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AUM SHINRIKYO AND WEAPONS OF MASS DESTRUCTION

A CASE STUDY

by

Neal A. Clinehens, Major, USAF

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Advisor: Major Carol L. Atkinson

Maxwell Air Force Base, Alabama

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Preface

This research project examines the Japanese religious cult Aum Shinrikyo and its attacks against Japanese citizens using chemical and biological weapons of mass destruction (WMD). The cult's attacks demonstrate that hostile groups are willing to strike their host country and cause harm to their fellow citizens. A study of the environment in which the cult operated, a analysis of the origins and history of the cult, and an examination of the WMD attacks Aum Shinrikyo perpetrated, all provide U.S. authorities an opportunity to understand how and why a domestic group may acquire and use WMD to further its aims. Several important lessons result from this work. These lessons are presented in this study and are available for application by U.S. planners in the development and preparation of strategies designed to prevent WMD attacks by U.S. domestic groups against U.S. citizens.

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Abstract

Terrorist attacks by domestic groups are a potential threat to the American public. The devastation of the Murrah Federal Building in Oklahoma City is an example of an effective attack by a domestic group using only conventional weapons. In 1995, the Japanese religious cult Aum Shinrikyo set a precedent by conducting an effective domestic terrorist attack using chemical weapons against commuters in the Tokyo subway system. An examination and analysis of the environment in which the cult operated, the cult itself, and the attacks it committed using weapons of mass destruction (WMD), provides U.S. authorities with lessons they can apply to improve efforts designed to reduce the probability that WMD attacks ever occur on U.S. soil.

This paper examines the phenomenon of Aum Shinrikyo. Part 1 is a general description of the WMD problem that confronts us today, explains the significance of the problem and outlines the limitations of the study. Part 2 describes the origin, development and characteristics of Aum Shinrikyo in order to provide a basis for analysis in following chapters. Part 3 describes several WMD attacks committed by the cult, including the Tokyo Subway attack. Part 4 is an analysis of the political and cultural elements affecting the environment in which the cult operated and an examination of specific and relevant characteristics of the cult itself. All combine to contribute to the formulation of detection and prevention efforts designed to identify and preempt domestic WMD threats. Part 5 presents overall conclusions and recommends areas of further research.

Part 1

Introduction

We should not wait for another Pearl Harbor to awaken us to the fact that there is no greater threat to our security than terrorism involving weapons of mass destruction.

—R. James Woolsey, Former Director of Central Intelligence

Weapons of mass destruction (WMD) can give hostile groups the capability to coerce or threaten our national interest on a scale never before experienced.¹ Groups that could employ WMD are no longer exclusively foreign in origin. Weapons of mass destruction could provide domestic groups the means to conduct asymmetric attacks against U.S. leadership, citizens or infrastructure.² With the appearance of the Japanese religious cult Aum Shinrikyo, the world witnessed the advent of a new and dangerous phenomenon: a group that effectively applied WMD against its own country.

It is doubtful that the Aum Shinrikyo attack will be the last of its kind in the world. It is prudent to understand that a determined and secretive group originating within the U.S. could conduct a similar WMD attack against this country. It is important that we recognize this threat and appreciate that a WMD attack carried out by a domestic group could be every bit as deadly as any perpetrated by stereotypical external group, such as Middle Eastern terrorists.

In the U.S., we make a conscious trade-off between public security and public freedom. The result is that we are more likely to be vulnerable to attack than a more closed society. Therefore, in order to increase our chances of preventing a domestically originated WMD attack against the

U.S., we must be proactive, learn from the Aum Shinrikyo experience and use the lessons to help us identify and halt potential WMD incidents.

Significance of the problem

The results of a successful attack using WMD are a matter of grave national concern. Potentially, a group that is armed with WMD and determined to use it could kill great numbers of people, hold the federal government hostage to group demands or render critical portions of national infrastructure unusable. Recently, U.S. domestic groups have demonstrated an increasing boldness and disregard for citizens, as the bombing of the Murrah Federal Building in Oklahoma City demonstrates. It is reasonable to anticipate that, at some point, a U.S. domestic group may attempt to employ WMD instead of conventional explosives to carry out a terrorist attack.

The lethality of WMD, under the right conditions, could be overwhelming. For example, given the proper environmental conditions, forty-five pounds of correctly prepared, high-quality anthrax powder released in a metropolitan area of 1-3 million, is lethal enough to produce a 100% death rate.

The fact that an attack had taken place would not even be recognized until long after it was over because of the length of time needed before symptoms would even begin to appear.³ An active defense designed to stop such an attack while in progress is unrealistic because the attack would be over before it could be detected. Therefore, while not abandoning efforts to develop active defenses, U.S. authorities must develop methods aimed at increasing the probability that we can identify and stop potential WMD attackers long before they conduct a strike.

Limitations of the study

This study is not intended to be an exhaustive examination of the cult Aum Shinrikyo or a complete catalog of its activities. Instead, this paper focuses on selected portions of the cult's activities as they relate to developing certain concepts and lessons that can later be applied by U.S. planners. It is acknowledged that experts in the field of counterterrorism and criminal behavior have studied this cult and have probably drawn much more complete and in-depth conclusions. In addition, it is understood that experts in this field use more sophisticated analytic methods that are beyond those used in this paper.

The conclusions of this study are intended to be only a modest, and hopefully helpful contribution to a large, important and specialized field of study. The paper used only unclassified sources. Readers with classified knowledge about the group will most likely have more detail and insight concerning the cult and its WMD efforts.

Notes

¹ *The White House, A National Security Strategy for a New Century*: 2 (1999).

² *Ibid, A National Security Strategy for a New Century* : 16 (1999).

³ Richard A. Falkenrath, Robert D. Newman, and Bradley A. Thayer, *America's Achilles Heel: Nuclear, Biological, and Chemical Terrorism and Covert Attack*, BCSIA Studies in International Security (Cambridge, MA: The MIT Press, 1998).

Part 2

Background of Aum Shinrikyo

The story of the Japanese religious cult Aum Shinrikyo is both instructional and perplexing. It is instructional because we learn how a domestic group can acquire and use WMD without detection. Yet, it is perplexing because, given the cult's open method of operation, Japanese authorities should have stopped the cult long before it was able to develop and use WMD against Japanese citizens.

From time to time, we read of religious cults and the control they have over their members. Occasionally, a cult may act irrationally and commit an odd or outrageous act. Some cults have even encouraged members to commit suicide, as did the Jonestown cult. Most destructive cults do not affect society at large. They tend to focus destructive tendencies upon their members. The results of their actions become known to society only after the cult has either destroyed itself or has come to the attention of legal authorities.

