

Bioterrorist Activities in the Middle East/Gulf, the European Union and the United States

A Critical Review of the U.S.-dominated Literature Ranging from Super/Mega- to Low-tech/Amateurish Terrorism

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Why have biological weapons (BW) not been widely used by terrorists? This longitudinal study takes a new look at this old question. It looks again at the almost forgotten initial comprehensive work on “Superviolence” 1972. It questions the main thesis of the Harvard/Belfer Center volume “America’s Achilles’ Heel” (1998) written in the shadow of the ‘bio-chem clouds’ of the lethal Tokyo incidents of 1995, which opened a new area in terrorism and research on this subject. Finally, it scrutinizes the writings of prominent and productive terrorist researchers Jeffrey D. Simon and Gary A. Ackerman especially closely. Here, the EXTENDED POLICY FORUM 2021/22 focuses on those authors’ dubious “concept” of the “super-empowered individual.”

This so-called “concept” is conflated with the BW threat, especially that posed by jihadist terrorists (groups and Lone Wolves [LWJ]) in view of the paucity of serious BW incidents in order to drive the discourse on bioterrorism forward. With this objective in mind, Ackerman, despite his impressive merits, has used methods of hyping which violate basic academic rules and standards. See the in-depth summary at the end of this EXTENDED POLICY FORUM which includes the proponents of an anti-superterrorism approach with a focus on conventional weapons used by jihadist terrorists and empirically supported by EUROPOL’s annual reports (European Union Agency for Law Enforcement Cooperation). Have we already entered a new phase of jihadist terrorism characterized by a modified pre-1995 Brian Jenkin’s principle, namely that those terrorists want to see a lot of people suffer by killing a few exclusively with conventional means? – Any comments on this controversial topic in its digital version are very welcome.

Part I: Laying the Ground – The Design and Consensus in the Literature

The Objectives and Structure of This EXTENDED POLICY FORUM Issue

Equating the Middle East/Gulf with unspecified terrorism and the wide range of weapons and lethal materials/agents has indeed become a “nearly indelible feature of contemporary public perceptions and high-level policy discourse on terrorism” (Morris/LaFree/Karlidag, 2021: 154) – it does not matter whether the focus is solely on the Middle East/Gulf states or whether this entity is understood as the nucleus of the Broader Middle East encompassing Afghanistan, Pakistan and North Africa (MENA). This stereotyped view applies both to developments within the region and the ‘export’ of terrorism to other regions such as Europe and the United States.

Its twofold focus on biological materials/ weapons concerning mostly sub-state/ hybrid terrorism in the Middle East/Gulf provides the substantive, actor-related and geographical lenses through which this longitudinal EXTENDED POLICY FORUM issue narrows down the relevant Western, that is, predominantly U.S., literature from

the early 1970s to the present. I will not only concentrate on the region and the bioterrorist issue in this way but advance considerable evidence for correcting and concretizing the dominant, albeit inadequate, Western perception: It regards the construction of unproven connections between biological agents/materials and weapons on the one hand and terrorism on the other in the Middle East/Gulf.

To endorse a central finding of the research presented in this issue of the EXTENDED POLICY FORUM 2021/22 right at the outset: Despite enormous efforts by well-equipped actors, the record of bioterrorism throughout the 20th and so far in the 21st century has luckily been of little significance. This is mainly due to the enormously high techno-scientific hurdles. “Only” five fatalities were inflicted by one highly specialized microbiologist working at the U.S. Army Medical Research Institute for Infectious Diseases at Fort Detrick in Frederick/MD who had access to pathogenic strains – and not, “as so many had assumed, some Islamic terrorist” (Osterholm/Olshaker, 2020: 127). It was Dr. Bruce Ivins who in the fall of 2001 sent lethal letters containing anthrax spores to members of Congress and major news and media outlets.

Against this backdrop, this review of the literature is a new attempt to tackle a research question which has been asked from time to time: “Why Have Biological Weapons *Not* Been Widely Used by Ter-

rorists?” (OTA, 1992: 39 – bold in original with my italics)¹ This research perspective is associated with a programmatic approach considerably different from academic endeavors that are guided by the question why BW *have* been used – even if almost all experts agree that this has been rarely done. Nonetheless, a considerable number of terrorism researchers working on this premise have continuously implied in their publications that the menace has been constantly rising and that BW attacks are in principle only a matter of time.

