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The Anthrax Evidence Points to Iraq

Any analytical context that is not merely technical, but relies on the power of mind, ultimately reaches a point where evidence, even if only circumstantial, generally accumulates to a certain level of a critical mass, thus necessarily producing a solid conclusion. This point is both conceivable and pragmatic. Its validity is both intrinsic and objective, stemming from an inherent plausibility. Occasionally, the resulting conclusion is inadequate to propel the practical moves—strategic or political—which are regarded as its corollaries. This may be inevitable, due to the very fact that the evidence is circumstantial. But that would not impair the validity of the conclusion, even for those that are considered to be inferential assessments. Unavoidably, intelligence analysts often face such challenges.

The intention here is to present, analyze, and gauge the accumulating mass of information that indicates, though mainly indirectly, Iraqi involvement in the anthrax letters affairs of 2001. Accentuating its evidential essence indicates that a critical level has indeed been achieved. The following categories of supportive information are at least circumstantially examined to determine whether Iraq sponsored the anthrax letters operations:

- Earlier conduct by Iraq of nonconventional terrorism preparations
- Earlier conduct by Iraq of nonconventional terrorism operations
- Iraqi activities concerned with anthrax as a biological warfare agent (BWA)
- Relationship of Iraq to the anthrax letters affairs

CHEMICAL AND BIOLOGICAL TERRORISM PREPARATIONS

Even before becoming his country's leader, Saddam Hussein himself, along with a dozen Iraqi government officials, visited the United States as early as

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1967 to learn about chemical weapons. The group traveled to the Aberdeen and Dugway proving grounds, where they observed tests of chemical weapons.¹ That remarkable initiation provided no hint of the future.

Iraq's preparations for acquiring offensive chemical and biological capabilities, in terms of both regular and terrorism-oriented warfare, began in earnest soon after Saddam took power, in the 1970s.² Saddam's offensive unconventional capabilities peaked shortly before the 1990 Gulf crisis and the UNSCOM inspection. By that time, an offensive biological arsenal had already been included. That arsenal was cautiously cultivated by Iraq, with anthrax the favorite agent in the inventory. For some reason, germs have a great appeal to Saddam. This was clear during the past decade, as evidenced by his enormous efforts to retain Iraq's offensive biological capabilities.³ It is in his very nature to resort to BWA, using the "tiny creatures" to accomplish grand missions.

As Ambassador Richard Butler, the past executive chairman of the United Nations Special Commission (UNSCOM), put it:

In dealing with the Iraqis, you quickly learn that their resistance to having the truth about a program revealed has a direct, proportional relationship to the importance of that program. Given that fact, I concluded that Iraq's biological weapons program is Saddam Hussein's biggest self-indulgence and top priority. He seemed to think [that] killing with germs has a lot to recommend it. The ludicrous lies, false documentation, and purest effort the Iraqis employed in order to prevent us from getting a handle on their biological weapons program was an absolute wonder to behold.⁴

Ironically, yet sensibly, Dr. Rihab Taha, identified as the leading official in charge of Iraq's biological weapons program, is also politically well-connected. Her husband, Iraq's oil minister, Amir Rashid Ubaydi, helps direct the country's relations with the United Nations weapons inspection teams. Actually, Iraq's sole goal in that context is to retain its biochemical weapons and prepare for their use.⁵

The first Iraqi facility dealing with biological warfare agents, located in Salman-Pak since the late 1970s, retained its research and development infrastructure even after Iraq's biological weapons program matured, and large-scale production was carried out elsewhere. Two other facilities are located at the Salman-Pak site, very close to the biological facility.

Two defectors from Iraqi intelligence disclosed that they had worked for several years at Salman-Pak, where Islamic terrorists have been trained in rotations of five or six months since 1995. They noted that the training in the camp was aimed at carrying out attacks against neighboring countries, and possibly Europe and the United States. On one side of the camp, young Iraqis who were members of Fedayeen Saddam, or Saddam's

Fighters, were trained in espionage, assassination techniques, and sabotage. In a nearby compound, non-Iraqi Arabs—most appearing to be Islamic militant radicals—were drilled in terrorist acts. Among other things, the trainees practiced hijackings in small groups, armed only with knives, on a Boeing 707.⁶ (After 11 September 2001, a private United States satellite-photo company, Space-Imaging, went through its archives and indeed found a photo that included a plane parked in the Salman-Pak compound).⁷ This combination of Salman-Pak facilities, together with its intelligence mastery, does not seem at all to be just coincidence.

Another intelligence and special operations-controlled project, involving biochemical agents designed for acts of terrorism, was conducted within the framework of the closely based main facility of Iraq's Atomic Energy Organization, the Nuclear Research Center in Taweita. Another Iraqi defector, formerly a senior scientist who worked at Iraq's Atomic Energy Organization, noted: "One day a light green-yellow substance, which was crystallized and packed in tins, arrived. Suddenly, intelligence men came in and rushed it away. I later found out they were working on some secret project." The substances were tested on Iraqi prisoners, mainly Kurds and Shi'ites in Radwanja Jail, in west Baghdad. The project is headed by Professor Shaher Mahmoud al-Jibouri, a chemist and secret service agent. (Senior Western intelligence officers confirmed the experimentation on prisoners: "Between April and May 2001, 30 prisoners died after being used in experiments," said one.) The defector was asked to examine numerous complicated and dangerous toxins. Mentioning typical modes of terrorism-oriented options of dissemination, he added: "They were very easy to use. You could put them in water or steam, or use them in the soil."⁸

Also, Professor Khidhir Hamza, a former director of Iraq's nuclear program, stated that radioactive materials—a particular category of chemical agents suitable for specific sabotage acts—were dealt with, as well, within the Iraqi Atomic Energy Organization, in conjunction with the Iraqi intelligence system overseeing terrorism operations.⁹ Water sources, for instance, if contaminated by such materials, are useless. Notably, UNSCOM's former chairman, Rolf Ekeus, stated that a central project included in the Iraqi BW program was the poisoning of lakes and aqueducts.¹⁰

Yet, this was not the end. One method adjusted by Iraq to spread biochemical agents through terrorism is airborne. Specific platforms destined to carry and deliver nonconventional weapons allow both military-oriented and terrorism-oriented employment. A typical instance is that of a UAV (unmanned air vehicle, specifically the Eastern European-made L-29) procured and modified by Iraq to disseminate chemical, and more likely, biological warfare agents.¹¹

Furthermore, Iraq's preparation of biochemical warfare agents has included contacts with terrorists. The main terrorist organization involved is Osama bin Laden's al-Qaeda. In 1991, both Saddam and Osama— independently, yet consequent to direct American pressure—found a hospitable, safe shelter in Sudan: Saddam, for elements of his top strategic military assets, ballistic plus unconventional, and Osama, for his own sake. They had both been obliged to desert their own homeland, a crucial seed of tribulation. They soon recognized certain common denominators. Also U.S. President Bill Clinton's administration emphasized the importance of "loose networks" of Muslim militants, rather than states. Within the context of responsibility for major terrorist strikes. Saddam, completely opportunistic, fully recognized the potentially cardinal role of al-Qaeda and other terrorist groups. That approach helped fuel Saddam's intensifying interface with al-Qaeda.

In 1994, Faruq Hijazi, then Saddam's secret service director, and presently his ambassador to Turkey, had a series of meetings with bin Laden in Sudan. Strong bonds were formed; that cooperation included the arena of terrorism-oriented biological and chemical warfare agents.¹²

Sabotage by means of biological and chemical warfare agents has long been fondly regarded by Saddam. Bin Laden readily joined the cabal, though in 1996 he moved from Sudan to Afghanistan. The Sudanese regime propelled and thickened the connection, providing a proper base, particularly in 1997, when Iraq's need to protect its biochemical weapons development from U.S. forces patrolling the Persian Gulf escalated. Iraq then moved to Sudan the weapons of mass destruction, both chemical and biological, it had stored in Yemen.

In early 1998, another series of meetings between Faruq Hijazi and bin Laden took place in Afghanistan, after bin Laden was implicated in the bombing of two U.S. embassies in East Africa. Hijazi offered Osama sanctuary in Iraq. Although the offer was not accepted, the ties were strengthened. Other links between al-Qaeda and Iraq continue to crop up.

Indications are that some of the people Saddam employed to assassinate Iraqi dissidents were affiliated with al-Qaeda. A meeting followed in Baghdad between bin Laden's number two man, Dr. Ayman al-Zawahiri, and Iraq's vice president, Taha Yasin Ramadan. On 25 April 1998, bin Laden sent an al-Qaeda terrorist delegation to Baghdad. On that occasion, according to an intelligence report, Saddam's son, Uday, agreed to receive several hundred members of al-Qaeda for training in terrorist techniques, in Iraq.¹³

Consequently, a secret pact was forged among Osama bin Laden, Iraq, and Sudan to wage a terrorist war against the United States. This October 1998 agreement led to Iraqi know-how and experts helping to build a chemical weapons factory especially for bin Laden's terrorists in Sudan,

and bin Laden and Saddam Hussein's Iraq cooperating to build several others. The pact was uncovered in a paper prepared for the U.S. House of Representatives' Task Force on Terrorism and Unconventional Warfare by its staff director Yossef Bodansky. Bodansky's report showed the growing brashness of Iraqi involvement in developing chemical weapons for terrorism in Sudan, away from the prying cameras of U.S. planes patrolling the no-fly zone in Iraq. It cites two other ultra-modern chemical-biological weapons factories built in Sudan with Iraqi expertise.