The Leader

Aum Shinrikyo not only harmed its own members, it reached out and affected all of Japanese society. The cult's aggressive mentality can be traced to the founder — Shoko Asahara. In the mid-1980's, Asahara, who owned a massage and acupuncture clinic in Tokyo, developed a spiritual message based on attainment of total spiritual consciousness. Asahara based his spiritual authority on his having achieved total enlightenment — “holy vibration—while

meditating in the Himalayas.¹ This total enlightenment enabled him to have a series of visions. Most of these revelations were benign and involved ways that he could help others also attain total enlightenment. However, some of the visions had other meanings.² Asahara's other visions were a series of apocalyptic revelations that convinced him he would lead God's army to victory against the United States in an end-of-the-world battle.³

Based on his authority of total enlightenment, his apocalyptic visions and a lifelong desire for power, Asahara began an effort to increase cult membership. Aum Shinrikyo grew into a cult of tens of thousands who believed Asahara would show them the key to happiness. He recruited members from Japanese society by emphasizing the positive aspects of his spiritual message.

Membership

Laymembers

Many who joined Aum Shinrikyo were young and looking for answers they felt they could not find elsewhere.⁴ However, there was much more to Aum Shinrikyo than they knew. Because Asahara alone had the status of Sonshi — the highest level of enlightenment — he had complete spiritual authority.⁵ One of his decisions was to divide his followers into two categories: laymembers and true-believers. Laymembers formed the largest category of Asahara's followers.

Upon joining the cult, in order to achieve higher levels of spiritual enlightenment, laymembers had to follow the Asahara's instructions unquestionably. Generally, most members followed Asahara's mediation and diet rules and went about their normal lives and jobs in regular society. The laymembers were mostly young and innocent and presented no threat to Japanese society as they tried to meet Asahara's rules for spiritual growth.

Laymember commitments ran from the merely interested to the fanatical. Many of the more fanatical laymembers decided to move into cult compounds.⁶ When they did, Asahara demanded they abandon all ties with the outside world, including communication with their families. Within the compounds, laymembers lived under regimented, “spiritually cleansing” conditions. Subjected to physical and psychological torture, punished members provided unskilled labor and kept the cult working on a routine, inexpensive basis. More importantly, they did not interact with outsiders and provided unquestioning physical labor that supported the cult’s extensive WMD construction and production programs.⁷ Laymembers were supervised by the second category of cult members, the true-believers.

The True-Believers

True-believers were those that Asahara deemed to be more enlightened than laymembers. They were better educated and considered more trustworthy. Most of them had come from the ranks of intellectuals who, feeling a spiritual hunger that Japan’s materialistic society could not satisfy, joined Aum Shinrikyo looking for happiness. A large number of the true-believers were from high-tech industries and technical universities.⁸

From the ranks of the technical and scientific true-believers, Asahara chose a select few to help him implement an important decision he had kept secret from other cult members. In the late 1980’s, he had decided to somehow hasten the apocalyptic battle he had foreseen in his visions. Asahara chose three scientists to supervise the effort to help speed the arrival of his apocalypse.⁹ The three were Hideo Murai, an astrophysicist who headed Aum Shinrikyo’s so-called Science and Technology Ministry, Seiichi Endo, who held a Ph.D. in molecular biology and Masami Tsuchiya, the cult’s top chemist.¹⁰ This trio enthusiastically agreed with Asahara’s

goal of hastening the end of the world. Together, they possessed the technical knowledge suited for the production and use of biological, chemical and nuclear weapons.

The Master Plan and the Means to Achieve It

At Asahara's direction, the cult would use WMD against Japanese society thereby provoking a catastrophic social breakdown. Asahara was convinced that, amid the resulting death and confusion, Japan would blame the United States. Asahara would then step into the confusion and lead his followers to victory.¹¹

With this master plan in mind, Asahara decided to invest very large amounts of Aum Shinrikyo's eventual \$1 billion-plus financial empire into WMD research and development.¹² The scope of Aum Shinrikyo's WMD research is wide and impressive. Not content with standard biological, chemical or nuclear work, the cult researched and invested in other, more exotic weapons offering the potential to inflict mass casualties. Aum Shinrikyo was determined to acquire any type of functional, even if non-traditional, WMD. For example, the cult purchased a green laser worth \$400,000 intending to develop a weapon capable of blinding masses of people.¹³ Cult scientists also researched particle beam weapons. They even sent a representative to Croatia to acquire copies of scientific papers written by Nicoli Tesla in the early 20th century. Tesla claimed to have perfected the plans for devices that could cause earthquakes on demand. He also claimed to have developed machines that could alter the weather.¹⁴

Biological, Chemical and Nuclear Projects

While pursuing such fringe projects, Aum Shinrikyo never neglected its main biological, chemical and nuclear efforts. The cult acquired a relatively remote section of land near the base of Mt Fuji and constructed a complex that housed the majority of its WMD work and

accompanying infrastructure. Within this compound, the cult constructed biological, chemical and nuclear research facilities complete with state-of-the-art equipment and fully staffed with technicians.¹⁵

Within this compound, Aum Shinrikyo established a biological toxin laboratory designed to produce, among other things, clostridium botulinum, which causes botulism. Sixteen million times more poisonous than strychnine and with 10,000 times the lethality of cobra venom, botulism had the potential to kill masses of people.¹⁶ Additionally, cult scientists produced anthrax spores. Both the botulism and anthrax would later be used in attacks against Tokyo.

The cult studied every lethal agent they could find, even sending some members on a “humanitarian mission” to Africa with the true aim of collecting a strain of the Ebola virus for cultivation in cult laboratories.¹⁷ The mission failed.

Overall, the biological weapons program was a partial success. Cult scientists discovered that biological agents are relatively easy to produce but they are also fragile.¹⁸ The cult underestimated this fragility and its miscalculation spared many Japanese lives, as explained in the next chapter. However, the cult was more successful in its effort to create and deliver another weapon of mass destruction: chemical agents.

