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Saint Leibowitz and Reflections on Bio-Chemical Warfare at the Beginning of the Twenty-First Century

by

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*The following is a lecture delivered to the Catholic Academy of Sciences.
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I. Introduction

In a conversation between the Superior of the Abby of Saint Leibowitz and a scholar in the employ of the Emperor Hannegan's state-run collegium, we hear the following:

"Are you saying that Hannegan's military is deliberately spreading the disease in the Province?"

"Certainly. Those who wage war have always used disease, Donne. Pestilence is one of the horsemen of the Apocalypse, is it not?"

(The Abbot) shook his head. "No. Well, there are various interpretations."

(The scholar continued) "You must remember that a sexual disease was one of the weapons used in the so-called Flame Deluge. A disease was used by Hannegan Two on the Plains back in the last century."

"But Hannegan's was a plague of cattle, not of human beings."

"Well, yes, it is being used again on cattle. Horses, too. That was Hilbert's part of the work. He isolated microorganisms. Today, we can infect the Nomad's animals directly, without driving diseased herds among them."

"How is that done?"

"I'm not sure. The cavalry carries it around in bottles. It can be sprayed from upwind, I think."

"You called it Hilbert's disease... Who is Hilbert?" (asked the Abbot)

"Thon Brandio Hilbert is, or was, a brilliant epidemiologist, formerly occupying the Chair of Life Science at Hannegan University."

"Was? Formerly? Is he dead?"

"No. He's alive, but he's in jail. He conscientiously objected to the military use of his work."¹

The "Leibowitz genre," consists of two "science fiction" novels, *A Canticle for Leibowitz*, published in 1959, and *Saint Leibowitz and the Wild Horse Woman*, published in 1997, written by the late Walter M. Miller, Jr. It depicts the saga of humanity after destruction of the *Magna Civitas*, virtually all of coherent civilization, by total nuclear war at the end of the twentieth century. Most of those who survived the "flame deluge" and its radiation, turned against all technology and its clinicians with deadly mob vengeance, called the "Simplification." This all but wiped out learning, whose only safe harbor was the Church. Isaac Edward Leibowitz was a twentieth-century engineer, who, after losing his family and livelihood in the collapse of civilization, embraced the Catholic faith and eventually founded a religious order dedicated to the preservation of knowledge of all kinds. He was caught "booklegging" by the Simpletons and martyred. His canonization is recounted in the first part of *Canticle*.

Canticle is a many splendored novel, described by Professor David Cowart, the author's biographer, in these remarkable words: "One of the most popular science-fiction novels, it stands for many readers as the best novel ever written in any genre."² It recounts the slow, laborious rebuilding of science and civilization in three historically distinct sections: the twenty-sixth, thirty-third, and thirty-eighth centuries. Along this path, the narrative looks back to the *Magna Civitas* which ended in the twentieth century and ponders important and weighty questions: the evil of nuclear deterrence and war, the relationship of faith to reason, and the necessity of morality in scientific investigation and development. There are many fine scenarios of dialogue between faith and morality on the one hand, with science and its inherent "technological imperative" ("if we *can* do it, we *should*"), on the other.

The aforementioned conversation occurred in the later work of Miller, *Saint Leibowitz and the Wild Horse Woman*, and it engages precisely the topic and issues under discussion today. The topic is more than scientific. It is more than political goals and military strategies. The topic is precisely philosophical and theological inasmuch as they concern the morality of human ingenuity's relationship to concrete action. Hence, the topic is a question of man himself.

2. The Legacy of Biological and Chemical Weapons

The scholar reminded the Abbot that Pestilence was one of the horsemen of the Apocalypse.³ In terms of the theme of "Chemical and Germ Warfare," one's thoughts turn immediately to the "weapon of mass destruction *par excellence*," the atomic bomb, which, according to the tales of St. Leibowitz, brought about the end of the Great Civilization. Biological and chemical weapons (known by their military acronym, BCWs) are grouped with nuclear weapons and ballistic missiles, as "weapons of mass destruction" in the Congressional Reports made available to me by Senator Warner.⁴ Biological and chemical weapons are the subjects of international treaties, like all weapons of mass destruction. Since nuclear arms have been so intensely and thoroughly debated, discussion of atomic weapons will be used as a paradigm for examining these other weapons of pestilence and death.

