



Readings II in Faith & Science

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Nuclear Waste

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Nuclear Waste

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The debate about the storage of nuclear waste continues unabated - if quietly. By the year 2000, the U. S. had roughly 40,000 metric tons of nuclear waste to dispose of. By the year 2035 that will have increased to something like 85,000 metric tons. We have been arguing (wrangling might be a better word) about what to do with that waste for decades, in fact, since we began using nuclear power as an energy source.

In its own way the nuclear waste situation is a paradigm for many of the science-technologysociety-religion issues of our time. It contains in itself many of the factors that go into the debate over science and technology both as it concerns society and the faith.

The media rarely distinguishes in a significant way between risk assessment, risk perception and real risk. There is a “science” of risk assessment that involves a demanding study of risk factors in any given situation. It is built on assumptions that, of course, cannot be proved. Yet it is a fairly reliable guide to the dangers in a given situation or process. It is far from perfect and at its best it gives the probabilities of x happening, or of y happening compared to z happening. In the last analysis, public policy is determined by risk perception, not risk assessment. Nuclear power is an example.

In the forty years since we began generating electric power in nuclear reactors, there has not been a single death in this country directly attributed to nuclear power. During that time approximately 1.5 million people have died in automobile crashes. Yet, if you were to ask people which is safer, nuclear power generation or driving, I am confident that the majority would say that driving is safer. In our automobiles we have the illusion of *control* while we feel helpless in the face of nuclear power. This is an element in our perception of the risks involved.

For whatever reason there is a deep fear of radioactivity in the general public. Part of this fear comes from the development of atomic and nuclear weapons. An aspect in the creation of this fear is the devastation of Hiroshima and Nagasaki. Also, there is a great deal of public ignorance and deliberate misinformation about radiation involved in these issues. How many people know that there are different kinds of radioactivity (alpha particles, beta particles, gamma rays and neutrons) and that they behave quite differently? How many people realize that an ordinarily energetic alpha particle can be stopped by a piece of cigarette paper?

As to misinformation, we had all the hype about “things glowing in the dark” after the accident at Three Mile Island. Media hype is a major factor in the perception of risk. Alar and radon are other examples. Besides risk perception, there is what I would call an “unreality factor” of significant proportions. Some of the high level radioactive waste has a half-life of 600,000 years. It has become part of the prevailing wisdom that we must be able to provide a repository that we know will be stable for those 600,000 years to dispose of this waste. This is a storage condition that literally makes the storage problem insoluble. Worse, it reduces the effort even to consider a solution to absurdity.

Few people stop to think about the absurdity of making a prediction of what things will be like 600,000 years from now. That is three to four times longer than there has been a species homo sapiens sapiens. We have no clear idea

what the world was like 600,000 years ago, yet we demand a storage site that will not change significantly for the next 20,000 generations of human beings. How absurd can we get?

In his work, *Meaning in History*, Karl Löwith writes of Pierre Proudhon:

Proudhon had the keenest insight into the anti-Christian implications of the modern religion of progress. He is the theologian of progress and, as such, the most radical critic of providence; for he understood that the recognition of and submission to either pagan fate or Christian providence is incompatible with the faith in progress, which is essentially revolutionary and worldly. . . .

Then, again quoting Proudhon, he continues:

We attain to science in spite of him (God), to well-being in spite of him: every progress is a victory in which we crush the deity.

“By and by man will become the master of creation and thus equal God.” Instead of man’s being created in the image of a providential God, God is created in the image of man’s power of foreseeing and providing.

Ironically, the public is demanding now of scientists and technologists a capacity for human prevision greater than they expect from God’s Providence. There is something deeply anti-Christian both in the fear surrounding nuclear waste disposal and the demand for such human prevision and assumed control over the geological tides of a half million years and more.