Actually, as early as February 1999, the Paris-based Arab language newspaper, *al-Watan al-Arabi* revealed the formidable triangular Arabic connection. It reported that Western diplomatic and security sources had warned in secret reports that Iraq, Sudan, and bin Laden were cooperating to build several chemical and germ weapons factories in Sudan, financed by bin Laden and supervised by Iraqi experts and technicians. The Baghdad-Khartoum-bin Laden deal was regarded as the biggest act of coordination among extremist multinational Islamic organizations, chiefly al-Qaeda, and Baghdad "for confronting the U.S., the common enemy." Many meetings between bin Laden and Iraqi officials took place subsequent to the October 1998 pact.¹⁴ Also, by that date, United Nations inspections in Iraq had ceased; yet UN inspectors documented visits to Khartoum by officials in Iraq's chemical weapons program. Some believe that bin Laden and his associates were helping to finance the weapons work. "There was a guy in bin Laden's entourage in Khartoum who had very close connections to Iraqi intelligence," recalled one former CIA operative who declined to be identified. "He was close to bin Laden and dealt with him a lot in his incarnation as factory builder and road builder."¹⁵ Eventually, at the start of 1999, bin Laden himself, in an interview with *Time* Magazine said that "If I had indeed acquired biological and chemical weapons, then I thank God for enabling me to do so, and if I seek to acquire these weapons, I am carrying out a duty."¹⁶

The observation that solid ties—including the dimension of terrorism by means of unconventional weapons—have for long existed among Iraq, Sudan, and al-Qaeda has been fully established. The "missing link," identifying an al-Qaeda presence at Iraq's Salman-Pak biochemical facility, is rather ostensible.

IRAQI CHEMICAL AND BIOLOGICAL TERRORISM OPERATIONS

The Iraqi regime has, for a long time, proved to be terrorism-oriented in terms of both conventional and nonconventional operations. This distinct orientation has been manifested, at times covertly and others overtly, mainly against the Kurds and domestic political opponents. Israeli and

American targets have been included as well. Terrorism was conducted by the Iraqis as a routine, though “gently” and by “conventional” means, against the UN inspectors, so as to rescue Iraq’s unconventional weapons.¹⁷

Iraq repeatedly employed chemical weapons against the Iranian army throughout the Iran–Iraq War, from 1982 until 1988. But on some occasions purely civilian targets were deliberately hit with chemicals by the Iraqi army, so as to demonstrate the effect of the resulting terror. Yet, in parallel, and actually starting even earlier, the Iraqi regime was fairly consistent in using chemical and biological warfare agents for terrorist purposes.¹⁸ Moreover, the profile of Iraqi activities might corroborate its implication as the sponsor of the year 2001 anthrax letters affairs.

Since the 1960s, the Iraqi regime has suppressed the Kurds living in Iraq, and for that purpose, chemical warfare agents have been gradually used from 1965 onwards.¹⁹ In 1978, the Iraqi regime sponsored—through Palestinian terrorists—the poisoning with mercury of Israeli oranges exported to Europe, arguing that the goal was to sabotage Israel’s economy rather than killing European consumers. Poisoned oranges were later found in Great Britain and West Germany, as well as in the Netherlands, where some children were killed.²⁰

Thallium—an extremely toxic element—was, in many instances, used by the Iraqi regime for political assassinations. Not by chance did the Saddam Hussein regime choose thallium as a means for eliminating dozens of its opponents through clandestine acts, involving its introduction into drinks and foods. Dying from thallium intoxication is horrible. Iraqi agents added minute amounts of that untraceable metal to served refreshments, and the victim sensed nothing for a considerable period of time, until clinical symptoms slowly, yet persistently, developed. The illness is dreadful and incurable—a one-way ticket to oblivion. Several such cases sponsored by the Saddam regime have been documented in the medical literature. Some took place outside of Iraq.²¹

Iraq also sponsored the mass poisoning of food consumed by fugitive Iraqi Kurds who were on their way to Turkey. Though many reports issued by Iraqi–Kurdish groups may be considered unverified propaganda accusations, implying Iraqi use of chemical weapons against Kurdish populations, sound reports confirm such Iraqi activities. Poisoning may certainly be regarded as a typical tool of terrorism, rather than merely a means for killing or harming. Injury and death are just outcomes, having their own contribution to intensifying terror. Notably, the targeted Kurds have usually been Iraqi citizens. At least 16,000 Kurds were killed by Iraqi chemical weapons in 1987–1988, a period when that method was most common in Iraq.²²

Concomitantly, Saddam’s regime employed biological warfare agents against Iraq’s Kurdish population as a means of terrorism. Thus,

epidemics of malaria, cholera, and typhoid were generated in certain Kurdish communities selected for that purpose. Further, a nasty fungal toxin— aflatoxin—known to have a long-term effect through causing liver cancer, has been deployed, again against the Kurdish population. During the 1980s Iraqi agents were trained in Germany and Iraq by East German experts in the employment of biological warfare agents for sabotage.²³

The condemnation of political prisoners, both Kurdish and Iraqi, as well as war prisoners, both Iranian and Kuwaiti, to experimentation with chemical and biological warfare agents—a phenomenon not at all rare in Iraq during the 1980s and 1990s—may also be regarded as an extremely vicious form of terrorism. Such experiments were repeatedly conducted by Iraqi in both laboratory and field tests.²⁴

The Iraqi regime was much more careful in its nonconventional terrorism operations targeted against non-Middle Eastern targets. But a breakthrough was made in the United States in 1993. The World Trade Center (WTC) was picked as a target, for the first but not last time. The device intended to do the job was a peculiar combination of conventional and poisonous chemicals.²⁵

Among the ingredients used to make the bomb was sodium cyanide, which, when mixed with sulfuric acid produces a lethal gas—hydrogen cyanide. To assemble the explosive, the saboteurs (Ramzi Ahmad Youssuf and Mohammed Salameh) had meticulously mixed more than a half-ton of urea nitrate crystals with nitric acid. The contents were divided up, placed in plastic bags, then put into cardboard boxes. For a trigger, the bombmakers had used nitroglycerin, a dangerous and volatile substance that can ignite from merely rapid temperature changes. The load was topped off with hydrogen gas as a booster, and placed in three canisters. But, just in case the blast itself failed to kill massive numbers of people, the terrorists also used sodium cyanide and sulfuric acid, which, when combined by the blast, would produce hydrogen cyanide. The expert bombmakers had clearly planned to topple one of the World Trade Center's towers into the other amid a deadly cloud of cyanide gas, likely producing tens of thousands of casualties. A considerable amount of cyanide vapor would thus escape, asphyxiating the large number of people trapped in the North Tower.

Meticulous investigations have revealed that the mastermind of that operation was a doubly-disguised Iraqi agent, acting together with a Palestinian terrorist and an Egyptian conspirator. Further, independently of the U.S. intelligence findings that incriminated Iraq as the sponsor, Egyptian officials also concluded that Iraq was responsible for the attack.²⁶ In addition, al-Qaeda appears to have been connected to the attack.²⁷ All in all, the operation was planned and organized in a very sophisticated manner, which was fairly difficult to decipher, even in retrospect. Moreover, Sudan appears to have been important, due to extremely close

ties between Khartoum and Baghdad, and because of suspicions that Sudanese intelligence operatives were acting on behalf of Iraq. The Federal Bureau of Investigation (FBI), during its sting operation, intercepted a telephone call from Sudan's UN ambassador in New York to a man in Sudan, Dr. Hassan al-Turabi, who headed the Sudanese Islamic fundamentalist party and was the power behind Sudan's military regime at that time.²⁸ Two years earlier, in 1991, Turabi had encouraged bin Laden and Saddam to find a safe shelter in Sudan. During those two years the first triangular connection aimed at afflicting the WTC could have readily been formed.

Technically, the key ingredient was sodium cyanide. Indeed, Iraq was making great efforts to acquire it. Despite restrictions agreed upon by the European Commission and others, a British company exported more than \$1 million worth of the substance to Iraq in 1990. Also during this time, an Iraqi-born businessman, Ihsan Barbouti, who worked in London, invested \$5.3 million in a plant in Boca Raton, Florida, which produced cherry flavoring from apricot and peach pits. Cyanide, found naturally in apricot and peach pits, was extracted and smuggled to Iraq, according to U.S. authorities, disguised as the personal effects of an Iraqi embassy diplomat.²⁹ More than likely, the chemicals used for preparing the WTC bomb, particularly sodium cyanide, were supplied, perhaps even installed in the bomb, by Iraq.

Was anthrax powder the next substance delivered from Iraq to the United States? A considerable body of information on the elite status of anthrax in Iraq's bio-program, and its actual applicability in the context of Saddam's operational intentions for offensive bio-terrorism, is now available.

IRAQI ACTIVITIES WITH ANTHRAX AS A BIOLOGICAL WARFARE AGENT

In conducting its biological warfare program since the mid-1970s, Iraq has relied on anthrax as a biological weapon of choice in almost every possible mode of delivery, namely, aerial bombs, aerial spray tanks, missile warheads, aerosol-generating unmanned planes, super-guns, and sabotage.³⁰ During the 1980s, East German instructors trained Iraqi agents—both in East Germany and Iraq—for employing anthrax as a mode of terrorism, through its introduction into mass assemblies, wells, rivers, upper water reservoirs, airports, and train stations.³¹

On the pretext of medical research, Iraq procured 21 different types of anthrax. But it acknowledged its acquisition of only nine strains of anthrax. Those included the Sterne strain, commonly used in an animal vaccine, and the A-3 strain, derived from Spanish sheep, both from France's Institut Pasteur; also, two Vollum strains and five other strains of anthrax—through a regular commercial procedure—from the American

Type Culture Collection.³² According to open scientific literature, Iraqi procurement also included anthrax strains JB17 and Sterne 34F2 from the Central Veterinary Laboratory, New Haw, Weybridge, Surrey, England, in 1985.³³ Strain Ames—the strain applied in the anthrax letters—had been vigorously looked for by Iraq.