Over the course of the cult’s weapon development program, it would have more success with chemicals than with any other type of WMD. The scientists learned that chemical agents were easier to produce and more predictable than biological agents. Plus, Asahara’s enthusiasm for chemical agents was increased by reports from the Gulf War. He noted the intense preparation and caution of coalition forces as they prepared to face possible Iraqi chemical attacks.¹⁹ Asahara concluded that chemical weapons held great potential and, while fully

supporting the biological program, he authorized a much more aggressive chemical weapons program.²⁰

The list of chemicals produced by the program is impressive. The cult managed to manufacture quantities of Sarin and the nerve agents VX, tabun and soman.²¹ The intensity of the chemical weapons effort can be deduced by the amounts of precursors used by the cult; cult scientists ordered tens of thousands of pounds of various chemicals to support the WMD program. However, in spite of the magnitude of their efforts, the only WMD agent the cult managed to test and use effectively was Sarin.²²

As the cult poured money into biological and chemical efforts, Asahara also wanted to develop nuclear weapons. At first, Asahara ordered the development of a full-scale nuclear weapons program. When that project proved too technically challenging, the cult attempted to acquire a fully functional nuclear weapon either from sources in the former Soviet Union or from any other willing seller.²³ Finally, when they could neither buy nor build a nuclear weapon, the cult decided to spread unprocessed uranium — mined from the its Australian sheep ranch — in downtown Tokyo. This attack was never attempted.

The cult's efforts to attain a nuclear weapon never came to the attention of any intelligence agency in any country. Neither did the acquisition and production of biological and chemical agents. Every domestic legal authority in Japan that should have detected the cult failed to do so. The cult operated with impunity while trying to acquire the means to kill millions.

The expenditure of money and manpower by the cult into WMD programs would produce viable weaponry. These weapons would be used to meet goals known only to a few members of the cult while the rest unknowingly supported these goals either with finances or with physical

labor, or both. The methods by which the cult attempted to employ these weapons to destroy Japanese society are explored in the following chapter.

Notes

¹ David E. Kaplan and Andrew Marshall, *The Cult at the End of the World* (New York: Crown Publishers, Inc., 1996), 7.

² D.W. Brackett, *Holy Terror: Armageddon in Tokyo* (New York: Weatherhill Inc, 1996), 83.

³ *Ibid*, *Holy Terror: Armageddon in Tokyo*, 85.

⁴ Andrew Hubback, *The Prophets of Doom: The Security Threat of Religious Cults*, Occasional Paper no. 67 (London: Institute for European Defence and Strategic Studies, 1996), 13-14.

⁵ Brackett, *Holy Terror: Armageddon in Tokyo*, 102.

⁶ Kaplan and Marshall, *The Cult at the End of the World*, 60-61.

⁷ *Ibid*, *The Cult at the End of the World*, 60-61.

⁸ Brackett, *Holy Terror: Armageddon in Tokyo*, 72.

⁹ *Ibid*, *Holy Terror: Armageddon in Tokyo*, 102.

¹⁰ Kaplan and Marshall, *The Cult at the End of the World*, 85.

¹¹ *Ibid*, *The Cult at the End of the World*, 85.

¹² United States Congress. Senate. Senate Government Affairs Permanent Subcommittee on Investigations. *Global Proliferation of Weapons of Mass Destruction: A Case Study on the Aum Shinrikyo*, at 20 (1995)

¹³ Kaplan and Marshall, *The Cult at the End of the World*, 102.

¹⁴ Murray Sayle, "Nerve Gas and the Four Noble Truths," *The New Yorker* April 1 1996, 12.

¹⁵ Kaplan and Marshall, *The Cult at the End of the World*, 60.

¹⁶ *Ibid*, *The Cult at the End of the World*, 52.

¹⁷ *Ibid*, *The Cult at the End of the World*, 97.

¹⁸ Jonathan B. Tucker and Amy Sands, "An Unlikely Threat," *The Bulletin of the Atomic Scientists* 55, no. 4 (July/August 1999): 8.

¹⁹ Brackett, *Holy Terror: Armageddon in Tokyo*, 102.

²⁰ Tucker and Sands, "An Unlikely Threat," 7.

²¹ Brackett, *Holy Terror: Armageddon in Tokyo*, 100-02.

²² *Ibid*, *Holy Terror: Armageddon in Tokyo*, 55.

²³ United States Congress, "Senate Government Affairs Permanent Subcommittee on Investigations," 3.

Part 3

Analysis of Aum Shinrikyo WMD Attacks

Aum Shinrikyo's most famous and deadly attack was against the Tokyo Subway system. However, the subway attack was neither the first nor the last attempt at mass killing by the cult using WMD. The cult conducted numerous attacks, some deadly, but most unsuccessful. This chapter will detail six selected attacks in chronological order in order to illustrate the evolution of the cult's mindset and its adoption of new methods that enabled it to more effectively employ WMD against Japanese citizens.

The First Biological Attack

As explained in the previous chapter, Aum Shinrikyo had decided to destroy Japanese society in order to accelerate the coming apocalypse. Shoko Asahara became convinced that by eliminating the Japanese Diet, the equivalent of the U.S. Congress, the destruction of society would follow. Using botulinus toxin, the plan was for cult members to drive in circles around the Diet building in a modified truck and spray the toxin into the air. Biohazard suits protected the cult members in the truck. Fortunately, the attack failed.¹

The spraying device designed to administer the toxin had actually killed the biological agent. Biotoxins can only exist within a narrow band of environmental parameters. The cult had exceeded these parameters during the preparation and conduct of the attack. The biotoxin was rendered completely ineffective.²

The Second Biological Attack

In spite of this failure, Aum Shinrikyo continued to plan. The cult decided to attack world dignitaries attending the royal wedding of Prince Naruhito.³ During the wedding, cult scientists planned to again introduce botulinus toxin into downtown Tokyo. Modifications made to the spraying mechanism after the failed Japanese Diet attack convinced cult scientists that delivery difficulties had been solved. Asahara gave the orders to proceed.⁴

The cult rigged the improved spraying device onto a truck loaded with botulinus toxin. The plan was to drive through downtown Tokyo as near to the royal wedding as possible, spray toxin into the air and thereby kill as many people as possible. The plan was considered to be so foolproof that Asahara himself rode in the truck to witness it.⁵

The delivery system failed again. Cult scientists seemed to be very capable in the laboratory, but they could not develop a dependable delivery system. As the toxin had passed through a series of steps designed to vaporize it into a fine mist, it had again been exposed to environmental stresses that exceeded parameters. The toxin was rendered completely ineffective.⁶ Due to continued failures with botulism cultures, Asahara instructed the scientists to find another, more reliable option.

