

The Role of Religion in Catholic Science Education

Mike Epstein

Adjunct Professor, Department of Science
Mount Saint Mary's College, Emmitsburg, MD

This manuscript is a result of the two week faculty development seminar on "Religion and Academic Culture" held in June, 1996. It intends to elucidate many of the ideas and issues raised in the seminar in the limited context of science education at a Catholic college or university. Taking the approach of David O'Brien in *From the Heart of the American Church*, I will give a short biography, although it will fall far short of his impressive accomplishments. Then, following a general discussion of science and Catholic education, we will examine each of the issues raised by the assigned readings and subsequent discussions.

I am a government chemist who was raised in the Catholic faith and fell away from Catholicism, but never from an innate belief in a divine providence. I returned to the faith of my childhood as a result of a "religious experience", and have been active in parish activities, primarily as a religious educator at the grade school level. My wife and I have two adopted children (from Korea) and I've been active in local adoption advocacy groups. I was, for a number of years, a member of the American Scientific Affiliation (ASA), a largely evangelical Protestant group seeking to harmonize science and religion, but left the group when I felt that some of my Catholic beliefs did not concur with those of committed evangelicals. I've also been active in *skeptical* organizations, having served as a vice-president of the *National Capital Area Skeptics* and am presently on their board of directors. I am currently an adjunct professor in the Department of Science at Mount Saint Mary's College, and taught general chemistry and analytical chemistry in the Spring semester of 1996.

Before examining the role of religion in science education at a Catholic college, I need to define what I mean by *Catholic*. Definitions range from a somewhat secular *worldwide unity in belief and conduct, identified with the Roman Catholic Church* (1), to a more ecclesiastical universality in terms of the *presence of Christ and the Christian mission to the whole human race* (2). More important for this discourse, however, is what *I mean by Catholic*, which I hold to be fidelity to the moral and spiritual precepts taught by Christ and revealed in the gospels and the teaching of the Church when consistent with those truths. This will, of course, put me in conflict with those who would *always* place the teachings of the Church foremost, but I would ask those who do so to study a bit of history, perhaps starting with the Syllabus of Pius IX (3) and the bull *Hebraeorum gens* by Pius V (4). In any event, I believe the moral and spiritual precepts taught by Christ include a social responsibility as well as a spiritual calling. **A Catholic college is one that emphasizes both Catholic social and spiritual responsibilities in the context of providing a strong education which will advance students who develop those desirable characteristics into positions that will allow them to influence humanity for the better.**

This means that a truly Catholic college cannot settle for the conservative model established by the Franciscan University of Steubenville (FUS), which certainly emphasizes spiritual aspects of Catholicity, but *perhaps* comes up short in social aspects and *even shorter* in providing a strong and balanced undergraduate education that prepares students to become leaders in their fields, particularly science. But we are getting ahead of the discussion, so let us return to the focus of Catholic science education.

One must first ask if science education can in any way be *Catholic*? If it can, what principles make it *Catholic* and how do these principles differ from a non-Catholic science education? If not, is there any way that Catholic principles can be introduced into the science curriculum without destroying the integrity of the science education? If we examine the triumvirate of Catholic education that I defined: **(a) social or humanistic concerns, (b) spiritual and moral growth and support, and (c) quality education to develop leadership**, we can begin to see that there are some obvious areas of harmony. Certainly, Catholic education has no monopoly on most of these areas, but that does not mean we shouldn't pursue them with vigor. Rather, by focusing on developing all of these areas, we accomplish the Catholic educational mission, and if secular educational institutions observe the success and follow a similar path, we have achieved an evangelical coup-d'état of sorts without resorting to the coercion that Catholics are historically supposed to be so fond of.

But how do we accomplish a *Catholic educational mission* in the scientific disciplines? The value-free approach championed by Weber in *Science As a Vocation* would make it a *Mission Impossible*, limited only to quality education to develop leadership, and leading to morally-bankrupt leadership. Teaching only the facts of science without the ethics is like placing a teenager behind the wheel of a car without lessons... he can drive but is liable to cause havoc and mayhem along the way. But what ethics should be taught? Social aspects of scientific research, concern for humanity and the environment are non-controversial and easily incorporated into a science curriculum. Evangelical Christian organizations such as the ASA offer annual awards for outstanding research in these areas. Similarly, ethical concepts to prevent pathological science (i.e., science that breaks the inviolate principles of critical thinking and moral research) can be taught by providing students with numerous examples of scientists who stepped over the line (and what happened to them). It should be noted that scientific ethics cannot be taught by nonscientists in ethics courses any more than a swimming instructor is qualified to teach the aforementioned teenager to drive. In the eyes of the science students, "if you don't play the game, you don't make the rules." The educator must therefore infuse morality into the science curriculum, which is not as difficult as it sounds. In chemistry, for example, I managed to incorporate into the standard second-semester general chemistry curriculum morality plays dealing with pathological science associated with the investigation of the Shroud of Turin, polywater, cold fusion, and psychokinesis and well as a discussion of Pascal's wager as applied to scientific research (5).