By way of preliminary remarks, however, the world has had more experience with the use of biological and chemical weapons in warfare than with nuclear weapons. During the periods of both the Greek and Roman empires, decaying corpses were used effectively to poison the enemies' wells. The war-savvy Spartans used a combination of burning sulfur and pitch to form clouds of sulfur dioxide to blow over whole cities. It is said that even though he used some of these means as weapons against the enemies of Rome, Julius Caesar and Roman justices considered their use "morally repugnant." It was said that "war is waged with arms, not poison."⁵

Closer to our own times, Lord Jeffrey Amherst "gave two blankets and a handkerchief used by soldiers who had died of smallpox as a gift to the unsuspecting Ohio Potawatomi Indian tribe" in 1763, during the French and Indian War. Many deaths resulted from this biological "Trojan horse (blanket)." During the War Between the States, the Confederate army resorted to poisoning Union water supplies with the carcasses of dead animals. The Union leaders considered using artillery shells filled with chlorine (which was used later in World War One).⁶

As a result of the internecine horror of the War Between the States, an international conference was convened in the Hague in 1889 - the first International Peace Conference. Among the international agreements was to "abstain from the use of projectiles, the object of which is the diffusion of asphyxiating or deleterious gases."⁷ When the Germans launched "the largest scale chemical weapons attack ever experienced on earth," April 22, 1915, exploding about "six thousand cylinders of liquid chlorine along a four-mile stretch in Flanders Field near the Belgian town of Ypres, they justified their actions as not violating the treaty inasmuch as these were not "projectiles." In a second attack at the same location two years later, the

Germans used “mustard gas ... the king of gases.”⁸ During WWI, approximately 124,000 tons of chemicals had been spent by both sides.⁹

Parenthetically, World War Two may have been witness to even greater atrocities with the newly developed arsenals of nerve gases by the Nazis, had it not been for a strange twist of fate. Adolf Hitler, “the fanatical leader of Nazi Germany, had himself been wounded by an attack of mustard gas during World War I. He was known to have a marked aversion to chemical weapons, and this may have contributed to his reluctance to use such weapons during World War II.”¹⁰

I shall not prolong this historical examination much longer than to make the following points:

Point One: In 1925, the Geneva Protocol outlawed “the use of biological weapons and prohibits ‘the use in war of asphyxiating, poisonous, or other gases, and of all liquids, material and devices.’”¹¹ One hundred and twenty-nine nations signed the Protocol.

Point Two: There have been egregious violations of this Protocol, beginning with Italy’s use of mustard gas in Ethiopia in 1935 and 1936. The Japanese conducted experiments on prisoners with such weapons during WWII. The United States used Agent Orange in Vietnam from 1962 to 1971. Mustard gas and other chemical agents were used in the Iran-Iraq war.¹² There is a strong and persistent opinion that such agents were employed by the Iraqis in Desert Storm.

Point Three: Skipping ahead to our own time, the 1990s saw renewed international concern to ratify agreements about all weapons of mass destruction by treaty with strict transparent verifiability by the international community.

Point Four: Everyone’s major concerns are rogue nations and terrorism.

3. The Just War Doctrine

The heart of the matter, from the ethical and moral theological perspective, is the Just War Doctrine and how biological and chemical weapons fit within it. The Just War Doctrine arises from a Church which very much engages its social environment and does not retreat from it in the fashion of a sectarian movement, like the Mennonites. It is a theory that deals with the limits of a Christian’s or a Christian nation’s

involvement in the darker side of creation, human evil. (In this, it is very much like other principles that deal with the “bad lands”, such as double effect, the principles of cooperation and toleration, principles that remind one that it’s never pretty in the boiler room, even of Holy Mother the Church.)

The late Jesuit Father Austin Fagothy, long-time professor of philosophy at Santa Clara University, wrote:

War is the ultimate human social failure. Unlike natural disasters, war is a wholly man-made affair, the result of man’s greed, envy, hate, ambition, and passion, something utterly useless and unnecessary. No war taken as a whole can ever be justified, for it must start from some original injustice.¹³

St. Augustine is often credited with the formulation of the original theory of the “just war.” St. Augustine was clearly the “occasional writer” *par excellence*. Because of his pastoral responsibilities, he had to address himself to a vast array of problems and issues, and did not write “textbooks” or “summaries” like later “professional” theologians. The “just war” appears in several of his writings, and our research assistant in bringing these together is St. Thomas Aquinas. In the Angelic Doctor’s treatise on the theological virtues in the *Summa Theologiae*, war is treated as a separate topic under sins against Charity.¹⁴ In the first article of Question 40 (of the Second Part of the Second Part), St. Thomas treats the question “Whether it is always sinful to wage war?” His answer:

In order for a war to be just, three things are necessary. First, the authority of the sovereign by whose command the war is to be waged. For it is not the business of a private individual to declare war, because he can seek for redress of his rights from the tribunal of his superior. Moreover it is not the business of a private individual to summon together the people, which has to be done in wartime. And as the care of the common weal is committed to those who are in authority, it is their business to watch over the common weal of the city, kingdom or province subject to them...