Rather symbolically, Iraq provided several sealed glass vials containing freeze-dried anthrax spores to a team of United Nations biologists. The vials included two variants of the Vollum strain, which Iraq installed within its biological armament. DNA analysis conducted on remnants of Iraq's Al-Hussein warheads at the Al-Nibai missile destruction site revealed traces of bacteria similar—though not certainly identical—to the Vollum anthrax strain.³⁴

According to UNSCOM, Iraq's work on anthrax involved aspects of antibiotic and environmental resistance, means of production, and agent preservation.³⁵ Antibiotic resistance strains were to be derived through genetic engineering, as implied by the head of the Iraqi bio-program, Dr. Rihab Taha.³⁶ Further, according to an Iraqi microbiologist residing in Iran, the efficacy of anthrax as a BWA has been intensified in Iraq.³⁷

Open scientific literature reveals that virulent clinical isolates of anthrax have been locally obtained from both humans and farm animals in Iraq since 1976. They have been thoroughly studied, together with purchased strains, in terms of cultivation, experimental infection, immunization, virulence, and preservation.³⁸

Prototype anthrax germs were developed in the biological department of Iraq's nuclear research center in Taweita, the very same facility connected to bio-terrorism preparations, where Iraqi scientists investigated the stability of the anthrax germ, including its reaction to freezing.³⁹ Yet, seven unspecified strains of anthrax, indigenous to Iraq, were isolated and characterized by the Cairo-based U.S. Naval Medical Research Unit, and then formulated into a single vaccine.⁴⁰ Also, during the 1980s, Iraq ordered from the United States the American Michigan vaccine, either for immunizing personnel and/or appraising its efficacy, and perhaps its deficiencies.

Iraq has possessed the anthrax pathogen since the early 1980s, having installed it in artillery shells, according to an Iraqi microbiologist staying in Iran.⁴¹ The final phase of military research on the pathogen, commenced in 1985, included several imported and local strains.⁴² Anthrax germs, in the form of aerosolized material, have been laboratory-tested on rabbits, mice, and guinea pigs.⁴³ Field tests were conducted in 1988 through modified aerosol generators (the Zubaidy device), with additional experiments on sheep and dogs.⁴⁴ Applied as a biological warfare agent, anthrax was upgraded to a form of fine respirable powder for open-air testing.

Field tests were conducted on human beings, according to Israeli military intelligence sources, as follows: ten Iranian prisoners of war were taken to an

open-air site near Iraq's border with Saudi Arabia. They were lashed to posts and left helpless as an anthrax shell or bomb was detonated by remote control fifteen yards away. The prisoners' heads were shielded to protect them from shrapnel, so that the effectiveness of the bacteria could be observed. All died painfully from internal hemorrhaging. In another experiment, the prisoners were secured to a bed in a specially built chamber, into which lethal agents, including anthrax, were sprayed from a high-velocity device mounted in the ceiling.⁴⁵

Anthrax development was scaled up to production in 1989. About 8000 liters of solution with concentrated anthrax spores and cell count of 10^9 /ml were manufactured; fifty aerial bombs and ten missile warheads were filled with diluted anthrax spores, according to the Iraqis.⁴⁶ All in all, anthrax germs were serially produced for payload in artillery shells, rockets, bombs, and missile warheads.⁴⁷ Iraqi operational warheads could widely spread powders that, when inhaled, cause anthrax, according to American experts and military planners.⁴⁸ David James, chairman of the British Eagle Trust company, asserts that the Iraqi super-gun could have allowed delivery of one-ton projectiles filled with anthrax germs.⁴⁹

Just prior to the Gulf War, Iraq had planned to fly unmanned MIG airplanes (each carrying a net payload of some 950 liters) that would, by remote control, disseminate anthrax bacteria clouds above Israel, according to Rod Barton, a retired UN inspector, citing an Iraqi general.⁵⁰ In 1991, just prior to the Allies' attack, 200 aerial bombs and about eighty missile warheads filled with anthrax, mostly in a dry form, were hidden near Tikrit. This inventory was retained until at least 1994; further, a new, second super-gun, capable of delivering anthrax-filled projectiles, may possibly be in Iraq's possession, according to General Waffiq al-Sammarai, former head of Iraq's military intelligence.⁵¹ That, by 1998, Iraq had produced anthrax germs in quantities sufficient to arm two missile warheads each week, according to the British Minister of Foreign Affairs,⁵² is not surprising. The material was most probably powdery.

Additionally, aerial spraying systems still under current Iraqi development were designated "Anthrax Air Force," as described by the UK's Secretary of Defense in December 1998, and targeted by US/UK forces during "Operation Desert Fox." The secret design converted Czech and Russian planes into aircraft, actually an unmanned air vehicle (UAV), the L-29, that could be used primarily to spray anthrax and deliver other weapons of mass destruction. But, upon the arrival of UN inspectors at a suspected facility, cooling trucks permanently containing large quantities of anthrax would covertly leave the facility.⁵³ In its latest report, a U.S. intelligence agency said President Saddam Hussein's regime is advancing the development of the L-29 UAV. Iraq has apparently conducted flights of the L-29, possibly to test system improvements, most likely for dissemination of biological warfare agents.⁵⁴

Due to the significant role played by model strains of germs closely related to the anthrax bacillus, and experimentally used as simulants, Iraq was required to declare the procurements of such model strains. Consequently, Iraq declared the procurement of the bacteria *B. (for Bacillus) megaterium* (three strains), *B. subtilis* (two strains), and *B. cereus* (two strains). Yet, according to open scientific literature, Iraq procured the following bacterial strains as well:

- *B. megaterium* ATCC 8245 in 1984⁵⁵
- *B. thuringiensis* strain H-14 from the firm Sandoz, USA in 1986⁵⁶
- *B. pumilus* strain E 601 from Manchester University, England, in 1987⁵⁷
- *B. sphaericus* strain 2362 from the Czechoslovak Academy of Sciences in 1988⁵⁸
- *B. subtilis* strain 168 in 1988⁵⁹

Moreover, applying those strains as simulants, Iraqi scientists have conducted the following studies—mainly within the Nuclear Research Center’s biological department—so as to enhance the efficiency of anthrax as a biological warfare agent:

- The effects of spore load and disinfectant concentration on the preservation efficacy of *B. pumillus*;⁶⁰
- The effects of sub-atmospheric pressure and oxygen on the growth and sporulation of *B. subtilis*;⁶¹
- Induced resistance to UV radiation has been attained in *B. subtilis*;⁶²
- Some 2000-liter spray tanks, carried by remotely piloted aircraft, as well as aerial bombs and S-S rockets, were filled with the simulant *B. subtilis*, merely for field testing, using petri dishes to observe the results of dissemination.⁶³ Also, *B. thuringiensis* has been used to practice spray drying in the attempt at large-scale production of dried *B. anthracis*.⁶⁴

All in all, the work done by Iraq while using these model strains considerably corroborates the potential and applicability of the anthrax held by Iraq in general, particularly in the context of bio-terrorism.

RELATEDNESS OF IRAQ TO THE ANTHRAX LETTERS AFFAIRS

Early Signs

Several early reports may, in retrospect, be sensibly linked with the anthrax letters affair, indicating that early operational steps were in effect taken by Iraq and al-Qaeda.⁶⁵

- 1994: An Iraqi scientist specializing in genetic engineering and having access to various local laboratories, is implanted in New York City by Saddam Hussein’s regime, with the intention of conducting an act of biological terrorism.⁶⁶

- 1998: An Iraqi terrorist network, being maintained in the United States, is intended to conduct acts of bio-terrorism, and reportedly furnished with BW agents by Iraqi women who smuggle agent-filled vials into the U.S. within their bodies.⁶⁷
- 1998: The British government issued a warning to all ports about an Iraqi attempt to bring large quantities of the deadly anthrax germ into Britain (and other countries) inside cosmetics bottles, cigarette lighters, and perfume sprays, disguised as duty-free goods.⁶⁸
- 1999: Associates of Osama bin Laden were offered anthrax plus other biological warfare agents from a factory in East Asia, and a bio-toxin (possibly botulinum) from a laboratory in the Czech Republic.⁶⁹ According to one of its members, al-Jihad, part of bin Laden's coalition of organizations, has biological and chemical agents, intended to be used against U.S. and Israeli targets.⁷⁰
- 2000: Intelligence sources in Australia confirmed the purchase in an unidentified country, once part of the USSR, of anthrax (and plague) bacteria by a southeast Asian terrorist group linked to bin Laden.⁷¹

Those early reports may certainly be gauged as a cluster, compatible with what could have really been taking place in the anthrax letters attack. In that case, the Ames anthrax strain was obtained from a formerly Eastern bloc or Soviet country by al-Qaeda, while the role played by Iraq was, at the very least, preparing the anthrax powder. Further signs surfaced in retrospect. Near Kandahar, Pakistan, a Taliban laboratory, intended to produce anthrax, according to a confidential assessment by the U.S. Central Command, was discovered by the United States. No biological agents were found in the laboratory, which was still under construction when it was abandoned.⁷² This suggests that al-Qaeda probably had no previous facility of its own for anthrax, and would have had to obtain it elsewhere. More recently, an operative of Iranian nationality—who says he was given an assignment by ranking members of Saddam Hussein's inner circle—was interviewed. He said he smuggled weapons to Iraq through Iran for al-Qaeda during the late 1990s, whereas in early 2001, he carried out another mission to take refrigerator motors to the Taliban. Each motor had an attached container, holding an apparently important liquid of unknown nature.⁷³ Conceivably, this liquid could have been anthrax, intended for cultivation and eventual drying as a spore-powder.

