demands readers who have some knowledge of both biology and philosophy and who are ready for the next step in obtaining quality environment for man."<sup>133</sup> American biology teachers should fill these prerequisites, and leadership for the "next step" should rightly come from them. But ought is not should, nor sometimes even possible. "Whether or not this book provides the answers – or is even a proper approach to the answers – and

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<sup>130</sup> Milstead, "Review: *Bioethics: Bridge to the Future*," 560.

<sup>131</sup> Milstead, "Review: *Bioethics: Bridge to the Future*," 560.

<sup>132</sup> Milstead, "Review: *Bioethics: Bridge to the Future*," 560.

<sup>133</sup> Milstead, "Review: *Bioethics: Bridge to the Future*," 561.

whether or not even the biology teachers are ready for it, remains to be seen,” Milstead concluded. “In any case, though, we are in need of proving that ecology is a science and not an hysteria. This book is an attempt at making the distinction.”<sup>134</sup>

Writing in *Science Education*, N. Eldred Bingham felt considerably more positive about the role *Bioethics* could play in the classroom. “In these days when we’re searching for ways to make the curriculum relevant, to make science meet man’s long time needs, I find this proposal of Potter’s, a specialist in the biochemistry of cancer, but one who envisions clearly the implications of science to the future of mankind, as the most helpful book I have read,” he explained. “It should be available to high school and college youth.”<sup>135</sup>

Potter’s bioethics, Bingham said, is a new science which “provides an exciting and reasonable approach to the concern and confusion about our environment.”<sup>136</sup> Combining the work of the humanist and the scientist, it “portrays the way for man to control his cultural evolution towards the goal of survival [and] defines wisdom as the use of knowledge for the social good, now and in the future, for the survival of man can no longer be taken for granted.”<sup>137</sup>

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<sup>134</sup> Milstead, “*Review: Bioethics: Bridge to the Future*,” 561.

<sup>135</sup> N. Eldred Bingham, “*Review: Bioethics: Bridge to the Future*,” *Science Education* 56, no. 3 (1972): 441.

<sup>136</sup> Bingham, *Science Education*, 440.

<sup>137</sup> Bingham, *Science Education*, 440.

Ethical values based on biological facts can be tested in terms of their future potential. “Actions which decrease the chances for human survival are considered immoral,” Bingham noted, “and must be judged in terms of available knowledge and must be judged in terms of available knowledge and an ongoing monitoring of survival parameters that are selected both by scientists and humanists.”<sup>138</sup>

Bingham managed to tease out the portions of *Bioethics* that most anticipated an identified global bioethics. Potter says great medical advances come in terms of measures applied to populations rather than to individuals, Bingham noted, and medical knowledge of that type, particularly the knowledge of how to control population growth, is not being applied to large segments of population either domestically or abroad.<sup>139</sup> Before we begin to think about the improvement in the quality of life, wrote Bingham, we need to achieve a world consensus on the necessity for population control as a means not only to an improved standard of living but to survival.

“If the nations of the world are to find a *bridge to the future*,” Bingham concluded, “they will have to realize that they must unite to preserve the fragile web of nonhuman life that sustains human society. From this moment on, we are

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<sup>138</sup>Bingham, *Science Education*, 440.

<sup>139</sup>Bingham, *Science Education*, 441.

fighting a desperate war for survival, and we cannot indulge in upholding value systems that may no longer be relevant.”<sup>140</sup>

Writing in the *Quarterly Review of Biology*, R.S. Morrison of Cornell University’s Program on Science, Technology, and Society identified Potter as a new recruit “from the formerly reductionist field of biochemistry” to the ranks of those who worry about the nature of man and technology’s potential for ill as well as good.”<sup>141</sup> Potter, Morrison noted, was not only an expert on enzyme induction and chemical feedback, but “as early as 1965, he was calling for a national institution to explore the implications of technology and provide controls for ‘dangerous knowledge.’”<sup>142</sup>

The most original and interesting parts of the book, in Morrison’s telling, are when Potter “pulls together hitherto widely separated scientific studies on the importance of disorder or randomness in the creative process.”<sup>143</sup> However, he confessed to being perplexed at the connection Potter made between copying errors in DNA reproduction, the protean behavior of white-footed deer mice and

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<sup>140</sup> Bingham, *Science Education*, 441.

<sup>141</sup>R.S. Morrison, “(Review) *Bioethics: Bridge to the Future*,” *Quarterly Review of Biology* 47 no. 1 (March, 1972): 69.

<sup>142</sup> Morrison, “(Review) *Bioethics: Bridge to the Future*,” 69.

<sup>143</sup> Morrison, “(Review) *Bioethics: Bridge to the Future*,” 69.

Arthur Schlesinger's confusion theory of decision-making in the White House.

"Your reviewer is still pondering this one."<sup>144</sup>

Unlike some readers/reviewers, Morrison said that Potter "writes clearly and reveals a scientist's concern for efficient communication ... When he wishes, he can turn a phrase with elegance and skill..."<sup>145</sup> Still, he said, the book suffered from the fact that ten of the thirteen chapters were papers originally published elsewhere, and as a result "there is a good deal of redundancy and an inadequate sense of thematic development."<sup>146</sup>

Considering that significant portions of *Bioethics* had already appeared in *Zygon*, Hudson Hoagland's review in the September 1976 issue of the journal is not only extremely late but oddly unengaged. Hoagland admitted up front that, "I have long maintained that a modern understanding of man as a biological organism in contrast with the medieval views about his nature, is important for our ethical advancement and the improvement of the quality of life, and I have found in this book a stimulating treatment of its subject."<sup>147</sup> (Hoagland then goes on to take the reader on a plodding chapter-by-chapter tour of the book as he

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<sup>144</sup> Morrison, "(Review) *Bioethics: Bridge to the Future*," 69.

<sup>145</sup> Morrison, "(Review) *Bioethics: Bridge to the Future*," 69.

<sup>146</sup> Morrison, "(Review) *Bioethics: Bridge to the Future*," 69.

<sup>147</sup> Hudson Hoagland, "(Review) *Bioethics: Bridge To The Future*," *Zygon* 6, no. 3 (September 1976): 252.

quotes Potter's abstracts at length, interspersed with his own uninspired commentary: "Potter and I are advocates of zero population growth."<sup>148</sup>)

Hoagland does recognize Potter's use of the new term "bioethics," selecting from among Potter's many definitions, "a system of human values that recognizes biological realities, the nature of man, the facts of life and the constraints imposed by the natural world" or, as Hoagland boiled it down, "a new discipline ... vital to solving environmental problems such as pollution or runaway populations."<sup>149</sup> Hoagland's lengthy, mail-it-in style is particularly noticeable when contrasted with the review immediately preceding it, Donald Szantho Harrington's thoughtful consideration of *Science and Human Values in the 21st Century* edited by Ralph Wendell Burhoe. A distinct impression is left that "We can't review Ralph's if we haven't reviewed Van's" was the motivating force behind Hoagland's review.

In a wide-ranging essay review in *Science Studies*,<sup>150</sup> philosopher George M. Schurr<sup>151</sup> considered the contemporary challenge not only to the practice of

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<sup>148</sup> Hoagland, "(Review) *Bioethics: Bridge To The Future*,"

<sup>149</sup> Hoagland, "(Review) *Bioethics: Bridge To The Future*," 251.

<sup>150</sup> George M. Schurr, "Essay Review 'Array and Disarray on the Medico-Ethical Front,'" *Science Studies* 2 (1972):191-202. At the time of publication Schurr was a professor of philosophy and Dean of Humanities at the recently established Sangamon State University in Springfield, IL. Before receiving his Ph.D. in philosophy from Yale University Schurr had had served several pastorates and had taught at the Baptist Missionary Training School. See "Park College Staff Faculty Appointments Include Two Deans" *Kansas City Times*, 1 September, 1959: 5.

<sup>151</sup> Possibly not coincidentally, a George Schurr, professor of philosophy at Northern Arizona University, is listed among the participants at the WCC "Experiments

medicine, but also to medical ethics. In doing so he expanded his discussion of the listed works under review to include two that were not: Pellegrino's Bossey address and Potter's *Bioethics: Bridge to the Future*.

Traditional medical ethics, claimed Schurr, had been elitist; only physicians could appreciate both the seriousness and the limits of the practitioners' responsibility.<sup>152</sup> Schurr faults medicine – and medical ethics – for the failure to address the increasingly complex relationships between preventive medicine and therapy, public and individual health, the well and the sick, physicians and patients, and the healthy and unhealthy members of society. Biotechnology is behind the increasing technology, and it demands a democratization of traditional medical ethics. There's an urgent need to sort out the issues, so that some order can be brought to complexity.

When it comes to human experimentation, Schurr believed that, with his Bossey talk, Edmund Pellegrino (Schurr misidentifies him as "E.D. Pellegrine") had taken an important step in the sorting-out process. "He properly insists," Schurr noted, "that the first question to be asked of any medical; experiment is: 'Is it good science?'" The "elementary semantic analysis" employed by Pellegrino could enable a "cognitive sorting out of, for instance, the differences between the

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With Man" consult. However, a definite identification has not been made. Weber, "Experiments With Man", 98.

<sup>152</sup>Schurr, "Essay Review 'Array and Disarray on the Medico-Ethical Front'", 191.



morals of a physician, a judge, and a patient could be developed so as to bring into focus systematic moral ambiguities in contemporary clinical practice.”<sup>153</sup>

The new Biotechnology, Schurr said, was a “radical” medicine, “not tied to notions of recovery of health ... the key word for biotechnology is not ‘restoration but ‘modification.’”<sup>154</sup> Both the “conservation tradition” of the medical profession and the “radical possibilities of the biotechnical,” Schurr went on to explain, are part of the same historical continuity, where “both open-ended change and stable continuity with our past are required.”<sup>155</sup> The recognition of this truth, as well as that which Schurr identifies as its correlate humility, had been slow in coming. Interestingly, while Schurr does not identify Potter with a call for humility, nor does he link him to the Bossey conference, he commends Potter for democratizing ethics with scientific insight, allowing me to “choose that which will enabling them to survive and prosper.”<sup>156</sup> Schurr saw Potter as sharing the “rationalistic optimism” of traditional liberal philosophy, and his recommendation as an “attempt to incorporate the latest biological theories into a metaphysical undergirding for a general ethic.”<sup>157</sup> In Schurr’s estimation, Potter is a visionary, a

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<sup>153</sup> Schurr, “Essay Review ‘Array and Disarray on the Medico-Ethical Front,’” 194-195.

<sup>154</sup> Schurr, “Essay Review ‘Array and Disarray on the Medico-Ethical Front,’” 198.

<sup>155</sup> Schurr, “Essay Review ‘Array and Disarray on the Medico-Ethical Front,’” 198-199.

<sup>156</sup> Schurr, “Essay Review ‘Array and Disarray on the Medico-Ethical Front,’” 199.

<sup>157</sup> Schurr, “Essay Review ‘Array and Disarray on the Medico-Ethical Front,’” 199.

“preacher of the faith that science approximates eternal norms, from which men depart at their peril. Science is not a matter of secular pragmatics, to be used by men who are the creatures and creators of history, but of a holy truth, from which men must learn how to live the good life.”<sup>158</sup>

“Potter's philosophy is still at the drawing-board stage of hypothesis and suggestion,” acknowledged Marianna Gensabella Furnari in her introduction to the Italian translation of *Bioethics, Bridge to the Future*, “as can be seen in the tension which leads him to reconsider various theories – evolutionism, vitalism, holism, mechanism – and to choose from among them a vision of life that takes account of the latest discoveries of biology.” In Furnari's understanding, biocybernetics appears in Potter's proposal as a key to construct not only a philosophy of life, but a “rough draft of a theory of history”, taking into account, “in continual cross-reference between the process of natural evolution and the process of cultural evolution, of the succession of civilizations, of their fall, and of their rebirth.”<sup>159160</sup>

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<sup>158</sup> Schurr, “Essay Review ‘Array and Disarray on the Medico-Ethical Front,’” 199.

<sup>159</sup> Her essay, “The Scientist Demanding Wisdom: The “Bridge to the Future” by Van Rensselaer Potter,” was adapted from her introduction to the Italian edition of Van Rensselaer Potter's *Bioethics: Bridge to the Future* (2000), *Bioetica: Ponte verso il futuro*, translated by R. Ricciardi (Messina: Sicania). Ironically it was in press at *Perspectives in Biology and Medicine* when news of Potter's death was announced. Marianna Gensabella Furnari, “The Scientist Demanding Wisdom: The “Bridge to the Future” by Van Rensselaer Potter,” *Perspectives in Biology and Medicine* 45, no. 1 (2002), 31-42.

<sup>160</sup> Furnari, “The Scientist Demanding Wisdom,” 37-38.

Apart from the extremely technical language and its very detailed scientific-philosophical theory of survival, it is possible to see in Potter's text the seed of an ethics that, born of science, brings as its only gift the responsibility of caring for the world. Here the philosophical principle of responsibility finds a first rudimentary formulation, born, almost by spontaneous generation, of one of the basic principles of science: that of finding an equilibrium between the use of knowledge and the awareness of being ignorant of its effects.<sup>161</sup>

Writing in 2012, Henk ten Have gave a lengthy consideration to Potter's bioethics in the *Kennedy Institute of Ethics Journal*.<sup>162</sup> While Furnari finds Potter's language overly technical, and many other readers have struggled with the hurried, cut-and-paste structure of *Bioethics*,<sup>163</sup> ten Have captures the encounter best when he writes that Potter's book produces "a kaleidoscope of feeling.

The connection between the chapters in the book is not always obvious, and so it is difficult for the reader to summarize Potter's theory by the close of the volume. The writings are complicated and eclectic; they are a mixture of components from various theories and scholars, difficult to articulate in a coherent and systematic way. This eclecticism means that his expositions have little appeal as a vision. One also gets the impression that he at times seems to present his own ideas through the work of others, using long quotations, leaving the reader to implicitly assume that they reflect the thinking of Potter himself."<sup>164</sup>

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<sup>161</sup> Furnari, "The Scientist Demanding Wisdom."

<sup>162</sup> Henk ten Have, "Potter's Notion of Bioethics," *Kennedy Institute of Ethics Journal*, 22, no.1 (2012): 59-82.

<sup>163</sup> Andrew Jameton, a Board Member of Physicians for Social Responsibility and a member of Potter's Global Bioethics Network offers a similar assessment. "Reading Potter's very difficult for me," Jameton admits. "It's somewhat incoherent. [However] he should be forgiven. He plowed out that area without a lot of preparation and he did a pretty decent job of it." Conversation with the author.

<sup>164</sup> ten Have, "Potter's Notion of Bioethics."

But if one keeps in mind the specific vision Potter is working with – “the acceptable survival of the human species” – then the outlines of Potter’s program begin to emerge, and with it a sense of his methodology. “The various bridges he wanted to construct are the result of “bricolage”,” ten Have explained, “they are the outcome of trying, testing, and tinkering rather than the result of a conventional, analytical style of solving problems.”<sup>165</sup> A style, ten Have might have added should he have known, perfectly appropriate to a bench scientist at a major land-grant research university.

There have been several efforts to review *Bioethics* by placing it in its historical context. One of the very first, if not the first, attempts was made in 1989, when Curt Meine’s<sup>166</sup> essay review of Potter’s *Global Bioethics: Building on the Leopold Legacy* appeared in the fall issue of *Environmental Ethics*.<sup>167</sup> Meine, a noted scholar of Aldo Leopold, began his review with a consideration of *Bioethics: Bridge to the Future*. Properly siting the book’s publication in the “headiest days” of the newly invigorated environmental movement, Meine notes that Potter’s distinguished thirty-year career as a bench scientist gave him a

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<sup>165</sup> ten Have, “Potter’s Notion of Bioethics.”

<sup>166</sup> Although he does not mention it in his review, Meine had actually corresponded with Potter while the latter was writing *Global Bioethics*, and had provided Potter with material on Leopold.

<sup>167</sup> Curt Meine, “Van Renssalaer [sic] Potter: ‘Global Bioethics: Building on the Leopold Legacy’”: *Environmental Ethics* 11, no. 3 (1989):281-285. It is apparently a copy or layout editor who introduced the misspelling of Potter’s name in the title, as it is spelled correctly throughout the body of the text.

perspective that set him apart from most contemporary environmental thinkers. That perspective, Meine found, gave substance to Potter's claim that the subject of bioethics ought to include "both the reductionist and holistic view of biology and should be broader than both together ... [w]e must combine biological reductionism and holism and then proceed to an ecological and ethical holism if man is to survive and prosper."<sup>168</sup>

### **One Step Forward, Two Steps Back**

On November 1, 1971, the journal *BioScience* ran a short news item about the founding of the Kennedy Institute at Georgetown. The item was pretty much a re-working of the Institute's October 2 press release, cleaned up a bit for style. It appeared as the lead item in the "Panorama" section, a sort of life sciences news round-up, and was followed by a handful of other news briefs, including an item on the commercial farming and marketing of green turtles, and the announcement that President Richard M. Nixon had plans to turn the Army's biological and chemical weapons center at Ft. Detrick, Maryland, into a cancer research facility.<sup>169</sup> The item was not particularly noteworthy; for many readers, the commercial potential of *Chalonia mydicensis* was at least as compelling as the news of the establishment of yet another university research institute. But placed

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<sup>168</sup> Meine, "Van Renssalaer [sic] Potter. 'Global Bioethics,'" 281.

<sup>169</sup> "Panorama," *BioScience* 21, no. 21 ( 1 November 1971): 1090-1092. The Kennedy Institute item appears under the sub-heading "Institute for Bioethics Established at Georgetown".

in juxtaposition to an essay found only two pages earlier, it takes on a certain historic importance.

“*Unique in its purpose of combining ethics and science,*” the “Panorama” item ran, “the Institute will pioneer in the development of a new kind of joint research *which the Institute’s founders have named ‘bioethics.’*” [emphasis added] Describing this new field of research, Georgetown President Robert J. Henle, SJ said: “Throughout scientific history, fields of study have changed their perspective when the original discipline was inadequate to the effective pursuit of truth. Chemistry developed a sub-specialty of biochemistry; physics, biophysics. I am quite certain that bioethics will assume the same importance to mankind as these other fields.”<sup>170</sup>

The discerning reader might well have been caught up short by Henle’s comments, having just finished “Reflections: Bioethics” where the author, one Van R. Potter, noted, “Elsewhere I have proposed Bioethics as the name of a new discipline that would combine human value considerations with science in general and especially with the “realities” of biological science in the Man/Earth relationship...” Potter went on to explain to the *BioScience* readers, “[W]e need to develop Bioethics as a set of *principles* [emphasis added] to cover Man/Earth ethics, using idealistic survival as one of the referents, and with the Man/Earth ethics as a base, to extend Bioethics to Man/Man ethics, to Man/Society ethics, and to Nation/Nation ethics.”

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<sup>170</sup> *BioScience*, “Institute for Bioethics Established at Georgetown,” 1090.

In the face of “growing anti-intellectualism under the guise of back-to-God movements,” Potter continued, scientists felt constrained to deny any blame for the misuses of science, and to continue to insist that good science is divorced from ethical value judgment, and the best science divorced from even practical judgments. “Thus, until recently, science was free to pursue its goals so long as it contributed to the production of material progress and physical health...so long as it did not engage in discussions of religious or political value judgments.” Now, however, “it is becoming obvious to thousands of reputable scientists that spaceship earth does not have a fool proof program or a built-in guarantee not to self destruct ....” The new discipline, Bioethics, offered an alternative to scientists who “retreat into a non-committable ivory-tower position and survive in tacit acquiesces to ancient dogmas.” By removing the barrier between facts and values, scientists are free to relate specialties to human values consideration. Universities, in Potter’s estimation, were ripe to accommodate this newly recognized need.

“Universities in general are structured according to departments representing disciplines that have existed for more than 50 years, but this situation is changing ... it would be illuminating to plot the increase in numbers of new disciplines and numbers of new departments representing each new discipline in American universities since 1900,” Potter wrote. “It appears that, as intellectual and practical problems outgrew departmental confines, interdisciplinary combines spring up as Institutes, Laboratories, Committees,

Seminars, or any name but Department. These ‘horizontal’ groups tend to spawn second generations of scholars who decided that what was formerly interdisciplinary is now a *discipline*, [emphasis original] and they attempt to “go vertical”<sup>171</sup>, that is, they demand departmental status, usually because of the structures imposed by the pre-existing department.”

A special one-day conference on “The Social Responsibilities of Scientists,” was held at the New York Academy of Sciences later that month. The gathering was organized by Philip Siekevitz,<sup>172</sup> a former post-doc of Potter’s at the McArdle Lab, who was now at Rockefeller University. Siekevitz was struck by the fact that, despite the power scientific resources and technology have had in society, little consideration had been given to the motivating forces behind the creation of that power. “What we uncover in our laboratories has in many

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<sup>171</sup> It is most likely this is not a misspelling of “vertical”, but rather Potter’s deliberate use of a rather obscure botanical term describing leaves that branch off and encircle a parent stem in a “whirl.”

<sup>172</sup> Philip Siekevitz spent three years at the McArdle Lab, where Van Rensselaer Potter was doing pioneering work on energy metabolism. Siekevitz himself is considered one of the pioneers of cell biology, having developed both an integrative approach to biochemistry and morphology in the study of structural and functional properties of certain cell components, as well as the concept that cellular membranes are dynamic structures, changing during development or environmental stress. A founding member and treasurer of The New York Scientists’ Committee for Public Information, Siekevitz believed that scientists - especially publicly funded scientists - had a particular obligation to translate research findings for the general public. Starting in 1963, the fledgling American Society for Cell Biology began having pre-annual conference meetings for high school biology teachers. Siekevitz organized the first pre-conference meeting; among the presenters was Van Potter. See David Sabatini, “Philip Siekevitz: Bridging Biochemistry and Cell Biology” *Cell Biology*, 189 no.1 (5 April, 2010): 3–5, and William Bechtel *Discovering Cell Mechanisms: The Creation of Modern Cell Biology* (New York: Cambridge University Press, 2006) esp. 275.



instances a marked effect on the society around us,” Siekevitz said in his opening address, “and yet the philosophy behind our work, our so-called pure research, is still based on a belief that we are in a sense potterers, that what we uncover of nature’s mysteries is not of interest to anyone but ourselves, and that according to the rules of our work, we are not responsible to anyone but ourselves for the kind of research we do and for the technology that may be extended from that research. In sum, we still believe in an objectivity in research methods and goals, a disinterest in consequences, a disclaiming of values external to the research itself.”