The Third Biological Attack

The cult scientists decided to employ anthrax. They believed it to be a more reliable biological weapon because it was more stable outside the laboratory. In addition to changing agents, cult scientists also altered their delivery methods. Instead of a mobile delivery platform, such as a truck, they decided to spread anthrax spores from a stationary point. Anthrax spores would be poured into a modified steam generator located in a cult-owned building in downtown Tokyo. The anthrax-saturated steam was blown across Tokyo for four consecutive days.⁷

Aum Shinrikyo's attack failed again. Some minor sicknesses were reported, but no fatalities. The reported illnesses were probably due to the fact that the contaminated steam was very noxious. When police investigated the odor, cult members claimed they were making perfume.⁸ For reasons we shall examine in the next section, the police failed to follow up with their investigation.

It is unknown why the anthrax spores failed to kill. The most likely explanation is the scientists misjudged the incubation period of the biological agent. Another possibility is that the cult scientists had ground the anthrax spores to the wrong size in the laboratory.⁹ If the spores were simply ground too large to infect humans, but were not killed by the steam, the possibility exists that Tokyo is still host to billions of anthrax spores that, under the right conditions, could germinate.

The First Successful Chemical Attack

After three consecutive failures with biological weapons, Asahara examined the available alternatives. Concurrent with this weapon reevaluation, the cult was also involved in legal troubles. Embroiled in a lawsuit he was sure the cult would lose, Asahara decided to try a new type of WMD against the three judges ruling in the case. He instructed his scientists to employ a chemical rather than biological agent. The chemical he decided to use was Sarin.¹⁰

Cult scientists reverted to a truck fitted with a spraying mechanism. The truck would be parked in a lot very close to a dormitory where the three judges lived. The cult team would release Sarin and the gas was supposed to leak into the dormitory and kill the judges as they slept. As with every other cult WMD attack to this point, it did not go according to plan.¹¹ Due to a change in the wind, the Sarin was blown in the wrong direction. Instead of killing the judges, the gas killed seven other people and injured over 200 in nearby buildings. Even though

this attack failed to kill the judges, it managed to make them so ill that they delayed the judgement against the cult for a number of weeks.¹²

More importantly, the cult had learned how to deploy and deliver, with a reliable degree of effectiveness, a weapon of mass destruction. They had gained confidence with Sarin and Asahara decided to use for the cult's most famous and effective attack.

The Second Successful Chemical Attack: The Tokyo Subway

Tokyo has one of the largest subway systems in the world. It transports millions of people on a daily basis. As with any underground system, it is a contained area; therefore, it is very vulnerable to the release of a harmful airborne agent.

The cult's plan of attack was fairly sophisticated compared to previous attempts. It relied on the efficiency of the subway system itself. Knowing that selected trains would converge at a single large station in the heart of Tokyo almost simultaneously, the cult planned to time the release of Sarin to maximize casualties. By releasing Sarin in different subway cars on different routes miles away from the center Tokyo station, as the cars came together, the effect of the Sarin would be concentrated, thereby maximizing casualties.¹³

The chief chemist, Masami Tsuchiya, filled eleven thick plastic bags with Sarin. They were given to five different cult members who boarded selected trains at predetermined times. Cult members wrapped the plastic bags in newspaper to conceal them. At the proper time, they would put the bundle on the floor of the subway car and puncture it with the sharpened tip of an umbrella. The liquid would leak from the bags and vaporize.¹⁴

This time, the attack was relatively successful. The subway cars converged on the central station as scheduled. Eventually, twelve people died as a direct result of the assault. Over 5000

were injured, some receiving such severe damage to their cardiovascular system that they will ultimately die as a result of the attack. Others will survive but with lifelong effects.¹⁵

This attack was again motivated by Asahara's undying conviction that he should accelerate the apocalyptic battle. He believed that the ensuing deaths and panic from the subway assault would paralyze Tokyo and the entire Japanese government.¹⁶ However, there was also a less "spiritual" motive for the attack. Aum Shinrikyo was about to get raided by the police in connection with a murder investigation. Asahara was convinced this subway attack would overwhelm the police and the murder investigation into the cult would be delayed indefinitely.¹⁷

Unlike the cult's previous attacks, the subway incident came to the forefront of public attention, but the attack was not immediately connected to the cult. As the investigation progressed, it became clear that Aum Shinrikyo was behind it. The police finally began to round up cult members and started a full-scale investigation into cult activities.

This police action precipitated a final WMD attack by the cult. Determined to shield their leader from arrest, cult members staged another attack in the Tokyo subway system designed to keep the authorities too busy to look for Asahara.¹⁸

The Last Chemical Attack: The Tokyo Subway

Even though potentially much more lethal than the first attack, this second subway attack has gotten much less exposure by the media. Using a very simple system, the cult almost succeeded in generating and releasing enough poisonous gas to kill 20,000 people.¹⁹ Staged during a national holiday while the system was transporting people in the process of leaving for vacation, the attack was very simple in concept and execution. Two condoms, one filled with sulfuric acid and the other filled with sodium cyanide, were left in a paper bag in a restroom.

The acid ate through one condom and then through other. When the two ingredients combined, they produced hydrogen cyanide gas.²⁰

The heat of the chemical reaction set the paper bag on fire. It was extinguished by the fire department before the chemical reaction could fully take place. Only a few people were hurt and no one was killed. Had the gas been drawn into the ventilation system, it is estimated that it would have spread throughout the subway system air passages and been impossible to stop.²¹ Using a very simple system, the cult almost succeeded where other, more complicated or more detailed delivery schemes had failed.

In the next chapter, by combining information about the WMD attacks and data developed in Part 2 of this paper, we will begin to develop concepts and lessons useful to U.S. planners. By noting specific, relevant and significant aspects of the cult and the society in which it operated, we will develop some important ideas U.S. planners should incorporate into our concepts of operation that are designed to preempt domestic groups from employing WMD against our country.

Notes

¹ David E. Kaplan and Andrew Marshall, *The Cult at the End of the World* (New York: Crown Publishers, Inc., 1996), 58-59.

² Ibid, *The Cult at the End of the World*, 58-59.

³ Ibid, *The Cult at the End of the World*, 93.

⁴ Ibid, *The Cult at the End of the World*, 94.

⁵ Ibid, *The Cult at the End of the World*, 94.

⁶ Ibid, *The Cult at the End of the World*, 94.

⁷ Ibid, *The Cult at the End of the World*, 96.

⁸ Ibid, *The Cult at the End of the World*, 96.

⁹ Jonathan B. Tucker and Amy Sands, "An Unlikely Threat," *The Bulletin of the Atomic Scientists* 55, no. 4 (July/August 1999): 8.