A POSSIBLE SCENARIO

The Act of Bioterrorism

Referring to the sabotage act itself, three main features mark the anthrax letters affair: (1) its temporal and spatial proximity to the airplane crashes affair; (2) the relatively rare Ames strain of the anthrax bacterium employed; and (3) the powdery texture of the infectious matter. What was the anthrax spores' provenance? Some rather critical moves preceded the event.

The Atta Meetings

Mohamed Atta, an Egyptian who flew one of the two planes that crashed into New York's World Trade Center, and the actual ringleader of the 11 September attacks, met in Prague in April 2001 with Ahmed Khalil Ibrahim Samir al-Ani, an Iraqi intelligence chief posted at Iraq's Czech Republic embassy. Originally, Atta was said by U.S. intelligence officials to have met in autumn 2000 in Prague with al-Ani, who was later expelled by the Czechs for activities not compatible with his diplomatic mission. Czech Prime Minister Milos Zeman, whose agents monitored the later meeting, said Atta and the Iraqi supposedly discussed a plot to bomb the Prague offices of Radio Free Europe, which broadcasts U.S.-backed programs into Iraq. Atta traveled 72 hours, straight from Florida and back, to see al-Ani. Upon returning to Florida, he used money wired from the Middle East to finance the attacks. The meeting, according to Czech intelligence, focused only on the radio station, an alleged target of Iraqi agents at least once before, in 1998. But many suspect the 11 September attacks were a topic, too.⁷⁴ Some tendentious attempts in May 2002 to discredit the evidence about the meeting between Atta and al-Ani, "the Prague connection," have been totally refuted. Czech sources have stood by their earlier reports. In effect, Atta is believed to have visited Prague at least twice, in 2000 and 2001.⁷⁵

Indeed, several circumstantial links to Osama bin Laden and his al-Qaeda network are worth accentuating in that context. Some of the September 2001 World Trade Center airliner hijackers, including the suspected ringleader, Atta, visited an airfield near the site of the Boca Raton, Florida, anthrax mailings. Remarkably, anthrax appeared in or around September 2001 at the headquarters of American Media Inc., in Boca Raton. The 66,000 square foot office building was completely contaminated with anthrax spores, causing the death of an employee on 2 October.⁷⁶ Further, the letter to Senate Majority Leader Tom Daschle (D., South Dakota) was actually dated 11 September.⁷⁷ The anthrax package sent to a Microsoft office in Reno, Nevada, was mailed from Malaysia, another al-Qaeda haunt. An 11 September hijacker, Khaled Almihdhar, visited Malaysia earlier in 2001, appearing in a surveillance tape with still another suspected bin Laden associate. In January 2000, the terrorist's followers met in Kuala Lumpur, the Malaysian capital, as part of the plot to bomb the USS *Cole* in Yemen later that year.

The package sent to NBC Television in New York was postmarked 18 September 2001 from Trenton, New Jersey. That state, especially Jersey City, was the home of the first attempt to destroy the World Trade Center in 1993, a plot also linked to bin Laden's associates. Two New Jersey postal workers contracted the skin form of anthrax, which is less serious than pulmonary anthrax. Also, Vice President Dick Cheney noted that the

U.S. had obtained “copies of the manuals” that al-Qaeda “actually used to train people” in how “to deploy and use these kinds of substances.”⁷⁸ U.S. Deputy Secretary of Defense Paul Wolfowitz revealed that those who plotted in the caves of Afghanistan left behind diagrams of U.S. cities and landmarks, and plans to acquire anthrax and radiological weapons.⁷⁹

Iraq’s Deputy Prime Minister Tariq Aziz had previously denied al-Ani had any contact with Atta in Prague. Nevertheless, it is not just that the meeting did take place; there are reports, stating one of the things that may have happened at that meeting was that Atta was given some sample of anthrax by the Iraqi.⁸⁰

The German daily *Bild* reported that security experts in Germany were investigating whether Atta carried anthrax spores, allegedly obtained from Iraqi agents in Prague, to the United States. The paper cited unnamed Israeli intelligence sources as saying that Atta received anthrax spores from Iraqi agents during his visits to the Czech Republic. It added that Atta, who had lived in the German city of Hamburg, had carried the spores to New York.⁸¹ Significantly, in retrospect, two men identified themselves as pilots when they went to the emergency room of Holy Cross Hospital in Fort Lauderdale, Florida, in June 2001. One had a dark, ugly lesion on his leg that he said had developed after bumping into a suitcase two months earlier. Dr. Christos Tsonas thought the injury was curious, but he cleaned it, prescribed an antibiotic for infection, and sent the men away with hardly another thought. Yet after 11 September, when federal investigators found the medicine among the possessions of one of the hijackers, Ahmed Alhaznawi, Dr. Tsonas reviewed the case and arrived at a new diagnosis. The lesion, he stated, “was consistent with cutaneous anthrax.”⁸²

Further, an anti-Saddam Iraqi opposition group has asserted that biological weapons were on the menu for those who were engaged in the 11 September attacks, since Atta wanted to buy a crop-duster in Florida.⁸³ According to U.N. weapons inspector Richard Spertzel, Iraq has conducted military exercises to explore the possibility of disbursing anthrax using crop dusters.⁸⁴

Those pieces of information, unambiguously connecting Atta with bio-terrorism, have apparently not yet been fully verified. But, if they are credible, nothing more is needed. Yet, even if inaccurate, are they really essential for deciphering the overall puzzle? That ought to be doubtful.

Finally, the bio-terrorism acts were not confined to the United States. Three businesses in Karachi, Pakistan, were also targeted, and received anthrax letters. The U.S. embassy in Vilnius, Lithuania, was concurrently targeted.

The Ames Strain

Genetic testing of the spores found in Senator Daschle’s Capitol Hill office, at the NBC offices in New York, and in Florida revealed that the three samples were indistinguishable. The three anthrax isolates (and probably others) were

found to be compatible with the Ames anthrax strain. That strain was initially isolated in October 1932 in Ames, Iowa. The spore-powder in the letters had been prepared about two years ago, according to a 14-carbon analysis. Health officials have also said the anthrax used in the letters and tested so far is sensitive to antibiotics.⁸⁵ Yet, it had reportedly been genetically modified to increase its virulence, and was so powerful that deaths occurred through mere cross-contamination.⁸⁶

Iraq's 1991 declaration as to the anthrax strains it held did not include the Ames strain. This might, of course be an intentional delete, typical of the Iraqis. But even if correctly declared, Iraq could have obtained the Ames strain after 1991. Moreover, scientists investigating the attacks noted that the Ames strain was originally cultivated at Iowa State University in the 1950s, and later given to various labs throughout the world, including Iraq's.⁸⁷ Is this verifiable?

In August 1988, two key figures in Iraq's secret germ warfare program attended a scientific conference in Winchester, England, to survey advances in the battle against the anthrax disease. Professor Nassir al-Hindawi and a colleague, Dr. Abdul Rahman Thamer, attracted little attention at that gathering, which was sponsored by scientists from the British biodefense institute at Porton Down. Nevertheless, the Iraqis' affiliation was, peculiarly, the "Technical and Scientific Materials, Importation Division, Baghdad," a body incorporated within the Iraqi biological weapons program.⁸⁸

Shortly after the visit, the Iraqis—through Baghdad's trade ministry—telexed an order to Porton Down for samples of the Ames strain, but they were denied, according to Porton Down's spokeswoman Sue Ellison. At any rate, the Iraqis were very keen on obtaining the Ames strain. Besides the British Porton Down biodefense institute, they contacted many other countries, according to retired Colonel Richard Spertzel, himself a microbiologist and former head of biological inspection teams in Iraq for the United Nations.

Porton Down scientists had obtained the Ames strain in the early 1950s from the U. S. Army Medical Research Institute for Infectious Diseases (USAMRIID) at Fort Detrick, Maryland. Martin Hugh-Jones, a scientist at Louisiana State University who received a sample from Porton Down's Center for Applied Microbiology and Research (CAMR) in the 1990s, recalls that it was marked "October, 1932, Ames, Iowa," indicating the very source of that deadly variant. So the matching sample can be traced to both the U.S. and Britain. Professor Hugh-Jones is but one who has done so. But the point is that the lethal pathogen has been passed to an unknown number of scientists.⁸⁹ Any of those scientists, particularly those who innocently published their scientific work on the Ames strain, became known to have that specific strain available, and, consequently, a potential naive supplier to any real or ostensible scientific institution worldwide.

The Federal Bureau of Investigation (FBI) determined that nearly twenty repositories in the U.S. presumably had access to the virulent Ames strain. The search might have been narrowed down to a single repository had the FBI not allowed an Agriculture Department facility at Iowa State to incinerate the specimens that constituted the Ames strain's "family tree." An analysis at Northern Arizona University in Flagstaff then found that the DNA of the anthrax used in the attacks was indistinguishable from an Ames strain sample provided by USAMRIID. The Ames strain is also found outside the U.S., held in some labs as a virulent foreigner. Some of those laboratories counter its virulence; others foster it.⁹⁰

Security Concerns

David Franz, who headed the biological research program at Fort Detrick from 1987 to 1998, disclosed that when the Army wanted to conduct defensive experiments on the Ames strain, it had to obtain the "information" from a British military lab that did experiments with the powdered form of the Ames anthrax. That lab, the Center for Applied Microbiology and Research, is located at Porton Downs.