In organizing the conference, Siekevitz said, his purpose was not so much to question that philosophy, but to examine its tenets, and to consider relevance and possible modifications or even disposal. To this end, Siekevitz invited only working scientists to present. “I believe that the answers to these questions and to these problems must be hammered out by scientists themselves,” he explained, “that individual scientists and corporate scientific organizations, because they are the ones initially involved in the processes leading to technology, must reach a level of agreement among themselves as to their responsibilities in this age.”

To deliver the keynote address, Siekevitz tapped his old mentor, Van Rensselaer Potter. In his address “Bioethics for Whom?,” Potter voiced his objection to “science as usual,” a professional attitude that “exalts so-called pure

research as an end in itself no matter what discipline, category, or expense is involved and at the same time accepts no responsibility for the consequences.”<sup>173</sup>

Objectivity was the pre-existing ethical imperative of science, according to Potter, an imperative that now must be coupled with an action imperative. The ethic of objectivity requires a scientist to “change his mind when the faiths deny his hopes or beliefs,” and it is the built-in self-corrective that enables a scientist to act with credibility, that “makes it even possible to consider a demand for an ethic that would enable a scientist to have both knowledge and opinions.”<sup>174</sup>

The Church may not have lived up to its responsibility in developing ethical guidelines to meet the challenges of contemporary society, Potter said, but it is not alone in its failure. “[I]t is equally true that Science has not only not met its responsibilities in this connection but has tended to deny such responsibilities exist.”<sup>175</sup> Ethical practices break down, according to Potter, when cultural changes are too rapid to permit the development of new precepts. Ethical guidelines, then, are “developed by dialogue around people who are ethically motivated but that the incorporation of ethical guidelines into a culture occurs only when a critical mass of society is sufficiently interested to listen.”<sup>176</sup> One of the responsibilities of capital “S” Science, Potter said, “is to develop bioethical

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<sup>173</sup> Potter, “Bioethics For Whom?,” 200.

<sup>174</sup> Potter, “Bioethics For Whom?,” 201.

<sup>175</sup> Potter, “Bioethics For Whom?,” 201.

<sup>176</sup> Potter, “Bioethics For Whom?,” 201.

guidelines that will enable the human species to survive and prosper in harmony with the rest of the world since we cannot survive and prosper if we continue to make war on the rest of the biosphere.”<sup>177</sup>

What are the action imperatives, Potter asked, for a scientist who believes his work has significant implications for humanity? Potter was vehemently opposed to external controls on academic scientists, especially those which come in the form of research contracts. Potter was disinclined to advise scientists to bring their concerns and findings directly to the press (unless he said, their work “has been unjustly suppressed.” And he acknowledged that in the face of the pre-existing ethic of science, the “non-action” imperative, the Rachel Carsons or the Barry Commoners or the Paul Ehrlichs of the scientific world have little choice but to speak out). “The crying need at present in this area is for more signed reviews, reviews of reviews, symposia in print, and reviews of symposia,”<sup>178</sup>circulated among professionals, and not the popular press.

Despite Potter’s professed disinclination to bring concerns directly to the press, Siekevitz evidently felt no such constraints. He arranged not only for a press conference, but for interviews with individual scientists. Hardly surprisingly, it was Potter whom the *New York Times* reporter found most quotable.<sup>179</sup> Under

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<sup>177</sup> Potter, “Bioethics For Whom?,” 201.

<sup>178</sup> Potter, “Bioethics For Whom?,” 203.

<sup>179</sup> Boyce Rensberger, “ Scientists Seek A Watchdog Plan: System Would Alert Public to Dangers in Laboratories” *New York Times*, 19 December 1971: 30. Despite the successful launch that day of an INTELSAT IV (F2) commercial communications

the headline “Scientists Seek A Watchdog Plan: System Would Alert Public to Dangers in Laboratories,” the *Times* quoted Potter as saying that it was now time for scientists to stop expecting others to develop the ethical framework needed to guide the use of new technologies. “He said, as many have said, that religion and other conventional sources of moral guidance had proven unable to develop a morality that is useful in dealing many scientific developments,” the *Times* reported. But, said Potter, they had failed in meeting their own responsibility and contribute their own “special knowledge” to society’s efforts to control technology. “What we need is a Distant Early Warning line by which the scientific community can anticipate some dangers in research that is underway,”<sup>180</sup> Potter said.<sup>181</sup>

Potter had other areas of concern that interested the *Times*, like the relationship between science and industry’s attempts to use advertising to encourage the public to accept products and programs that scientists feel are dangerous. “As scientists,” Potter told the *Times*, “we have witnessed the most blatant examples of questionable advertising ethics in the field of drugs, cosmetics, detergents and foods ... Is it ethical for scientific and professional

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satellite, it had not been a good week for academics. Earlier in the week, the Pakistan Army, facing defeat, killed 1,500 Bangladeshi intellectuals. In response, on December 21 the United Nations Security Council passed Resolution 307, calling for an immediate cessation of hostilities between India and Pakistan.

<sup>180</sup> Rensberger, “Scientists Seek A Watchdog Plan,”30.

<sup>181</sup> The *Times* went on to explain helpfully, but perhaps unnecessarily in 1971, that Potter was referring to the military ‘DEW’ line of radar defenses “that scan the skies for enemy threats.”

societies to remain silent when TV and other media clearly set out to promote the public taste for technology in directions that are not in the public interest?"<sup>182</sup>

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<sup>182</sup>Rensberger, "Scientists Seek A Watchdog Plan,"30.

## CHAPTER SIX: THE OTHER SIDE

Potter “was very upset that he was being ignored or being ridiculed by ‘professional’ philosophers because they viewed, as a hard core bench scientist, he had no training about ethics. Therefore, he asked me to help him to underpin his idea of bioethics,”<sup>1</sup> James Trosko remembered about his old mentor, Potter, years later. While the word bioethics “started to pop up everywhere,” particularly in connection with Georgetown and the Kennedy Institute, Trosko said, “The term meant to most was that bioethics was just a modern day view of ‘medical ethics.’” Largely unacknowledged, “Potter clearly pointed out that any person or any professional must make ethical decisions every day. Those decisions had to view the individual as a biological entity affected by, and affecting, everything around the individual. He was not preaching ‘scientism, nor saying that ethical values logically spring from ‘facts’. However, he did not believe in the gap [between] ‘facts’ and ‘values.’”<sup>2</sup>

Trosko was not long off a post doctoral research fellowship at Oak Ridge National Laboratory and starting his scientific career Michigan State University as a radiation geneticist studying DNA damage and repair in cancer-prone humans when he began to realize that there was a fundamental disconnect between science and society. “The beginning of genetic engineering had started,” Trosko recalled. “The Vietnam war was going on, and the Kennedys were killed. I

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<sup>1</sup> Trosko, correspondence with the author.

<sup>2</sup>Trosko, correspondence with the author.

volunteered to teach undergraduate non-science students on the ethical implications of science and technology.” One day, Trosko walked past a bookstore and saw displayed in the window *Bioethics: Bridge to the Future*. “I ordered it for my class. At the end of the course, I asked the students to evaluate the course, the book and me.” The course got an A, the book got an A+ and, as Trosko variously remembered, he received a C+ or a D+.<sup>3</sup> On a whim, Trosko sent the evaluations to the book’s author.

As I sat in my office three days later, I received a phone call. “Hello, Is this Jim Trosko?” “Yes,” I said. The voice at the other end said, “This is Van.” Of course, I was thinking, who is Van. I don’t know any Van. He then went on to say: “What the Hell did you do?” I continued to be confused at this point, not knowing where this conversation was going, I finally said to the voice that I’m not sure he had the right phone number. Finally, he said, “Aren’t you the person that sent me the evaluation of my book?” Then the light bulb went on. “Oh”, I said, “yes, I am the person.” He then told me that Prentice Hall, the publisher of his book, had decided to discontinue publication because the feedback that they received from over 900 universities and colleges that used his book, was predominately negative reviews. After trying to figure out why his book was received so well by my students...He said whatever you did, I want you to help me re-write it, so I offer you a chance to come to Madison to work with me on both cancer research and Bioethics.<sup>4</sup>

When Potter mentioned the McArdle Laboratory for Cancer Research to Trosko, “all of a sudden, I identified him, not only as the author of *Bioethics*, but the scientist whose book was used by all students in biochemistry right after the

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<sup>3</sup> The C+ none withstanding, Trosko, already the recipient of a 1970 MSU Teacher-Scholar Award, was named an “Outstanding Educator of America” in 1971.

<sup>4</sup> Trosko, correspondence with the author.

discovery of the structure of DNA. His little blue book, *Nucleic Acid Biochemistry*,<sup>5</sup> was the bible of all biochemistry students at that time, including me ... I never put the two Van R. Potters together as the same author until he started to talk to me over the phone.”

During the academic year 1972-73, Trosko took a research leave of absence to become Visiting Professor of Oncology and Bioethics in Potter's lab.<sup>6</sup> During his first week in Madison, Potter gave Trosko a copy of Aldo Leopold's *Sand County Almanac* to read, and the following weekend, “he took me to the spot north of Madison where Aldo sat and started to write that book.” Potter talked with Trosko about the many factors that compelled him to write the book. “I do know he was influenced by overpopulation,” Trosko recalled, “the way minorities and women were treated, globally, global injustice, pollution of the water/air, the way scientists viewed ‘science’ as just a reductionalistic tool rather than a holistic world view, and the complex interaction of the physical, biological and social/cultural factors.”

Potter, wrote Trosko, “confronted my narrow approach to studying cancer, by demonstrating the power of looking at the cancer process as a holistic

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<sup>5</sup> Van Rensselaer Potter, *Nucleic Acid Outlines. Vol. 1. Structure and Metabolism*, (Minneapolis, MN: Burgess Publishing Co.,1960).

<sup>6</sup> While Trosko used the leave to work with Potter on bioethics, he also worked on the issue of chemical carcinogenesis. It was in Potters lab that Trosko discovered that the tumor promoter, TPA, was not genotoxic but inhibited gap junctional intercellular communication GJIC.



problem, involving not only complex cross-talk within a cell, but cross talk within the body and its relationship to the physical, social, cultural environment.

Eventually, I pioneered several areas of research because of the new way of viewing science. This included discovering that non-mutagenic chemicals and oncogenes could inhibit how cancer cells communicated with each other. Further, based on this, I connected the cancer process with other human diseases (birth defects, atherosclerosis, diabetes, reproductive-and neuro-toxicities), via the observation that they all shared a defect in cell-cell communication. This led to my having coined the term, “*epigenetic toxicology*”, at a time when the prevailing paradigm was that toxic chemicals acted via mutagenic mechanisms. Later...my group pioneered the isolation of adult human stem cells well before the discovery of human embryonic stem cells. This insight was driven by the idea that cancer (and other diseases) must originate from adult stem cells. All of these advances had to overcome tremendous opposition from the current paradigms. Most recently, with the advent of the “discovery” of induced pluripotent stem cells (‘iPS” cells), my challenge to this hypothesis that one could “re-program” adult somatic, differentiated skin fibroblasts to become induced embryonic-like cells has, again, put me on the fringes of science.<sup>7</sup>

In 1972, Potter was asked to present a paper at the summer meeting of the Institute on Religion in an Age of Science. For nearly 20 years IRAS, had held a conference on religion and science on the Isles of Shoals, some ten miles out in the Gulf of Maine from Portsmouth, New Hampshire. As Ralph Burhoe explained it in 1971, “Rather consistently [IRAS’s] governing council has focused the conferences upon major avenues to understanding how scientific revelations can help illuminate human values and perhaps assist in the ever necessary functions of religion. This has been in accord with its constitution, which states

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<sup>7</sup> James Trosko, *An Odyssey of a Basic Scientist to Bridge the Two Cultures*, draft manuscript provided to the author.

that IRAS is established to promote creative efforts leading to the formulation, in the light of contemporary knowledge, of effective doctrines and practices for human welfare; to formulate dynamic and positive relationships between the concepts developed by science and the goals and hopes of man expressed through religion; to state human values in such universal and valid terms that they may be understood by all men whatever their cultural background and experience, in such a way as to provide a basis for world-wide cooperation.”

While the “harsh impact of the sciences on traditional views sometimes incenses us,” Burhoe explained, adding that perhaps “...the power of the elements engenders humility and the hardness of the rocks helps man adjust his values to the hard evidence that often underpins scientific reasoning.”<sup>8</sup> The theme of this summer’s conference was Religion in an Age of Science on Technology, and from it Potter brought another paper to *Zygon*, “The Ethics of Nature and Nurture.” Interestingly Potter chose to begin his essay by recalling his 1962 address at South Dakota State College, and the concept of human progress. “Today, we are impelled to inquire what ought we to do, or what must we do to survive?” Potter wrote. “Thus the question becomes an ethical one, and we are confronted with an old question in a new frame: the moral decisions of ethics

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<sup>8</sup> Editorial, *Zygon* 6 no. 4 (December 1971): 260.

seen in the light of the facts of nature and nurture, which is what I believe bioethics is all about.”<sup>9</sup>

That fall, the 61 year old Potter stepped down as assistant director of the McArdle Lab, although he continued to maintain an active research schedule, publishing at the rate of about 15 to 20 papers a year. “It isn’t research until it’s published,” Potter “smilingly” told the *Wisconsin State Journal*. “Up until then, it’s just a hobby.”<sup>10</sup> The following January Potter made the decision to take a seven month leave of absence from McArdle to participate in an intensive “Leonardo Seminar,” an interdisciplinary group of UW professors gathered to “develop a procedure for determining national resource goals and policies.”<sup>11</sup>

Funded by a grant from the National Science Foundation, “This seminar can be the beginning of a ‘university for professors’,” explained Chancellor H. Edwin Young,<sup>12</sup> “...providing a mix of backgrounds to give each participant<sup>13</sup> a

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<sup>9</sup> Van Rensselaer Potter, “The Ethics of Nature and Nurture,” *Zygon* 8 no. 1 (March 1973).

<sup>10</sup> Unbylined, “Know Your Madisonian, Van R. Potter,” *Wisconsin State Journal*, Sunday 16 December 1972: sec. 7, p. 2.

<sup>11</sup> Unbylined, “Variety of Activities Keep Professors Busy,” *Gargoyle* 4, no. 3 (Spring 1973): 6.

<sup>12</sup> Young served as chancellor of UW-Madison during the tumultuous Vietnam War years. A professor of economics and a vice president of the university, the Regents elevated Young to chancellor in a special meeting on September 13, 1968 – the university’s fourth chancellor in 18 months. A hardliner and “shrewd manipulator” in the estimation of many, Young twice, in 1969 and again in 1970, asked the governor to call in the national guard to maintain order on campus. “They [the student protestors] wanted to close the university down,” Young recalled years later, “the one place where they were free to speak and protest — which seemed kind of anti-intellectual to me.” When he retired in 1987 as a professor of applied economics, Young reflected on his

chance to learn something about the concepts and attitudes of the other disciplines – an overview now needed in attempting to understand and solve the complex problems of today's world."<sup>14</sup>

The decision to join the Leonardo Scholars was a natural for Potter who, the *State Journal* reported, had an "abiding" interest in "developing a scientific technique which was philosophical in nature."<sup>15</sup> The Leonardo seminar was another extension of the interest Potter first expressed in the essays in *Bioethics: Bridge to the Future*. "Getting into bioethics really grew out of my involvement in cancer research," Potter explained in "Know Your Madisonian." "Frequently cancer is another aspect of the environmental problem."<sup>16</sup> But another part of the impetus came from Potter's view of the role of the University and his own role

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philosophy of student management. "You can be as radical as you want here and then get a job and wear a three-piece suit," he told the Associated Press. "I worked on the theory that if you'd keep people out of jail, eventually they'd become advertising executives." Susannah Brooks, "H. Edwin Young, former chancellor, dies at 94," University of Wisconsin-Madison press release, 3 January, 2012; E. David Cronon and John W. Jenkins, *University of Wisconsin: Renewal to Revolution, 1945-1971*, (Madison WI: University of Wisconsin Press): 217- 224.

<sup>13</sup>To the mix of five professors – Potter, Wesley Foell, nuclear engineering; Matthew Holden, political science; Jan Vansina, history and anthropology; and James MacDonald, law – was added one reporter, Paul G. Hayes, the environmental reporter for the *Milwaukee Journal*.

<sup>14</sup> Unbylined, "Variety of Activities Keep Professors Busy," *Gargoyle* 4, no. 3 (Spring 1973): 6.

<sup>15</sup> Unbylined, "Know Your Madisonian, Van R. Potter," : sec. 7, p. 2.

<sup>16</sup> Unbylined, "Know Your Madisonian, Van R. Potter," : sec. 7, p. 2.

within it, the *State Journal* explained, which Potter attributed to his own experience as a graduate student under Conrad Elvehjem.<sup>17</sup>

“I was privileged to study with him and I think I came away with the same view of the University that he had,” Potter said, “And that is that you don’t just work here to build a reputation but to improve the University.” In doing so, the *State Journal* reported, Potter was “still immersed in working with students, mixing, of course, hard science with a definite philosophical approach.”<sup>18</sup>

Potter spoke of the particular pleasure he got from working with post-doctoral fellows. “You bring these fellows together and impress upon them that they’re not in competition with each other,” Potter said, “Then you develop this great spirit of cooperation.”<sup>19</sup> Potter’s enthusiasm was infectious. “It is much that same spirit,” wrote the *State Journal*, “no doubt, which keeps Prof. Van R. Potter doing work that is aimed at helping everyone.”<sup>20</sup>

While Potter had been interacting with theologians for some time now, it was not until 1973 that, for the first time, theologians gave scholarly acknowledgement of his bioethics. Martin Marty, a professor at the University of Chicago Divinity School and noted scholar of American religion, and Dean A. Peerman, editor of *The Christian Century*, jointly edited the annual journal *New*

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<sup>17</sup> Unbylined, “Know Your Madisonian, Van R. Potter,”: sec. 7, p. 2.

<sup>18</sup> Unbylined, “Know Your Madisonian, Van R. Potter,”: sec. 7, p. 2.

<sup>19</sup> Unbylined, “Know Your Madisonian, Van R. Potter,”: sec. 7, p. 2.

<sup>20</sup> Unbylined, “Know Your Madisonian, Van R. Potter,”: sec. 7, p. 2.

*Theology*; their tenth anniversary issue “is preoccupied with the theme of *bios*. Were we given to neologisms, we would follow Dr. Van R. Potter, who coined ‘bioethics’<sup>21</sup> in order to meet new necessities, and speak of ‘biotheology.” Twenty years before Warren Reich would investigate the paternity of “bioethics,” Marty and Peerman freely acknowledged<sup>22</sup> it as Potter’s. Moreover, they believed his bioethics recognized something that was of importance for theology, too. “When theologians shift their metaphor from *zoe* to *bios*, the reader is alerted to the fact that something of significance is going on,” they wrote. “There *is*.”

When the theme for *New Theology* is introduced each year, Marty and Peerman explained, the editors find it necessary to say how they came by it. “In a mechanical sense, the answer it never varies. We are vocationally placed where it is necessary to observe not only year by year, but week by week, the productivity of people who write theology.”<sup>23</sup> The task then becomes to locate the model or metaphor theologians have been working with. “That means the realization that for some time *bios* and its cognates and analogues and extensions have been a major preoccupation.”<sup>24</sup>

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<sup>21</sup> Elsewhere they write, “[S]ince, among other things, [Potter] coined the now-familiar word “bioethics.” This acknowledgment of Potter’s authorship of bioethics is striking, since by this point the Georgetown bioethics origin myth had become widely disseminated and accepted.

<sup>22</sup> Martin Marty and Dean A. Peerman, eds., *New Theology 10*: viii.

<sup>23</sup> Marty and Peerman, *New Theology 10*, ix.

<sup>24</sup> Marty and Peerman, *New Theology 10*, x.

Marty and Peerman came away from the Congress of Learned Societies in the Field of Religion in September 1972 feeling that “more often than one could wish, there was a sense of exhaustion; everything had been tried. In that respect, the theological world sometimes resembles the post-radical political world of the 1970s: *anomie* affects many. There is a kind of joyless, directionless continuation of courses upon which one has embarked.”<sup>25</sup> In only one place did they find theological thought that was, quite literally, alive:

It had been coming to life during the past years when we were collecting material on transcendence, politics, futurism, peoplehood – themes that have not been diminished significantly. ‘It’ refers to the preoccupation with the paradigms related to “*bios*”....<sup>26</sup> “[m]ost of the attention to date has been given to ‘bioethics’ and not theology or interpretation. The reason for that is simple to see: the changes are so urgent that one cannot wait for the perspective of years and limitless research. One must act.

However, they concluded, “this action is its own kind of interpretation; and this ethics, whether or not it mentions God, is its own kind of theology.”<sup>27</sup>

In early April 1973, Potter was asked to give a paper at a workshop at the Institute for Theological Encounter with Science and Technology (ITEST)<sup>28</sup> in St. Louis. Founded by a Jesuit physicist, Robert Brungs, and John Matschiner, a professor of biochemistry at St. Louis University Medical School, ITEST was

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<sup>25</sup> Marty and Peerman, *New Theology* 10, xi-xii.

<sup>26</sup> Marty and Peerman, *New Theology* 10, xii.

<sup>27</sup> Marty and Peerman, *New Theology* 10, xiv.

<sup>28</sup> See Robert Brungs, “The Institute For Theological Encounter With Science And Technology (ITEST),” *Zygon* 8, no. 2 (June 1973):148–151.

launched in 1966 with an expressed mission to “study the advances in science and technology and their meaning for the Christian understanding of the human being and of creation.”<sup>29</sup> Potter was “an invited guest speaker with Fletcher and Delgado,” as he enthusiastically reported in a letter to *Perspectives in Biology & Medicine* editor Dwight J. Ingle on February 15, 1973. “My title is ‘Probabilistic Aspects of the Human Cybernetic Machine’.... I will also be glad to hear your reaction to my Probabilistic Aspects ms.”<sup>30</sup>

In early 1974, Potter laid out his theological program for a group of Madison-area clerics. As reported by *Wisconsin State Journal* religion writer William Wineke, “One prominent Madison ethicist, Prof. Van R. Potter thinks it might be a good thing for people to decide that God is not all-powerful. Dr. Potter, author of a popular book, ‘Bioethics,’ thinks that such a realization might lead people to be more compassionate to people who suffer.”<sup>31</sup>

“We must not leave too much to God,” Potter reportedly told the clerics. “We must as men accept responsibility for seeking a world in which order and disorder are recognized and balanced in the interest of human concepts of justice and dignity.” Perhaps, he continued, “we would do better to return to the

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<sup>29</sup> ITEST current states its mission this way: “If we had to condense our theme into a bumper sticker, it would be ‘reject scientism,’ We consider it far too limiting to think that all knowledge must be scientific, and anything else isn’t worth knowing. We completely reject the media-driven notion that science and religion are at war.” <http://www.faithscience.org/about.html>.