¹⁰ Kaplan and Marshall, *The Cult at the End of the World*, 140.

¹¹ Ibid, *The Cult at the End of the World*, 141.

¹² Ibid, *The Cult at the End of the World*, 14.

Notes

¹³ United States Congress. Senate. Senate Government Affairs Permanent Subcommittee on Investigations. *Global Proliferation of Weapons of Mass Destruction: A Case Study on the Aum Shinrikyo*, at 36-7 (1995)

¹⁴ Kaplan and Marshall, *The Cult at the End of the World*, 244-51.

¹⁵ United States Congress, "Senate Government Affairs Permanent Subcommittee on Investigations," 37.

¹⁶ Kaplan and Marshall, *The Cult at the End of the World*, 244-51.

¹⁷ *Ibid*, *The Cult at the End of the World*, 239.

¹⁸ United States Congress, "Senate Government Affairs Permanent Subcommittee on Investigations," 45.

¹⁹ *Ibid*, "Senate Government Affairs Permanent Subcommittee on Investigations," 40.

²⁰ Kaplan and Marshall, *The Cult at the End of the World*, 279.

²¹ *Ibid*, *The Cult at the End of the World*, 279.

Part 4

Analysis and Lessons Learned

In order to learn the correct lessons from the case of Aum Shinrikyo, we should analyze the case on two levels. The first level we must look at involves the overall political and cultural environment in Japan that encouraged authorities to consciously ignore illegal cult activities, thereby allowing the cult to continue its WMD effort. An analysis of this environment allows us to decide if similar political and cultural factors exist in U.S. society that may be conducive to the growth of an organization comparable to Aum Shinrikyo. The second level we must examine deals with characteristics of Aum Shinrikyo's organization and activities that offer insight to U.S. planners as they develop profiles and methodologies to identify groups with WMD potential.

Society and Culture

To begin, the Japanese society in which Aum Shinrikyo thrived is distinctly different from U.S. society, especially in regard to government policies dealing with religion. Japan's prewar elite sanctioned the single religion of Emperor worship — State Shinto — in its drive to war and eliminated, or at least minimized, the expression of all other competing religions.¹ The “one religion” policy effectively removed powerful blocs of religious resistance to the war.

Japanese Legal and Cultural Restrictions

During the occupation of Japan, the Allies wanted to ensure the Japanese government could never again manipulate its society through the use of state-sponsored religion. Through the introduction of free exercise of religion into Japanese society, the Allies relied on competing thoughts and beliefs to diffuse any future coercive control.² Article 20 of the Japanese constitution was written to guarantee free exercise of all religions.³ Ultimately, this article was over-interpreted by Japanese authorities.⁴ It was eventually viewed as an ironclad restraint on virtually all government interactions with any religion.

This concept was problematical for two reasons. First, religious groups, including Aum Shinrikyo, were shielded from normal government observation.⁵ The result was that cults such as Aum Shinrikyo could act with impunity free from the potential of government questioning and scrutiny.

Second, the Japanese public also developed a “hands-off” philosophy regarding religious groups. Using Article 20 as their inspiration, the public believed strictly in the protection of religious groups from government interference and perceived any government involvement with religion as wrong. Public opinion was so strong that it influenced the conduct of Japanese authorities. The result was, in addition to a reluctance to interfere with religion based on legal tradition, Japanese authorities were also forced to deal with public relations questions. This is the political and cultural environment in which Aum Shinrikyo grew. The question for U.S. authorities is: “Does a similar environment exist in the United States that could encourage the growth of a comparable phenomenon?”

The U.S. Approach

In the U.S., there is also a reluctance to engage or investigate certain organizations, particularly religious ones. This tradition is founded in our own history, tradition and constitutional guarantees. However, the disinclination of U.S. authorities to engage protected groups extends only to certain circumstances and is tempered by a duty to enforce other, equally binding laws and concepts.

For example, some political groups, such as the Moral Majority, that are associated with parent religious organizations have had their tax-free status revoked after it was determined they violated the conditions for their tax exemption. In the 80's, high-profile religious leaders were sent to prison for violating anti-trust laws and for bilking their followers of millions of dollars. And there have been other, more visible instances of U.S. government willingness to intervene with religious groups, such as the incident at Waco, Texas involving the Branch Davidians.

In short, U.S. legal tradition lends itself much more toward dealing with religious groups that are violating the law than does Japanese tradition. Consequently, authorities in the U.S. have a greater willingness to investigate and even prosecute religious groups than have Japanese authorities.

Based on the cultural and legal differences between the two countries in this area, it is therefore reasonable to expect that, in the United States, a cult unable to conceal its WMD preparation and engaged in other high-profile, illegal activities would have been investigated and stopped much earlier. For example, noxious fumes from cult factories that made neighbors violently ill, dead plants outside their main cult compound that, when analyzed, contained what any competent chemist would recognize as Sarin, and people wandering around cult grounds in broad daylight wearing biohazard suits, were all explained away to Japanese authorities who were eager to ignore the problem.⁶ However, in the U.S., this type of activity violates a number

of environmental laws alone and would come to the attention of any number of federal, state or local governmental agencies. Therefore, it is reasonable to conclude that any group involved in blatantly suspicious, high profile behavior is much more likely to be investigated and stopped by U.S authorities.

Cult Characteristics

We will now look at some relevant and specific characteristics of Aum Shinrikyo itself and determine lessons they provide for U.S. planners. First, we will examine Aum Shinrikyo's leadership and the membership it attracted. Second, we will look at the cult's political/religious motivations and examine if the cult was really a domestic or international group. Third, we will examine the question of external assistance and address the cult's financial profile. Fourth, we look at how open the cult was about its intentions and then consider the implications of the cult's inefficient WMD delivery techniques.

Leaders and Followers

To begin, Aum Shinrikyo was a cult of personality. It was under the control of a single individual. A group led by an unassailable, unaccountable authority figure, if it begins to change, is more likely to mutate quicker and more completely than a group with a collective body of governance responsible to the entire organization. Additionally, because of the leader's lack of accountability to others, the group is likely to develop a core of upper level, secondary personnel who, in an effort to gain the favor of the leader, will become more likely to engage in questionable behavior if it is deemed acceptable to the single leader. This is particularly true in religious groups because very often a single leader has the option of bestowing spiritual approval on a group of followers who may crave it. If they do as instructed, they will receive it. Without

internal checks and balances, and the added element of spirituality, the result may be a circular pattern of reinforcing behavior between the leader and followers that can become more bizarre at every turn.