Secondly, a just cause is required, namely that those who are attacked, should be attacked because they deserve it on account of some fault. Wherefore, Augustine says (*QQ. In Hept., q.x., super Jos.*): *A just war is wont to be described as one that avenges wrongs, when a nation or state has to be punished, for refusing to make amends for the wrongs inflicted by its subjects, or to restore what it has seized unjustly.*

Thirdly, it is necessary that the belligerents should have a rightful intention, so that they intend the advancement of good or the avoidance of evil. Hence, Augustine says (*De Verb. Dom¹⁵*): *True*

religion looks upon as peaceful those wars that are waged not for motives of aggrandizement, or cruelty, but with the object of securing peace, of punishing evil-doers, and of uplifting the good. For it may happen that the war is declared by the legitimate authority, and for a just cause, and yet be rendered unlawful through a wicked intention. Hence Augustine says (*Contra Faust.* xxii. 74): *The passion for inflicting harm, the cruel thirst, for vengeance, an unpacific and relentless spirit, the fever of revolt, the lust of power and such like things, all these are rightly condemned in war.*¹⁶

The other articles in this question treat of whether clerics should fight in battle, the laying of ambushes and the legitimacy of fighting on Holy Days. It is this laconic treatment of moral action in warfare that later theologians would refine to a very great degree. One of the most expansive treatments of warfare comes from the nimble mind (and busy pen) of the great Jesuit Francisco Suárez.¹⁷ Father Suárez expands on the thomistic synthesis of the doctrine of St. Augustine in significant ways in his treatment on the theological virtues, *De triplici virtute theologica: de charitate*. The great historian of philosophy, Father Frederick Copleston marshals Suárez' thought as follows: "War is not intrinsically evil: there can be a just war. Defensive war is permitted; and sometimes it is even a matter of obligation."¹⁸ However, certain conditions must be met for the war to be just.

First of all, the war must be waged by a legitimate power; and this is the supreme sovereign. But the pope has the right to insist that matters of dispute between Christian sovereigns should be referred to himself, though the sovereigns are not bound to secure the pope's authorization before making war, unless the pope has expressly said that they must do so.¹⁹

The second condition for a just war is that the cause of making war should be just. For example, the suffering of a grave injustice which cannot be repaired or avenged in any other way is a just cause for war. A defensive war should be attempted; but before an offensive war is begun, the sovereign should estimate his chances of victory and should not begin the war if he is more likely to lose than to win it...

The third condition for a just war is that the war must be properly conducted and that due proportion must be observed throughout its course and in victory.²⁰

Before undertaking either defensive or offensive war, the sovereign contemplating attack must contact the sovereign of the other state to communicate the fact that conditions for a just war against the latter exist, and to offer said sovereign the opportunity to make amends short of war. If

sufficient reparation is made, the former must not attack. Otherwise it would be unjust.

During the conduct of the war it is legitimate to inflict on the enemy all losses necessary for the attainment of victory, provided that these losses do not involve intrinsic injury to innocent persons... As to the "innocent", says Suárez, "it is implicit in the natural law that the innocent include children, women, and all unable to bear arms," while, according to the *ius gentium*, ambassadors are included, and, among Christians, by positive law, religious and priests. "All other persons are considered guilty; for human judgment looks upon those able to take up arms as having actually done so." Innocent persons as such may never be slain, for the slaying of them is intrinsically evil; but if victory cannot be achieved without the "incidental" slaying of the innocent, it is legitimate to slay them.²¹

Suárez uses the examples of blowing up a bridge or storming a town, which may be tactically necessary for victory. "It would not, however, be legitimate to do such act with the purpose of killing innocent people."²² The final condition for a just war, according to Father Suárez, is that after victory, the victor may exact penalties for just punishment of the unjust party, as well as just compensation from same for the expenses and losses of the other states.