<sup>30</sup> Van Rensselaer Potter to Dwight J. Ingle, 15 February 1973.

<sup>31</sup> William R. Wineke “Do We Expect Too Much From God?” *Wisconsin State Journal* Saturday, 12 January 1974 sec 3, page 2.



idea that God is nature and that nature's way involves hurting the innocent from time to time."

It's not clear how the Madison clerics reacted, but Wineke was enthusiastically engaged. "To most traditional theologians it would certainly not be 'better' to return to the idea that God is nature," Wineke conceded. "They see the movement of religion from nature worship to the worship of a transcendent God, one who controls nature, as being a mark of the maturing of faith. The theologians do not see return to the worship of sacred trees or rain gods as an advancement." But Potter's proposal "isn't just the bright idea of a teenager questioning traditional religion for the first time," Wineke hastened to add. "It is symbolic of a renewed thrust – Humanism – a philosophy which puts man, rather than God, at the center of reality – [which] is making combat with traditional religion." As Wineke understood Potter, the Humanist approach isn't a "militantly atheistic approach which asserts 'Don't believe in God because such belief is stupid'... Rather, it is an approach which suggest that, given the complexity and rapid change of modern life, men must find a better means of organizing their religious and ethical values than that propounded by the traditional theistic faiths."

Potter, explained Wineke, developed his philosophy of suffering in response to the suffering of cancer patients he'd seen in 32 years of research.<sup>32</sup>

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<sup>32</sup> Potter did not conduct clinical research; in the direct quotes he speaks not of his own "patients" but of neighbors and others most adults have known with cancer. That

In it, suffering is attributed to bad luck, rather than some predestined plan. “Each of us is the product of a chance combination of genes that may add up to make us more or less capable than our brothers and sisters,” Potter explained. “Each of us will suffer in our lifetime many times through no fault of our own. Should we not be tolerant of our neighbors when they suffer and should we not do all in our power to mitigate their suffering and develop their potential?” Put that way, Wineke answered, few people would answer, “No.” But Potter suggested that traditional answers, in fact, may be intolerant, increasing rather than mitigating suffering.

“Although most adults have seen cancer,” Potter explained, “they cannot accept the probabilistic aspect of the disease. They cannot accept the idea that life is at best a gamble, in which we take calculated risks.” A visitor to a cancer patient may find it more comfortable to assume he has “committed sins of ‘omission’ (ignored the seven danger signals) or sins ‘of commission’ (smoked cigarettes) or that suffering may somehow make the sufferer a ‘better person.’”<sup>33</sup>

Wineke went on to explain, “Those answers aren’t necessarily the result of theistic religion, but they stem from one of the presuppositions of theistic religion: that God is in charge of the world and that everything that happens in the world in either is part of a plan or due to a cause.” It would be better, Potter suggested to

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Potter’s philosophy was founded in the experience of his own patients’ suffering may have been Wineke’s assumption.

<sup>33</sup> Wineke “Do We Expect Too Much From God?,” sec 3, page 2.

the clerics, if we would all just admit that life is often unfair. “We would be more comforting to suffering people if we talked less about ‘redemption, salvation, and life after death,’ and more about ‘understanding the constraints placed upon man by the natural world and an understanding of the often capricious nature of this world,” he said.

Wineke contrasted the two theologies this way: “In theistic theology, all of life has purpose, one which can either be explained today or will become clear tomorrow. In Humanistic theology, life is open-ended. There is no “reason’ for tragedy except that life sometimes is tragic ... don’t blame God for suffering, but don’t blame yourself either. Accept suffering as part of the price one must pay for living and doing what you can to avoid it and console those who suffer.”

Potter may not have made much of an impression on the Madison clerics, but he appears to have made an enthusiastic convert of the *State Journal's* religion writer. “The problem with [Humanistic] philosophy from a theistic point of view is if it doesn’t give God much to do in human life,” Wineke explained. “If He can’t avert suffering, then why pray to Him? That’s another question Humanists are asking traditional religion. And, as Humanistic philosophy becomes more attractive to modern men, traditional religion will have to spend an increasing amount of time and thought in providing answers.”<sup>34</sup>

In the mid 1970s, Potter made a strategic shift from a participant in symposia and conferences to an organizer of such events. Advancing his

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<sup>34</sup> Wineke “Do We Expect Too Much From God?,” sec 3, page 2.

bioethical agenda in small groups afforded scholars the opportunity to cross disciplinary lines in an exchange of ideas, while large group meetings afforded Potter the opportunity to inspire and even evangelize. In 1974, Potter was involved in the planning of one such small group occasion, the 1975 American Association for the Advancement of Science “Interdisciplinary Workshop on the Interrelationships Between Science and Technology, and Ethics and Values.”<sup>35</sup> The gathering was planned and organized by an ad-hoc committee that included: William A. Blanpied, the recently appointed director of the AAAS Communications Department; Wendy Weisman-Dermer of AAAS; Potter; Phillip Bereano, who would soon leave Cornell to join the faculty at the University of Washington as an Associate Professor in the Program for Social Management of Technology; Peter Buck, who would retire as Senior Lecturer and Director of Undergraduate Studies in the Department of the History of Science at Harvard University in 2006; John M. Koller, a professor of Asian and Comparative Philosophy at Rensselaer Polytechnic Institute, and Dorothy Zinberg, then a lecturer in public policy, with a specialty in science and technology policy, in Harvard's sociology department.

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<sup>35</sup> This is an interesting construction. However, in his preface to the conference proceedings, William D. Carey, Executive Officer of AAAS, calls it a workshop on “science, technology, ethics, and values,” thereby eliminating two distinct subsets of inquiry. William A. Blanpied and Wendy Weisman-Dermer, eds, *Proceedings of the AAAS Interdisciplinary Workshop on the Interrelationships Between Science and Technology, and Ethics and Values, Sheraton Conference Center, Reston Virginia, 10-12 April 1975*, AAAS Miscellaneous Publications 75-8, Washington DC: American Association for the Advancement of Science (1975).

According to Blanpied, the planners conceived of the workshop as an opportunity to bring together scholars from a variety of disciplines in the humanities, the social and natural sciences, and engineering, and provide them with the opportunities to learn about differing disciplinary perspectives and methodologies as well as on the design on genuine interdisciplinary research projects. The 46 invited scholars<sup>36</sup> who gathered in Reston Virginia in April, 1975<sup>37</sup> “were not asked to attempt to illuminate any other issues subsumed by that rubric,” Blanpied explained. Rather, it was expected that they would assist in defining, at least indirectly, several fruitful directions for the development of research on such issues.”<sup>38</sup> Organizers hoped that a few tentative designs for specific research projects might emerge during the workshop, with more to come in its aftermath. “Thus, in addition to providing a stimulating intellectual experience for individual participating scholars,” Blanpied continued, “the workshop was regarded as an experiment which might conceivably provide

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<sup>36</sup> The invited participants included Ian Barbour, then of the Department of Religion at Carleton College, Lynn White, Jr., author of the extremely influential essay “The Historical Roots of Our Ecologic Crisis,” Samuel Gorovitz, then a philosopher at the University of Maryland, Christine Russell from *BioScience*, and James Trosko.

<sup>37</sup> That same month, Potter was elected to membership in the prestigious National Academy of Sciences. The following year, Potter introduced a one-page “Resolution on the Social Responsibility of Scientists” suggesting an “appropriate procedure” for individual scientists when they have contact the press or a policy-making body with respect to a complex social issue. Van Rensselaer Potter, Resolution on the Ethical Responsibility of Scientists, Presented to the Council of the National Academy of Sciences at a business meeting of the NAS in April 1976.

<sup>38</sup> William A Blanpied, “Introduction and Preliminary Assessment of the Workshop,” *Proceedings of the AAAS Interdisciplinary Workshop on the Interrelationships Between Science and Technology, and Ethics and Values*, 3.

information on the potential for, and the barriers to, genuine interdisciplinary research on the interrelationships between science and technology, and ethics and values.”<sup>39</sup>

Operating under the assumption that many of the participants were not conversant with the “assumptions, perceptions, terminology, methodologies of disciplines other than their own,”<sup>40</sup> four keynote papers were commissioned in an effort to define the workshop context. The presenters were: Claire Nader, who spoke on the need and desirability for problem-focused research on the interrelationships between the workshops four identified subject areas; Thomas Nagel, who discussed distinctions between ethical and other values; Melvin Kranzberg, who addressed the cultural and operational distinctions between science and technology, and the Hastings Center’s Daniel Callahan.<sup>41</sup>

The title of Callahan’s talk was “BioMedical Ethics: A Case Study in Interdisciplinary Research.”<sup>42</sup> One can’t help but imagine what went through Potter’s mind when Callahan began “A few years ago some colleagues and I, at

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<sup>39</sup>Blanpied, “Introduction and Preliminary Assessment of the Workshop,” 2-3.

<sup>40</sup> Blanpied, “Introduction and Preliminary Assessment of the Workshop,” 5.

<sup>41</sup> A synopsis of each talk can be found in conference organizer and participant Robert E. McGuinn’s account in *Technology and Culture*. Robert E. MCGuinn, “Workshop on the Interrelationships Between Science and Technology, and Ethics and Values, Reston, Virginia April 10-12, 1975,” *Technology and Culture* 17, no 2 (April, 1976): 249-255.

<sup>42</sup> In the table of contents for the Proceedings, it is titled “ Bioethnics (sic): A Case Study in Interdisciplinary Research.” I have gone with the title printed over the actual text.

that time prone to immodestly congratulate ourselves on the invention of bioethics, chanced to have a conversation with the elderly director of an adult education program sponsored by the Jewish Theological Seminary.” Wherever Callahan was going with this, it was clear it wasn’t Madison. “We were attempting to persuade her that here was a fresh, new field, ripe for public exposure,” he continued.” “What do you mean ‘new’?” she exclaimed. ““We were offering courses on all those problems in the late thirties and forties.’ Psychosurgery, sterilization of the retarded, human experimentation, fetal research, definitions of death were all apparently among the topics in her yellowing course catalogues.”

<sup>43</sup>In his talk, Callahan goes on to use, as indeed he has done for the rest of his career to date, the words “biomedical ethics” and “bioethics” in an oddly imprecise and interchangeable manner.<sup>44</sup>

In his rather pessimistic evaluation of the workshop, Blanpied noted that participants were unable to reach consensus on why interdisciplinary research on

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<sup>43</sup> Daniel Callahan, “BioMedical Ethics: A Case Study in Interdisciplinary Research,” *Proceedings of the AAAS Interdisciplinary Workshop on the Interrelationships Between Science and Technology, and Ethics and Values*: 37.

<sup>44</sup> In his recent autobiography, Callahan explained not only his understanding of the genesis of the word bioethics, but his aversion to the term. “The word ‘bioethics’ did not come into common usage until the early 1970s, coined by a scientist not even in the field: Van Rensselaer Potter in his book *Bioethics: Bridge to the Future*, well after the topics that have it name came into the public light,” he explained. “I was not drawn to the term, mainly because I wanted (as did some others) to be called a moral philosopher, not a bioethicist.” Daniel Callahan, *In Search of the Good: A Life in Bioethics*, (Cambridge: MIT Press, 2012): 53. The description of bioethics as being “coined by a scientist not even in the field” seems rather odd, given that a) the field did not exist until Potter coined the term and b) as coiner of the term Potter clearly had the right not only to define the field but to include himself in it.

interrelationships between science and technology and ethics and values should be undertaken. “A large number of participants, perhaps a majority, were primarily interested not in research per se, but in applying research results to specific problems and opportunities,” Blanpied observed. “This group seemed to regard research as a means for providing an intellectual foundation for the processes through which society reaches decisions on priorities, policies and choices,” Several observers, Blanpied noted, reported that those who took that approach had a “rather naïve view of how values, reason and power interact in the process.”

Both workshop afternoons were devoted to small working groups assigned to different topics. Each working group was assigned a non- AAAS staff committee member rapporteur. Surprisingly and quite uncharacteristically, Potter is the only rapporteur who has no account of his groups’ work in the *Proceedings*. Possibly he missed the deadline for submission, as it seems more than likely he was under pressure from another upcoming event.

### **Smoke Signals: Humility with Responsibility**

Leonard Zahn had a problem in Houston. Len, as he was known to his numerous friends in the National Association of Science Writers, knew something was up, but he couldn’t quite put his finger on it. The dogged freelance medical correspondent for an obscure German periodical had covered dozens of scientific meetings a year, and he’d never picked up a vibe like he was getting at the 1974 annual meeting of the American Association for Cancer Research. And



he said as much when, in his capacity as Leonard S. Zahn,<sup>45</sup> sole proprietor of Leonard Zahn Associates, he sat down to write a memo to W.T. Hoyt, executive vice-president and secretary of the Council for Tobacco Research. CTR, the main tobacco-industry-funded research body, was one of the largest private funders of independent medical research in America – although, as it later turned out, CTR funded both truly independent research, and researchers who could be bought.

CTR was Leonard Zahn's largest client, and they paid him very, very well to keep atop any medical and scientific advances that could be exploited to the tobacco industry's advantage – or to discount or disparage any work that reflected badly on the industry, to the point where Len's good friends in the Association of Science Writers wouldn't touch the story with a 10-foot pica ruler. Other reporters trusted Len Zahn's judgment. He was very good at what he did.

“However, something was apparently is underway because there was a symposium on ‘Environmental Determinants of Human Cancer,’ organized and

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<sup>45</sup> Leonard Zahn began working for CTR in 1955, when he was an account executive and later a vice president at the public relations agency Hill & Knowlton. In 1979, Zahn took the CTR account with him when he resigned from H&K to launch his own PR firm, Leonard Zahn & Associates, Inc. He continued to work for CTR until his retirement in 1994. To his colleagues in the National Association of Science Writers, Zahn was not only a freelance writer for medical publications such as *Selecta*, a German weekly medical magazine, and the New York-based *Medical Tribune*, but was an active volunteer with NASW, serving at various times on its executive committee, its program director, and editor of its quarterly newsletter. When documents released in connection with the tobacco lawsuits revealed Zahn as an “agent provocateur,” many reporters professed disbelief. NASW president and San Francisco Chronicle reporter Charles Petit defended Zahn as a “friend.” See David Zimmerman, “Expose: ‘Journalist’ Conned Colleagues For 35 Years as Spy for Tobacco,” *PROBE newsletter*, April 1999; Charles Petit, “President’s Letter,” *ScienceWriters* 15 (Summer 1989).

chaired by [Samuel S.] Epstein,”<sup>46</sup> Zahn wrote. “It was the first session of its kind ever held during an AACR meeting.”<sup>47</sup>

But that was not the only thing that seemed off. “Outgoing AACR president Michael Shimkin<sup>48</sup> went out of his way to be particularly vicious in comments about Pete Little and Ronald Fisher,”<sup>49</sup> Zahn noted. “He inveighed against the

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<sup>46</sup> Epstein, a physician, is currently professor emeritus of environmental and occupational health at the University of Illinois at Chicago School of Public Health. As of 2012, he was writing an occasional blog for the *Huffington Post* on environmental hazards. In 1998, he released an updated version of his 1978 classic *The Politics of Cancer Revisited*.

<sup>47</sup> While Zahn’s connection to the CTR has been documented elsewhere, this is the first time, to my knowledge, a connection has been established between Zahn and the AACR meetings in the mid-1970’s. Memorandum to W.T. Hoyt from Leonard Zahn, “American Association for Cancer Research, Houston, Texas, March 27-30, 1974,” April 8, 1974,” 1. Legacy Tobacco Documents Library, University of California, San Francisco.

<sup>48</sup> Shimkin was at the National Cancer Institute in the 1950s when studies demonstrated a link between smoking and cancer. When he died in 1989, colleague Cedric Garland remembered, “He believed that the public does not clearly understand what is helpful and what is not with regard to cancer. He tried to emphasize the important major factors such as smoking, drinking and diet over concerns about trace chemicals linked to cancer.” AP, “Dr. Michael B. Shimkin, 76, Dies; Help Link Smoking and Cancer, *New York Times*, 20 January 1989.

<sup>49</sup> Zahn is referring to Sir Ronald Aylmer Fisher, a British statistician and eugenicist who attempted to refute claims that cigarettes caused cancer, arguing that correlation does not imply causation. Richard Dawkins, in what one hopes is a bit of hyperbole, has called Fisher the “greatest biologist of the 20<sup>th</sup> century.” A pipe smoker, Fisher died in 1962 at age 72. Richard Dawkins, *The Selfish Gene: 30<sup>th</sup> Anniversary Edition* New York: Oxford University Press (2006): 124; Mark Parascandola, “Two Approaches to Etiology: The Debate over Smoking and Lung Cancer in the 1950’s,” *Endeavour* 28, no. 2 (June 2004): 81-86.

Pete Little would be Clarence Cook “Pete” Little, former president of both the Universities of Maine and Michigan, managing director of the American Cancer Society, two-time president of the American Association for Cancer Research turned director of the Tobacco Industry Research Committee. Little would maintain that, “from the perspective of the laboratory clinician, no definite cause and effect relationship between smoking and lung cancer had been established.” Richard Kluger, *Ashes To Ashes: America’s Hundred-Year Cigarette War, the Public Health, and the Unabashed Triumph of Philip Morris*, (New York: Random House, 2010): 166.

industry's advertising, deplored the lack of success in convincing the public, and said he was 'spellbound' at the failure to get support from some of the leading cancer researchers." Zahn went on to quote Shimkin at length: "Reasons for the opposition," Shimkin reportedly said, "were very hard to identify in science or in logic. Bruised egos and private vendettas obviously abounded. But what can be the explanation of such giants as the late C.C. Little in the United States, and the late R. A. Fisher in England in joining the tobacco side? What windmills were they tilting?" And then, Zahn continued, Shimkin "departed from his text to say that Little and Fisher may have been psychopathologically affected."<sup>50</sup>

Zahn took some comfort in the fact that "a plea ... more like a demand" from Samuel Epstein that AACR members take a stand on various health issues and "testify at public hearings, demand investigations into health hazards, etc., all for the public good"<sup>51</sup> was met with muted response."<sup>52</sup> Zahn also took note of

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<sup>50</sup> Memorandum to W. T. Hoyt from Leonard Zahn "American Association for Cancer Research, Houston, Tex., March 27-30, 1974, 8 April, 1974": 2.

<sup>51</sup> Memorandum to W. T. Hoyt from Leonard Zahn "American Association for Cancer Research, Houston, Tex., March 27-30, 1974, 8 April, 1974":1.

<sup>52</sup> Memorandum to W. T. Hoyt from Leonard Zahn "American Association for Cancer Research, Houston, Tex. March 27-30, 1974, 8 April, 1974": 1. For his part, Epstein demanded a Congressional investigation into the pesticide Dieldrin. Developed in the 1940's as an alternative to DDT, Dieldrin proved an extremely persistent organic pollutant; moreover, it tends to biomagnify as it is passed along the food chain (that is, it is found in greater concentrations in the tissues of organisms further up the food chain). Virtually all uses of Dieldrin were banned in the U.S. in 1985. See S.M. Snedeker, "Pesticides and Breast Cancer Risk: A Review of DDT, DDE, and Dieldrin." *Environmental Health Perspectives* 109 (Suppl. 1, 2001): 35-37; Anumantha G. Kanthsamy, Masashi Kitazawa, Arthi Kenthsamy, and Vellareddy Anatharam, "Dieldrin-Induced Neurotoxicity: Relevance to Parkinson's Disease Pathogenesis,"

the fact that media coverage was “relatively sparse,” possibly because the American Cancer Society’s annual seminar for science writers ended the same day that the AACR conference began.<sup>53</sup>

Zahn’s suspicions were well-founded. When the 1974 AACR Board of Directors met for their final meeting in Houston, president-elect Van Rensselaer Potter asked the board’s support for a special session on “relevant social and ethical issues” at the next year’s annual meeting in San Diego. After discussing “various possible difficulties and how they might be overcome,” Potter wrote in a “Special Message” to the AACR membership in August 1974, the Board gave Potter’s proposal their unanimous support for an ad hoc session entitled “Social and Ethical Issues in Cancer Prevention.”<sup>54</sup>

“The new type of session is admittedly an experiment,” Potter wrote. “However it is hoped that it can develop into an annual event which might

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*NeuroToxicology* 26, no. 4 (August 2005): 701-719; M.G. Weisskopf, P. Knekt, E. J. O’Reilly, J. Lyytinen, A. Reunanen, F. Laden, L. Altshul, and A. Ascherio, “Persistent Organochloride Pesticides in Serum and Risk of Parkinson’s Disease,” *Neurology* 74, no.13 (30 March 2010): 1055-1061.

<sup>53</sup> Memorandum to W. T. Hoyt from Leonard Zahn “American Association for Cancer Research, Houston, Tex. March 27-30, 1974, 8 April, 1974” p. 1. In 1959, the American Cancer Society dropped their guided tours of cancer facilities for science writers in favor of “annual seminars...held in the spring at attractive sites throughout the country.” “Cover Legend: Patrick M. McGrady, Sr., organized and conducted the American Cancer Society’s Annual Science Writers’ Seminars,” *Cancer Investigation* 3, no. 2, (1985): 193-195; “Cancer Seminar Here to Attract Top Writers,” *Evening Independent* (St. Petersburg, FL) 16 March 1961: 1-B.

<sup>54</sup> “A Special Message from the President of the AACR: Ground Rules for an Ad Hoc Session at the San Diego Meeting entitled ‘Social and Ethical Issues in Cancer Prevention and Cancer.” Van Rensselaer Potter, 9 August 1974: 1. Mandeville Special Collections Library, University of California, San Diego.

possibly point the way for similar actions by other scientific organizations.”<sup>55</sup> The special session was deliberately scheduled for the first day, Potter explained in order to facilitate meeting with the overlapping meeting of the American Society of Clinical Oncology, a 1964 spin-off from the AACR created to cater to the specialized interests of practicing oncologists.<sup>56</sup>

“Many investigators in the field of cancer research have strong feelings and opinions about various issues that arise when new facts and values impinge on pending and future legislation as well as upon ethical and issues made by individuals,” Potter acknowledged. “Issues that arise in the field of cancer prevent, like environmental pollution, health care delivery, advertising practices and safety guidelines may need to be addressed legislatively. But there are other matters – human experimentation, care of the terminally ill, informed consent, and “other instances involving human intervention in human destiny” that require ethical consideration.<sup>57</sup> In the field of cancer research hot button legislative issues involve environmental pollution, health care delivery testing of new biologically active compounds, advertising practices, and safety guidelines. Ethical concerns arise in connection with human experimentation, care of terminally ill patients, informed consent and “other instances involving human

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<sup>55</sup> “A Special Message from the President of the AACR”: 1.