The security of the British anthrax bacteria was complicated by its privatization, initially involving Lebanese and Saudi elements. Afghani and Pakistani elements were later added, as indicated in the following sequence of events. In 1993, while holding the virulent Ames strain, CAMR was privatized by the British government, and became part of Porton Products Ltd. Porton Products was owned by Speywood Holdings Ltd., which, in turn, was owned by I&F Holdings NV, a Netherlands Antilles corporate shell owned by Fuad El-Hibri, a Lebanese Arab with joint German-U.S. citizenship; his father, Ibrihim El-Hibri; and possibly other undisclosed investors.

Prior to his taking over Porton Products, Fuad El-Hibri had worked in the mergers-and-acquisitions department of Citibank in Jeddah, Saudi Arabia, where he specialized in arranging investments for large Saudi investors. Saudi Arabia was then interested in obtaining an anthrax vaccine to counter Saddam Hussein's biological warfare capabilities. But the U.S. would not provide it.

When El-Hibri took over CAMR, he reorganized its bio-terrorism defense business, and arranged deliveries of biotech defense products to Saudi Arabia. El-Hibri was unavailable for comment, but his ownership is a matter of record, and he has not made a secret of his involvement in bio-warfare research. Indeed, in testimony before the U.S. Congress in 1999 he stated: "I participated in the marketing and distribution of substantial quantities of two bio-defense vaccines—botulinum type A and anthrax."

Even more intriguing, El-Hibri's interest in anthrax vaccines did not stop with CAMR. In 1998, he arranged a leveraged buyout of the Michigan Biological Products Institute (MBPI). Originally owned by the State of Michigan, MBPI held the exclusive contract for providing the U.S. government with anthrax vaccine. While its vaccine worked well against the Vollum strain of anthrax (held, among other strains, by Russia as a biological weapon), it was more problematic against the Ames strain. It had conducted tests with the virulent Ames strain on guinea pigs, mice, and monkeys with mixed results. A spokesperson for BioPort, the lab's new name, confirmed that it had access to the virulent Ames strain for testing on animals.

To take over MBPI, Fuad El-Hibri became an American citizen, and gave retired Admiral William J. Crowe Jr., a former Chairman of the Joint Chiefs of Staff, a large block of stock in Intervac, one of the corporations involved in the maneuver. The controlling shareholder was I&F Holdings, the same firm that took control of Britain's CAMR.

The renamed company, BioPort, which controlled America's anthrax vaccine, was apparently of some interest to scientists in Afghanistan. An environmental assessment report of its planned laboratory renovations was discovered in the home of a Pakistani scientist in Kabul. The Ames strain likely migrated that way to some Arab or Moslem countries, including Iraq.⁹¹

Yet, it was certainly not the only potential route; the other is the Soviet/Russian route. Vaguely, the Ames strain found its way to the former Soviet biological weapons program, and landed in some of its obscure facilities. The Soviets possessed the Ames strain, which was weaponized by them as one of several mixed virulent strains. Moreover, intelligence sources believe there was considerable cooperation, particularly in the 1980s and perhaps since, between Iraq and Russia's biological-warfare units. Some reports single out the Russian organization Biopreparat as being linked to Iraq.⁹² Further, UNSCOM expert Richard Spertzel noted that Iraq also tried to get the Ames strain from sources in Eastern Europe, as well as Africa.⁹³

The Spore Powder

Iraqi officials have admitted that they tried to weaponize anthrax, but say they were never able to produce the germ's powdered form. They claim to have had nothing to do with the sabotage conducted by the anthrax letters.⁹⁴

Notably, when Iraq denies something, the greater the probability of its truth, particularly when biological weapons are involved. In effect, the Iraqis researched both the dry powdered form of anthrax spores and the vegetative organism as offensive agents.⁹⁵ Even while being subjected, during the 1990s, to the most intense and intrusive outside inspection of a

regime in history, Iraq was able to upgrade its anthrax germ production from liquid slurry to simulant powders, milled into sizes readily respirable as a BWA, and to perform open air testing of the powder.⁹⁶

The anthrax spores delivered by letter were not characterized merely by their type (Ames strain) and sensitivity to antibiotics. The ongoing USAMRIID studies on the spores employed in the U.S. attacks involve examinations, using conventional microscopes and scanning electron microscopes, along with complex chemical analyses that are difficult to conduct, even when the bacteria in question are not dangerous. The results of those tests have not been made public except for two, though very significant, features:

- The spore particular in the Daschle letter (and probably others) measured 1½ to 3 microns in diameter—extremely small—a first requirement for making “weapons grade” anthrax spores for warfare or terrorism.
- A chemical component—bentonite (found by the U.S. Army Medical Research Institute for Infectious Diseases) and/or silica (found by the U.S. Armed Forces Institute of Pathology)—was revealed in the powder, added to eliminate electrostatic charges, thus preventing clumping of the particles, and affording the powder with remarkable dispersibility. Such additives, used in pharmaceutical powders all over the world, would make the anthrax float through the air and be inhaled more effectively. They have indeed been used by the U.S., the former USSR, and Iraq to weaponize anthrax.⁹⁷ At the same time, doubts persist as to the very existence of any detectable additive within the anthrax powder. In that case, the anthrax powder makers appear to have utilized some non-western super-technology, whether biological, chemical, or physical, to neutralize or prevent the electrostatic charges.

The Daschle letter spores looked “virtually identical” to those found in Iraq by UN weapons inspectors in 1994. In the 1980s, Baghdad purchased three dryers (at \$100,000 apiece) from the Danish subsidiary of a U.S. company, ostensibly for research purposes. In 1988 and 1989, Iraqi officials asked the Danish firm that manufactured the dryers to help identify companies that would sell silica (as well as two other drying agents, kaolin and maltodextrin). Iraq now has the ability to use the technology. UN inspectors found evidence that Baghdad had made a powdered aerosol of the closely related but harmless model germ, *Bacillus thuringiensis*, ostensibly as a bio-pesticide. Moreover, that bacterial powder was found at Al Hakam, Iraq’s main BW facility. UNSCOM’s Richard Spertzel was quick to add that the *B. thuringiensis* particles were too small for use as a bio-pesticide because they were so light. “They would just float away,” he said. “Nothing would stick to the plants.” Spores can be induced in various other ways. Iraq has developed an improved method, creating a preparation that is almost 100 percent spores. Spertzel noted that pure spore preparation is also an Iraqi trademark.⁹⁸

The bio-pesticide work was undoubtedly a dry run for the production of anthrax in a fine, powdered form. Specifically, the technique uncovered by UN inspectors in Iraq was a novel one-step process that involved drying spores in the presence of bentonite or silica powders.⁹⁹ Unsurprisingly, then, Britain's *Guardian* newspaper cited intelligence sources as saying that "Making such powder needs repeated washings in huge centrifuges, followed by intensive drying, which requires sealed environments."¹⁰⁰

Indeed, a high level of sophistication is needed for preparing a weapons-grade dry anthrax. As Alan Zelicoff, a senior scientist at the Sandia National Laboratories' Center for National Security and Arms Control put it illustratively: "The amount of energy needed to disperse the spores [by merely opening an envelope] was trivial, which is virtually diagnostic of achieving the appropriate powder." An imperceptible wisp of a breeze can send that powder across a room. Within the U.S. BW program, the process developed for anthrax upgrading during the 1960s was protected by at least five secret patents. It involved freeze drying and chemical processing, and was achieved without having to grow vast quantities of spores or mill them to extremely small dimensions. In its own, variant mode, Iraq didn't lag behind, though.¹⁰¹

Whether Iraq succeeded in forming an antibiotic-resistant anthrax strain is not clear, but it very likely did eventually obtain the Ames strain. And it succeeded in producing an airborne respirable powder of refined anthrax spores, bearing a high post-preservation recovery rate.

ANALYTICAL INDICATIONS

The supreme achievement of intelligence analysis, generally speaking, is the capacity to foresee. Yet, in certain cases the ability to produce retrospective inferential assessments is no less significant. The anthrax case falls into that category. Taking into account the information known so far, each of the four categories presented here contributes to an effective level of evidence. Their summation is, more than mere arithmetic, rather synergistic. Ostensibly, some segments of information indicate that the whole anthrax letters operation was merely domestic. Yet, based on the data categorized here, a sober inquiry may conceivably lead to a coherent set of evolving findings, as follows:

- (a) The chances of domestic U.S. installations running the biological, chemical, and physical technologies required for producing and upgrading anthrax powder, without being uncovered by now, are slim;
- (b) The chances of such installations being uncovered without publicity are slim; thus, it follows that the anthrax powder had to be produced and upgraded outside the United States.
- (c) The chances that the powder was produced and upgraded in, and then stolen from or provided by some non-Muslim nation to the saboteurs, are slim;

- (d) The chances that the powder was entirely produced and upgraded by a terror organization are also slim.

In addition, the temporal and spatial proximity of the anthrax letters to the airplane crashes may be interpreted, basically, in four main ways:

- (1) An American domestic terrorism element was “induced” by the airplane crashes, leading to the designing and preparing of the anthrax powder during the short period of time between the two events;
- (2) An American domestic terrorism element concomitantly, yet coincidentally, was intending and preparing to launch the anthrax attack;
- (3) An outside-U.S. terrorism element (supported by some country) concomitantly, yet coincidentally, was intending and preparing to launch the anthrax attack;
- (4) An outside-U.S. terrorism element (supported by some country) connected to, if not identical with, the saboteurs responsible for the airplane crashes, was also involved in the anthrax letters affair.