Scrolling ahead several centuries to our own time, there has been considerable deliberation about just war doctrine, especially in light of the most bellicose and bloody of centuries, the twentieth. The range of weaponry and technological advancement have provided our age with a truly horrific arsenal and damage potential, of conventional, nuclear and biochemical varieties.

Without rehearsing all the apocalyptic horror of the twentieth century, we can say that the penultimate moments of the Cold War were witness to some of the deepest reflections on warfare and morality put forward since the Renaissance. The popes have been eloquent and prophetic in their roles as Vicars of the Prince of Peace.²³ In 1983, the Bishops of the United States of America addressed themselves to the topic of war and peace in their pastoral letter, *The Challenge of Peace: God's Promise and Our Response*.²⁴

In this pastoral letter, the bishops begin by making the traditional neo-scholastic distinction between the *ius ad bellum*, which determines the legitimate recourse to war, and the *ius in bello*, which determines appropriate conduct in war. Each of these has criteria for just action in embarking upon war, and conduct therein. Joseph P. Martino, retired U.S. Air Force Colonel and now Senior Research Scientist at the University of

Dayton Research Institute, schematizes the Bishops' delineation of the Just War Doctrine in his book on the moral use of nuclear weapons.²⁵ With regard to the *ius ad bellum*, the Bishops teach that the criteria to be met are seven-fold:

1. *A just cause.* Among the just causes, the Bishops list the protection of innocent life, "to preserve the conditions necessary for decent human existence, and to secure basic human rights...(in the face of) a real and certain danger." (§ 85)
2. *Competent authority.* "War must be declared by those with responsibility for public order, not by private groups or individuals." (§ 87)
3. *Comparative justice.* While no country who is a party to war can claim complete innocence, "the war may be justified if the party initiating it is comparatively more just than the enemy. Even so, because its justice is only relative, it must limit both its war aims and the means used in pursuit of those aims."²⁶ Presumably this derives directly from (and is directly related to) the "just cause."
4. *Right intention.* This is the second of St. Thomas's conditions mentioned above, erroneously attributed to St. Augustine.
5. *Last resort.* "For resort to war to be justified, all peaceful alternatives must have been exhausted." (§ 96)
6. *Probability of success.* This requires the moral certitude of victory necessary, according to Father Suárez, to justify offensive war.
7. *Proportionality,* which "means that the damage to be inflicted and the costs incurred by war must be proportionate to the good expected by taking up arms." (§ 99)

The criteria for the *ius in bello* are two in number:

1. *Discrimination.* "...the lives of innocent persons may never be taken directly, regardless of the purposes alleged for doing so." (§ 104) "Any military action must be aimed in a discriminating fashion against militarily relevant targets, not against innocent people."²⁷
2. *Proportionality.* "In each individual military action, the damage to be done and the costs to be incurred must be justified by the military gain

expected from the action. This is the proportionality criterion of the *ius ad bellum* extended to the conduct of the war itself.”²⁸

4. The Just War Doctrine vis-à-vis BCWs

The precise question of this paper is finally formulated: Can the use of biological and chemical weapons be justified for use in battle by the Just War Doctrine? Having schematized the Just War Doctrine as primarily a determination about the legitimacy of entering battle to begin with (the *ius ad bellum*) and the appropriate conduct in battle, once the war itself has been determined as “just” (the *ius in bello*), it becomes obvious that consideration about this kind of weaponry deals with the proportionality of the *ius ad bellum* and with both criteria of the *ius in bello*.

It is also important to understand more precisely what is meant by the labels “biological and chemical weapons.” Tear gas, which is used largely for “crowd control” within the realm of “police actions” is a fairly standard and acceptable - and in fact, relatively tame - instrument for the routing of people from their locations. It is not employed because of any long-lasting or permanent effect or disability that remains once the “tactical objective” of removing people from a location is achieved.

What is meant are much more invasive and debilitating agents whose intended effect, precisely as a weapon, is to inflict dramatic harm that removes the victim from the capability of further threat and violence. Of the biological agents most likely to be used, there are anthrax, smallpox, and malaria, as well as a plethora of other agents, some of which may be genetically designed. This group of agents has not proven to be as effective as perpetrators have hoped, be these perpetrators governments or individual sub-national groups of terrorists. The terrorist attack in the Tokyo subway system and the attempt to use such agents in the original World Trade Center bombing, while not without effect, nevertheless, did not instantiate an epidemic. Chemical weapons are chlorine and mustard gases and the like.