<sup>56</sup> “A Special Message from the President of the AACR”: 1.

<sup>57</sup> “A Special Message from the President of the AACR”: 2.

intervention in human destiny.”<sup>58</sup> While the Policy Committee and Board of Directors were “rightly limited” in their authority to speak for the membership, Potter said, the membership could support the idea that individual members could express “value judgments” at the annual meeting “without compromising their ability to report valid scientific experiments.” Indeed, Potter continued,

“...the very existence of the scientific ethic requires a scientist to change his mind when the facts deny his hopes or beliefs. This scientific ethic makes it possible for a scientist to have objective knowledge on the one hand and to hold value judgments in which facts alone are incapable of forcing a decision. Such opinions can be changed by new facts or new perspectives relevant to basic assumptions.”<sup>59</sup>

When AACR met in San Diego the following May it was, in Leonard Zahn’s account, “one of the largest meetings in AACR history both in attendance and number of papers.” Many of the ASCO conferees had indeed stayed on for the AACR gathering. From Zahn’s vantage, the fact that press coverage was limited to local print and broadcast media and a number of medical and paramedical journals was a positive development. “There were several papers on tobacco, some on work being supported by CTR, but none of the press people seems interested in any (at the time.)”<sup>60</sup>

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<sup>58</sup> A Special Message from the President of the AACR”: 2.

<sup>59</sup> “A Special Message from the President of the AACR”: 2.

<sup>60</sup> Memorandum to W.T. Hoyt from Leonard Zahn, “American Association for Cancer Research, San Diego, May 8-11, 1975,” 15 May, 1975:1. Legacy Tobacco Documents Library, University of California, San Francisco.

“When Van Potter decided to make ‘ethics for oncologists’ the theme of this, the 66<sup>th</sup> meeting of the American Association for Cancer Research,” Michael B. Shimkin<sup>61</sup> said in his remarks opening the special session, “I thought Drs. Brennan, Zubrod and I would preside over a cozy gathering of perhaps a dozen people who had lost their way to other sessions.” Instead, Shimkin, a past president of AACR, observed, they had an audience that had overflowed the room, with more coming.<sup>62</sup> “It is obvious that the ethical problems, the problems in areas of interfaces between science and politics, between both and public policy, not to mention philosophy and religion, are of as great concern to cancer investigators as they are to all thinking inhabitants of the planet.”<sup>63</sup>

Shimkin’s own particular concerns, he confessed, surrounded the inadequate data available to calculate risk associated with potential environmental carcinogens. Scientists are often caught between “the competing and adversary positions of the purveyors of the hazards and their

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<sup>61</sup> Shimkin was the brother of anthropologist Demitri B. Shimkin, who was a participant in the Burhoe/Hoagland conference Potter helped organize some 15 years earlier. Both activists in their respective fields, the brothers were still grappling with apparent death of Demitri’s son Alexander in 1972. Alexander Shimkin was a war correspondent who had been working on the cover-up of U.S. military killings of civilians when he was presumed killed in a North Vietnamese grenade attack. His body was never recovered. See Nick Turse, *Kill Anything That Moves: The Real American War in Vietnam*, (New York: Metropolitan Books, 2013): 251-257.

<sup>62</sup> Michael B. Shimkin, “Introductory Remarks: American Association for Cancer Research Symposium on Social and Ethical Issues in Cancer Prevention and Therapy,” *Medical and Pediatric Oncology* 3 (1977): 121.

<sup>63</sup> Shimkin, “Introductory Remarks: American Association for Cancer Research Symposium,” 121.

environmentalist proponents.”<sup>64</sup> Shimkin was unimpressed by “instant statistics” purporting to show that “x” percentage of cancers were caused by environmental factors, because the definition of said factors included the entire internal and external ecology, and as such were “relatively meaningless.” Shimkin found more meaning in harder numbers, like those associating one-sixth of all cancers with tobacco use. “And, although I am devoted to the mystically absolute concept of absolute safety as defined by the Delaney Clause,<sup>65</sup> its application in the real world requires the faulty screen of human judgment. I am also willing to listen, but remain unimpressed with mathematical games on rodents that extrapolate to the one-billionth of the dose as a measure of safety in man.”<sup>66</sup>

Zahn reported that, in a later press conference, Shimkin had said, “[A]nyone reporting data should clearly identify the source of support. For

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<sup>64</sup> Shimkin, “Introductory Remarks: American Association for Cancer Research Symposium,” 121.

<sup>65</sup> A 1958 amendment of the Federal Food, Drugs and Cosmetic Act of 1938, mandating that “The Secretary of the Food and Drug Administration shall not approve for use in food any chemical additive found to induce cancer in man, or, after tests, found to induce cancer in animals.” (Section 409, FFDC.A.) The Delaney Clause proved increasingly problematic, as it set a “zero risk” standard for pesticides that induce cancer responses in test animals, even if the risk to humans is deemed inconsequential because the oncogenic potential of the pesticide is weak and/or human exposure is very low.

<sup>66</sup> Shimkin, “Introductory Remarks: American Association for Cancer Research Symposium,” 122.



example, if someone writes on tobacco tar, it's relevant to know whether he is being supported by a grant from the tobacco industry or some other source.”<sup>67</sup>

Even as the hundreds of conferees began arriving, the organizing committee was uncertain how Potter's experiment was going to turn out. “Since the response to the call for abstracts had been relatively limited in comparison to that for the other scheduled sessions, we thought that only a few members would attend,” Michael Brennan recalled in 1977. However, Brennan and his fellow organizers were met with an unexpectedly large turnout, “so that many had to find space by standing along the walls of the room or sitting on the floor in the aisles. The weather being good and the windows open, others crowded around the windows outside to listen and to call in their comments.”<sup>68</sup> Apparently, Brennan surmised, many people had wanted to join in discussion of the topics but had felt hesitant about making a formal offer to present.

Brennan said the conference came at a time when the country was in ferment over a wide variety of moral issues. “Distrust of public and institutional leadership was at epidemic levels,” he remembered. “The need for something more than procedural regularity and legal innocence as an ideal of social integrity was everywhere apparent. Intellectuals were starting again to search for general moral norms and for wise rules of conduct consonant with general concern for

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<sup>67</sup> W.T. Hoyt from Leonard Zahn, “American Association for Cancer Research, San Diego”: 3.

<sup>68</sup> Michael Brennan, “Truth Versus Data,” *Medical and Pediatric Oncology* 3 (1977):199-200.

the common good.” Ecology had become a national topic. Achieving economic and racial justice seemed to require extensive reforms.<sup>69</sup>

“Some of the discussants were clearly suspicious that the ‘establishment’ of the Association might be ‘using’ the session as a public relations device to pretend a moral concern that it did not really have or to preempt the leadership of reformative social initiatives developing in the membership while intending to continue its self-seeking and nefarious collaboration with federal agencies, pharmaceutical houses, professional organizations, and other notorious social villains,” Brennan recalled. This faction called on the Association immediately to move politically on a wide variety of hot-button issues from affirmative action to tobacco subsidies to prescription drug prices and an “evermore notoriously bureaucratic and officious FDA administration.”<sup>70</sup> Planners had anticipated that on both the right and the left there would be “passionate people aplenty who had a high stake in the conduct of the session.” What surprised the planners was the response of the “predominant center element of the membership” to the issues speakers raised.<sup>71</sup>

“Reflecting on the events of San Diego afterwards,” Brennan wrote, “it struck me that a large component of the moderate membership of the AACR had shown signs of an inclination to begin to visualize what had always been thought

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<sup>69</sup> Brennan, “Truth Versus Data,” 200.

<sup>70</sup> Brennan, “Truth Versus Data,” 200.

<sup>71</sup> Brennan, “Truth Versus Data,” 200.

of as a learned society in a new way; namely, what one might call a scientific guild. A guild, as I use the term here, is an occupational association that represents its members before government and other social groups, regulates the training of new members, establishes criteria for their admission, sets standards of work, and takes a corporate responsibility for the provision of some public good.<sup>72</sup>

Society had been rapidly transformed from a state in which the transmission of scientific knowledge to citizens was restricted to professional interpreters into Marshall McLuhan's "global village,"<sup>73</sup> with direct dissemination of information via various electronic means. As a result, AACR members had new communication obligations. "The cancer research community must come to distinguish the reporting of data from the communication of truth," Brennan concluded, "and prepare itself as well as it can to undertake the latter if the public

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<sup>72</sup> Brennan, "Truth Versus Data," 201.

<sup>73</sup> Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, (Toronto, Canada: University of Toronto Press, 1962); Marshall McLuhan, *Understanding Media: The Extensions of Man*, (New York: McGraw-Hill; 5th Printing edition, 1966.)

McLuhan was a teaching assistant at the University of Wisconsin–Madison during the 1936–37 academic year. In his introduction to *Marshall McLuhan Speaks*, a website created to commemorate the 2011 centennial of McLuhan's birth, Tom Wolfe identifies the "tremendous debt," never publicly acknowledged, McLuhan owed to the thought Teilhard de Chardin. As a Protestant convert to Catholicism teaching at a Catholic-identified college (University of Toronto's St. Michael's College), McLuhan was constrained not only by the "cloud of heterodoxy" the Church had placed over Teilhard, but the secular reality that "academic work within even a tinge of religion" was not taken seriously. While McKuhan privately discussed the influence of Teilhard on this thought, Wolfe said, outside of his circle it took "another Teilhard enthusiast to discern it." <http://marshallmcluhanspeaks.com/introduction/>.

good is to be respected, our obligations to our fellow citizens met, and the health of our own enterprise sustained.”<sup>74</sup>

In a press conference afterward, Leonard Zahn reported that Brennan criticized the press for devoting as much attention to unproven carcinogenic risks as vinyl chloride as to smoking and cancer. “You can’t get a thing in the press any more about tobacco,” Brennan reportedly said. “It’s old hat. Yet tobacco is the biggest cancer thing in the country today but we can’t get any press attention to it.”<sup>75</sup>

Still yet to come was Potter’s own address, where he hoped to pull together over a decade’s worth of bioethical thinking. “I do remember discussing with Van over the phone before he was to give his Presidential AACR address because he was excited about ‘breaking the mold’ for this very conservative scientific society,” James Trosko remembered recently.<sup>76</sup> And indeed “Humility with Responsibility – A Bioethic for Oncologists”<sup>77</sup> was unlike any presidential address in the organization’s history.

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<sup>74</sup> Brennan, “Truth Versus Data,” 201-2.

<sup>75</sup> W.T. Hoyt from Leonard Zahn, “American Association for Cancer Research, San Diego”: 4.

<sup>76</sup> James Trosko, correspondence with the author.

<sup>77</sup> No known transcript of Potter’s address as delivered exists. All quotations are taken from the address as published in *Cancer Research*. Van Rensselaer Potter, “Humility with Responsibility - A Bioethic for Oncologists. Presidential Address,” *Cancer Research* 35 (September, 1975), 2297-2306.

“First,” Potter began, “I want to characterize humility with responsibility as *the basic bioethic*. The reason for this categorization stems from the fact that this basic bioethic emerges from a consideration of what bioethics is all about, namely, an understanding of how our thinking brain can combine biological knowledge with a social and philosophical consciousness.”<sup>78</sup> In his presentation, Potter promised his audience, he would proceed from a consideration of evidence suggesting the importance of probabilistic and partly random happenings in human and other living systems, to the nature and importance of the Eureka! Feeling and its inherent possibility for error, and then derive the basic bioethic of humility with responsibility which follows logically from any admission of fallibility. (One expects that there were more than a few members of his audience, comprised largely of cancer research scientists and clinicians, who were uncomfortable with any suggestion of fallibility, let alone a need for humility). Finally, he would discuss how this proposed bioethic might relate to the role of the American Association for Cancer Research in making national policy decisions.<sup>79,80</sup>

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<sup>78</sup> Potter, “Humility with Responsibility,” 2297.

<sup>79</sup> Potter, “Humility with Responsibility,” 2297.

<sup>80</sup> Potter’s AACR address was later quoted in the *Milwaukee Journal* as part of a series on cancer research and development. Paul G. Hayes and Neil D. Rosenberg, “Environment May Be Culprit in Up to 85% of Cancer,” *Milwaukee Journal*, 27 October 1975: 1, 6.

“In proposing analogies between biological evolution and cultural evolution,” Potter explained, “the key words are DNA and IDEA. I use DNA and IDEA because these entities are the least common denominators of their respective systems. The parallelism, or analogies, between DNA and IDEA are not strained; they stem from the fact that in both cases we are dealing with information and the new sciences of cybernetics and biocybernetics.”<sup>81</sup> Both DNA and IDEA can be stored: DNA in chromosomes or reagent bottles, IDEAs in human brains, stone tablets, magnetic tapes or library books. Both are characterized by diversity with the possibility of expression in infinite variety. “Finally,” Potter concluded, “from all this potential diversity of DNA molecules or IDEAs, we must concede the properties of *replication* with or without error, change involving *recombination* or *mutation*, *expression with feedback*, and finally the *struggle for survival*...”<sup>82</sup> As biological evolution proceeds when an existing DNA molecule undergoes change to a new DNA molecule by recombination or mutation, followed by replication, expression and the struggle for survival, so too does cultural evolution occur when an existing IDEA is converted to a new IDEA by mutation or recombinations of existing IDEAs. “The sudden formation of a new IDEA can form subconsciously, and when it erupts into our consciousness the result is what has been called a Eureka! feeling.” The new IDEA may be useful and survive,” Potter added, “or it may be erroneous and

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<sup>81</sup> Potter, “Humility with Responsibility,” 2298.

<sup>82</sup> Potter, “Humility with Responsibility,” 2298.

have to be discarded.”<sup>83</sup> The analogy between DNA and IDEA can be pushed still further to explore the concept of “expression with feedback” and the idea that biological and cultural systems are not only intradependent, but interdependent. “The importance of this mutual interdependence cannot be over-emphasized,” Potter stressed. “The changed environment accompanying cultural evolution includes ‘anthropogenic’ or humanmade, chemical pollutants that are carcinogenic. These substances exert their effects on the biological system.” The recognition of that interdependence, Potter suggested, had significance for any action AACR members might make to influence national policy matters regarding cancer prevention.<sup>84</sup>

Before continuing any further, however, Potter made an abrupt turn to consider “some features of the present study of bioethics,” most particularly as they were practiced at the Center for Bioethics at the Joseph P. Kennedy Institute for the Study of Human Reproduction and Bioethics at Georgetown.<sup>85</sup> “Whether or not biologists wish to participate in its further evolution and application, bioethics is here to stay. The word has caught on rapidly and it is in widespread use,” Potter noted. However, he continued, the Georgetown understanding of bioethics was narrowly circumscribed to ethical questions surrounding right to life, artificial prolongation of life, death with dignity, and

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<sup>83</sup> Potter, “Humility with Responsibility,” 2298.

<sup>84</sup> Potter, “Humility with Responsibility,” 2299.

<sup>85</sup> Potter, “Humility with Responsibility,” 2299.

human experimentation – ethical decisions, Potter said, that considered the “wisdom of *when to do* and *when to leave be*”.<sup>86</sup> These were questions, Potter acknowledged, “that certainly arise in the field of clinical oncology, as the members of the cancer research community are well aware. However, my own view of bioethics calls for a much broader vision. It calls for a wider and more purposeful understanding of biological evolution and cultural evolution. Significantly, in addition to medical bioethics it calls for the development of *environmental* bioethics, a matter of major concern to oncologists. ...”<sup>87</sup> Both medical bioethics and environmental bioethics required the integration of biological knowledge with human value systems. Experience, in Potter’s estimation, “generates new knowledge which can accumulate as biological knowledge or as knowledge of how value systems can change through cultural and political evolution.” Oncologists are affected in every part of this formulation: in medical bioethics, the testing of new therapies and the wisdom to discern when to act and when to let be constantly affect the cancer therapist, while environmental bioethics confronts the oncologist concerned with cancer prevention who must attempt to determine risk in the absence of certainty.<sup>8889</sup>

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<sup>86</sup> Potter, “Humility with Responsibility,” 2300.

<sup>87</sup>Potter, “Humility with Responsibility,” 2300.

<sup>88</sup>Potter, “Humility with Responsibility,” 2301.

<sup>89</sup> According to Warren T. Reich, this kind of thinking was at the root of Potter's objection to the Georgetown approach to bioethics. “Because his field was carcinogenesis, he was aware of the strong link between medical problems and



A related concern is the Eureka! feeling, the sudden flash of illumination or insight into a problem. "It occurs whenever a new idea, concept, action plan or experimental approach occurs to us," Potter reminded his audience. One of the characteristic features of the Eureka! feeling is that it cannot be willed; the time of occurrence cannot be predicted; and its occurrence cannot be guaranteed at all."<sup>90</sup> Another characteristic was the feeling of elation or euphoria that inspires action. But perhaps the most important aspect of the Eureka! feeling was its fallibility; the sudden intuition could be wrong. "Of course, the bigger the problem under consideration, the more likely is the chance of error ... Not only scientists must learn to distrust the feeling of sudden euphoria that urges them to believe they are right," Potter said. "When we are dealing with major policy decisions, we must bring interdisciplinary counseling to bear and must listen to what others have to say."<sup>91</sup>

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carcinogens in the environment. Thus, his holistic way of perceiving health led him to the view that even the clinical therapist "should be thinking about the need for environmental ethics." From Reich's 31 August 1992 interview with Potter, quoted in Warren T. Reich, "The Word 'Bioethics': The Struggle Over Its Earliest Meanings," *Kennedy Institute of Ethics Journal* 5, no.1, (March 1995), 20.

<sup>90</sup> Potter, "Humility with Responsibility," 2304.

<sup>91</sup>Potter, "Humility with Responsibility," 2304.

It was the properties of the Eureka! feeling – suddenness, euphoria, and fallibility – that led Potter to develop the idea of humility with responsibility as the basic bioethic:

The bioethic of humility with responsibility is nowhere more appropriate than in the life of the oncologist because to many disciplines come to bear on the problem of cancer. The American Association for Cancer Research is indeed a loose federation of specialist dealing with an interdisciplinary problem of heroic dimensions.

Oncology is one of the most interdisciplinary problems in the scholastic or medical world....We come with humility for the generalities but with responsibility for some particulars. Humility with responsibility can be translated: listen; place yourself in the intellectual framework of others, as you diligently try to present your own product. In a [professional] society in which a majority have adopted the basic bioethic, that is, an ethic based on some elementary understanding of the Eureka! Feeling and its fallibility, how can truth or wisdom be attained? How can we spend money wisely? How can we work in the interests of humankind? How can we best utilize the talents of the specialist?<sup>92</sup>

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<sup>92</sup> Potter, "Humility with Responsibility," 2305.

Potter ended his address with a “last bit of philosophy that may be permitted to the retiring President,” philosophy he put into verse he titled “Idealistic Survival.”

The purpose of human existence  
Is what we make it,  
Yet it is deep within us.

For individuals it is  
Enjoyment through healthy function,  
Love, and commitment,  
Growth, and development,  
Identity, and maintenance of species;

As a society, it is  
To provide an environment  
In which people of all races  
Can develop their individual abilities  
To discover, examine critically,  
Preserve and transmit  
The knowledge, wisdom, and values  
That will help ensure the survival  
Of the present and future generations  
With improvement in the quality of life  
And in human dignity.<sup>93</sup>

“His talk was met with some skepticism and indifference by a number of the scientists in attendance,” remembers Henry Pitot, a former post-doc and later

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<sup>93</sup> Potter, “Humility with Responsibility,” 2305. Potter’s impulse to include poetry in his addresses and writing is not without precedent in the land-grant tradition. Perhaps the most famous of the land-grant bards was philosopher-scientist-citizen Liberty Hyde Bailey. Bailey called his published books of essays and poetry his “budget of opinions.” The books, explained Harlan P. Banks, “illustrate his humanism, his search for social good, his respect for others, his philosophy of life,” Harlan P. Banks, “Liberty Hyde Bailey March 15, 1858 – December 25, 1956,” (Washington, DC: National Academy of Sciences, 1994).

colleague and close friend of Potter's at McArdle. "This was likely the result of their expectation to learn primarily of his newer scientific findings rather than a consideration of the ethical aspects of science and scientific research.

Unfortunately, there is not a great deal of humility in scientists except perhaps at the student and fellow level."<sup>94</sup> For his part, Pitot says that while he and Potter differed on spiritual matters – Pitot is a devout Roman Catholic and he characterizes Potter as an agnostic – he considers Potter's turn toward bioethics as a "practical spirituality."<sup>95</sup> "I supported him in that completely. I didn't read as much of his material in that as I should have – basically, I didn't have time – but I would learn directly from him."<sup>96</sup>

James Trosko agrees that the reception was, at best, mixed. "Yes, indeed, he shocked the audience, especially the young scientists who were expecting something very different" from the senior scientist revered for his elucidation of the biochemistry of nucleic acids and their role in carcinogenesis. "I only have one memory after the meeting, in which several postdocs & young faculty who went to the meeting were talking about hearing Van's address," Trosko wrote recently. "They were very disappointed because they went to his talk hoping to hear from this giant of cancer research some 'cutting-edge' reductionalistic

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<sup>94</sup> Henry Pitot, correspondence with the author.

<sup>95</sup> University of Wisconsin-Madison Archives Oral History Project, Henry Pitot, Interview #1356, September, 2013.

<sup>96</sup> University of Wisconsin-Madison Archives Oral History Project, Henry Pitot, Interview #1356, September, 2013.

cancer biochemistry. They were puzzled by his emphasis on moral & social issues rather than the latest 'discovery' of a new enzyme or gene that could explain cancer. They left 'empty-handed' and obviously, Van did not reach these particular young cancer scientists."<sup>97</sup>

It's not known how Potter believed his talk was received. "I never learned if Van received feedback from this talk because he never mentioned it to me,"<sup>98</sup> Trosko remembered. "However, it must have emboldened him because he really blossomed in this new career choice he made after giving up pure bench, basic cancer research. He really felt he could do more to prevent and treat cancer by this search for means to deal with the personal, social & cultural roots of cancer at a global scale."<sup>99</sup>

The hope Potter had in 1975 to reorient the focus of professional meetings is, Trosko says, still largely unrealized. "One needs only to look at the agenda of current cancer meetings," he points out, "you'll see few, if any, speakers addressing cancer issues in the manner that Dr. Potter did in that 1975 meeting."<sup>100</sup>

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<sup>97</sup> James Trosko correspondence with the author.