The fourth alternative emerges as being fairly acceptable. And indeed, FBI agents looking for the source of the anthrax letters sought to question scientists at the British defense installation Porton Down, considering that bulk quantities of the Ames strain were sent there in the mid-1980s because British scientists wanted to develop vaccines against the disease. By March 2002, FBI agents had already begun to contact at least four other laboratories around the world that had also been sent the Ames strain.¹⁰² After several months of abortive attempts to trace a completely domestic sequence of events, the FBI’s action provided a significant indication of a foreign source of anthrax. It follows, then, that the anthrax powder was manufactured in a Muslim state directly linked to the saboteurs.

Linkages

The anthrax saboteurs are now plausibly associated with the saboteurs involved in the 2001 WTC attack—due to the temporal proximity of the events—as well as to those in the 1993 WTC attack, taking into account the common denominator of challenging a new American President. (The two WTC attacks occurred shortly after the start of the first term in office of both President Bill Clinton and President George W. Bush). In 2001 the incentive for such a challenge could have been amplified by the fact that George W. Bush is the son—and informally, the ultimate successor—of a particularly bitter Saddam rival. (In 1993, soon after George H. W. Bush left the presidency, he was the target of an Iraqi assassination attempt.) It follows, too, that the planners and saboteurs were Muslims who were not permanent residents of the U.S.

Iraq and Sudan were both hit militarily by the U.S. during the 1990s in order to deprive them of their unconventional offensive capabilities, including weapons of mass destruction. They were thus provoked to

pursue retaliation, presumably through that kind of offensive capability, as well as through “conventional” means. Concomitantly, during that decade, al-Qaeda became the most hostile organization to the U.S. worldwide, seeking to afflict the U.S. as severely as possible, by whatever means of terror.

Primarily in Sudan—under the professional auspices of Iraq—and later, most likely, in Iraq as well, the Sudanese, and to some extent members of al-Qaeda, absorbed know-how concerning biological warfare agents. Sudan thus turned out to be a state striving to acquire and upgrade domestically produced biological weapons, while al-Qaeda concurrently made its acquaintance with—and effectively pursued—biological weapons suitable for sabotage acts. The banding together of those three elements (Iraq, Sudan, al-Qaeda) to seriously harm the United States, through the use of biological agents, was more—in effect, much more—probable than any other conjunction. Strong bonds between bin Laden and Iraq were indeed formed in Sudan.

Yet, a parallel conjunction, led by Iraq and aimed at the conducting of a grand conventional terrorism operation against the U.S. is not less likely. In various aspects it is compatible with the paradigm presented here. Thus, the chances that the meticulous planning of the airplane crashes was not an outcome of state-worked-out intelligence are slim. The chances that the concerned state is not Muslim are slim. The chances that the Iraqi involvement in the contacts that preceded the crashes was incidental are slim. The chances that the contemporary presence of multinational Muslim training saboteurs, Iraqi terrorism instructors, a Boeing airplane model, and a bio-chemical warfare agent facility within one particular, ultimately intelligence-controlled Iraqi site (Salman-Pak) is meaningless, are slim.

Iraq's Rationale

Iraq, specifically, has exhibited outstanding affinity to anthrax as a biological warfare agent, equaling one state only worldwide—the USSR/Russia. Also, Iraq has fully mastered the technologies required for preparing upgraded anthrax powder. Having had remarkable experience with a vast array of chemical and biological warfare agents, including, notably, certain terrorist applications, anthrax appears to be Iraq's favorite, for now. The actual use of anthrax by Iraq for bio-terrorism purposes (at least) had become just a matter of time.

Assuming that Iraq did procure the Ames strain, would it choose that strain, or possibly another one, to conduct bio-terrorism against the United States? The Ames strain would apparently be preferred, taking into consideration both its remarkable virulence and blurring capacity, because its origin would seem to be from within the U.S. In conducting an act of bio-terrorism against the U.S., Iraq would reasonably make an effort to mask, rather than manifest, its involvement.

Thus, it may be concluded that the anthrax germs were originally produced and upgraded in some country very hostile to the United States. The two likeliest are Iraq and Sudan because they have a very strong incentive for revenge. Beyond that prime motive, they are the most plausible candidates for carrying out revenge through anthrax letters, both a priori, and certainly in retrospect. And, they definitely possess the appropriate technological infrastructures for preparing the spore powder. Many independent sources indicate that such preparation took place within the time frame derived from the spore powder analysis, namely the past two years.

The inference that Iraq alone, or together with al-Qaeda and/or Sudan, has been involved in the anthrax letters is not just a possibility. Rather, the plausibility of its involvement appears much more appreciable than any alternative. Beyond the relative likelihood, there is considerable probability in absolute terms. This actually constitutes the very core of the matter: with the anthrax letters, the bioterrorism that was conducted clandestinely could have been anticipated, and, at least in retrospect, may now be recognized as under Iraqi sponsorship.

Referring to a secret unit recently set up by the Pentagon to scan years of highly classified intelligence reports and bring out the links between Iraq and al-Qaeda, a Bush administration official very correctly accentuated the purpose of analysis rather than compilation.¹⁰³ But any clandestine involvement by Iraq would be difficult to trace. Or, as Dr. Magnus Ranstorp at the Center for the Study of Terrorism and Political Violence, St. Andrews University, Scotland, put it: "Iraq may have fought, using terrorism as the ultimate fifth column, to counter U.S. sanctions and bombing. Plausible deniability is something Iraq... would want to ensure, putting layer upon layer to hide their role."¹⁰⁴

COMPETING ANALYSES

Concurrently, two American women, Dr. Laurie Mylroie and Dr. Barbara Hatch Rosenberg, are deeply involved in judging the anthrax letters affair, pushing in opposite directions. While Mylroie is convinced that Iraq was a key factor in launching a bio-terror attack, Rosenberg firmly maintains that the attack was initiated and conducted entirely from within the United States by an American scientist. To a considerable extent, they anchor the public debate of two schools of thought. But in its very essence, it is a perfect, even cardinal, intelligence issue, bearing far-reaching strategic and political implications. Dr. Mylroie relies on some of the significant segments of information detailed here. Dr. Rosenberg argues that a frustrated, unbalanced American scientist, Dr. Paul Hatfill, a specialist in anthrax who was dismissed from the U.S. Medical Research Institute for Infectious Diseases at Fort Detrick, and is presently working

for a Washington-area subcontractor to the U.S. biological weapons program, is the perpetrator. According to her hypothesis, the perpetrator's objectives were to manifest his professional skill, and to demonstrate the potency of the biological threat.¹⁰⁵ In that case, the perpetrator must be somebody who individually applied a non-American super-technology for attaining the extraordinary floating anthrax powder that was contained, in effect, within the anthrax letters. If Rosenberg is correct, the FBI is facing an intelligence puzzle that ought to be deciphered expediently, there being no foreign involvement. Inversely, if Mylroie is right, then the CIA and Defense Intelligence Agency (DIA) are challenged to soundly trace the external roots of that bio-terrorism attack, which, too, may be regarded, unquestionably, as an act of war, with its full consequences. A peculiar merger of those two alternatives, fed by an extraneous anthrax powder, is also feasible, by taking into account various alliances between extreme right-wingers situated in the West, Islamic fundamentalists, and Iraq.¹⁰⁶

In the meantime, FBI Director Robert S. Mueller told a congressional committee that "investigators had not excluded any possibility, including foreign terrorists."¹⁰⁷ CIA Director George Tenet has testified that Iraq and al-Qaeda have "had contacts," and that "tactical cooperation between them is possible."¹⁰⁸ Those statements are far from adequate, and obviously do not bring out the enormous amount of classified information already gathered. Yet, they are not necessarily inconsistent with the common knowledge within the intelligence community.

Still, a recent statement by Richard Perle, chairman of the Defense Policy Board, resonates:

It is likely that biological and chemical weapons in the possession of the Iraqis are now being disseminated to terrorists. I don't see how we can ignore those connections. . . . The easiest thing for intelligence organizations to do is unconsciously slip into a world-view that becomes a filter that causes you either not to look, or even when you see, to ignore and fail to register information inconsistent with that world-view. And it has been the view of the intelligence establishment for a long time now that Saddam, who is secular and not a religious fanatic like Osama bin Laden, behaves in a manner different from the terrorists.¹⁰⁹

ALERTNESS REQUIRED

What might be the next act of sabotage by means of weapons of mass destruction? The threat is, indeed, growing in many ways.¹¹⁰ The next act could still be based on a non-epidemic biological agent, like anthrax, but differently disseminated, for instance through grand, self-conveying systems (i.e., inside a vast, homogeneous, closed system—an immensely anthrax-vulnerable target), such as drinking water systems, food circulating

systems, ventilation systems, subway systems, etc. It could also be a genetically engineered anthrax strain, not at all affected by antibiotics. Or it could be—unlike the noncontagious germ causing anthrax—an epidemic biological warfare agent of an immeasurably dreadful potential, like pneumonic plague or smallpox.

Or an eco-terrorism biological agent against farm animals or crops. (Notably, the origin of the epidemic foot and mouth disease virus that catastrophically afflicted Britain and parts of Europe last year has not been determined, and suspicions have been raised as to whether this deadly, contagious virus was introduced into Britain by Iraq in an act of bio-terrorism.¹¹) Or an extremely toxic chemical agent, like VX, that penetrates the body through both intact skin or inhaled air. Or a radioactive substance disseminated through a self-conveying system, or a mini nuclear bomb.