The whole group of BCWs has been ridiculed from the time of the Spartans and the Caesars, and their use during the War Between the States brought about the first international conference, which had the intent of banning such weapons by treaty. There is a “smarminess” associated with the use of such weapons as summarized in the poignant phrase of the Roman Justices: Wars are fought with weapons, not poisons. A military general is not Lucretia Borgia.

And today, there is heightened sensitivity to the environmental consequences of the use of such agents. And this latter concern is not merely raised in activist quarters. The scientific community is quite aware

of "experiments" that escape the laboratory with the effect of making the world a more hazardous place. This is one of the most difficult aspects of the consideration of the moral use of nuclear weapons - the effect of long-term radiation poisoning. And it is this aspect of nuclear weapons that makes the analogy with BCWs so sharp.

The long-term radiation and its effects have no military objective and are undesirable, from the military perspective. Consideration of nuclear weapons, therefore, is based on its physically destructive power, not on its poisonous concomitants. *Is there any other value to BCWs besides their poisonous characteristics?* It would seem not.

Whom does one wish to "take out" with BCWs? This seems to be a pointless question, what we call in theology a *quaestio otiose*, like the number of angels dancing on the head of a pin, inasmuch as neither criteria of the *ius in bello* are fulfilled by such weapons.

In terms of the question of proportion, such weapons are not as effective in reducing enemy forces as conventional weapons. Geographical and atmospheric conditions must align with plans to use these agents effectively. Conventional weapons are less fragile in their delivery.

The criterion of discrimination is impossible to achieve with BCWs inasmuch as the atmosphere and weather patterns can take these poisons great distances and infect non-combatant populations. On the bottom line, it seems that the use of BCWs are excluded by both essential criteria of the *ius in bello*.

BCWs are attractive because they are the "poor-man's nuclear bomb." Developing nations that lack super-power technical sophistication and sub-national terrorist organizations develop these arsenals because the costs are relatively modest, development and storage sites are more easily concealed because the elements used to construct such weapons are non-suspect in their origin, and generally have rather mundane purposes foreign to armed conflict, and these weapons can be employed particularly in urban settings without much preparatory fanfare. One thinks of the modest elements used in the Oklahoma City bombing and the inconspicuous way the device was delivered. Note here, however, its proposed use on civilian populations, without direct tactical or strategic military benefit. This use excludes positive ethical approval *ab initio*.

5. Biological and Chemical Weapons and Policies/Treaties

The Chemical Weapons Convention was signed and ratified by 169 signatories on January 13, 1993. "The Convention provides the most extensive and intrusive verification regime of any arms control treaty, extending its coverage to not only governmental but also civilian

facilities.”²⁹ “The United States of America ratified the convention May 25, 1997. The Convention came into force on April 29, 1997... The CWC bans the development, production, stockpiling and use of chemical weapons (CW) by its signatories. It also requires the destruction of all chemical weapons and production facilities...

“Declarations required from each state party by the CWC include:

- Location and detailed inventory of all chemical weapons storage sites.
- Location and capacities of all chemical weapons production and research facilities.
- All transfers of chemical weapons and CW production equipment since 1946. A detailed plan and schedule for the destruction of chemical weapons and CW production facilities.
- Location and activities of any facilities using or producing controlled chemicals.”³⁰

Destruction of these agents, munitions, and production sites is to be accomplished within ten years of a party’s ratification. This means that the United States of America, Russia, China and India will have to accomplish this by 2007.³¹ However, “all offensive chemical weapons research and production must cease and relevant facilities close within 30 days of the Treaty’s implementation. All CW stockpiles must be declared, inventoried by international inspectors, and sealed.”³² (Twenty-one nations are known, likely or suspected to produce, have or stockpile CWs.³³) In terms of American law, “the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991 mandates U.S. sanctions, and encourages international sanctions, against countries that use chemical or biological weapons in violation of international law.”³⁴

The Biological and Toxin Weapons Convention (BCW), which forbids the development, production, stockpiling, transfer and use of biological weapons went into effect in 1972. It contains no verification or enforcement provisions. In 1969, the United States of America renounced the use of such weapons, and the Nixon Administration began the cessation of production and development, and the destruction of the American stockpile began.³⁵ Agreement and verification of this treaty remains an unresolved problem for the international community. Russia and Iraq are problematical nations with regard to these agents. Certainly “rogue nations” are even more problematical, as are sub-national terrorist groups.