<sup>98</sup> For his part, Leonard Zahn made only brief note of Potter's speculation about the proper role of AACR in relation to society and the risks of tobacco use. He concluded with a big told-you-so of a PS: "In connection with items 1 and 10 above, please see my memo on the 1974 AACR meeting dated April 8, 1974." W.T. Hoyt from Leonard Zahn, "American Association for Cancer Research, San Diego": 5.

<sup>99</sup> James Trosko correspondence with the author.

<sup>100</sup> Not that the good fight wasn't still being fought. The AACR leadership continued to pursue "what might be considered and activist agenda" at the 1977 meeting

### Writing from the Margins

On April 9, 1979, just days after Pennsylvania's Three Mile Island nuclear power plant suffered a partial nuclear meltdown<sup>101</sup>, the Madison *Capital Times* editorialized, "The real lesson of Harrisburg is that our cheapest, most reliable and most plentiful energy source is not a technological fix. Rather it is conservation. By using what we have more efficiently, we can stretch our energy supplies and reduce the social and environmental risks associated with the expansion of conventional forms of power."<sup>102</sup> Elsewhere on the page, in what the paper noted was an invited essay from a specialist in cancer research "who coined the term Bioethics in 1971," Van Rensselaer Potter addressed the gulf

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in Denver, Leonard S. Zahn observed. Zahn took note of an "interesting development": the entrance of the AACR into the "public policy" arena involving cancer. At a press conference, Zahn reported, newly-elected president C. Gordon Zubrod announced that AACR's directors had decided to form a "public issues" committee. In a memo to W.T. Hoyt, Zahn detailed Zubrod's points: "While AACR is a research organization, a number of its members believe it should take a stand on such issues as: environmental concerns, Laetrile, the Delany Amendment, the saccharin situation, etc. At no time did [Zubrod] mention cigarette smoking." Leonard S. Zahn, "Subject: American Association for Cancer Research, Denver, Colo., May 18-21, 1977," Memo to W.T. Hoyt, 6 June 1977. Legacy Tobacco Documents Library, University of California, San Francisco.

<sup>101</sup> Numerous studies have suggested, but cannot prove conclusively, that residents in the area of the accident suffered an increased incidence of cancer. See, for example, M. C. Hatch, S. Wallenstein, J. Beyea, J. W. Nieves, and M. Susser, "Cancer Rates After the Three Mile Island Nuclear Accident and Proximity of Residence to the Plant," *American Journal of Public Health* 81, no. 6 (June, 1991): 719-724; R. J. Levin, "Incidence of Thyroid Cancer in Residents Surrounding the Three Mile Island Nuclear Facility," *Laryngoscope* 118, no. 4 (April 2008): 618-28; and E.O. Talbott, A.O. Youk, K.P. McHugh, J.D. Shire, A. Zhang, B.P. Murphy, R.A. Engberg, "Mortality Among the Residents of the Three Mile Island Accident Area: 1979-1992," *Environmental Health Perspectives* 108, no. 6 (June 2000): 545-52.

<sup>102</sup> *Capitol Times*, "Harrisburg shockwaves," Monday, 9 April 1979: Editorial Page.

between those who take the long view of human survival – the minority who have both a degree of economic security and an intellectual concern the survival of future generations – and those who take the short view: an alliance of individuals whose income is insecure, who have family problems or poor health, with companies and corporations who are organized to provide dividends for stockholders, giving no thought to the needs of future generations.”<sup>103</sup>

Governments, Potter noted, in the face of widespread “unemployment, inflation, semi-starvation, wars and preparation for wars,” are helpless to provide adequately for future needs.”<sup>104</sup>

The *Capital Times* was the more liberal and activist of Madison’s two daily newspapers. Potter apparently had that audience in mind when, under the headline “Bioethics Looks at Survival with a Long View,” he went on to define further the small minority who have the luxury to indulge in future thinking. “In many cities these people are university professors, since universities are by their nature organizations whose function is future-oriented whether channeled into education or research, and because professors are paid to uncover new problems, expand the existing body of knowledge, and disagree, when

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<sup>103</sup> Van Rensselaer Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979: Editorial Page.

<sup>104</sup> Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979.

necessary, with the established pattern of thought.”<sup>105</sup> Potter went on to present the historical precedent for his argument, quoting both from the interdisciplinary studies committee report in *Science* as well as from *Bioethics, Bridge to the Future*. Next, having established that universities were particularly well-suited to encourage future-oriented thought, Potter pointed out, “I intended Bioethics as more than a scholastic endeavor.” In *Bioethics*, he had presented a six-point Creed, “that is more than a statement of belief because for every belief there is a stated commitment to action.” The belief that the future survival and development of mankind, both culturally and biologically, is strongly conditioned by the present activities and plans of humans has a necessary corollary in a personal commitment to “live my own life and to influence the lives of others so as to promote the evolution of a better world for future generations of mankind,” and to avoid actions that would endanger the future of those generations.<sup>106</sup>

“Translate this into energy policy,” Potter wrote, “and a number of decisions will be seen as compatible or incompatible.”<sup>107</sup>

Potter noted that since the publication of *Bioethics: Bridge to the Future* just over eight years earlier, the word Bioethics “has been widely applied to

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<sup>105</sup>Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979.

<sup>106</sup> Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979.

<sup>107</sup> Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979.



support divergent positions in medical ethics – for example, pro- or anti-abortion.” Particularly galling, was the fact that future-seeking bioethics had been estranged from its natural home in the university. “Professors of Bioethics have appeared and one recently lectured in Madison arguing that maintenance of high standards of energy consumption without speculations on man’s future is bioethical because it is directed to the wants of today’s people,” Potter wrote.<sup>108</sup>

What did the misappropriation of bioethics do to Potter’s vision? “Perhaps the word has lost its usefulness, or perhaps something should be done to identify what kind of Bioethics is meant when the word is used,” he speculated. “My kind of Bioethics,” he concluded, “certainly differs from much that is being promulgated today.”<sup>109</sup>

On Tuesday April 14, 1981, the day the first space shuttle made a safe return to its California landing strip, Potter received the Bristol-Myer Award for Distinguished Achievement in Cancer Research at an award luncheon at New York’s Waldorf Astoria Hotel.<sup>110</sup> Potter received the \$25,000 cash award in recognition of his pioneering work in the field of chemotherapy, particularly his

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<sup>108</sup> Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979.

<sup>109</sup> Potter, “Bioethics Looks at Survival with a Long View,” *Capital Times*, Monday, 9 April 1979.

<sup>110</sup> Potter was the third member of the McArdle Laboratory staff to receive the award in as many years. In 1979 the prize was shared by the husband and wife team of James and Elizabeth Miller for their pioneering research into the mechanisms that change chemicals into carcinogens.

discovery of sequential block inhibition.<sup>111</sup> The *Milwaukee Journal* took note of the occasion by editorializing that “it was a tribute not only to him but to the University of Wisconsin’s McArdle Laboratory in Madison.”<sup>112</sup> The paper then went on to not-so-gently chide those state residents who, perhaps construing the Wisconsin Idea a bit too narrowly, resented their tax dollars going to support pure, and not applied (practical) research. “What could be more relevant to the lives of state residents,” the paper asked, “than progress in the battle to conquer cancer? Yet the kind of pure research conducted by Potter for four decades at Madison too often is regarded as an expensive frill until it wins important outside recognition. Our congratulations to Potter – and to the taxpayers who may have helped finance his work, whether they liked doing it or not.”<sup>113</sup>

Perhaps Potter was emboldened by his pending retirement, at the age of 71, in the summer of 1982. For years, Potter evinced unusual restraint as the bioethics establishment continued to marginalize his work. However, in early 1982, when *BioScience* offered Potter the opportunity to review the latest offerings in bioethics, including a nine-volume, paperback series from the Hastings Center on topics such as teaching bioethics, ethical dilemmas and the ethical education of policy makers, and a hard-backed volume on *Ethics*

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<sup>111</sup> Rob Fixmer, “Potter Awarded \$25,00 for Cancer Work,” *Capital Times*, Tuesday 14 April 1981:1,6.

<sup>112</sup> *Milwaukee Journal*, “Editorial”, 26 April 1981, part 1,10.

<sup>113</sup> *Milwaukee Journal*, “Editorial”, 26 April 1981.

*Teaching In Higher Education*, edited by Daniel Callahan and Sissela Bok, he could hold back no longer. “No book whose aim it is to present a useful account of the present state of the new field of bioethics could afford the ignore the contributions of Aldo Leopold,” Potter began, “whose writings have been published and republished in many editions and consistently admired by biologists for 30 years.”<sup>114</sup> No surprise, then, that in “not a single instance in the total assembly of 10 publications was I able to find any reference to Leopold or, indeed, to any of the principles that he or his followers [And one must assume that Potter is describing himself here] set forth. Perhaps the simplest explanation is that *The Sand County Almanac* is not indexed under ‘ethics.’”<sup>115</sup> Potter then went on to outline the now-familiar sequence of Leopold’s evolutionary ethic: the relation between individuals; the relation between individuals and society, and the extension of ethics to the land-relation. “The Hastings Center is still concerned with Leopold’s first two categories, and the reason seems clear enough: their experts are not biologists.” The academic background of the Hastings scholars – philosophers, psychologists, political scientists, historians and English and education professionals – “leaves them ill-equipped to recognize, let alone appreciate, the necessity of an environmental aspect to bioethics.” Despite the omission, Potter, still ever the optimist, found something

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<sup>114</sup> Van Rensselaer Potter, “Bioethics: State of the Art Books,” *BioScience* 31, no. 2 (February 1982): 1792.

<sup>115</sup> Potter, “Bioethics: State of the Art Books,” 1792.

redeemable in the effort. The series, offered Potter, “is a valuable contribution to the historical aspects of ethics teaching in America, and to the ethics of teaching ethics. Any biologist who teaches bioethics – medical *and* environmental – and who wishes to bridge the ‘two cultures’ by becoming a ‘complete amateur’ (in Callahan’s terminology) will benefit from reading the opinions and scholarly research of the many non-biologists who contributed to the Hastings effort from ‘the other culture.’”<sup>116</sup>

As Potter explained to *The Scientist* reporter A. J. S. Rayl, he concentrated most of his post-retirement attention on writing a book, *Global Bioethics: Building on the Leopold Legacy*. “While my book *Bioethics: Bridge to the Future*, wherein I coined the term ‘bioethics,’ was published in 1971 by Prentice-Hall during the peak of my research career, it was really a compilation of lectures, and didn’t require the time and effort that *Global Bioethics* did,” Potter explained. “I just never had the opportunity before becoming emeritus to write *Global Bioethics*, which is a much more comprehensive and all-encompassing discussion of the evolving morality in our development of biological knowledge. I was just too wrapped up in my teaching and research.”<sup>117</sup>

While the task of writing may have been easier, the road to publication was not. In his 1987 review of the new journal *Bioethics* in *The Scientist*, Norman

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<sup>116</sup> Potter, “Bioethics: State of the Art Books,” 1792.

<sup>117</sup> A. J. S. Rayl, “Emeritus Status Offers Some Distinguished Faculty a Chance to Parlay Investigations on Higher Level,” *Scientist*, 9 November 1992, <http://classic.the-scientist.com/?articles.view/articleNo/12553/>.

Fost<sup>118</sup>, director of the Program in Medical Ethics and professor of pediatrics at the University of Wisconsin, and no fan of Potter's bioethics, added what he termed "One final note."

"The new publication's name "deals another, perhaps final, blow, to the original meaning of the word 'bioethics,'" Fost wrote. "It was coined by Van Renssalaer [sic] Potter, an American biochemist, who intended it to connote a concern for all living things. The term has since come to refer primarily to medical ethics, narrowly defined, rather than Potter's broader concern – which, indeed, the editors <sup>119</sup>explicitly disavow."<sup>120</sup>

But if Potter was down, he refused to be counted out. Even as he was fighting to reclaim his bioethics – refining and expanding as he did so – Potter

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<sup>118</sup> Fost found the Kennedy/Georgetown approach to bioethics far more to his liking, especially as he experienced it at the Kennedy Foundation's October, 1971 conference Choices on Our Conscience. "It was a gala, star-studded event – exciting beyond belief," Fost remembered in 2000 for Renee C. Fox and Judith Swazey. "The issues had hardly ever been discussed anywhere in a public place, and they did it right. It was at the Kennedy Center [for the Performing Arts] – a huge crowd, many panels and lectures, with many glitterati, including leading figures in the academic disciplines, but also superstars from the media....It was wonderful." Renee C. Fox and Judith P. Swazey, *Observing Bioethics*, (New York: Oxford University Press, 2008), 72.

<sup>119</sup> No strangers to bioethical controversy, the editors were Helga Kuhse and Peter Singer. Singer has argued not only that human newborns, lacking a sense of the future, are not persons, but also that "mutually satisfying activities" of a sexual nature may on occasion occur between humans and animals. See Peter Singer, "Heavy Petting", *Nerve* (2001); Laura Vanderkam, "Peter Singer's 'Heavy Petting'," *Daily Princetonian*, 8 March 2001; Emily Nussbaum, "An Oral History of Nerve," <http://www.nerve.com/dispatches/oralhistoryofnerve/nussbaum>, and Peter Singer and Helga Kuhse, *Should the Baby Live? The Problem of Handicapped Infants* (Oxford University Press:New York, 1986.)

<sup>120</sup> Norman Fost, "Another Outlet for Ethicists", *Scientist* June 15, 1987 <http://www.the-scientist.com/?articles.view/articleNo/8730/title/Another-Outlet-for-Ethicists/>.

took comfort in the knowledge that Aldo Leopold had faced similar difficulties.

“Aldo Leopold used the simplest possible term – ‘land ethic’ –,” Potter wrote in 1987, “but then he was forced to go to great lengths to explain his meaning: that land is more than soil, more than space occupied by a shopping center, that land includes water, plants and animals. For him, land included the whole biosphere.”

<sup>121</sup>Prentice-Hall had previously declined to publish Potter’s revision of *Bioethics: Bridge to the Future*, as well as a collaboration with James Trosko.<sup>122</sup>It now declined to publish *Global Bioethics: Building on the Leopold Legacy*<sup>123</sup>, which had been enhanced by a promised introduction by contrarian bioethicist and former Georgetown scholar Tristram Engelhardt. Engelhardt no longer recalls why he agreed to write an introduction for a book that lacked a publisher,<sup>124</sup> but he provided masterful support for Potter’s words, if not for all of his intentions.

"An apt word can assemble a rich set of images and meanings and thus help us to see relations between elements of reality that were previously separated in our vision and thought of only as disparate....," Engelhardt explained. "This has been

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<sup>121</sup> Van Rensselaer Potter, “Leopold’s Land Ethics Revisited: Two Kinds of Bioethics,” *Perspectives in Biology and Medicine* 30, no 2 (Winter 1987):160. By the 1980s, *Perspectives* had abandoned the ampersand.

<sup>122</sup> Unfortunately, that manuscript appears to have been lost. Trosko is a considerably more facile writer than Potter; the collaboration likely yielded a more tightly focused and more readable book while still maintaining the integrity of Potter’s thought. Book publishing is a capricious industry; Prentice-Hall’s rejection of the manuscript suggests nothing about its quality.

<sup>123</sup> Van Rensselaer Potter, *Global Bioethics: Building on the Leopold Legacy*, (East Lansing, MI: Michigan State University Press, 1988).

<sup>124</sup> Tristram Engelhardt, correspondence with the author.

the case with 'bioethics.'... The word 'bioethics' [has done] brilliant service in bringing together a wide cluster of important cultural concerns. The term [is] profoundly heuristic." <sup>125</sup> "Tristram Engelhardt did a beautiful and generous job in his Foreword to my book on *Global Bioethics*," Potter told Warren Reich in 1992, "But now I regret the title *Global Bioethics: Building on the Leopold Legacy*. I wish I had included "for human survival" in the title. It would have been better to call the book *Global Bioethics: Building on the Leopold Legacy for Human Survival*." <sup>126</sup> But in 1987, Potter was still flailing around for a publishing house. On July 24, 1987 he sent a query letter to Irving L. Horowitz at Transaction Books, "along with a short manuscript of about 170 pages entitled 'Global Bioethics for Human Survival: Aldo Leopold's Land Ethic Revisted'." <sup>127</sup> Just how far afield Potter had wandered became clear when he continued, "I was led to you by a suggestion from Dr. Paul Gottfried, Senior Editor for The World and I...." It is possible that Potter knew that Gottfried, a noted political theorist, was the father of a movement he named paleoconservatism. It seems quite unlikely that Potter realized that *The World & I* – a publication to which he contributed one

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<sup>125</sup> Tristram Engelhardt, "Introduction", in Van Rensselaer Potter, *Global Bioethics: Building on the Leopold Legacy*: vii-viii.

<sup>126</sup> Unpublished Interview, Van Rensselaer Potter with Warren Reich, 31 August 1992. Courtesy of Warren Reich.

<sup>127</sup> Van Rensselaer Potter to Irving L. Horowitz, 24 July 1987. Archives of Transaction Publishers, Irving Louis Horowitz collection, Historical Collections and Labor Archives (HCLA,) Special Collections Library of the Pennsylvania State University.

essay on bioethics<sup>128</sup> – was the crown jewel in the publishing empire of Rev. Sun Myung Moon and the Unification Church.<sup>129</sup>

Transaction took a pass on the manuscript, noting rightly that their list was limited to titles in the social sciences<sup>130</sup>. Eventually James Trosko made a few

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<sup>128</sup> Van Rensselaer Potter, "Biotechnology: An Overview and Evaluation," *The World & I*, November 1987: 567-576.

<sup>129</sup> According to the *Washington Post*, by 1984 an estimated 5,000 scholars, including more than two dozen Nobel laureates, had accepted expense-paid trips to academic conferences around the world held by the International Conference of the Unity of Sciences (ICUS) and the Professors World Peace Academy, both offshoots of the Unification Church-financed International Cultural Foundation (ICF). "The participation of prominent scholars at the conferences has provoked a debate over academic ethics," reported the *Post*. "Although many participants make a point of saying they do not endorse the theology of the Unification Church, critics note that the church has in the past used photographs and films of the scholars, frequently shaking hands with or standing side-by-side with Moon, in promotional literature. The presence of distinguished academics at church-sponsored gatherings gives Moon the aura of power and influence he seeks, the critics said." Michael Isikoff, "Church Spends Millions On Its Image," *Washington Post*, Monday, 17 September 1984: A-1. According to Rev. Moon's rather complicated theology, he was the messiah of the Second Coming and his second wife, Hak Ja Han, was the Holy Spirit. The couple were called The True Parents, where Moon as the True Father and his wife the True Mother were the first couple to be able to bring forth children with no original sin. The Unification Church appears to advance a version of Intelligent Design: "Evolution is true, and all the creations of the mineral, vegetable and animal kingdoms have developed through the evolutionary process.... Darwin recognized that change. He said there was motive and purpose for those changes, and some energy or power caused them....In the same way, God created Adam and Eve. By His love and energy, a little thing was created which grew and grew and became Adam. It is all an evolutionary process." Rev. Sun Myung Moon, *Questions and Answers*, Chapter 5: The Master Speaks On Creation, <http://www.unification.org/ucbooks/SMMSpk/MSTRSP-5.htm>.

<sup>130</sup> Interestingly, Irving Horowitz, who, in addition to his position at Transaction was a professor of sociology at New Jersey's land-grant institution, Rutgers University, was a vocal critic of academic participation in the Unification Church's events, particularly the ICUS conferences. As he told the *Washington Post*, the conferences were "one of the great brilliant marketing strategies in the history of religion. They know how to get them [sic] academics; they know how to market them." This begs the question of why Paul Gottfried thought his was a useful name to drop at Transaction. Isikoff, "Church Spends Millions On Its Image," *Washington Post*, 17 September 1984: A-1.



calls to Michigan State University Press, and arranged for Potter to meet with an editor. Always at his most persuasive in person, Potter must have made a compelling case for his work. MSU Press took on the book, and it is still on its active list today.

In his review of *Global Bioethics*, Curt Meine was particularly concerned with maintaining a viable access route to Potter's bioethics for environmentalists who, initially drawn to Potter's project via Aldo Leopold, might otherwise reflexively reject it as a distortion of Leopold's own work.<sup>131</sup> A foundational document for environmentalism is Leopold's 1949 essay articulating a Land Ethic, which asserts "A thing is right when it tends to promote the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."<sup>132</sup> In Meine's account, Potter read Leopold's land ethic as offering an unprecedented combination of biological knowledge and human values, elements that become the foundation of his own bioethics. In the latest iteration of his thought, Meine said, Potter sought a harmonization of ecological and medical concerns, unified in a global bioethics, "global, on the one hand, if it is

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<sup>131</sup> Curt Meine, "Van Renssalaer [sic] Potter: 'Global Bioethics: Building on the Leopold Legacy'": *Environmental Ethics* 11, no. 3 (1989):281-285.

<sup>132</sup>Aldo Leopold "The Land Ethic", in *A Sand Country Almanac* (Random House Digital, 1986): 237.

unified and comprehensive, and in the more usual sense, if it is worldwide in scope.”<sup>133</sup>

Meine was unconcerned by whatever liberties Potter may have taken with Leopold’s thought in advancing his own ethic, and he wished for other environmentalists to feel likewise. “It is the fate, if not the very definition, of seminal figures that they open up new speculation,” he wrote. “While perhaps occasionally overstating Leopold’s specific contributions, Potter makes a strong case for what he sees as a ‘neglected’ aspect of the land ethic: namely, that it concerns not only the healthy functioning of the biotic community but also ‘the issue of survival of the human species in acceptable form’.”<sup>134</sup> Meine found Potter’s interpretation significant. “Not only does it cast Leopold’s thought in a different light,’ he wrote, “but it lies at the heart of the question of whether a holistic ‘global bioethics’ such as Potter posits is possible, and, if so, what its parameters will be.”

In 2011, Henk ten Have revisited the notion of bioethics Potter put forth in *Global Bioethics*, and its relevance to the developing concept of global community. Global bioethics – both in the sense of being unified and comprehensive, and in being worldwide in scope – provides at least three

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<sup>133</sup> Meine, “(Review) Van Renssalaer [sic] Potter: ‘Global Bioethics: Building on the Leopold Legacy’.”