The order of probabilities underlying this set of possibilities mandates skilled intelligence analysis and foreseeing the willingness of an antagonistic nation to utilize its capacity to launch this kind of assault. Also required is a high degree of alertness by nations likely to be targets of such an attack.

REFERENCES

- ¹ G. M. Burck and C. C. Flowerree, *International Handbook on Chemical Weapons Proliferation* (Westport, Ct.: Greenwood Press, 1991), p. 90.
- ² Dany Shoham, "The Chemical and Biological Threat to Israel," in *Ballistic Missiles: The Threat and the Response*, Arieh Stav, ed. (London: Brassey's, 1999), pp. 124–148.
- ³ Rod Barton, "The Application of the UNSCOM Experience to International Biological Arms Control," *Critical Reviews in Microbiology*, Vol. 24, No. 219, 1988.
- ⁴ James Kitfield, "Next Stop—Baghdad?," *National Journal*, 12 October 2001.
- ⁵ C. Seelos, "Lessons From Iraq's Bioweapons," *Nature*, No. 398, 1999, p. 187.
- ⁶ Chris Hedges, "The School Defectors Cite Iraqi Training for Terrorism," *The New York Times*, 8 November 2001, p. A1.
- ⁷ *Ha'aretz* (Israel), 28 December 2001, p. 6.
- ⁸ Jessica Berry, "Saddam Has Germ Warfare Arsenal, Says Defecting Physicist," *Sunday Telegraph* (UK), 30 September 2001.
- ⁹ Khidhir Hamza, "The Dirty Secret of 'Dirty Bombs,'" *The Wall Street Journal*, 12 June 2002.
- ¹⁰ Claudio Gatti, "Ekeus Warns Bin Ladin, Saddam Seeking Tactical Anti-U.S. Pact," *Mile Il Sole-24* (Italian daily), in Italian, 26 October 2001, p. 5. Interview with Rolf Ekeus, OSCE High Commissioner for Ethnic Minorities. [Foreign Broadcast Information Service (FBIS) translated text]

- ¹¹ Interview with Rod Barton, *The New York Times*, 26 February 1998.
- ¹² Claudio Gatti, "In Rome, A 'Bridge' Between Iraq and Terrorists," *Milan Il Sole-24*, Internet version—World Wide Web, 24 October 2001, FBIS translated text.
- ¹³ Ibid.
- ¹⁴ Chris Griffith, "Unholy Trinity in Chemical Weapons Pact," *The Courier Mail*, Brisbane, Australia, 24 September 2001.
- ¹⁵ Peter Eisler, "U.S. Officials Question Link Between 9/11 and Iraq," *USA Today*, 3 December 2001.
- ¹⁶ Rahimullah Yusufzai, "Conversation With Terror," *Time*, 11 January 1999.
- ¹⁷ A. J. Venter, "New-Era Threat: Iraq's Biological Weapons," *Middle East Policy*, No. 6, 1999, p. 104.
- ¹⁸ Dany Shoham, "The Chemical and Biological Threat to Israel," pp. 124–148.
- ¹⁹ G. M. Burck and C. C. Flowerree, op. cit., p. 36.
- ²⁰ J. D. Simon, *Terrorism and the Potential Use of BW*, RAND Corporation, IC-R-3771, December 1989, p. 9.
- ²¹ Dany Shoham, "Chemical and Biological Terrorism: The Middle East as an Arena and a Threat," *Proceedings of the XIIth International Conference of Academies of Sciences and National Scientific Societies on Problems of Global Security*, Mainz, Germany, October 1999, pp. 324–351.
- ²² G. M. Burck and C. C. Flowerree, op. cit., p. 90.
- ²³ Dany Shoham, "Iraq's Biological Warfare Agents: A Comprehensive Analysis," *Critical Reviews in Microbiology*, Vol. 26, No. 3, September 2000, pp. 179–204.
- ²⁴ M. Colvin and U. Mahnaimi, "Saddam Tested Anthrax and Camel Pox on Human Guinea Pigs," *The Sunday Times* (London), 18 January 1998, p. 1.
- ²⁵ Keith Phucas, "Iraq Linked to Past Attacks," *The Times Herald*, Philadelphia/Norristown, Pennsylvania, 22 October 2001, p. 1.
- ²⁶ Ibid.
- ²⁷ "Foreign Terrorists in America: Five Years After the World Trade Center [1993]," Statement of Dale Watson, Chief, International Terrorism Section, National Security Division, Federal Bureau of Investigation, before the United States Senate Committee on the Judiciary, Subcommittee on Technology, Terrorism and Governmental Information, 24 February 1998, <http://www.fbi.gov/congress/terror.html>.
- ²⁸ James Kitfield, "Next Stop—Baghdad?"
- ²⁹ Keith Phucas, "Iraq Linked to Past Attacks."
- ³⁰ Dany Shoham, "Iraq's Biological Warfare Agents: A Comprehensive Analysis."
- ³¹ British Television, 4th Channel, 30 January 1991.
- ³² "Did the Anthrax Come From Iraq?" *Sunday Times* (London), 21 October 2001.

- ³³ A. H. Al-Dabbas et al., "Immunizing Activity of Oil Adjuvant Attenuated Spore Vaccine of Bacillus Anthracis in Sheep," *Journal of Veterinary Medicine B*, No. 33, 1986, p. 340.
- ³⁴ Colum Lynch, "Anthrax Type That Killed May Have Reached Iraq: Baghdad's Bid to Obtain Microbe Fuels Suspicions," *The Washington Post*, 25 November 2001, p. A12.
- ³⁵ A. J. Venter, "Missing in Iraq: The UN Charts Saddam's Lethal Inventory," *Jane's International Defense Review*, No. 5, 1999, p. 34.
- ³⁶ UNSCOM Periodical Report, 25 January 1999 (Current e-mail notifications on Iraq; by Laurie Mylroie<sam11@erols.com>).
- ³⁷ S. Bhatia, "Iraqi Scientist Tells 10-Year Secret," *Observer* (London), 9 August 1992, p. 1.
- ³⁸ S. S. Al-Dulaimy, "Anthrax Meningitis," translated, *Royal Society of Tropical Medical Hygiene*, No. 72, 1978, p. 315; A. H. Al-Dabbas and G. L. Sharma, "An Epizootic of Cutaneous Anthrax in Donkeys, Horses, Cattle, and Buffaloes in Southern Iraq," *Indian Veterinary Journal*, No. 58, 1981, p. 1; A. H. Al-Dabbas, et al., "Immunizing Activity of Oil Adjuvant Attenuated Spore Vaccine of Bacillus Anthracis in Sheep," p. 340; A. M. Al-Shawi and G. M. Al-Khatib, "Comparative Study of the Locally Produced Anthrax Vaccine With Three Suggested Vaccines," *Journal of Biological Sciences Research*, No. 17, 1986, p. 1; S. A. Al-Hiti, "Study on Toxin Production of Bacillus Anthracis and its Efficiency in Immunization," M. Sc. thesis, Baghdad University, 1986.
- ³⁹ "Did the Anthrax Come From Iraq?," *Sunday Times* (London).
- ⁴⁰ P. Zurer, "Army Efforts Against Biological Weapons Rapped," *Chemical Engineering News*, No. 69, 1991, p. 6; United States Department of Defense, *Conduct of Persian Gulf War—Final Report to Congress*, April 1992, p. 64; Interview by Jonathan B. Tucker with Captain Lawrence Seaquist, former special coordinator for counterproliferation, Office of the Secretary of Defense/Policy, U.S. Department of Defense, 29 March 1993; Rick Atkinson, *Crusade: The Untold Story of the Persian Gulf War* (Boston: Houghton Mifflin, 1993), p. 90.
- ⁴¹ S. Bhatia, "Iraqi Scientist Tells 10-Year Secret."
- ⁴² Ibid.
- ⁴³ D. Charles, "Iraq Admits to Growing Deadly Biological Arsenal," *The New Scientist*, No. 131, 24 August 1991, p. 12.
- ⁴⁴ Ibid.
- ⁴⁵ M. Colvin and U. Mahnaimi, "Saddam Tested Anthrax and Camel Pox on Human Guinea Pigs."
- ⁴⁶ United Nations, *Report of the Secretary General on Iraq's Compliance With Security Council Resolution 678*, 11 October 1995, pp. 19–31.
- ⁴⁷ Ibid.
- ⁴⁸ W. Dowell and B. van Vurst, "World News," *Time*, 1 October 1990, p. 14.