We must also note that Aum Shinrikyo's membership was spread throughout society. Asahara drew people from every demographic and economic group and their level of involvement also varied. Some members were drawn far into the cult and completely absorbed by it. Most members were not absorbed into compound life and remained in regular society. The individuals who remained engaged in normal life were unobtrusive and their behavior tipped off no one to either their membership in the cult or to the cult's true nature. Had they been identified and questioned, it is doubtful they would have provided valuable information to investigators regarding the cult's WMD efforts.

However, it is axiomatic that selected portions of a group, the upper hierarchy in particular, are more informed than the regular membership. For example, Asahara's handpicked upper echelon of three scientists, Hideo Murai, Seiichi Endo and Masami Tsuchiya, steered all of the technical work involving WMD. All of the cult's acquisition, development and use of WMD was under the supervision of this upper echelon.⁷ This is the level of leadership that would have provided clues as to the true aims and activities of Aum Shinrikyo had it been observed by authorities.

Lessons Learned

The lesson for U.S. planners is that when analyzing a group created and dominated by a single individual, special attention should be paid to the leader and any cadre that he/she has selected to occupy upper level in the organization. It may be counterproductive to attempt to discern any illegal activity or the WMD potential of a group by observing the behavior of low

ranking followers. Indeed, it may be impossible to identify lower-ranking members at all. Plus, there is the distinct probability that the upper level, dominated by a single person, will hide major goals and initiatives from the lower membership, particularly illegal objectives. If analysis of regular membership is deemed as key to discovering goals and true motivations of a group dominated by a single person, planners may draw incorrect conclusions. The motivations of upper level leaders are also important.

Cult Motivation

Aum Shinrikyo was not motivated by politics. The cult's motivating ideas were founded in religion. Some analysts have contended that the cult was a political organization because it planned to take over Japan after the apocalyptic battle with the United States.⁸ This conclusion misses the crucial point about the cult. Aum Shinrikyo was a religious cult with aspirations to power, but it was never defined by political thought. Even though on a practical political level it maintained ties with members of the Diet, and once unsuccessfully ran a slate of its own candidates for office, Aum Shinrikyo was never, at its core, a political group.⁹

Lessons Learned

The lesson for U.S. planners is that a new paradigm has been established regarding the nature of credible WMD threats. Not only have weapons of mass destruction become available to nonstate actors, just as importantly, these actors may no longer operate within a political frame of reference. Even though the outcome of Aum Shinrikyo's WMD efforts would have had political ramifications, the cult's driving motives and goals were religious, not political.

Aum Shinrikyo is not the only example of this new phenomenon. The Middle East terrorist Osama Bin Ladin, who has made repeated efforts to obtain WMD, defines his agenda in religious terms, not political.¹⁰ Planners should discard any notion that a group must have a

political component in order to be a potential WMD danger. The cult also had another characteristic planners of which planners must take note.

Domestic Origin

Aum Shinrikyo was a domestic organization attacking its host country. This observation is significant because American policy assumptions seem to fixate on WMD threats from external sources, usually Middle East terrorists. The majority of planning centers on an assumption that an external sources pose more likely threats regarding WMD.¹¹ Yet, the past shows that the U.S. has been credibly threatened by WMD attack from within as well as from outside the country.

For example, numerous credible WMD attacks on the U.S. have been planned by domestic organizations. A political group called The Covenant, the Sword, and the Arm of the Lord planned to dump 30 gallons of potassium cyanide into the water supply of Washington D.C. to overthrow the federal government.¹² A terrorist group, R.I.S.E. planned to kill the entire human race using biological agents spread from helicopters, but decided this plot was too ambitious and eventually scaled back its plans, deciding to only kill Chicago.¹³

Lessons Learned

The lesson for U.S. planners is that domestic WMD threats cannot be relegated to second class status during planning processes. While a most world attention is given to the international arena, with treaties and conventions designed to prevent rogue states and international terrorists from gaining and using WMD, the fact remains that the only WMD attack of any consequence in the last 10 years did not have international origins. Indeed, if planning becomes too focused on the international threat, domestic sources become all the more likely to be able to operate below the threshold of detection and increase their ability to eventually obtain and use WMD.

Lack of External Sponsorship and Financial Independence

Next, it is important to understand that Aum Shinrikyo operated autonomously. It had no external sponsorship or significant interaction with other groups. From the conception to the execution of their WMD plans, the cult was independent.¹⁴ Aum Shinrikyo's only long term, interactive relationship with another group was its association with the Yakuza, the Japanese Mafia, and these dealings never involved WMD. Instead, the cult labs produced illegal drugs and sold them to the Yakuza to get cash, which leads us to another point.¹⁵

Aum Shinrikyo was a self-financed organization. The cult gathered huge amounts of money through its own initiative to conduct extensive WMD research and development. Most of the money came from members and legitimate businesses it owned. More importantly, the cult managed to avoid all accountability regarding finances, either to the members, who were sufficiently docile and never questioned where their donations were spent, or to the government, who avoided any interaction with the cult. This lack of accountability is significant because absolute financial autonomy gave Asahara a great amount of flexibility. He was able to devote large amounts of money to the most promising technologies and create WMD programs essentially overnight. The fear of discovery through financial channels never alarmed Asahara.

Lessons Learned

The previous two observations about Aum — its lack of external sponsorship and its self-financing — dovetail into a single observation that U.S. planners should note. Aum Shinrikyo demonstrates that financial tracking, while still effective when dealing with certain types of WMD actors, will not always provide indications of massive expenditures by all potential WMD threats. The need and movement of large amounts of money are possible indicators of WMD development or acquisition and, historically, one of the most effective ways to detect and stalk

terrorists. However, Aum Shinrikyo fell below the detection threshold of conventional financial tracking. While authorities should not disregard international financial tracking strategies, they must understand that tracking would not have worked against a group such as Aum Shinrikyo.

There are two key points to remember. First, not all money moves internationally. Planners should not assume potential WMD threats would have international financial connections and, therefore, provide detectable indications of resource transfer. Such assumptions by authorities could be counterproductive. Second, groups planning WMD attacks may not use weapons that consume large amounts of capital. In other words, they may not need the money. For example, the binary system used by the cult in the Tokyo subway that produced cyanide gas was very low-cost, yet had the potential to be extremely effective.