<sup>134</sup> Meine, “(Review) Van Renssalaer [sic] Potter, 282.

discourses in which the concept of community is reactivated, he explained:

The first is the discourse of international research ethics. It has been argued that the familiar principle of informed consent is too individual-oriented and that in other cultures, consent could be community based. The second is the relatively recent discourse on principles such as benefit sharing and protection of future generations. Application of the novel principle of benefit sharing in the context of bioprospecting requires the identification and construction of 'communities' as coherent wholes of indigenous populations and traditional knowledge. The debate on future generations and intergenerational justice also necessitates the articulation of a new vision of community, broader than the international community, since it includes the idea that every generation is linked. This debate in fact refers to a third, more fundamental discourse on 'global community' or 'world moral community,' which regards humanity itself as a moral community."<sup>135</sup>

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<sup>135</sup> Henk ten Have, "Global Bioethics and Communitarianism," *Theoretical Medicine and Bioethics* 32 (2011), 315–326.

## CHAPTER SEVEN: REDEEMING AND REDEMPTIVE BIOETHICS

In his early 80s, with no students or research obligations, Potter celebrated the freedom conferred by his emeritus status. "At the point of associate or full professor, you've got to make a name for yourself and you've got a research program and grants, post doctorate fellows and graduate students, and/or teaching responsibilities, which builds up a momentum; and you simply cannot slow down then," he explained to *The Scientist* in 1992. "If you're still healthy, as I am, you cannot help but think about the state of the world, what needs to be done in your field and others, and you're free to talk about it. In fact, there's nothing to stop you from speaking your mind and saying anything you damn well please."<sup>12</sup> However, an audience was not always easy to find.

"For a long time, 1970-1990, there was no one who recognized my name and wanted to be part of a mission,"<sup>3</sup> Potter recalled in 2001. It is interesting to

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<sup>1</sup> A. J. S. Rayl, "Emeritus Status Offers Some Distinguished Faculty A Chance," *Scientist*, 9 November 1992.

<sup>2</sup> That same month Van Rensselaer Potter was asked to comment for a *State Journal* article on "Being 'Smart' Has Place [in] Relationship." "An educated person," Potter told the reporter, "should be one who seeks wisdom, which I define as the knowledge of how to use knowledge, not just for personal gain, but for the social good." Kerry G. Hill, "Being 'Smart' Has Place Relationship," *Wisconsin State Journal*, Sunday, 29 November 1992: Outlook, 1E.

<sup>3</sup> Van Rensselaer Potter, "Dear Global Bioethics Network," available at <http://www.mcardle.wisc.edu/faculty/bio/PotterGlobalBioethics.html> "He wrote this shortly before his passing and wanted very much to make it available to everyone," his granddaughter, Lisa, told the *Milwaukee Journal Sentinel*. "Other Deaths Not Obscured by Terrorism's Cloud: Van R. Potter," *Milwaukee Journal Sentinel*, Thursday 20 September 2001: 5B.

note, that even at this late date bioethics had not become “my mission” or “Potter’s mission.” In every articulation, bioethics was a communal effort. The persistent failure to recognize his contribution seems to have offended not so much his ego but his sense of fairness. Potter’s “sense of fairness and justice with respect to his students and colleagues was a role model that I tried to emulate,”<sup>4</sup> Henry Pitot remembered in 2013. “One thing about Van was he was very...democratic isn’t the right word. He gives complete ownership of something to the individual who does it, and there are a lot of major professors who don’t do that. He taught me that fairness, which really is a tremendous gift.”<sup>5</sup>

“In all the world there was just one person who saw the book<sup>6</sup> ...saw the opportunity and contacted me,” Potter recalled shortly before his death. “It was Brunetto Chiarelli, Professor of Anthropology, University of Florence, Italy. In 1990 he invited me to give a lecture ‘Global Bioethics’ in Northern Italy, in Trentino, a progressive community.” Potter accepted the invitation, traveling, as he said, “under the care” of his son, Carl. It would be Potter’s last trip outside of the United States.<sup>7</sup> After Potter’s lecture before the Italian Society for Bioethics, Chiarelli asked for Potter’s permission to use the term “Global Bioethics” as the title of a “transformed local journal” to be published in English. After Potter

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<sup>4</sup> Pitot, correspondence with the author.

<sup>5</sup> University of Wisconsin-Madison Archives Oral History Project, Henry Pitot, Interview #1356, September, 2013.

<sup>6</sup> Presumably, *Global Bioethics: Building on the Leopold Legacy*.

<sup>7</sup> Potter, “Dear Global Bioethics Network.”

consented, Chiarelli sought and received the memberships' unanimous approval for the name change.<sup>8</sup>

In 1993, the Federation the American Societies for Experimental Biology Journal (FASEB) asked Potter to look back 50 years at studies in enzyme inhibition. After reminiscing at how the war had caused the cancellation of the 1943 meeting, and reviewing which advances had stood the test of time and which were somehow overlooked or "orphaned," Potter paused to reflect on his career.

"Many of my best publications have never, to my knowledge, been referred to by anyone, and this has led me to wonder what it takes to become one of the 'most cited,' which in fact I have been at least twice,"<sup>9</sup> Potter told the journal. "To be right and not cited is bound to make one a philosopher, if one is to survive as a researcher." While Potter was referring to his enzyme research, bioethics could not have been far from his mind. The key to recognition, he speculated, is "fairly simple. It is a matter of focus. One has to be identified with one specialized theme and keep banging away at it, making progress, and always referring to the earlier advances, which, of course, had to be on target."<sup>10</sup>

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<sup>8</sup> Potter, "Dear Global Bioethics Network."

<sup>9</sup> E. Garfield, "The 102 Most-Cited Life-Sciences Publications in the New 1945-1954 Science Citation Index, Parts I & 2." *Current Contents* 15 (10 April 1989): 3-10.

<sup>10</sup> Van Rensselaer Potter, "Studies on Enzyme Inhibition – 50 Years Ago." *FASEB Journal* 7 (March 1993): 486.

In fact, of course, Potter had continued to “bang away at it,” most recently in the previous issue of *FASEB Journal*. “We emeritus professors can make a difference in making this a better world,” Potter editorialized under the headline “Emeritus Professors Can, Assistant Professors Mustn't.”

“Isn't that what we had in mind when we set out in pursuit of that Ph.D. in some aspect of experimental biology?” he asked. “Most of us have already made some difference in the course of 40 years of specialized research, but why should we stop now?”<sup>11</sup> Some professors continue on with their research well past 70, and, Potter conceded, he could write a book on “Experiments I Wish I Had Done.” But, instead, “I have chosen another path, and I need help,” Potter said.

The Union of Concerned Scientists had just released their long-awaited “Warning to Humanity,” signed by more than 1,580 scientists from around the world, including 101 Nobel Prize laureates. “Back in 1962 I started along the path they now illuminate when I first began to suspect that my efforts and all the other efforts to solve the cancer problem would not guarantee that the human species would survive and prosper,”<sup>12</sup> Potter remembered. What began with his Morrill Act Centennial address and its emphasis on “long-range wisdom ... the only kind of progress that can lead to survival” had become by 1970 bioethics, “a word that

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<sup>11</sup> Van Rensselaer Potter, “Editorial: Emeritus Professors Can, Assistant Professors Mustn't,” *FASEB Journal* (1 February, 1993): 255.

<sup>12</sup> Potter, “Editorial: Emeritus Professors Can,” 255.

was almost immediately adopted by those who wished for one reason or another to define it in more mundane terms as the ethics of problems faced by health-care practitioners in their daily confrontations with the needs of individual patients.... What may be said is that my concept of bioethics for survival continued to resist the avalanche of publications on the medical aspect.”<sup>13</sup> Now the Union of Concerned Scientists claims that “we are in danger of reaching a point of no return where science will not be able to bail us out.”<sup>14</sup> Why had Potter turned to emeritus professors? “It is because emeritus professors are really the only scientists in our present academic system who have the freedom that I had as a young science professor in 1962 to devote some thought to cosmic issues.”<sup>16</sup>

Potter hoped to rally emeritus professors – as well as their colleagues – to address the societal weakness that had set the course to “no return.” “It is the

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<sup>13</sup> Potter, “Editorial: Emeritus Professors Can,” 255.

<sup>14</sup> Potter, “Editorial: Emeritus Professors Can,” 255.

<sup>15</sup> Among the points called for in their Warning:

- We must bring environmentally damaging activities under control to restore and protect the integrity of the earth's systems we depend on.
- We must manage resources crucial to human welfare more effectively.
- We must stabilize population. This will be possible only if all nations recognize that it requires improved social and economic conditions, and the adoption of effective, voluntary family planning.
- We must reduce and eventually eliminate poverty.
- We must ensure sexual equality, and guarantee women's control over their own reproductive decisions.

Associated Press, "Environment Can't Wait, Scientists Say," *Wisconsin State Journal*, 19 November 1992: 6A.

<sup>16</sup> Potter, “Editorial: Emeritus Professors Can,” 256.



bio- in bioethics,” that has been neglected, he explained, “much as we need to emphasize ethics.” There was widespread ignorance of facts and implications of the concept of organic evolution as it was understood by scientists. “In most cases the economists, political scientists, and philosophers who advise the government have never been exposed to a decent course in biology,” Potter pointed out. “Many of the so-called intelligentsia, as well as the great mass of working people and the unemployed, have never had an opportunity to learn that evolution is the explanation of our origin and of our present biology. Unknown to them is the whole issue of the nature of natural selection and the ‘fatal flaw’: the process is unable to select for those whose descendants will survive into the future.”<sup>17</sup>

The teaching of evolution was newly handicapped by the idea that private and church elementary and secondary schools provide a “better” education than the public schools, Potter explained. School choice had, in some cases, been subsidized by substantial sums of taxpayer money used by parents, to pay their children's way into a private or church school. In recent years, some 600 Islamic schools had joined tens of thousands of church schools. “It certainly is not the mission of these schools to present exemplary courses in biology that teach the known facts of evolution as the only explanation of the nature of life, of heredity, and of physiological adaptation, where the reductionist and the holistic approaches to biological science come together,” Potter noted. Emeritus

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<sup>17</sup> Potter, “Editorial: Emeritus Professors Can,” 256.

professors can push back by “writing books, articles, or letters to the editor, or lecturing to the public or to public school classes on how their specialty relates to world problems.” Even assistant professors and tenured professors can pitch in, and “spend some effort supporting the teaching of life as it really is and supporting at least some of the actions called for by the Union of Concerned Scientists.”<sup>18</sup>

“For the last seven years of his life, Van Potter and I met monthly for lunches, at which we talked about our work and read each other's works in progress,” remembered Claudia Card, Emma Goldman Professor of Philosophy at the University of Wisconsin. “I was just the age of his daughter, who lived in a western state, and he was just the age of my father, who had died in 1973. So we kind of adopted each other.”

Card's research in ethics and social/political philosophy focuses on evil and injustice – she acknowledged Potter's support in her book *The Atrocity Paradigm: A Theory of Evil*<sup>19</sup> – and she was acutely aware of Potter's marginalization. He “was greatly disappointed that ‘bioethics’ had come to be almost synonymous with ‘medical ethics,’ whereas he had conceived it far more broadly to include what is today called ‘environmental ethics’,” she recalled in 2013. “His main concern was how to save the planet for future generations. Even

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<sup>18</sup> Potter, “Editorial: Emeritus Professors Can,” 256.

<sup>19</sup> Claudia Card, *The Atrocity Paradigm: A Theory of Evil* (New York: Oxford University Press, 2005.)

medical ethics he conceived [of] more abstractly than most who teach it today do. He was an oncologist, you know, and very concerned with possible environmental sources and aggravators of cancer.”<sup>20</sup>

### **New Hope: The Coalition of Believers and Non-Believers**

Raised a prairie Presbyterian who embraced Unitarianism – understood as Humanism – as an adult, Potter tried out for years various permutations of his bioethics: ones that excluded religion from the conversation, ones where religion was allowed a foot inside the door. Secular science and organized religion, he knew, traditionally had been separated by “a vast gulf of mutual misunderstanding and mistrust.”

For thirty years Potter wondered how to bridge that gulf, even as he worried over the consequences of so doing. He was keenly aware of claims from both religious and secular thinkers that a scientist shouldn’t be the one to orchestrate such a conversation. “For centuries,” Potter countered, “the subject of human values has been regarded as beyond the realm of science, the exclusive property of theologians and secular philosophers. Now we must assert not only that scientists have transcendent values, too, but also that the values embedded in the scientific ethos need to be integrated with those of religion and

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<sup>20</sup> Claudia Card, correspondence with the author.

philosophy in order to facilitate political processes beneficial to the global environment's health.”<sup>21</sup>

In 1993, Potter had a chance encounter with the thought of Hans Kung. Ever on the alert for a new appropriation of his original thought, he found instead a copy of Kung's *Global Responsibility: In Search of a New World Ethic*. In formulating a global ethic, Potter said, “Kung has hit upon human survival as the key issue confronting the world's people – an idea that no other theologian has even dared to mention. While other religious leaders have proclaimed that life is sacred and have championed human rights, only Kung has put survival as such on the agenda.” In contrast, “scientists have long embraced human welfare and, implicitly, survival as the very heart of their endeavors. They are thus well-suited for entry into the campaign for human and biosphere survival.”<sup>22</sup>

Not that that interest had often been legitimized, or encouraged. “For centuries, the subject of human values has been regarded as beyond the realm of science, the exclusive property of theologians and secular philosophers,” Potter wrote. “Now we must assert not only that scientists have transcendent values, too, but also that the values embedded in the scientific ethos need to be integrated with those of religion and philosophy in order to facilitate political

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<sup>21</sup> Van Rensselaer Potter, “Science, Religion Must Share Quest For Global Survival,” *Scientist*, (1994): 12.

<sup>22</sup> Potter, “Science, Religion Must Share Quest For Global Survival,” 12.

processes beneficial to the global environment's health."<sup>23</sup> Too, often, though the health of the global environment has been too narrowly defined. "Many books and articles have focused on environmental problems and human health, but relatively few have dealt with the issue of whether the human species can survive in the long term in what may be called 'a civil society.'" Potter explained. Books like sociologist Manfred Stanley's *The Technological Conscience: Survival and Dignity in an Age of Expertise* and *The Imperative of Responsibility: In Search of an Ethic for the Technological Age* by German philosopher Hans Jonas did prioritize survival, but, "[n]either, however, deals with ways in which secular views can or should be integrated with traditional religious views."<sup>24</sup> On the other hand, Kung's *Global Responsibility* offers "a beginning attempt along these lines."<sup>25</sup>

Potter read hope into Kung's speculation that a "coalition of believers and non-believers (atheists, agnostics, and so forth) in mutual respect may also be necessary for a common world ethic." In this, Potter argued, science is ahead of the game. "[M]any conscientious scientists have already embraced stewardship as a worthy pursuit whose goal is the survival of the human species and of a viable biosphere."<sup>26</sup> Potter took note of the fact that in his writings, Kung took a "strong position in examining the issues separating the diverse religions of the

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<sup>23</sup> Potter, "Science, Religion Must Share Quest For Global Survival," 12.

<sup>24</sup> Potter, "Science, Religion Must Share Quest For Global Survival," 12.

<sup>25</sup> Potter, "Science, Religion Must Share Quest For Global Survival," 12.

<sup>26</sup> Potter, "Science, Religion Must Share Quest For Global Survival," 12.

world and deploring their record of killing each other in large numbers right up to the present. At the same time, he has proclaimed that – at the core – the world's religions all are grounded in ethical insights that deserve one's attention and can justify one's hope.”

Potter – who drove around Madison with a personalized “ZPG”<sup>27</sup> license plate attached to his car – identified a major stumbling block, however. The core religious morality Kung depicts “does not incorporate – and therefore cannot respond to – scientifically devolved demographics that project a doubling of the world's population within the next century.” Several of the world's largest religions, Potter noted, Roman Catholicism and Islam, in particular, are among the major contributors to the current, “frightening rate” of population growth.

If the world's religions are, like scientists, to embrace stewardship, they need science to tell them what paths they should follow. “Certainly the involvement of biological scientists is required; more than others, it is likely, these

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<sup>27</sup> Although he embraced the license plate, Potter was not a member of ZPG, or Zero Population Growth, the organization co-founded in 1968 by Paul Ehrlich, author of *The Population Bomb* and Thomas Eisner, an entomologist and professor of chemical ecology at Cornell University. Rather than ZPG, Potter explained, he was in favor of NPG: *negative* population growth. Van Rensselaer Potter, UW Oral History # 257.

scientists are aware that world population is increasing too rapidly:

And although major religions have a stake in the issue, it is the duty of the biological scientists to point out – while respectful of the various religious tenets – that ultimate survival of the human race is contingent upon limiting the world population to what is compatible with a healthy biosphere. While it is up to the various religions to enter into dialogue and defend their positions, it is up to scientists to proclaim the severity of the overpopulation problem and insist, for example, that it cannot be solved while major religions oppose any attempt to limit fertility.

Dialogue on the matter is bound to be frustrating, Potter admitted.

“Bioethicists must recognize that science alone will not prevail – that there can be no survival without religions' agreement on population ethics,” he wrote. The key question, of course, is whether dialogue can achieve consensus and political acceptance by national governments. “Can the pursuit of a world ethic shared by religion and science be laid out in concrete principles for action?” Potter asked. “With religion then generating the universal motivation for stewardship, a forceful coalition of believers and nonbelievers will, I hope, materialize to preserve the biosphere and ensure human survival – to do, in short, what is right.”<sup>28</sup>

That same year Masahiro Morioka of the International Research Center for Japanese Studies, Kyoto, Japan, brought Potter's bioethics to the Third

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<sup>28</sup> Potter, “Science, Religion Must Share Quest For Global Survival,” 12.

International Bioethics Seminar in Fukui. As he told the conferees:

Several years ago I attended the Council of Europe's International Bioethics Conference, and was able to have discussions with some of the participants. There I met an American bioethicist whose name I had sometimes seen in bioethics journals and books. I told him that I was thinking about the possibility of a holistic and integrated approach to the study of life, including as an essential part, bioethics. After listening to me, he immediately replied that holistic approaches are impossible in this field, and advised me to concentrate on a single topic in medical ethics. I was shocked at his response because I had thought bioethics was an intellectual movement attempting to unite every discipline in order to solve contemporary problems of life and the environment.<sup>29</sup>

The word “bioethics” was first coined by “Professor V. R. Potter” in 1970, Morioka explained to his audience. “He meant by this word an ‘interdisciplinary ethics’ which cuts across natural sciences and the humanities,” continued Morioka, who in 1988 had written a book *Invitation to the Study of Life* arguing that “contemporary bioethics is a paradigm with a very narrow outlook” and proposing an alternative view that would “create a truly integrated study of life which views our life from every angle to grasp the fundamental relationships among life, science, and society.”<sup>30</sup> Now he challenged bioethics “to leave behind today's principle-based, male-centered, medicine-oriented, American bioethics, and become an international, cross-cultural, more feminist, more environmentally

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<sup>29</sup> Masahiro Morioka, “Toward International and Cross-Cultural Bioethics,” in *Intractable Neurological Disorders, Human Genome Research and Society. Proceedings of the Third International Bioethics Seminar in Fukui, 19-21 November, 1993*: 293.

<sup>30</sup> Morioka, “Toward International and Cross-Cultural Bioethics,” in *Intractable Neurological Disorders*, 294.



oriented study of life, science and society.” Medical and environmental problems must be researched together because “because both sets of problems have been raised by the intrusion of modern science and technology into the realm of life inside and outside of the human body.” Morioka concluded, “I think Professor Potter was right when he said that a real bioethics must include both ‘medical bioethics’ and ‘ecological bioethics.’ We need to be attentive to ecological studies and environmental ethics as well as medical ethics.”<sup>31</sup>

In 1995, Potter noted that seven years earlier he had defined global bioethics as a “secular program of evolving morality that calls for decisions in health care and the preservation of the natural environment.”<sup>32</sup> A “morality of responsibility,” the secular program was not to be confused with secular humanism.<sup>33</sup> While acknowledging that persuasion would be needed to convince conflicting religious factions that mutual respect and tolerance was a part of a viable global bioethic, Potter now conceded that there “was no mention of how global bioethics might proceed to develop a relationship with such groups.”<sup>34</sup> A “key article” in 1990 on the relationship of evolution’s fatal flaw to human survival

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<sup>31</sup> Morioka, “Toward International and Cross-Cultural Bioethics,” in *Intractable Neurological Disorders*, 295.

<sup>32</sup> Van Rensselaer Potter, “Global Bioethics: Origin and Development,” *Handbook for Environmental Risk Decision Making: Values, Perceptions and Ethics*, ed. C. Richard Cothen, 369. While the book was published in 1996, Potter indicated he wrote his essay in 1995.

<sup>33</sup> Potter, “Global Bioethics: Origin and Development,” 369.

<sup>34</sup> Potter, “Global Bioethics: Origin and Development,” 369.

also failed to confront the issue,<sup>35</sup> and Potter and Richard Grantham's 1992 article, "Scientists' Responsibility for Survival of the Human Species"<sup>36</sup> highlighted the perceived irrelevance of religion by failing to acknowledge it.<sup>37</sup> Then came Potter's encounter with Kung, a "breakthrough in the further evolution of bioethics."<sup>38</sup> The title of Potter's article, "Religion, Science Must Share Quest for Global Survival," was a marked contrast, Potter said, to his and Grantham's 1992 effort "in which a bond between science and ethics was urged but religion was not mentioned."<sup>39</sup>

In his "Science and Religion" article written for *The Scientist*, Potter suggested that the National Academy of Sciences might act to initiate a conversation between leading scientists and willing religious readers. To Potter's surprise, the article inspired an encouraging outpouring of reader responses, many of which called his attention to partnerships, appeals and publications that reflected joint efforts of science and religion in concert with what was variously described as partnerships for the environment, earth keeping or stewardship of

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<sup>35</sup> Potter, "Global Bioethics: Origin and Development," 370. The article alluded to would be Van Rensselaer Potter, "Getting to the Year 3000: Can Global Bioethics Overcome Evolutions Fatal Flaw?," *Perspectives in Biology and Medicine* 34 (1990):89-98.

<sup>36</sup> Van Rensselaer Potter and Richard Grantham, "Scientists' Responsibility for Survival of the Human Species," *Scientist*, (25 May 1992),10-11.

<sup>37</sup> Potter, "Global Bioethics: Origin and Development," 370.

<sup>38</sup> Potter, "Global Bioethics: Origin and Development," 370.