The problem of ethics and defining pathological science becomes more difficult in teaching the biological sciences, because of the Catholic dogma regarding theistic evolution, contraception, in-vitro fertilization, fetal medical research, homosexuality, and abortion. Must the educator at a Catholic institution make clear the Church's position on each of these issues, or can a value-free approach to the problem absolve him of

responsibility? There is no easy answer. Perhaps the best approach is the one I have taken in teaching a religious education class. *When asked* how I stand on questions such as ordination of women or contraception, I establish and explain the dogma of the Church, but I also express my own opinion, making sure that it is clearly apparent to all that this is my personal opinion if it differs from Church dogma. My limited understanding of Catholic theological truth is that there are a number of levels of required obedience, ranging from required belief in truth that is declared *Ex Cathedra*, such as the Immaculate Conception of the Virgin Mary, to lesser truths that must be taught but not necessarily believed. **The educator in the sciences at a Catholic institution should be ready to explain, when asked, how the Church establishes that God fits into the scheme of evolution or how contraception and abortion violate Catholic dogma.** While they do not necessarily have to accept the dogma, they should be able to explain it. This, of course, impacts the question of hiring Catholics (cultural or committed) or at least intellectuals who understand Catholic thought at Catholic institutions ... even in the sciences.

Assuming then that the Catholic institution incorporates *quality science education to develop leadership* by hiring the best available teachers and researchers and providing them with an academic atmosphere conducive to excellence; that it rejects a value-free educational policy and emphasizes social or humanistic concerns in the content of science courses; and promotes moral growth through ethics training within the scientific disciplines, we are left only with spiritual growth and support to achieve a truly Catholic institution. And it is here that we must turn to Pieper's *Leisure as the Basis for Culture*.

Spiritual growth can come through reflection on both religious and scientific mystery. The wonder and awe of God's creation as exemplified in nature can be the jumping off point for the contemplation of the deeper meaning of life. In this then, Weber was wrong when he implied that science does not lead us on a path to the meaning of the world or God. In his chapter titled *Can a Scientist Believe in God* (6), Warren Weaver points out that just as *most* theologians believe in the unseeable through philosophical deduction, scientists look at nature and deduce the unseeable (electrons, quarks, etc.). The scientific mind sees God as a name behind a consistent set of phenomena that can bring comfort on the emotional plane and satisfaction on the intellectual plane. In this sense, spiritual growth can come from scientific contemplation. **It is the responsibility of the educator to convey the facts of science and nature in a manner that emphasizes the inherent wonder and mystery.**

While we have examined basic requirements of science education at a Catholic college and some mechanisms for meeting those requirements, we still need to study the practical effects of implementing those requirements and mechanisms. For this we turn to Schwehn's *Exiles from Eden* and in particular, to Chapter 4, *Questions and Considerations*. Schwehn emphasizes the importance of a broadly-construed teaching (to include collegiality, friendship, encouraging spiritual growth, and research/publication in support of teaching) rather than pure *Wissenschaft*. At some institutions, this requires a paradigm shift in the tenure process, which often rewards research and publication rather than Schwehn's broadly-interpreted concept of teaching which I will refer to as **education**. This brings to mind my experience at a state-funded university over two decades ago. Salaries of all professors on campus were published by the university

newspaper, and I discovered to my dismay that the best practitioner of **education** in the chemistry department, a full professor for whom I worked and who did no research, was earning \$19K per annum, compared to all other professors (who did research) at \$35K+ per annum. I offered him a loan from my meager \$3K graduate teaching stipend which he graciously declined with his usual sense of humor. Schwehn attempts to remedy such inequities by establishing a two-tier system of pure teachers and teachers/researchers, with equal rewards but different responsibilities. The success of such a program will depend entirely on who makes the tenure decisions. One must ask if pure teachers are likely to end up in power positions at an educational institution? My experience of two-tier systems in government scientific institutions is that they don't work, primarily for the reasons given above. The scientific administrators who make advancement decisions are most likely to have come from the research tier. The result is self-evident.