Public Nature of the Cult's Message

Even though the group was secretive about its money and other illegal activities, paradoxically, Aum Shinrikyo was relatively open about certain aspects of the coming apocalyptic battle and its plan to win it. The cult published these beliefs in tracts and leaflets and freely distributed them to the public.¹⁶ Over time, the cult message evolved from a passive and cautionary warning restricted to its own members into a relatively blunt threat to anyone who listened to its shortwave broadcasts. At one point, the cult even described how a subway system could be attacked using chemical weapons.¹⁷

Lessons Learned

The lesson for U.S. planners is that groups may openly telegraph intentions, even those that are plainly dangerous. Even though a fringe group may espouse ideas that are summarily rejected by rational people, it is certain that a great deal of group members have complete faith in the message. Planners should never dismiss a group's public pronouncement. It may provide an

indicator of potentially destructive activity. Certainly, after Aum Shinrikyo attacked the subway system, the meaning of their public pronouncements became very clear.

WMD Delivery Problems

Finally, a future group may be more adept at delivering WMD than Aum Shinrikyo. Even though the group killed over 20 people and permanently injured hundreds of others, the cult's WMD attacks could have been far more lethal had the cult managed to overcome minor hurdles. For example, the attack was conducted using low-grade Sarin that was only 30% pure in the Tokyo subway attack.¹⁸ If a purer solution had been used, the casualties would have been much more extensive.

Lessons Learned

The lesson for U.S planners is not to rely on the ineptitude of others as a protection from future WMD attacks. Unfortunately, this type of thinking appears in mainstream thought about future WMD threats.¹⁹ Technological hurdles attend every category of WMD but are not insurmountable, particularly those associated with chemical agents. Groups with initiative and determination are quite capable of learning from the mistakes of others. If we depend on technological hurdles as a protection from serious WMD strikes, we are making a serious mistake.

The Aum Shinrikyo case provides several useful conclusions that planners can incorporate into existing or developing methodologies designed to detect and identify potential WMD threats. The challenge for U.S authorities is to learn from Aum Shinrikyo and create new ways to recognize emerging domestic WMD threats before they have the means and opportunity to realize their goals.

Notes

¹ Murray Sayle, "Nerve Gas and the Four Noble Truths," *The New Yorker* April 1 1996, 6.

² Ibid, "Nerve Gas and the Four Noble Truths," 6.

³ Richard A. Falkenrath, Robert D. Newman, and Bradley A. Thayer, *America's Achilles Heel: Nuclear, Biological, and Chemical Terrorism and Covert Attack*, BCSIA Studies in International Security (Cambridge, MA: The MIT Press, 1998), 21.

⁴ D.W. Brackett, *Holy Terror: Armageddon in Tokyo* (New York: Weatherhill Inc, 1996), 178.

⁵ United States Congress. Senate. Senate Government Affairs Permanent Subcommittee on Investigations. *Global Proliferation of Weapons of Mass Destruction: A Case Study on the Aum Shinrikyo*, at 6 (1995)

⁶ Brackett, *Holy Terror: Armageddon in Tokyo*, 42.

⁷ David E. Kaplan and Andrew Marshall, *The Cult at the End of the World* (New York: Crown Publishers, Inc., 1996), 85.

⁸ United States Congress. House of Representatives. Permanent Select Committee on Intelligence. *Terrorism - Looking Ahead: Issues and Options for Congress, Report Prepared for the Permanent Select Committee on Intelligence U.S. House of Representatives by the Congressional Research Service*, 104th Cong., at 7 (1996)

⁹ United States Congress, "Senate Government Affairs Permanent Subcommittee on Investigations," 7.

¹⁰ Paul Strand, "Has Bin Laden Gone Nuclear?" <http://www.cbn.org/newsstand/stories/990809.asp>, August 9 1999.

¹¹ *The White House, A National Security Strategy for a New Century*2 (1999)

¹² Jonathan B. Tucker and Amy Sands, "An Unlikely Threat," *The Bulletin of the Atomic Scientists* 55, no. 4 (July/August 1999): 3.

¹³ Ibid, "An Unlikely Threat," 3.

¹⁴ Andrew Hubback, *The Prophets of Doom: The Security Threat of Religious Cults*, Occasional Paper no. 67 (London: Institute for European Defence and Strategic Studies, 1996), 13.

¹⁵ Ibid, *The Prophets of Doom: The Security Threat of Religious Cults*, 12.

¹⁶ United States Congress, "Senate Government Affairs Permanent Subcommittee on Investigations," 45.

¹⁷ Sayle, "Nerve Gas and the Four Noble Truths," 12.

¹⁸ Brackett, *Holy Terror: Armageddon in Tokyo*, 135.

¹⁹ Tucker and Sands, "An Unlikely Threat," 3.

Part 5

Conclusions

No Japanese or American intelligence or law-enforcement agency perceived Aum Shinrikyo as a terrorist/WMD threat until after the Tokyo subway attack.¹ A combination of political/cultural factors and cult characteristics all worked together to provide the opportunity for Aum Shinrikyo to carry out its WMD work. It is prudent to consider the possibility that unpredictable factors could combine in our own country and a domestic group with WMD aspirations may be able to employ WMD against U.S. domestic targets. Therefore, it is useful to arrive at conclusions that may aid us in framing a set of fundamental recommendations U.S. planners may incorporate into any efforts to identify and stop potential domestic WMD threats.

Political and Cultural Factors

We can conclude that political and cultural factors potentially play a large role in determining how authorities react to suspicious groups. In fact, these factors could be decisive when determining how far a prospective threat group could grow and succeed. An abnormal reluctance on the part of legal authorities to interact with certain types of groups allows organizations with illegal intentions to operate much more freely and, therefore, much more effectively. In the case of Aum Shinrikyo, the cult took full advantage of an umbrella of legal protection and was able to develop a robust WMD capability with little interference. Quite simply, Aum Shinrikyo was not on anybody's "radar screen".²

Leadership

Another point is that “cults of personality,” such as Aum Shinrikyo, operate using different group dynamics and, therefore, are very likely to do things difficult to predict and that may be beyond rationality. This is not to say that groups dominated by a single person are impossible to understand, only that it would be counterproductive for planners to expect such a group to follow standard patterns of behavior. Cults of personality may appear anywhere and in different forms. Group membership is also a key. Depending on the docility and pliability of the members, personality cults do things that shock observers, as the Jonestown cult did when over 900 people killed themselves.