<sup>39</sup> Potter, "Global Bioethics: Origin and Development," 370.

creation. There was a notable absence of concern for long term acceptable human survival, however, although Potter was heartened to learn that “the various mainline religions in the U.S. are working closely with the Union of Concerned Scientists, and will probably join in expressing concern about what many call ‘overpopulation’.”<sup>40</sup>

Potter came away from the encounter with a new vocabulary that helped him to refine further his expression of his bioethics. “The cross-currents between medical bioethics and environmental bioethics can best be understood if we realize that they are two streams of conflicting values flowing in a river of reality,” he explained. “In each case, a set of *quality* values is challenging a set of *sanctity* values, where the word sanctity implies a value that cannot be challenged.”<sup>41</sup> In health care quality of life challenges sanctity of life, while, in earth care, quality of the environment challenges sanctity of the dollar.

The fact interaction occurs between all four components should be obvious to everyone, but the two fields remain separated, probably because the details in each are so complicated. Yet no one can deny that the ‘sanctity of human life’ impacts ‘quality of the environment’ and ‘sanctity of the dollar’ impacts ‘quality of life’. What is clear in principle is that too much emphasis on the *sanctity* side of the balance is, in each case, damaging to the *quality* component. Perhaps the vision of Global Bioethics is naïve and the reality is the problem of getting the dominant culture to willingly accept the idea that the masses of people in poverty are *persons*. Global Bioethics calls for on-going discussion of what is required to *permit* human survival and to make it *acceptable* and *deserved* by the dominant culture.<sup>42</sup>

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<sup>40</sup> Potter, “Global Bioethics: Origin and Development,” 371.

<sup>41</sup> Potter, “Global Bioethics: Origin and Development,” 359-360.

<sup>42</sup> Potter, “Global Bioethics: Origin and Development,” 360.

No longer a practicing bench scientist, Potter remained on the alert for new science to support – or disprove – his old ideas. In a 1995 essay in *Perspectives in Biology and Medicine*, “Global Bioethics: Linking Genes to Ethical Behavior,”<sup>43</sup> Potter considered the 1848 case of Phineas Gage, a Rutland and Burlington Railroad construction worker whose personality was rather famously altered when an explosion drove a 13-¼ pound, 3-foot, 7-inch tapered iron rod through his skull.<sup>44</sup> Gage survived until 1861, a functioning man who had “taken leave of his sense of responsibility.”<sup>45</sup>

Current work by researchers such as António Damásio, professor of neurology at the University of Iowa College of Medicine and author of *Descartes’ Error*, and Hanna Damásio, a neurologist and author of the classic “Lesion Analysis in Neuropsychology,”<sup>46</sup> not only challenged the notion of mind/body dualism, Potter said, but provided support for the idea that ethical behavior requires the operation of simple circuitry in the brain core operating in the context

<sup>43</sup>Van Rensselaer Potter, “Global Bioethics: Linking Genes to Ethical Behavior,” *Perspectives in Biology and Medicine* 39 (1995): 118-131.

<sup>44</sup> Gage’s skull is on permanent display in Harvard Medical School’s Countway Library. See Peter Ratiu, Ion-Florin Talos, Steven Haker, Daniel Lieberman, and Peter Everett. “The Tale of Phineas Gage, Digitally Remastered,” *Journal of Neurotrauma* 21, no. 5 (2004): 637-643.

<sup>45</sup> Potter, “Global Bioethics: Linking Genes to Ethical Behavior,” 127.

<sup>46</sup> A consideration of the Damásio’s work on Gage can be found in Malcolm Macmillan’s *An Odd Kind of Fame: Stories of Phineas Gage* (Cambridge, MA: MIT Press, 2002).

of connections that report the whole bodily situation. It is not a stretch then, in Potter's construct, to link the work of António Damásio's group to that of Sandra Scarr, a professor of psychology at the University of Virginia, Charlottesville, that suggested that genes are linked to personality in a way that the opportunity to learn and experience amplified the effect of the genotype on the phenotype.

The confluence of such work suggested to Potter that Phineas Gage "had 'ethical' genes (for future awareness: altruism, responsibility, and ethics) that were represented in his phenotype that were ripped out of his brain by the iron rod that blasted through his head ... Phineas Gage clearly [had] conventional moral and responsible character before the accident. After his trauma he was no longer able to recall his stored moral principle or to act on incoming messages in that category."<sup>47</sup> The idea that phenotypic expression of genes for ethical behavior and social relationship is located in the brain brought to Potter's own mind "my concept of the 'fatal flaw' for behavior that may lead to extinction, or alternatively, to survival in the long term ...". New multidisciplinary studies on brain function and gene expression are integrated into Global Bioethics, as "Global Bioethics goes beyond medical bioethics by emphasizing two meanings of global: it is comprehensive in calling for basic studies in behavior genetics and ethical decisions in health care and Earth care. Secondly, it calls for these

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<sup>47</sup> Potter, "Global Bioethics: Linking Genes to Ethical Behavior," 119.

decisions to be applied in a world-wide basis with long-term survival as the goal.”<sup>48</sup>

As Potter had suggested before, a set of “short term,” “animal,” or “future-blind” genes emphasize day-to-day personal survival, material acquisition and personal power with no regard for the remote future. The genes in this category provide an adaptive phenotype, but it is that flexibility, the disregard for future consequence, which provide what Potter characterized as the evolutionary fatal flaw.<sup>49</sup> On the other hand, a set of “ethical genes” moderates the fatal flaw, promoting the development of phenotypes “that emphasize ‘future awareness’ (altruism, responsibility and ethics) by making individuals receptive to ethical messages emanating from others, contemporary and historical.”<sup>50</sup>

The fatal flaw expressed in the 20<sup>th</sup> century is a “*tendency to emphasize the here and now and not worry about the long term future,*” (emphasis original) Potter explained. When we attempt to address societal ills like overpopulation or environmental degradation we are often unsuccessful because we are ignorant of how the fatal flaw is expressed in society. A trait related to the fatal flaw is the drive, particularly male, for sexual satisfaction. In the distant past early hominids were dependent on this trait for superficial diversification in color and physiognomy, according to Potter. This dominant male demand for sexual

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<sup>48</sup> Potter, “Global Bioethics: Linking Genes to Ethical Behavior,” 119-120.

<sup>49</sup> Potter, “Global Bioethics: Linking Genes to Ethical Behavior,” 121.

<sup>50</sup> Potter, “Global Bioethics: Linking Genes to Ethical Behavior,” 122.

satisfaction, once necessary for survival, now unmoderated by an ethical phenotype, is now one of the threats to survival.

Not only over-population, but stranger-, kin-, and date rape, spousal and child abuse, and opposition to gender equality can be attributed to uncontrolled expression of the male gene. Moreover, in Potter's estimation, "the biological call for sexual satisfaction drives certain aspects of cultural evolution. Thus pornography, many movies, much TV, and much advertising all represent a biological trait driving cultural evolution in a way that can be turned to profit."

The solution is not in the laboratory. "We could not change biological evolution fast enough to control this tendency even if we knew what to specify," Potter claimed. "A few good people are needed to catalyze a cultural evolution that can change the dominant culture, a culture that needs to be convinced on the facts of overpopulation, overconsumption and resource depletion."<sup>51</sup>

The idea that phenotypic expression can be modified more rapidly than genotypic expression – as with Phineas Gage – suggested to Potter the need for future studies on child development in the context of global bioethics. "We should encourage every effort to ensure that children are exposed to environments for healthy, happy, productive and compassionate lives," he wrote. "Such an effort might lead to a cohort of adults who are both compassionate to less fortunate groups and concerned for the lives of future generations."<sup>52</sup>

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<sup>51</sup> Potter, "Global Bioethics: Linking Genes to Ethical Behavior," 128-129.

<sup>52</sup> Potter, "Global Bioethics: Linking Genes to Ethical Behavior," 130.

Efforts to identify a gene related to the phenotype for ethical behavior, as well as the potentials such identification might afford society, places new responsibility on medicine. “Medical ethics,” Potter concluded, “should recognize its need to come into balance with global bioethics and behavior genetics in a world overburdened with poverty, pollution, and people – and overconsumption that ignores all three.”<sup>53</sup>

In 1996<sup>54</sup>, Potter was asked to contribute an essay to the newly launched journal *Ethics and the Environment*. In “Real Bioethics: Biocentric or Anthropocentric?”, Potter took yet another opportunity to clarify what he meant by

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<sup>53</sup>Potter, “Global Bioethics: Linking Genes to Ethical Behavior,” 129.

<sup>54</sup> Also in 1996, the 85-year old Potter took an invitation to attend a reunion of past presidents of the American Society for Cell Biology as an opportunity to update, via letter, the membership on his continued efforts to write on “real bioethics,” including his happy and meaningful collaborations with his granddaughter, Lisa Potter (See Van Rensselaer Potter with Lisa Potter, “Global Bioethics: Converting Sustainable Development to Global Survival.” *Medicine and Global Survival 2* (September 1995): 185-191.) Lisa Potter Bonvicini represented the Potter family on September 19, 2011 when, in conjunction with the VII World Conference on Bioethics conference in Spain, the main street of Gijón’s Scientific and Technological Park was formally dedicated as “Professor Potter, Father of Bioethics” street (the actual designation was made in November 2009.) Potter also recalled his “accidental” election as ASCB president: “As I remember it, the Board of Directors always named one of their own group and were required to name an outsider as the other nominee. Daniel Mazia called me one evening while they were at dinner but I was assured it was just a formality and I would not be elected. Later I got the news. I was not an active member at the time.” In William Bechtel’s account, the nominating committee was instructed to put forth the names of two biochemists in order further the fledgling organization’s efforts to achieve the “desired interdisciplinary mix.” ASCB wanted to attract biochemists, biophysicists, and “more functionally oriented scientists” in an effort “to prevent the Society from becoming identified with any one technique or discipline...” Van Rensselaer Potter, “[Letter] To 1996 President J. Michael Bishop,” *ASCB Newsletter*, January 1997. [http://www.ascb.org/index.php?option=com\\_content&view=article&id=418&Itemid=216](http://www.ascb.org/index.php?option=com_content&view=article&id=418&Itemid=216); William Bechtel, *Discovering Cell Mechanisms: The Creation of Modern Cell Biology*, 273-274.



“bioethics.” In doing so, he abandoned “global,” “deep,” and any other uncomfortable modifier in favor of “real.” Like “global,” “real” appeared to Potter to have a double meaning: both true, and realistic. “Real bioethics is not merely biocentric or merely anthropocentric,” Potter explained. “Instead, real bioethics calls for an idealistic mix of biocentrism and the kind of humanism that is concerned with the needs, interests, and welfare of human beings, or, in other words, an enlightened or realistic anthropocentrism that acknowledges the central role of the biosphere in the continued existence and “common good” of the human species, as previously discussed in connection with global bioethics, a subject foreign to environmental ethicists.”<sup>55</sup>

In contrast, “Environmental ethics is done by philosophers operating within the strict canons of the discipline,” Potter clarified. “Environmental ethics has been pursued as the traditional ethics of pure reason. Real bioethics is not pure, traditional, reasoning ethics. Real bioethics is done by realistic scientists and concerned biologists and physicians who have an intuition to help build a ‘Bridge to the Future,’ whether or not their effort is labeled ‘bioethics.’”<sup>56</sup> Once again, Potter identified his equivalent of Karl Rahner’s Anonymous Christian, the Anonymous Bioethicist, this time acting as the Physicians for Social Responsibility and the editors of their journal, *Medicine and Global Survival*.

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<sup>55</sup> Van Rensselaer Potter, “Real Bioethics: Biocentric or Anthropocentric,” *Ethics and the Environment* 1, no. 2 (Fall, 1996).

<sup>56</sup> Potter, “Real Bioethics: Biocentric or Anthropocentric.”

“These people are not professional ethicists,” Potter noted. “As realists they see the survival and well-being of the human species as a matter of organizational morality – a civic society directed to the “common good” worldwide, as soon as possible, and with a long-range perspective.”<sup>57</sup> Potter also bolstered his historical antecedents, adding to Aldo Leopold another Wisconsin professor, philosopher Max Otto.<sup>58</sup>

By 1996 Potter had grown, if not resigned, philosophical. “The concept of global bioethics, by whatever name, will continue to live and challenge us. It needs me no more,” he predicted in *The Ag Bioethics Forum*. “Whether the word would have been invented in 1970 or 1971 without my publications is an open question, but there is a more important issue. Why was I so successful writing reports and reviews on cancer research, and so unrecognized in the U.S. when I was began to write about ethical questions? But I refuse to follow Voltaire's character, Candide, who gave up the struggle, saying "Let us till our gardens." I

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<sup>57</sup> Potter, “Real Bioethics: Biocentric or Anthropocentric.”

<sup>58</sup> “In the period 1940-48, Max Otto and Aldo Leopold were finally seeing themselves in the context of the natural world and in drawing conclusions, each influenced by his own unique background,” Potter wrote. “Neither were biocentrists, as Leopold might appear, nor anthropocentrists, as Otto might appear. Both are the ancestors and forerunners of *real* bioethics, although neither extrapolates to a consideration of organizational obligations in terms of what may now be called *real* bioethics: not biocentrism, not anthropocentrism, but a combination of both, a humanistic biocentrism as Leopold advocated and an enlightened nature-conscious anthropocentrism as Otto proposed – a matter of organizational morality directed by an intuition for the “common good” world-wide, as soon as possible, and with a long-range perspective, as stated at the outset...” Potter, “Real Bioethics: Biocentric or Anthropocentric,” 181.

will continue to write about global bioethics and to plant the seeds of bioethics in my garden.”<sup>59</sup>

However, there were encouraging developments on the international front. After Potter’s lecture at Trentino, Potter gradually began receiving a number of invitations to speak at international conferences. In 1998<sup>60</sup> Hyakudai Sakamoto, a philosopher and President of the Fourth World Congress of the International Association of Bioethics invited Potter to address the assembly. The gathering, “was of course medical [bioethics],” Potter recalled. But Potter was heartened by the fact that, in his role as president, Sakamoto chose the conference theme “Global Bioethics, South and North, East and West.”<sup>61</sup> Potter, no longer feeling up to the stress of international travel, declined the invitation but offered to send a videotaped address in his stead, a first for Potter. A copy of the Audio-Script was placed in every registration kit. Sakamoto offered copies of the videotape address at cost, an offer that, in Potter’s estimation, “had world-wide effects.”<sup>62</sup>

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<sup>59</sup> Van Rensselaer Potter, *Ag Bioethics Forum* 8 no.1 (June 1996): 3.

<sup>60</sup> In 1998, Potter, as “coiner” of the word bioethics and “one of the most innovative cancer biochemists in the world,” received an honorary doctor of science degree from Michigan State University. MSU Press Release, “MSU Commencement Speakers Announced,” 9 April 1998.

<sup>61</sup> Van Rensselaer Potter, “Dear Global Bioethics Network,” available at <http://www.mcardle.wisc.edu/faculty/bio/PotterGlobalBioethics.html>.

<sup>62</sup> Potter, “Dear Global Bioethics Network.”

The following year Potter received an invitation from Manuel Velasco-Suarez<sup>63</sup> to speak at a Bioethics Congress in Mexico City<sup>64</sup> Again, Potter declined to travel but offered to make a special tape for the occasion. "My offer was accepted and the tape has impressive quotes from my host, mentioning "agua, atmospheria" and "oportunidad hoy," Potter remembered.

In 2000, Potter received an invitation to speak at the International World Congress in Gijón, Spain, from Dr. Marcelo Palacios, President and Founder of the Society of International Bioethics (SIBI). Potter made a third videotape he called the "FDR tape," because it opened with quotation<sup>65</sup> and picture of President Franklin Roosevelt. "The Gijón meeting was one of the biggest events in my life, all captured on film with copies sent to me, along with the medal and diploma from the SIBI Prize 2000," Potter remembered. Conference attendees

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<sup>63</sup> Velasco-Suarez was founder of the Mexican Academy of Bioethics and founding member of the Organization of Physicians against Nuclear War. He also organized and was elected president of the International Congress of Bioethics in Mexico.

<sup>64</sup> Unfortunately, Potter does not give the name of the conference. I think it was likely either the *Sixteenth Session of the International Bioethics Committee (IBC)*, Mexico City, Mexico, November 23-25, 2009 or *The European Commission - UNESCO Conference: "Joint Action for Capacity-building in Bioethics"* Mexico City, Mexico, on November 26-28, 2009. Interestingly, Henk ten Have, then director of the Division of Ethics of Science and the Section of Social and Human Services, UNESCO, was a participant at both gatherings.

<sup>65</sup> Potter does not mention which quotation he selected, however in other contexts he quoted Roosevelt's declaration during his February 23, 1942 fireside chat that, "Never before have we had so little time in which to do so much." Potter would recall with pride that, in 1932, he cast his first presidential vote for Roosevelt. See Van Rensselaer Potter, "The Intellectual 'Last Will' of the First Bioethicist," in Amir Muzur and Hans-Martin Sass, eds, *Fritz Jahr and the Foundations of Global Bioethics: The Future of Integrative Bioethics* (Münster: LIT Verlag, 2012)

affirmed the Bioethics Declaration of Gijón which, among other things, stated, “It is an important task of Bioethics to harmonise the use of biomedical science and its technologies with human rights, in relation to the values and ethical principles” of the United Nations Universal Declaration of Human Rights, UNESCO’s Universal Declaration on Human Genome and Human Rights and the Asturias Convention on Human Rights and Biomedicine of the Council of Europe.<sup>66</sup>

There would be one final request to speak, “an invitation from Prof. Ivan Segota to come to a meeting on the island of Ceres, Croatia in September [2001],” Potter wrote with some difficulty just weeks before he died, “and again, a tape instead. But this time three members of my so-called Core Group will speak.” Some of the seeds Potter had scattered so long and broadly were beginning to sprout.<sup>67</sup>

In a taped address prepared for the event, Potter said, “Now I have to emphasize that we must constantly examine what we mean by the word *bioethics*. The simplest but all-inclusive image has been captured by my friend [holistic veterinarian Michael W. Fox] in his book just published *Bringing Life to Ethics*<sup>68</sup> with the subtitle *Global Bioethics for a Humane Society*.”<sup>69</sup> Potter then

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<sup>66</sup> The complete text of the declaration can be found here: <http://www.sibi.org/ingles/ddc/bio.htm>

<sup>67</sup> Potter, “Dear Global Bioethics Network.”

<sup>68</sup> Michael W. Fox, *Bringing Life to Ethics: Global Bioethics for a Humane Society* (Albany, NY: State University of New York Press, 2001).

indicated viewers would see an image of his own book, *Bioethics: Bridge to the Future*. “Listen!”, cried out the man who 75 years earlier was called upon to take the pulpit for his elderly pastor.<sup>70</sup> “Today I declare it was incorrect and completely inappropriate to call bioethics the Science of anything. I suppose I made this mistake because I am a scientist. But what would I have done with the insight of today?”<sup>71</sup> Potter mentions a recent influence, biologist Ursula Goodenough’s<sup>72</sup>

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<sup>69</sup> Van Rensselaer Potter, “The Intellectual ‘Last Will’ of the First Bioethicist,” in Amir Muzur and Hans-Martin Sass, eds, *Fritz Jahr and the Foundations of Global Bioethics: The Future of Integrative Bioethics* (Münster: LIT Verlag, 2012): 150. The hard cover edition of this book that was made available in the United States in 2012 reads more like page proofs; it is rife both with typographical errors and errors of fact. However, it contains the only readily available transcript of Potter’s remarks prepared for the Symposium on Philosophy and Bioethics. The portions I have quoted are consistent with both the style and content of Potter’s other writings, and I believe them to be an accurate representation of his remarks.

<sup>70</sup> Potter, UW Oral History # 257.

<sup>71</sup> Potter, “The Intellectual ‘Last Will’,” 150.

<sup>72</sup> Goodenough is both a past present of IRAS and of the American Society for Cell Biology. She is the half-sister of Ward Goodenough, participant with Potter in the 1960 Hogland/Burhoe conferences.

new book, *Sacred Depths of Nature*.<sup>73</sup>

It seems clear she is calling for a new religion [Religious Naturalism]....Perhaps Bioethics as a system of nature-based morality will serve a useful function in this role as a monitor of science, technology, and politics. Now Hear this! It came to me that bioethics *is* a model of the new religion sought by Professor Goodenough. Bioethics calls for a morality based on beliefs that we have about the relation between humans and the biological systems within us and around us. Today, in 2001, I would introduce the word bioethics in the title of the 1970 publication as *Bioethics, The Morality of Survival* – not as *The Science of Survival*.<sup>74</sup>

No where in the world, Potter suggested, was there more of a need for a new morality or religion than at the conference site<sup>75</sup> in the shadow of the Balkans, a “cauldron of interethnic hatred, with three major religions set off by national boundaries?”<sup>76</sup> What, wondered Potter, could be more unifying than a nature-based morality called Bioethics?

“I say Bioethics is a system of belief,” Potter explained, “because it cannot be proved by rational argument or scientific research that it is right, good, appropriate, and necessary to protect, maintain and restore the natural

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<sup>73</sup> Ursula Goodenough, *The Sacred Depths of Nature*, (New York: Oxford University Press, 1998.)

<sup>74</sup> Potter, “The Intellectual ‘Last Will’,” 150-151.

<sup>75</sup> After Potter taped his remarks, the Symposium site was changed from the Island of Cres to Lošinj.

<sup>76</sup>Potter, “The Intellectual ‘Last Will’,” 151.

environment and to do all we can to assure that future generations have the rights we fought for and believe in.”<sup>77</sup>He continued:

Global Bioethics is a world-view, a *Gestalt*, but most of all a call for action based on Faith, Faith in the new morality called Bioethics. The question arises, can bioethics as a new system of morality be the rallying call for a unifying political movement? Of course it can! Every political movement and every political protest is based on beliefs that can't be proved and are often based on the beliefs of particular branches of [the] parent religion. Bioethics as a political organization based on a nature-based morality with 'shall' and 'shall not's' is an idea whose time has come.<sup>78</sup>

In Potter's last published essay, “Moving the Culture Toward More Vivid Utopias with Survival as the Goal,” Potter recalled his long ago encounter with Mead's essay in *Science*. “In choosing to repeat Margaret Mead's earlier choice of words “toward more vivid utopias” we have come full circle,” he wrote. “The words were in a sense the beginning of it all and they epitomize the final conclusion: the utopia seen in the global bioethics vision is ‘acceptable survival’ of the human species through future millennia in numbers that are compatible with the environmental constraints.”<sup>79</sup> Potter does what is in effect a review of the evolution of his bioethics, a bioethic, a “search for wisdom that utilizes knowledge for the social good,” that has broadened to incorporate many different kinds of

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<sup>77</sup> Potter, “The Intellectual ‘Last Will’,” 151.