From all this, BCWs are clearly weapons no one is proud to be known in possession of. They are the objects of universal, historic condemnation, as well as fairly universal, historic usage.

On May 12, 1999, the Holy See joined other nations in ratification of adherence to the United Nations Convention prohibiting the development, production, storing and use of chemical weapons. Archbishop Renato R. Martino, the Holy See's permanent observer to the U.N., said, "the Vatican City does not have chemical weapons, (and) adheres to the solemn act of ratification of the Convention to offer its moral support in this important area of international relations, which seeks to prohibit these particularly cruel and inhuman weapons... (Chemical weapons aim) to produce traumatic, long-term effects on the defenseless civilian population."³⁶ This is an interesting understanding of the meaning of this species of weapons, inherently unrestricted as to its target - the failure to fulfill the criterion of discrimination under the *ius in bello*.

6. Conclusions

In spite of the choir of voices raised in aversion to the production and use of bio-chemical weapons, they are still much discussed, much feared, occasionally employed - again, meeting with the universal disgust of the civilized world. BCWs raise a call to the individual and collective consciences of those in positions of societal and scientific responsibility, as well as to those figures responsible for the intellectual property, material and hardware, as well as those responsible for the financing of same, which can be subverted to national or sub-national terrorist motives.

In *A Canticle for Leibowitz*, during the novel's section set in the "renaissance" period of scientific method and thinking (the thirty-third century), there is a dramatic exchange between a learned secular scholar and the Abbot of St. Leibowitz Abbey. The secular scholar begins:

"Tomorrow, a new prince shall rule. Men of understanding, men of science shall stand behind his throne, and the universe will come to know his might. His name is truth. His empire shall encompass the Earth. And the mastery of Man over the Earth shall be renewed. A century from now, men will fly through the air in mechanical birds. Metal carriages will race along roads of man-made stone. There will be buildings of thirty stories, ships that go under the sea, machines to perform all works.

"And how will this come to pass?" He paused and lowered his voice. "In the same way all change comes to pass, I fear. And I am sorry it is so. It will come to pass by violence and upheaval, by flame and fury, for no change comes calmly over the world..."

"The words brought a new pall over the room. Dom Paulo's hopes sank, for the prophecy gave form to the scholar's probable outlook. Thon Taddeo knew the military ambitions of his monarch. He had a choice: to approve of them, to disapprove of them, or to regard them as impersonal phenomena beyond his control like a flood, famine, or whirlwind.

"Evidently, then, he accepted them as inevitable - to avoid having to make a moral judgment..."

"How could such a man thus evade his own conscience and disavow his responsibility - and so easily!" the Abbot stormed to himself...

(The learned scholar said to the Abbot) "If you would try to save wisdom until the world is wise, Father, the world will never have it."

"I can see the misunderstanding is basic!" the Abbot said gruffly. "To serve God first, or to serve Hannegan first - that's your choice."

"I have little choice, then," answered the thon. "Would you have me work for the Church?" The scorn in his voice was unmistakable.³⁷

Or perhaps with equal poignancy and with a slightly different "spin," there is a very one-sided conversation between the Abbot and the skull of a martyred monk from ages ago. The Abbot, who is dying, addresses his deceased religious confrere, and future companion in eternal life:

"Brother (Bone), what did you do for them? Teach them to read and write? Help them rebuild, give them Christ, help restore a culture? Did you remember to warn them that it could never be Eden? Of course you did. Bless you, Bone, he thought, and traced a cross on its forehead with his thumb. For all your pains, they paid you with an arrow between the eyes... Maybe that's what we forgot to mention, Bone. Bombs and tantrums, when the world grew bitter because the world fell somehow short of half-remembered Eden. The bitterness was essentially against God... Bombs and tantrums. They didn't forgive."³⁸

Clearly, governments have largely come to realize the evil of the use of BCWs, and most have pledged to abolish the existence and use of such weapons. And, inasmuch as some such weapons can be developed from otherwise nonviolent products, verification is the most difficult issue. However, there must also be firm resolve on the part of non-military "infrastructure" to limit the illegitimate production of same, especially in light of ever-luring financial incentives. For this, the Lord's sage advice is ever pertinent: "Be cunning as serpents, while as innocent as doves." And,

as the actor Randy Quaid exclaimed as he embarked on his mission to save the world from destruction by extraterrestrials in the movie Independence Day, "Saint Leibowitz, pray for us!"