In an interesting article in the December 13, 1991 issue of *Science*, entitled “Perceived Risk, Trust, and the Politics of Nuclear Waste,” Paul Slovic, James H. Flynn and Mark Layman attempt to analyze the perceptions people have of anything involving radioactivity. In it they report:

Yet, at this time the DOE program (the Department of Energy program for a permanent repository for nuclear waste at Yucca Mountain, Nevada) has been brought to a near halt by overwhelming political opposition, fueled by perceptions of the public that the risks are immense. These perceptions stand in stark contrast to the prevailing view of the technical community, which argues that nuclear wastes can be disposed of safely, in deep underground isolation. Officials from DOE, the nuclear industry, and their technical experts are profoundly puzzled, frustrated, and disturbed by public and political opposition that many of them consider to be based on irrationality and ignorance

A study done by these authors on 3334 respondents produced a combined total of 10,000 word-association images to the repository notion. Only 1% of these 10,000 were “positive.” The rest concerned such “negatives” as: dangerous/toxic, death/sickness, environmental damage, leakage, destruction, pain and suffering, uninhabitable, and so on. The writers state that the negativity of repository images was consistent across demographic lines, across men and women of different ages, incomes, education levels, political persuasion.

Presumably, this negative reaction is true across religious persuasion as well. The fear of nuclear technology is one of the few things our culture can agree on almost totally. Curiously, the authors find of the great sources of this fear to be the concept of transmutation -”the passage through destruction to rebirth.” They quote S. Weart, *Nuclear Fear: A History of Images*, Harvard Univ. Press, 1988):

In the early decades of the 20th century, transmutation images became centered on radioactivity, which was associated with “uncanny rays that brought hideous death or miraculous new life; with mad scientists and their ambiguous monsters; with cosmic secrets of death and life. . . . and with weapons great enough to destroy the world. . . .

In addition there remains the fact that nuclear power was achieved secretly in wartime and first used to destroy. There is clearly a crisis of confidence connected with nuclear power and with our technical ability to control it. Nuclear power (or anything connected with radioactivity) is seen by very many to be a demonic force. That is

strange language to use in an age that shows little faith in God. Yet to paraphrase Chesterton, in an age of unbelief credulity reigns supreme. Somehow the government and the nuclear industry have a stake in changing perceptions and regaining people's trust.

On the religious side, we have a great deal of work to do reversing the centuries-long slide toward unbelief. We'll do little to accomplish this with "updating our theologies." We need to reestablish our faithful acceptance of the whole doctrinal tradition and call people back to the essential meaning of our Eucharistic worship. We must restore our own faith in God's providence and the non-demonic nature of reality, even of nuclear radioactivity.

Christianity is a religion of risk because it is a religion of love. It is a religion which calls for the same risk as love calls for in every aspect of human living. Is such a thing as "risk-free" even thinkable, much less possible? Love demands the opening of oneself to another, to another's will, to another's goals, to another's perceptions of reality. Our highest religious goal is to let God love us as he wishes to love us. God's will is radically unknowable to us in any kind of fullness. We are asked, then, to let God guide us down a path we don't know, down which we have never traveled, to a goal (the New Jerusalem) that we have never seen. To accept this into our lives as our guiding star is not smart; it is not cool; it is not even rational. It strikes the non-believer as total folly.

The world we live in (ourselves as well -- at least I am this way) wants to be in control at all times. It wants everything to be manageable. It wants as little risk as possible. If we ever achieve an almost risk-free world we shall realize that the price we have paid is creativity, imagination and, ultimately, freedom and the opportunity to love anything or anyone.

We should praise and embrace reasonable risk. This is not a paean to recklessness, but a cry against the kind of management and control that we personally and as a people demand of the universe. The universe is not a safe place and the Christian God is not a safe God. We forget what Christianity is if we expect a God who does not upset our schedules or plans. We forget what it means to be Christian if we expect a God whose love leads to tranquility, predictability. We forget what it means to be Christian if we are unwilling to risk ourselves for that God. We forget what it means to be Christian simply because we have forgotten the risk that God took in becoming human and subjecting his love to our accepting it and returning it.

Questions

Add: Is God risk-free?

Is our service of God risk-free?

Is our love of God risk-free?

Can it be?

Why do we demand that handling of radioactive waste be risk-free?

Yucca Mountain is probably safe for a few hundred thousand years. As best we can project, it's safe.

Is that good enough?

If we eliminate risk will we ever do anything?

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