<sup>78</sup> Potter, “The Intellectual ‘Last Will’,” 152.

<sup>79</sup> Van Rensselaer Potter, “Moving the Culture Toward More Vivid Utopias with Survival as the Goal,” *Global Bioethics*, 14, no. 4 (2001,): 19-29. Originally published in *International Society of Bioethics SIBI* (January-June 2001,) 71-86. British spelling retained in quotes.



human knowledge. “Global survival in the long term will not be possible if the world population is not brought under control and possibly reduced – will not be possible if the environment is not protected – will not be possible if human health is not improved – will not be possible if biodiversity is not protected – will not be possible without a transformation of society – will not be possible without a sense of the meaning of community,”<sup>80</sup> he wrote. And there is only one common knowledge that can underwrite all those concerns: biological knowledge.

For one last time, he attempted to explain what he meant by ethics. Rather than an academic exercise, one governed by rules and principles and modes of action, Potter envisioned an ethic that is defined *by* action. “Ethics cannot be elaborated or justified by traditional philosophy unaided by experience,” he insisted. “Ethics is not a discipline that can exist in a vacuum. Ethics as a discipline and morality as a guide to behaviour require an image or a model of the end objective or goal. Where the goal is clear the ethic is defined and morality is bent in the direction of the goal.” In the absence of an ethic thus defined and clearly articulated, individual or collective “ethical” action has no tangible expression, and thus no motivation that can result in practical accomplishment. Morality or behavior, Potter explained, “seen as action toward the attainment of a goal cannot be sustained in the absence of an ethic, a *belief* or a *faith* that action toward the goal is right, good, natural and proper.”<sup>81</sup> And that

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<sup>80</sup>Potter, “Moving the Culture Toward More Vivid Utopias,” 26.

<sup>81</sup> Potter, “Moving the Culture Toward More Vivid Utopias,” 26.

is where expertise comes in. Society needs to rely confidently on particularized expertise, ideally expressed in cooperative efforts, to determine the appropriateness of a goal. “Professionals in biology, sociology, political science, and reformed economics need to adopt ‘trustee professionalism’ and participate in the transformation of society.” Potter continued. “They need to adopt an appropriate ethic that they can believe in if the human species can hope to achieve an acceptable, sustainable, global survival in ‘a more vivid utopia.’”<sup>82</sup>

In a letter written in late summer 2001 to the thirty-eight members of Potter’s Global Bioethics Network, a loosely assembled network of individuals who, inspired by his thought, had reached out to Potter over the last decade, Potter said his final good-byes. Friends and colleagues have referred obliquely to Potter’s “bioethical” or “Socratic” death<sup>83</sup> at age 90 of a blood infection<sup>84</sup>, just days before Islamic extremists commandeered jet airplanes, striking the twin World Trade Towers, the Pentagon and a field in Shanksville, Pennsylvania. “I often wonder,” reflected James Trosko more than a decade later, “what he would have

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<sup>82</sup>Potter, “Moving the Culture Toward More Vivid Utopias,” 28.

<sup>83</sup> Potter wrote an essay in 1999 decrying how medical technology prolongs lives without meaning, or ‘personhood.’ Van Rensselaer Potter, “On Dying With Personhood: Socratic Death,” *Perspectives in Biology and Medicine* 43, no.1 (1999): 103-111.

<sup>84</sup> Geriatric neurologist, bioethicist and member of Potter’s Global Bioethics Network Peter J. Whitehouse has been more specific, writing that Potter died of sepsis after declining antibiotic treatment for an infected artificial hip. Peter J. Whitehouse, “The Rebirth of Bioethics: A Tribute to Van Rensselaer Potter,” *Global Bioethics* 14, no. 4 (2001): 39.

thought about how our country acted at the time and what he would have thought of who we are now because of that incident.”<sup>85</sup><sup>86</sup>

Not long after Potter’s death, medical ethicist David Thomasma proposed devoting an entire issue of the *Cambridge Quarterly of Health Care Ethics* to the beginnings of bioethics. Thomasma was feeling a certain historical urgency. In the short five years since the publication of Albert Jonsen’s seminal article on the “birth of bioethics,”<sup>87</sup> more than half-dozen of those attending that birth had died.<sup>88</sup> Ironically, Thomasma, 62, would die unexpectedly in April 2002, before

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<sup>85</sup> James Trosko, correspondence with the author.

<sup>86</sup> In the University of Wisconsin-Madison faculty’s “Memorial Resolution” adopted after Potter’s death, the memorial committee, consisting of chair Henry C. Pitot, Norman R. Drinkwater and Charles B. Kasper wrote: “The world’s most catastrophic events of terrorism occurred in New York and Washington D.C. just a few days after Dr. Potter’s death in September. To ignore this historic event in the context of Van’s bioethical philosophy is to ignore the very reason he committed his life to educating all to the meaning of ‘bioethics’. In our pluralistic and incompatible world views, which have left billions in miserable survival conditions and the whole world in a global ecological challenge, a lack of ‘bioethical’ philosophy must be considered as a component of the motivation for such horrible acts.” University of Wisconsin Faculty Document 1628, 1 April 2002: 2.

<sup>87</sup>Albert R. Jonsen, “The Birth of Bioethics: The Origins and Evolution of a Demi Discipline” *Medical Humanities Review*, 11 (1997):19–21. A year later, Jonsen would publish his extensive account of *The Birth of Bioethics* (USA: Oxford University Press). Intended to be a definitive account, Jonsen gives Potter the most cursory of mentions, and that in the context of Reich’s narrative. In the process, he manages to misspell Potter’s name as “Van Renssellaer Potter”: 34.

<sup>88</sup> David C. Thomasma, “Editorial: Reflections” *Cambridge Quarterly of Healthcare Ethics* 11, no.4 (2002): 353. In the last years of his life, Thomasma’s own understanding of a philosophical, medically-oriented bioethics underwent some significant revisions. See, for example, David C. Thomasma, “Bioethics and International Human Rights” *Journal of Law, Medicine and Ethics* 4. (1997): 295-306 and “Proposing a New Agenda: Bioethics and International Human Rights” *Cambridge Quarterly of Healthcare* 3 (2001): 299-310.

work on the special issue was finished. It remained essentially his vision, though, and as such provides important insight into his own evolving understanding of what was foundational in bioethics.

Notably, the issue's first two articles are remembrances of Potter: one by Gerald Lower, who first met Potter as a seventeen-year old freshman at UW Madison and eventually became his colleague at the McArdle lab,<sup>89</sup> and the second by Peter J. Whitehouse, an academic neurologist interested in bioethics who had sought out Potter in the 1990s.<sup>90</sup>

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<sup>89</sup> Gerald M. Lower, "Van Rensselaer Potter: A Memoriam" *Cambridge Quarterly of Healthcare Ethics* 11, no. 4 (2002): 329-330. "I first met Van Potter nearly 40 years ago when I was 17 and entering the University of Wisconsin as a new freshman," remembered Lower, who eventually became both a faculty member in the Clinical Oncology Department at the University of Wisconsin School of Medicine and a member of the Global Bioethics Network. "During the summer of 1963, Van was a participant in a series of evening seminars designed to familiarize premed students to the community at the University of Wisconsin Medical School. I was immediately struck by Van's unique ability to cut straight to the core of virtually any issue having to do with biomedicine. As with many of his students, I quickly found myself in a father-son relationship of both our making. Van has been a source of inspiration and guidance to me ever since." Lower, "A Memoriam," 329.

<sup>90</sup> Peter J. Whitehouse, "Van Rensselaer Potter: An Intellectual Memoir" *Cambridge Quarterly of Healthcare Ethics* 11, no. 4 (2002): 331-334. "My expectations for my first visit with Professor Van Rensselaer Potter were primed by conversations with leaders and historians of the field of biomedical ethics, including Warren Reich, Al Jonsen, and David Thomasma," Whitehouse wrote. "When mentioning my interest in environmental ethics and my concerns for the current state of biomedical ethics, I was told that I must meet Van. On my first visit to Madison, Wisconsin, Van met me at the McArdle Laboratories for Cancer Research....I felt at the heart of Van's world when I sat in one of a pair of inexpensive plastic outdoor chairs in a particularly secluded part of the woods on the property [a shack outside Madison], the place where Van himself communed with nature..." Whitehouse, "Van Rensselaer Potter: An Intellectual Memoir," 331.

Thomasma began his own reminiscences: “The first book on my shelf at the newly created Program on Human Values and Health Sciences at the [land-grant] University of Tennessee Center for the Health Sciences in Memphis was by Van Rensselaer Potter on Global Bioethics.”<sup>91</sup> Potter’s vision, as Thomasma understood it, was that “bioethics should be a global concern – global in terms of scope, disciplines involved, and relationships to the environment and cultural context. This view has shaped my own career as well as influencing many others.”<sup>92</sup>

In the years immediately following Potter’s death, most of those who engaged seriously with his thought had previous interactions with him: as members of his Global Bioethics network, for example, or through international organizations like the Society for International Bioethics.<sup>93</sup> Gradually the circle began to widen, however. Potter became fodder for graduate study. In 2005, Mary Rowell, a Ph.D. candidate at the University of Duquesne, UK, submitted a thesis arguing that the current conception of bioethics is inadequate in light of

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<sup>91</sup> David C. Thomasma “Early Bioethics” *Cambridge Quarterly of Healthcare Ethics* 4 (2002): 355. This reference to the “Global Bioethics” book is footnoted as Potter’s *Global Bioethics: Building on the Leopold Legacy*. However, that book was published in 1986, and Thomasma came to UT in 1973. It is likely Thomasma was referring to *Bioethics: Bridge to the Future*, and the mis-attribution was made after his death, during the final editing of the article.

<sup>92</sup> Thomasma, “Early Bioethics,” 355.

<sup>93</sup> I am, of course, not including in this account all those scholars who do the obligatory Wikipedia clip and write “Van Rensselaer Potter coined the term bioethics to describe a new philosophy that sought to integrate biology, ecology, medicine, and human values,” and then go on to discuss something else entirely.

contemporary global ecological and societal circumstances, and advocating for a revival of Potter's notion of bioethics.<sup>94</sup> In *Perspectives in Biology and Medicine*, of all places, a contributor offered in 2010, "A confession: until asked to review *Bioscience Ethics* by Irina Pollard, I had never heard of Dr. Potter, nor was I familiar with his 1971 book, *Bioethics: Bridge to the Future*, which Pollard references early in her book"<sup>95</sup> Reviewer Lainie Friedman Ross, physician and ethicist, came away a believer. "What is needed, then, is a bioethics that converges on a middle path that both Potter and [Andre] Hellegers supported.... This understanding of bioethics means that bioethics goes beyond ethical issues in medicine to include ethical issues in public health, population

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<sup>94</sup> In *Toward a New Paradigm for Bioethics: Ecological and Theological Contributions* Rowell attempts to recover Potter's notion of bioethics and amplify it with thinking both in the Christian tradition of creation theology and contemporary eco-theology. Her most significant contribution to Potter scholarship is, arguably, the observation that Potter's bioethics, grounded in notions of relationship and interdependence, with an emphasis on responsibilities over rights, is well situated to have a mutually informative and supportive relationship with Christian scholarship. Unfortunately she presents no original research. Rowell joins a cadre of established scholars in fairly consistently misspelling Potter's name (in her rendition, "Van Rensellar Potter"). In the late 1990s Rowell, then a former Franciscan sister and a professional clinical bioethics consultant, was involved in Canada's most infamous research ethics scandal, the Oliveri case. Bioethicists were criticized for the failure to come to the support of a researcher who was threatened with legal action if she revealed the adverse health effects of a drug. In 2003 Rowell joined the Sisters of St. Joseph. As far I can determine, she has not continued her work on Potter. See Mary Rowell, *Toward a New Paradigm for Bioethics: Ecological and Theological Contributions*, Ph.D. Thesis, Duquesne University [http://etheses.dur.ac.uk/2279/1/2279\\_289.pdf](http://etheses.dur.ac.uk/2279/1/2279_289.pdf).; F. Baylis, "The Olivieri Debacle: Where Were the Heroes of Bioethics?", *Journal of Medical Ethics* 30 (2004):44-49 and Miriam Shuchman, *The Drug Trial: Nancy Olivieri and the Science Scandal That Rocked The Hospital For Sick Children*, (Toronto: Random House Canada, 2005).

<sup>95</sup> Lainie Friedman Ross, "Forty Years Later: The Scope of Bioethics Revisited," *Perspectives in Biology and Medicine*, 53 no.3 (2010), 453.

concerns, genetics, environmental health, reproductive practices and technologies, animal health and welfare, and the like.”<sup>96</sup> Joanna Zylińska’s 2009 attempt to articulate a bioethic defined as new “ethics of life,” prompted by technology and rooted in the relationship between the human and the nonhuman (both animals and machines), would likely both have bemused and intrigued Potter, even as she embraced him as the “first to have taken significant steps to a post-humanist bioethic.”<sup>97</sup>

In his March 2012 article, “Potter’s Notion of Bioethics,” Henk ten Have<sup>98</sup> set out to analyze the substance of Potter’s theory as well as the intellectual inspiration for this thought.<sup>99</sup> In his otherwise excellent consideration of Potter’s thought, ten Have, unaware of the appropriate background, stumbles when he attempts to discern the intellectual roots of Potter’s thinking and to identify his historical progenitors. Several ideas key to Potter’s conception of bioethics, ten Have insists, are developed within the context of pragmatism – even though in

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<sup>96</sup> Ross, “Forty Years Later, 457.

<sup>97</sup> Joanna Zylińska, *Bioethics in the Age of New Media*, Cambridge, MA: MIT Press (2009), 46.

<sup>98</sup> Now at Duquesne University in Pittsburg PA, ten Have is the former UNESCO Director of the Division of Ethics of Science and Technology. It is worth noting that ten Have became friends with David Thomasma in 1984, when the later was a Fulbright scholar in the Netherlands.

<sup>99</sup> Henk A. M. J. ten Have, “Potter’s Notion of Bioethics.” *Kennedy Institute of Ethics Journal* 22, no. 1 (2012): 59–82.

the entirety of his work, Potter makes only a few fleeting references to pragmatism.

....Potter's views on bioethics are characterized by a mixture of theoretical perspectives, especially evolutionary thinking and a concern with the future. But they are also developed within a theoretical context that is less explicit: the philosophy of pragmatism. Several of the basic ideas of Potter's conception of bioethics are connected with pragmatism, although *Bioethics* refers only once to a specific pragmatist work and mentions the names of key thinkers without going into details<sup>100</sup>.... The pragmatic theory of knowledge is also intrinsically oriented toward the future. Knowledge is successful practice. James characterizes ideas and beliefs as "plans of action".... In the new discipline of bioethics, ethics is not an isolated, theoretical activity: it is not speculative or meditative but rather strives to change and improve the world. Ethics only has a meaning when we are involved actors. This possibly motivates Potter to close his two books with a "bioethical creed" presenting five statements of belief each followed by a commitment to action. The focus on action is promoted by a pragmatist interpretation of the notion of progress.... Finally, Potter builds on another basic tenet of pragmatism: responsibility. He characterizes bioethics as "a morality of responsibility" and like James, he assumes that the starting point for ethics is the moral experience of responsibility for action."

Pragmatism," Ten Have suggests, "is centered on several ideas that are seminal in Potter's thinking: rejection of dualism, orientation towards the future, and a concern for the notions of progress."<sup>101</sup> But that is also the program of the land-grant colleges – and of The Wisconsin Idea, which proceeded from that program – and it was articulated well in advance of pragmatism's first

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<sup>100</sup> *Bioethics*, does, however, mention the Morrill Act, the land-grant colleges and Potter's 1962 South Dakota State College address.

<sup>101</sup> Ten Have observed that pragmatist John Dewey was even more outspoken than James in his rejection of dualisms in all forms. Although he does not note it, Dewey was a 1879 graduate of the land-grant University of Vermont. Ten Have, "Potter's Notion of Bioethics," 69.



appearance in print.<sup>102</sup> At least in regards to the latter two of the three ideas that ten Have argues are seminal to Potter's thinking, the land-grant idea was based on the fundamental belief that a country that was growing in every way would need to plan for its future by educating as many members of its increasing population as it could. Inherent in the land-grant idea was the implicit assumption that, because progress was inevitable in that growing nation, it would take an educated population to manage that progress, and to control those innovations that would arise in every field of human endeavor. (The adaptability of the land-grant idea can be demonstrated by the fact that the land-grant institutions quickly moved beyond their agricultural missions.) This was the intellectual context within which Potter's ideas took shape. And, while Potter may have had a passing acquaintance with pragmatism, indeed may have been a practical if not academic pragmatist, it is the land-grant tradition that formed him.

In a 2004 essay in *BioScience*,<sup>103</sup> Aldo Leopold's son, A. Carl Leopold, cited Potter when making the case that the introduction of ethical concepts into ecological thinking had resulted in a powerful new Kuhnian "guiding principle."

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<sup>102</sup> William James, *Philosophical Conceptions and Practical Results* (The University Press, 1898). James claimed Charles Sanders Peirce's first verbal articulation of pragmatism was made sometime in the 1870s.

<sup>103</sup> A. Carl Leopold, "Living With the Land Ethic," *BioScience* 54, no. 2 (2004): 149-154. Leopold's essay was originally presented as a plenary address at the 54<sup>th</sup> annual meeting of the American Institute of Biological Sciences in Arlington, VA March 21-23, 2003.

Leopold, then a professor emeritus at Cornell's Boyce Thompson Institute for Plant Research, explicated Thomas Kuhn's identification of the difference between guiding principles and ordinary professional contributions:

Guiding principles provide an intellectual structure that reorients thought in a way that is persistent over a relatively long period of time. By contrast, ordinary contributions have a relatively limited persistence in professional thinking. To illustrate the difference, one can appraise the usefulness of a concept over time. The durations of a publication's usefulness can be defined by the period of time over which it is used or cited.<sup>104</sup>

Data from the Institute for Scientific Measure allow an estimate of a book's usefulness based on the frequency of citations in published literature. Leopold contrasts the frequency of citations for his own 1964 book *Plant Growth and Developments* which showed a half life of approximately six years, with his father's 1949 *A Sand County Almanac*. "There were almost no citations for more than a decade, after which citations have been rising consistently for the next 50 years," he observed. "It is evident that Aldo Leopold's book is having an impact over a long period of time, as is consistent with the definition of a new guiding principle."<sup>105</sup> Aldo Leopold's paradigm of the land ethic, offering a new perspective on conservation through ethical precepts has, his son noted, "led to the appearance of new journals, new professional societies, and numerous new books concerned with environmental ethics."<sup>106</sup>

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<sup>104</sup> Leopold, "Living With the Land Ethic," 153.

<sup>105</sup> Leopold, "Living With the Land Ethic," 153.

<sup>106</sup> Leopold, "Living With the Land Ethic," 153.

Well more than forty years on, Potter's *Bioethics: Bridge to the Future* is also showing a consistent uptick in citations, made all the more remarkable given its sustained dismissal by those who claim authority over the field he named. Its persistence suggests that Potterian bioethics may also be posed to transition to "guiding principle."

And as for the Guide himself? Perhaps not so oddly, it seems best left to a theologian to have the final word on that subject. "Potter becomes a prophet in the best biblical sense," wrote James M. Gustafson in 1992,

There is a threat to human well-being and to the well-being of all life. To meet that threat requires radical change....Like prophets of old, he heightens our consciousness of the problem, and like them he leaves us with too simple a diagnosis of the causes and conditions out of which the problem emerges, too simple an interpretation of the flaw. Again like them, he does not develop...the complications and ambiguities that his general and laudable aim entails."<sup>107</sup>

Imperfect and insistent, Potter's vision continues to call forth a redemptive bioethics, one where human action moves in concert to sustain the world.

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<sup>107</sup> James M. Gustafson, "Response to Van Rensselaer Potter, 'Getting to the Year 3000: Can Global Bioethics Overcome Evolution's Fatal Flaw?,'" *Perspectives in Biology and Medicine* 35, no. 3 (Spring, 1992): 343.

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“An interesting final thought has to do with the uniqueness of the human individual both biologically and culturally. One kind of cultural uniqueness is expressed by the list of books and articles one has read. The narrower the specialization, the more our book list overlaps with other specialists in the same field until the point is reached at which we become so specialized that we read only what we write. But if we begin to read both in science and in the humanities, it is unlikely that anyone else in the world has read the same books that we have. Should we not then try to draw some conclusions from the reading that no one else has done? Or if there are others who have read the same collection, should we not ask whether they derived the same message?”

Van Rensselaer Potter, *Bioethics: Bridge to the Future*, 2.

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### **SOCIAL CONTEXT, INFLUENCES, IMPACT AND CRITQUES**

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## VITA

Margaret E. Doris

B.A. Kirkland College

M.Div. Boston University

MEDoris@aol.com

Margaret Doris began her doctoral work at the Boston University School of Theology with Dr. Jensine Andresen, looking at the question of xenotransplantation, particularly as it relates to the precautionary principle and the protection of human participants in research. At the same time she worked with Dr. Fritz Bach's group at Harvard University developing processes for involving the public in risk assessment deliberations regarding cross-species transplantation (Coincidentally, it was at the University of Wisconsin that Dr. Bach pioneered mixed lymphocyte cell cultures (MLC) as a typing test for potential recipients and donors for bone marrow transplants.) After Dr. Andresen left Boston University she worked briefly with Dr. Lucien Richard until his sudden decision to retire. She then began work under the direction of Dr. Kirk Wegter-McNelly looking at the historical origins of bioethics.

Margaret Doris has spent the bulk of her working career as a journalist, specializing in national politics, science and medicine. She has written for outlets as diverse as *Esquire* magazine and the *Berkeley Barb*, Gannett and United Press International, the *Boston Globe* magazine and the *Boston Herald*. She has also taught journalism at the undergraduate level. She has maintained a professional and academic interest in the protection of human participants in research, writing clinical trial guides for patient advocacy organizations and serving on the institutional review board of one of Harvard's teaching hospitals.

Margaret Doris has been active in the lay ministry of the United Church of Christ, and has served on the Commission on Communication of the Massachusetts Conference of the UCC. She is a long time board member of three 501(c)(3) non-profit organizations: the Playground Project, which creates accessible public recreation opportunities; Matthew 25, which creates and maintains affordable housing units in Central Massachusetts; and the Newton Conservators, a public land trust. She is a member of the American Society for Bioethics and the Humanities and of the Girl Scouts of America.