References

1. Walter M. Miller, Jr., *Saint Leibowitz and the Wild Horse Woman*, New York: Bantam, 1997, pp. 363-4.

2. David Cowart, "Walter M. Miller, Jr." in David Cowart and Thomas L. Wymer, eds., *Twentieth Century American Science-Fiction Writers Part 2: M-Z*, part of Dictionary of Literary Biography, Volume 8, Detroit: A Burccoli Clark Book, Gale Research Company, 1981, p. 25.

3. The four horsemen are found in the Apocalypse of St. John the Apostle: Apoc. 6 1-8. The commentator of the Douay Rhiems Version of the Bible, revised by Bishop Richard Challoner, gives this interpretation: "He that sitteth on the white horse is Christ, going forth to subdue the world by his gospel. The other horses that follow represent the judgments and punishment that were to fall on the enemies of Christ and his church. The red horse signifies war; the black horse, famine; and the pale horse (which has Death for its rider), plagues or pestilence." Note at chapter six, verse two. Tan Publishers edition (Rockford, IL), page 283. Regarding this, cf. Apoc. 19:11-16 which states that the rider of the white horse is called "Faithful and True," a christic title. "And he was clothed with a garment sprinkled with blood; and his name is called THE WORD OF GOD" (verse 13).

The four horsemen make their debut in the Old Testament. Cf. Zecharias 1:8-10 and 6:1-3. The horse (and the white horseman) are the subject of the Church. "In the Church's symbolism in medieval times, at least in the West, the mounted horse represented Jesus Christ, God and man, the animal corresponding to his humanity and the rider to his divinity... Babnus Maurus, the ninth-century Archbishop of Mainz... said that the white horse of the Apocalypse represents the humanity of Christ whose radiance extends over every blessed being:

*Equus est humanitas
Christi: ut in Apocalypsi,
Ecce equus albus
Id est, caro Christi omni
Sanctificate fulgens.*

"The color of the horse's coat was also given a special meaning in the mysticism and hermeticism of the Middle Ages: the white horse is ridden by the virgin heroes of spotless conscience, and also by the glorious saints. When it carries Christ it presents him as the victorious king ruling over the world, hell, and death in an atmosphere of triumphant apotheosis..."

"Of the four mounted horses appearing in the terror of this vision Christian symbolism (Apoc. 6) has kept only the first, the white horse, as the image of the victorious Christ. Astride his white steed, he carries a bow, and this projecting weapon, along with its accompanying arrow, in the literary symbolism of the holy scriptures, stands for the Word of the Lord...

"Christian symbology also, when it looked on the dark side of the horse, made it an image of Satan, the Lord of Evil; St. Augustine already in the fourth century saw in it one of the personifications of pride; St. Gregory looked upon it as the symbol of impurity and of a disorderly life, and St. Jerome agreed and made the horse the representative of men 'who whinny after the wives of others.' This explains the strange compositions of Romanesque art which show the man-horse for the woman-mare in the series picturing the demons of the deadly sins." (Louis Charbonneau-Lassay, *The Bestiary of Christ*, Translated and abridged by D.M. Dooling, New York: Parabola Books, 1940 and 1991, pp. 98-103, passim.).

4. See, for example: Robert Shuey, Coordinator, et al. *Nuclear, Biological, and Chemical Weapons and Ballistic Missiles: The State of Proliferation*, Washington, D.C., Congressional Research Services, The Library of Congress, December 21, 1998. Dianne E. Rennack, *Nuclear, Biological, Chemical and Missile Proliferation Sanctions: Selected Current Law*, Washington, D.C., Congressional Research Services, The Library of Congress, May 27, 1998. In this report, it is clearly stated that "Weapons of mass destruction include 'any biological agent, toxin or vector.'" (page 2) Amy F. Woolf, Coordinator, et al, *Arms Control and Nonproliferation Activities: A Catalog of Recent Events*, Washington, D.C., Congressional Research Services, The Library of Congress, January 4, 1999.

5. Elaine Landau, *Chemical and Biological Warfare*, New York: Ladestar Books, 1991, pages 51ff, Passim.

6. Ibid., page 52.

7. Ibid., Here she cites: Julian Perry Robinson, "The Changing Status of Chemical and Biological Warfare in World Armaments and Disarmament," SIPRI Yearbook (1982), page 318. Interestingly, the United States of American was not a signatory of this treaty, as the military leadership did not favor restricting the freedom to use such weapons.