- ⁴⁹ “About the Iraqi Super-gun,” *The Independent*, 24 February 1995, p. 3.
- ⁵⁰ Interview with Rod Barton, *The New York Times*.
- ⁵¹ Interview with General Waffiq Al-Sammarai, *Sunday Times* (London), 19 February 1995, p. 7; J. A. F. Compton, “UNSCOM Odyssey: The Search for Saddam’s Biological Arsenal,” *Jane’s Intelligence Review*, March 1998, p. 16.
- ⁵² BBC News, 21 January 1998.
- ⁵³ *Iraq News*, 21 December 1998.
- ⁵⁴ Middle East Newline, Area News, Washington, 14 September 2001.
- ⁵⁵ F. M. Salih, “Radiosensitization of *Bacillus Megaterium* Spores by Combination of Oxygen and Misonidazole” *Journal of Radiation Research*, No. 25, 1984, p. 160.
- ⁵⁶ Z. H. Mohsen et al., “Midgut Histopathology in *Culex* sp. Treated With *Bacillus Thuringiensis* and *Bacillus Sphaericus*,” *Journal of Biological Sciences Research*, No. 18, 1987, p. 219.
- ⁵⁷ F. M. Salih et al., “Prediction of Growth of *Bacillus Pumillus* as Affected by Spore Load and Chlorhexidine Acetate Concentration,” *Journal of Food Safety*, No. 9, 1988, p. 73.
- ⁵⁸ Z. H. Mohsen et al., “Midgut Histopathology in *Culex* sp . . .”
- ⁵⁹ M. A. Al-Shaickly et al., “Gamma UV and UV Gamma Radiation Interaction in *Bacillus Subtilis*,” *Iraqi Journal of Science*, No. 30, 1989, p. 643.
- ⁶⁰ F. M. Salih et al., “prediction of Growth of *Bacillus Pumillus* . . .”
- ⁶¹ A. A. Al-Sulami et al., “Effects of Sub-atmospheric Pressure and Oxygen on Growth and Sporulation of Bacteria,” *Proceedings of International Conference on Infectious Diseases*, 1986, p. 230, abstract at pp. 2–5.
- ⁶² M. A. S. Al-Shaickly et al., “Gamma UV and UV Gamma Radiation Interaction in *Bacillus Subtilis*.”
- ⁶³ UNSCOM Periodical Report, 11 October 1995 (Current e-mail notification on Iraq; by Laurie Mylroie<sam11@erols.com>).
- ⁶⁴ J. A. F. Compton, “UNSCOM Odyssey: The Search for Saddam’s Biological Arsenal.”
- ⁶⁵ Dany Shoham, “Chemical/Biological Terrorism: An Intensifying Profile of an Unconventional Threat,” *Policy Papers 43*, Ariel Center for Policy Research, (Israel: ACPR Publishers, 1998), pp. 1–34.
- ⁶⁶ *Yediot Aharonot*, Israel, 10 October 1994.
- ⁶⁷ *Ma’ariv*, Israel, 22 February 1998.
- ⁶⁸ BBC News, 23 March 1998.
- ⁶⁹ Khalid Sharaf-al-Din, “Bin-Laden Men Reportedly Possess Biological Weapons,” *Al-Sharaq al-Awsat*, 6 March 1999 (FBIS document ID: FTS 19990306000273).
- ⁷⁰ Gavin Cameron, “Multi-track Microproliferation: Lessons From Aum Shinrikyo and al-Qaeda,” *Studies in Conflict and Terrorism*, No. 22, 1999, pp. 227–309.

- ⁷¹ *Australian Business Intelligence*, 4 June 2000.
- ⁷² Michael R. Gordon, "U.S. Says It Found Qaeda Lab Being Built to Produce Anthrax," *The New York Times*, 23 March 2002.
- ⁷³ Scott Peterson, "Former Smuggler Describes Iraqi Plot to Attack U.S.," *Christian Science Monitor Service*, 3 April 2002.
- ⁷⁴ Peter Eisler, "U.S. Officials Question Link Between 9/11 and Iraq."
- ⁷⁵ Frank Griffiths, "Czech UN Envoy Confirms Terrorist Meeting," *The Prague Post*, Czech Republic, 5 June 2002.
- ⁷⁶ Edward Jay Epstein, "FBI on Wrong Trail in Anthrax Investigation," Laurie Mylroie<sam11@erols.com>, 29 June 2002.
- ⁷⁷ "Status of the Anthrax Investigation," Center for Nonproliferation Studies, Monterey Institute of International Studies, *Congressional Record Weekly Update*, 17–21 June 2002.
- ⁷⁸ "The Anthrax Source—Is Iraq Unleashing Biological Weapons on America?," *Review Outlook*, 15 October 2001.
- ⁷⁹ Paul Wolfowitz, Deputy Secretary of Defense, Remarks, delivered at American Institute of Aeronautics and Astronautics, Ronald Reagan Building and International Trade Center, Washington, DC, 19 February 2002. (Transcript courtesy of the Department of Defense/Jim Longley.)
- ⁸⁰ "Troubling Anthrax Additive Found," ABC News, 26 October 2001.
- ⁸¹ "Czechs Say Atta Met Iraqi Agent in Prague," Reuters, Prague, 26 October 2001. By mid-October 2002, controversy over the occurrence of the Atta–Iraqi meeting flared again when the *New York Times* reported that Czech President Vaclav Havel had told U.S. officials in Washington that "he has concluded that there is no evidence to confirm earlier reports" that Atta had met al-Ani, and that "Mr. Havel [had] discreetly called Washington to tell senior Bush administration officials that an initial report from the Czech domestic intelligence agency . . . could not be substantiated." James Risen, "Prague Discounts An Iraqi Meeting: Havel Urged U.S. to Disregard Reports on 9/11 Hijacker," *The New York Times*, 21 October 2002, p. A1. Two days later, in a much smaller article, the *Times* had to report that Mr. Havel's spokesman, Lidislav Spacek, had issued a statement on 22 October denying the story, saying: "The president did not call the White House about this. The president never spoke with any American government official about Atta, not with Bush, not with anyone else." See Peter S. Green, "Havel Denies Telephoning U.S. On Iraq Meeting," *The New York Times*, 23 October 2002, p. A11. But, in either deliberate, even arrogant, dismissal of Havel's denial statement, or as a startling example of internal crossed wires between the paper's management and reporting sections, the *Times* that same day nevertheless ran a major editorial citing its earlier report about the call and ignoring Havel's denial. "The Illusory Prague Connection," *The New York Times*, 23 October 2002, p. A22.

- ⁸² William J. Broad and David Johnston, "Report Linking Anthrax and Hijackers is Investigated," *The New York Times*, 23 March 2002.
- ⁸³ Saad Farage, "Comprehensive Policy Toward Iraq," *The Iraqi Activist*, 11 October 2001.
- ⁸⁴ "Status of the Anthrax Investigation," Center for Nonproliferation Studies.
- ⁸⁵ Rick Weiss and Dan Eggen, "Additive Made Spores Deadlier," *The Washington Post*, 25 October 2001, p. A1.
- ⁸⁶ "Status of the Anthrax Investigation," Center for Nonproliferation Studies.
- ⁸⁷ David Rose and Ed Vulliamy, "Iraq Behind U.S. Anthrax Outbreaks," *The Observer* (London), 14 October 2001.
- ⁸⁸ *Proceedings of the International Workshop on Anthrax*, Winchester, England, 11–13 April 1989, pp. 10–13.
- ⁸⁹ Colum Lynch, "Anthrax Type That Killed May Have Reached Iraq."
- ⁹⁰ Edward Jay Epstein, "Spore War—FBI Overlooks Foreign Sources of Anthrax," *The Wall Street Journal*, 24 December 2001.
- ⁹¹ Ibid.
- ⁹² Stephen Bryen, "Iraq's Threat—What Do We Know About Their Biological and Chemical Weapons?," *National Review Online*, 3 January 2002.
- ⁹³ John Lancaster and Justin Blum, "As Capitol Reopens, Anthrax Case Revives Concerns About Spores' Potency," *The Washington Post*, 22 October 2001, p. A1.
- ⁹⁴ Stephen Fidler, Roula Khalaf, and Carola Hoyos, "US to Press UN Over Iraqi Weapon Inspections," *The Financial Times* (London), 4 November 2001.
- ⁹⁵ United States Department of Defense, "Newly Disclosed Iraqi Biological Warfare Program," declassified document, released 30 October 1997, available at <http://www.gulfink.osd.mil>
- ⁹⁶ M. Dando, "The Impact of the Development of Modern Biology and Medicine on the Evolution of Offensive Biological Warfare Programs in the Twentieth Century," *Defense Analysis*, No. 15, 1999, p. 43.
- ⁹⁷ Rick Weiss and Dan Eggen, "Additive Made Spores Deadlier."
- ⁹⁸ "Spores, Additives Raise Iraq Questions," ABC News, 1 November 2001.
- ⁹⁹ Robert L. Bartley, "Anthrax: the Elephant in the Room," *The Wall Street Journal*, 29 October 2001.
- ¹⁰⁰ "The Anthrax Source—Is Iraq Unleashing Biological Weapons on America?," *Review & Outlook*.
- ¹⁰¹ Rick Weiss and Dan Eggen, "Additive Made Spores Deadlier."
- ¹⁰² *The Sunday Telegraph* (London), 31 March 2002.
- ¹⁰³ Rowan Scarborough, "U.S. Seeks al-Qaeda Link to Iraq," *The Washington Times*, 14 January 2002.
- ¹⁰⁴ Scott Peterson, "Former Smuggler Describes Iraqi Plot to Attack U.S."
- ¹⁰⁵ Nicholas Lemann, "The Anthrax Culprit," *The New Yorker*, 18 March 2002.

- ¹⁰⁶ Yael Haran, "A Terrifying Alliance," *The Jerusalem Report*, 9 January 2002, p. 30.
- ¹⁰⁷ *The Baltimore Sun*, 29 April 2002.
- ¹⁰⁸ Robert L. Bartley, *The Wall Street Journal*, Laurie Mylroie at <sam11@erols.com>.
- ¹⁰⁹ "Saddam's Ultimate Solution," PBS "Wide Angle" documentary, 12 July 2002. <http://www.pbs.org/wnet/wideangle/shows/saddam/index.html>
- ¹¹⁰ Dany Shoham, "Chemical/Biological Terrorism: An Old, But Growing Threat in the Middle East and Elsewhere," *Politics and the Life Sciences*, September 1996, pp. 218–219.
- ¹¹¹ Steve Russell, "Foot and Mouth Disease: A Harbinger of Biogenetic War and Eco-terrorism," Reuters, 16 May 2001, on YOWUSA.com, 3 June 2001.