People Not Technology

It is also evident that technology, while a very important aspect of the WMD threat, is not necessarily paramount. Even though we should never fail to track vital technologies used in the production of WMD, it is important that we do not become fixated on it. Technology defines only a part of the WMD problem. The heart of the problem is determined individuals. They may be well satisfied to use simple weapons rather than technologically complicated ones. In fact, Aum Shinrikyo’s attacks only became effective after abandoning biological weapons and turned to chemical agents, the type of WMD generally regarded as the simplest to make and use. Paradoxically, the cult’s attacks have been called the cutting edge of high-tech terrorism.³ On the contrary, chemicals are not high-tech when compared to biological and nuclear efforts.

Every Group Is Different

Also, conventional financial and WMD-material tracking methods failed. Detection and tracking techniques key on certain signatures, such as international money movement or known traffickers of nuclear material. For almost eight years, none of the standard indications of

dangerous activity were noted because authorities were looking somewhere else. They did not view Aum Shinrikyo as a problem because it did not fit the standard profile of a suspect organization. It operated quite differently. The success of the cult demonstrated that detection and tracking techniques must be flexible and constantly evolve to suit the changing nature of WMD threats. They must recognize that new threats may create new paradigms.

Conclusion

In conclusion, rather than approaching WMD threats such as Aum Shinrikyo strictly as a proliferation problem, we should understand that WMD is essentially the misuse of technology by individuals. Therefore, the crux of the matter is how to deal with the people, not just the technology. Characteristics, composition and modes of operation of the people involved are key. While remaining vigilant in the tracking of technology and other resources, authorities must also remain at least one step ahead of the human element.⁴ By learning from the tragedy of Aum Shinrikyo, we can understand the importance of developing proactive policies and techniques aimed at domestic groups so we can preempt and prevent attacks of all kinds, but especially those involving WMD.

Recommendations for Further Study

The case of Aum Shinrikyo serves to highlight some areas of interest that warrant further research. Potentially, these areas can provide useful and important insights that will enable authorities to identify and prevent future groups from acquiring and using WMD.

The first area of research involves comparing various domestic groups in different countries that have used, acquired or expressed an interest in WMD. The research should concentrate on identifying similarities and differences between them. For example, researchers may compare

Aum Shinrikyo and domestic groups from the United States, such as The Covenant, the Sword, and the Arm of the Lord in order to determine similar characteristics. The goal of this research would be to produce a reliable organizational and behavioral template that authorities could use as a decision aid when deciding the dangerous potential of a particular group. This tool would help determine if a group deserves further scrutiny by authorities.

The next area of further research is related to the first. Researchers should attempt to identify similarities and differences between domestic and international groups that have a WMD history. This area of research would be key in determining if and, if necessary, how authorities should adapt the methods currently used to detect, interdict and halt the international WMD threat to meet the WMD threat posed by domestic groups.

Finally, extensive research should be undertaken to identify any blindspots or erroneous assumptions in U.S. domestic planning concerning detection and prevention of the domestic WMD threat. In particular, the research should focus on suppositions by authorities that underestimate the potential capabilities of domestic WMD threats and then subsequently incorporate these underestimations into planning. The outcome of such presumptions has the potential to be very counterproductive.

Notes

¹ D.W. Brackett, *Holy Terror: Armageddon in Tokyo* (New York: Weatherhill Inc, 1996), 57.

² David E. Kaplan and Andrew Marshall, *The Cult at the End of the World* (New York: Crown Publishers, Inc., 1996), 293.

³ Ibid, *The Cult at the End of the World*, 285.

⁴ Jonathan B. Tucker and Amy Sands, "An Unlikely Threat," *The Bulletin of the Atomic Scientists* 55, no. 4 (July/August 1999): 8.

Bibliography

Brackett, D.W. *Holy Terror: Armageddon in Tokyo*. New York: Weatherhill Inc, 1996.

Canadian Security Intelligence. "The Threat of Chemical/Biological Terrorism." *Commentary, a Canadian Security Intelligence Service Publication* August 1995.

Carus, Seth. "The Threat of Bioterrorism." *Strategic Forum* 127 (1997): 3.

Croddy, Eric. *Chemical and Biological Warfare: An Annotated Bibliography*. Scarecrow Press, Inc., 1997.

—. "Urban Terrorism-Chemical Warfare in Japan." *Jane's Intelligence Review* November 1995: 520-23.

Defense Special Weapons Agency, *Weapons of Mass Destruction Terms Handbook* (1997).

Falkenrath, Richard A., Robert D. Newman, and Bradley A. Thayer. *America's Achilles Heel: Nuclear, Biological, and Chemical Terrorism and Covert Attack*. BCSIA Studies in International Security. Cambridge, MA: The MIT Press, 1998.

General Accounting Office. *Combating Terrorism: Threat and Risk Assessment Can Help Prioritize and Target Program Investments*. General Accounting Office, April 1998.

Gonclaves, George, and Greta Marlatt. *CBN (Chemical, Biological, and Nuclear) Terrorism/Warfare: A Bibliography*, November, 1996.

Hubback, Andrew. *The Prophets of Doom: The Security Threat of Religious Cults*. Occasional Paper. 67. London: Institute for European Defence and Strategic Studies, 1996.

Kaplan, David E., and Andrew Marshall. *The Cult at the End of the World*. New York: Crown Publishers, Inc., 1996.

Lifton, Robert Jay. *Destroying the World to Save It: Aum Shinrikyo, Apocalyptic Violence and the New Global Terrorism*. New York: Metropolitan Books - Henry Holt and Company, 1999.

Sayle, Murray. "Nerve Gas and the Four Noble Truths." *The New Yorker* April 1 1996.

Strand, Paul. "Has Bin Laden Gone Nuclear?" <<http://www.cbn.org/newsstand/990809.asp>
August 9 1999.

The White House, *A National Security Strategy for a New Century* (1999).

Tucker, Jonathan B., and Amy Sands. "An Unlikely Threat." *The Bulletin of the Atomic Scientists* 55, no. 4 (July/August 1999).

United States Congress. Senate. Committee on Appropriations. *Counterterrorism*, 105th Cong. (1997).

—. House of Representatives. Military Research and Development Subcommittee of the Committee on National Security. *The Federal Response to Domestic Terrorism Involving Weapons of Mass Destruction and the Status of the Department of Defense Support Program*, 105th Cong. (1997).

—. House of Representatives. Permanent Select Committee on Intelligence. *Terrorism - Looking Ahead: Issues and Options for Congress, Report Prepared for the Permanent Select Committee on Intelligence U.S. House of Representatives by the Congressional Research Service*, 104th Cong. (1996).

—. Senate. Senate Government Affairs Permanent Subcommittee on Investigations. *Global Proliferation of Weapons of Mass Destruction: A Case Study on the Aum Shinrikyo* (1995).