8. Ibid., 52-3.

9. Ibid., 54.

10. C.L. Taylor and L.B. Taylor, Jr., *Chemical and Biological Warfare* (Revised Edition), New York: Franklin Watts, 1992. page 30.

11. Landau, op.cit. 54-5.

12. Ibid.

13. Austin Fagothey, S.J., *Rights and Reason: Ethics in Theory and Practice*, Fifth Edition, St. Louis: The C.V. Mosby Company, 1972, page 394.

14. *Summa Theologiae* II-II q. 40, Following St. Thomas's categorization, later scholastic, neo-scholastic and manualist theologians will treat the subject of war under sins against Charity, as will be noted of Father Suárez, below.

15. This quotation is actually not from St. Augustine, as the Angelic Doctor thought, but rather is from the *Decretum Gratiani*, the medieval collection of Canon Law, pt. II, causa 23, q. 1, canon 6.

16. ST II-II 40, 1c, passim.

17. Father Suárez lived 1548-1617. His honorific title is "doctor eximius." "He was born in Granada, studied canon law at Salamanca. He entered the Society of Jesus in 1564. Throughout his busy career teaching philosophy and theology, he taught at Segovia, Avila, Valladolid, Rome, Alcalá, Salamanca, and Coimbra. His works fill 23 volumes in early editions, and 28 volumes in the Paris edition of 1856-78." Father Frederick Copleston, S.J., *A History of Philosophy: Volume III* (Ockam to Suárez), New York: Doubleday, page 353.

18. Copleston, op. cit., 403.

19. Here mention should be made that throughout the Renaissance, there was ongoing dispute about the jurisdiction of the pope in civil societies. This question was of increasing importance as "new worlds" were being discovered, and international law (and economics) had to be developed and refined, as well as enshrined in treaty and legal doctrine, both canon and civil. Even apart from the issues of the Protestant Reformers, the Papacy was a force to be reckoned with. Many of the theologians of this period, both in Italy and Spain, expended an enormous effort to bring charity to this issue. St. Robert Bellarmine, of the Society of Jesus, was an articulate expositor on this topic, not always in a manner that was most pleasing to the occupant of the Throne of St. Peter. "In his *Defense of the Catholic and Apostolic Faith* Suárez discusses and rejects the view that the pope possesses not only supreme spiritual power but also supreme civil power with the consequence that no purely temporal sovereign possesses supreme power in temporal affairs. He appeals to utterances of popes, and then goes on to argue that no just title can be discovered whereby the pope possesses direct jurisdiction in temporal affairs over all Christian states. And without a just title he cannot possess such jurisdiction... There is no evidence that either divine or human law has conferred such jurisdiction on the pope." Copleston, op. cit. 402.

20. Ibid., 403.

21. Ibid., 404.

22. Ibid.,
23. The teaching on the topic of war and peace from the Pontifical Magisterium of the twentieth century alone would constitute a sub-specialty in itself of moral theology.
24. Washington, D.C.: The United States Catholic Conference.
25. Joseph P. Martino, *A Fighting Chance: The Moral Use of Nuclear Weapons*, San Francisco: Ignatius, 1988.
26. Ibid., 106.
27. Ibid., 107.
28. Ibid.,
29. Steven R. Bowman, op. cit. summary.
30. Ibid., 5f. The convention came into force after sixty-five nations had ratified it. This occurred a month before the United States of America ratified it.
31. Robert Shuey, et al., op. cit., page 3.
32. Amy F. Woolf, et al., op. cit., page 47.
33. Ibid., page 5.
34. Dianne E. Rennack, op. cit., page 9. Vide Public Law 102-182; approved December 4, 1991; 22 U.S.C. 5601-5606. *Legislation on Foreign Relations Through 1996*, vol. II, p. 1394.
35. Ibid., page 49. On a more troubling note, see Thomas V. Inglesby, M.D., et al., "Anthrax as a Biological Weapon," *JAMA*, May 12, 1999, Vol. 28, no. 18. Available on the website of the US Department of Defense.
36. ZENIT New Agency 8 June 1999. Private correspondence between the author and the Office of the Holy See's Permanent Observer to the United Nations. June 8, 1999.
37. Walter M. Miller, Jr., *A Canticle for Leibowitz*, New York: Bantam, 1997. Pages 214f and 225.
38. Ibid., 331f.