A more fundamental problem, however, is that Schwehn's practitioner of **education** may not fulfill the requirement of *quality education to develop leadership*. I suggest that research is a fundamental part of an educator's skills, **and he cannot train students to be leaders in a scientific discipline without being a leader in the scientific discipline himself**. Schwehn's comment that just as "all bachelors are single, all good teachers are researchers" is missing the point. Yes, good teachers do research, but it is not the kind of research that, when imparted to students, will develop scientific leadership.

In defense of the interdependence of *intellectual and spiritual virtues* for both humanities and the sciences, Schwehn equates *study groups* with these values and cites the Mathematics Workshop Program (MWP) at UCal/Berkeley. Ignoring the obvious *leap of faith* performed by equating study groups with intellectual and spiritual virtues, Schwehn could use a lesson in confounding factors. The basis of the program success is that 54% of African-American students enrolled in the MWP earned a grade of B-minus or better compared to 16% of the students not participating in the MWP during the same period of time. What is ignored is that better and more motivated students, who would be expected to get better grades, are more likely to participate in such a program and the comparison should rather have been between the entire student population in different years. Schwehn's lack of statistical insight makes one wonder about his qualifications to expound on anything relating to the sciences.

Despite my disagreement with Schwehn on a number of issues, I do not argue his point that spiritual virtues of faith, humility, self-denial, charity, and friendship are an important part of the educational process. "Can these be achieved without God?", as Schwehn asks in his final question. If one accepts the non-denominational scientist-vision of God as presented by Weaver (6), one that satisfies both emotional and intellectual needs, a source of protection and moral standard in terms of experience rather than pure logic, then the answer is "probably not". At a Catholic institution of higher learning, the answer is obvious.

Expanding our view once more, we come to the general issue of secularization of education as described by Marsden's *The Soul of the American University* and more specifically to the secularization of science education. Secularization has come later to Catholic institutions than to Protestant, inhibited as a result of the strong Papal influence as related in documents such as *Rappresentanti in terra* (Christian Education of Youth, Dec 1929): "It is the inalienable right as well as the indispensable duty of the Church to

watch over the entire education of her children, in all institutions, public or private, not merely in regard to the religious instruction there given, but in regard to every other branch of learning and every regulation in so far as religion and morality are concerned ..." (7). It is a common theme among the many books dealing with science and religion in the last century to cast Catholicism in the role of the enemy of progress and enlightenment. "Whoever will in a spirit of impartiality examine what had been done by Catholicism for the intellectual and material advancement of Europe during her long reign, and what has been done by science in its brief period of action, can ... come to no other conclusion." (8) In this, secularization of science education within the Catholic academy has been a good thing. It is unimportant whether it occurred because of an intellectual enlightenment on the part of Church officials or whether it was forced as a result of diminishing numbers of clerical academics. It has brought academic freedom to the Catholic academy. Not academic freedom as it appears to be defined by the program policies of the Franciscan University of Steubenville, whose thesis remains that they foster *true academic freedom* (i.e., the freedom to teach what is true), as the Catholic Church accepts all that is true and rejects all that is false (9). Although the claim is made that FUS "promotes responsible academic freedom, which includes observance of the 1940 AAUP (American Association of University Professors) statement", it would seem that the clarification of their policy regarding the teaching of "all that is true" falls more in line with the criticism of the AAUP statement by Fr. W. M. Mallon, S.J.: "Freedom to teach what is true is without practical applicability unless we have a norm ... The Catholic college norm must be not only natural knowledge, but the deposit of divinely revealed truths immeasurably more certain than any truth arrived at by mere human deduction or experiment because we have for them the guarantee of the infinite knowledge and veracity of God ... We reserve the right to dispense with the service of the staff member whose life or utterances on the campus or off of it undermines the purposes for which we exist.... In view of the very nature and fundamental purposes of Catholic education, violations of Catholic doctrine, or Catholic moral principles, or of the essential proprieties of Catholic life, on the campus or off the campus, render a man unfit for service in a Catholic college. (10)

It is perhaps rather obvious how my proposed solution to handling the question of defining ethics and pathological science in the light of Catholic dogma would stand up under such a system. There can be no retreat to the fundamentalist past if Catholic leadership in the sciences is to flourish. I repeat my assertion that the secularization of science education in Catholic institutions has been a good thing. As long as the teachings of the Church are available to students to discuss freely when questions arise in the classroom, there is no need for a *new Inquisition*.

One important question raised by Marsden was the "sacred authority" of the scientific method, the assumption that science would lead to a unified set of truths on which all persons should be in essential agreement. Treating science as if it were a religion and the persecution of heretics has been the subject of books such as Wilson's *The New Inquisition: Irrational Rationalism and the Citadel of Science*. (11) While many of Wilson's examples reek of pathological science, his points regarding the dogmatic nature of the scientific establishment ring true and need to be presented in the classroom along with the standard fare of current scientific dogmas. The strength of a good educational system in science is to promote the intellectual atmosphere where students can *freely*

question dogmas of any stripe or color. The truly Catholic college is well poised to accomplish that purpose.

Finally, we arrive at David O'Brien's *From the Heart of the American Church*. While we have discussed many of the points raised by O'Brien, there are a few left to contemplate. Perhaps the most important and most revealing is whether open discussion (i.e., debate) is permitted on campus of topics such as abortion and homosexuality, towards which the Church has declared its uncompromising opposition.

I raised the question in the seminar discussion as to why young-earth creationists have no problem debating atheistic evolutionists (or even theistic evolutionists).. *anywhere and anytime*. Why is there no desire on the part of Catholic faculty to take a similar stance in support of Catholic dogma on campus? Why the bravado of the Protestant fundamentalists and the reticence of Catholics? Is it perhaps that there is no question of the motivation of young-earth creationists and no doubt in their minds of the righteousness of their cause? Is it that Catholics are so unsure of their stand on these issues that they fear a campus invitation to an abortionist or homosexual leader might be interpreted by authority to be support for a heresy rather than an expression of confidence in the truth of their faith? There is a disturbing picture here, where fundamentalists are champions of academic freedom and Catholics prefer to stifle discussion. There is much to ponder and there are no ready answers.

I have tried to limit my discussion to issues related to science education in a Catholic institution of higher learning, but these issues cannot truly be separated from the entire academic culture at such an institution. Truly Catholic science education cannot thrive in a truly secular atmosphere. Questions of liturgical and social activities, rules and restrictions, are beyond the scope of my discussion, although I will say that perhaps there is something that we can learn from FUS in this area. And I will close with a thought from Ralph Waldo Emerson: "Great men are they who see that the spiritual is stronger than any material force; that thoughts rule the world." There can be no greater goal for Catholic science education than to incorporate the spiritual with the material in pursuit of excellence.

Footnotes:

- 1 - Definition of "Catholicism" as presented in *A Concise Dictionary of Theology*, G. O'Collins, S.J. and E. G. Farrugia, S.J., Paulist Press, NY, 1991, p.33
- 2 - From "What does "catholic" mean?" in the *Catechism of the Catholic Church*, Paulist Press, NY, 1994, sections 830-831.
- 3 - From the "Syllabus of the principal errors of our time, which are censured in the consistorial Allocutions, Encyclical and other Apostolic Letters of our Most Holy Lord, Pope Pius IX" in *The Papal Encyclicals in their Historical Context*, Mentor, NY, 1956, p. 143.
- 4 - "The worst of it is that they seduce a great many imprudent and weak persons with their satanic illusions, their fortune-telling, their charms and magic tricks and witcheries, and make them believe that the future can be foretold, that stolen goods and hidden treasures can be recovered, and much else can be revealed", the words with which Pope Pius V explained his expulsion of the Jews from the Papal States, with the exception of Rome and Ancona, in 1569, as presented in *The Devil and the Jews: The Medieval Conception of the Jew and Its Relation to Modern Antisemitism*, J. Trachtenberg, Jewish Publication Society of American, Philadelphia, 1943, p.76.
- 5 - Manuscript in preparation, to be submitted to the Journal of Chemical Education
- 6 - From Warren Weaver's "Can a Scientist Believe in God?" in *Religions in America*, p. 204.
- 7 - From *The Papal Encyclicals in their Historical Context*, Mentor, NY, 1956, p. 224.
- 8 - From *History of The Conflict Between Science and Religion*, J. W. Draper, Appleton, NY, 1875, p. 321.
- 9 - From *The Way, the Truth, and the Life!*, the World-Wide-Web page of the Franciscan University of Steubenville, Mission Statement-Program Policies, URL: <http://esoptron.umd.edu/FUSfolder/program.html>, June 1996.
- 10 - Original source was The National Catholic Educational Association Bulletin, 1942, p. 193, quoted from *American Freedom and Catholic Power*, P. Blanshard, Beacon Press, Boston, 1951, p. 76.
- 11 - Robert Anton Wilson's *The New Inquisition*, New Falcon Publications, Arizona, 1991.