Although it would be foolish to pretend that such incidents could never occur, the approach favored here takes account of the sparse record of bioterrorism, and especially of the trend in recent years toward the use of simple conventional weapons by jihadists, on whom this critical review of the literature focuses. This explains why my research question, although it deals mainly with BW, puts these means of violence into perspective by including conventional weapons.

It is time to provide a new look at the issue in order to challenge assertions of a rising BW threat emanating also from the Middle East/Gulf. These positions and the assumptions associated with them have been put forward from decade to decade, but which have *so far* not become reality. In the following I will be making the case that the approach incorporates a number of new elements that must be considered, such as the opposite poles of superterrorism and



low-tech/amateurish terrorism (which are usually dealt with in separate publications).

As a structuring principle, the central research question in this EXTENDED POLICY FORUM issue will be examined in the broader context of the academic debate on CBRN-related terrorism (chemical, biological, radiological and nuclear weapons) with the emphasis on the 'B' or biological element; the debate is characterized by two competing threads: so-called scientific-technical super (or mega)terrorism vs. low-tech/amateurish terrorism, the latter also characterized by "Poor Tradecraft" (Kenney, 2010: 911 – original quotation in bold).

Between these poles there exist two groups/'camps' of academics/experts and their colleagues in the political realm involve two specific mindsets:

First is the relatively heterogeneous group of *alarmists/most concerned* analysts, whose mindset will be examined in terms of the plausibility and soundness of their arguments/assessments and the validity of their forecasts/scenarios. Their thinking is strikingly linear and consists of preconceived and inflexible features. While they acknowledge the sparse record of attacks with biological weapons, they nevertheless draw pessimistic conclusions regarding the future trend. This group emphasizes that CBRN threats lend themselves *in principle* to exaggeration/hype (with the "super-empowered individual" as a specific label) when it comes to trends, predictions and the characterization of terrorists including their intent and capability. A variant of this group involves the *moderate/concerned* analysts who provide more differentiate analyses including the rejection of grim, seemingly precise scenarios concerning BW attacks.

Second is the group of *more cautious and sober* experts whose mindset can best be characterized as involving more realistic reality checks and prudent conclusions drawn from the sparse record. Examining relevant trends and factors and observable changes in an intellectually more flexible (and in fact more adequate) way, this group focuses on conventional (non-CBRN) – in

fact unsophisticated – weaponry such as homemade improvised explosive devices (IED) and bladed weapons (e.g., knives) when it comes to portraying terrorists. Here, the crucial relationship between intent and capability is usually seen as involving a gap.

Both variants of terrorism and the two expert groups associated with them will be concretized in two ways in this EXTENDED POLICY FORUM issue, with its longitudinal design and its specific focus on the undifferentiated perception of the complex Middle East/Gulf in the Western academic literature:

- *First*, there is a broad range of actors from non-Jihadist Lone Wolves (LW) and small groups, mostly in the United States, extending back to the 1970s, including the Aum Shinrikyo sect in Japan as well as organizations such as al-Qaeda and Islamic State (IS) in Syria and Iraq (IS/ISIS – my preference – or Daesh/Islamic State in Iraq and the Levante (ISIL)). Contrary to the overall prejudice against the inhabitants of the Middle East/Gulf region, they have not committed any kind of BW attack. This applies both to the pre-Aum Shinrikyo phase before 1995 and to the 2001 anthrax letters in the wake of the September 11, 2001 terrorist attacks by conventional means. Despite their strong intent and interest as well as their partly fine-tuned strategies for procuring, building and using biological agents in order to carry out mass murder leading to tens of thousands of casualties, those actors have fortunately not been "successful," as the historical record on bioterrorism since the 1970s shows. Luckily, the fears, predictions and scenarios of the group of *alarmists/most concerned* analysts have so far not become reality.

Nevertheless, in addition to the jihadist organizations al-Qaeda and IS/ISIS, the Broader Middle East/Gulf, encompassing especially Afghanistan and Pakistan, must be considered, as well as the Gulf area, specifically Iraq and Yemen – not at a government/

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» *Two more recent trends are associated with the increased relevance of jihadist terrorists: the use of less sophisticated conventional weaponry and, here again, the fortunately exceptional role of biological weapons as an element of CBRN threats. Both developments have been empirically documented over the years among others by EUROPOL's annual "EU Terrorism Situation and Trend" ("TE-SAT") reports.* «

national level but in terms of the area where sub-state entities (especially Al-Qaeda in the Arabian Peninsula) or hybrid (IS/ISIS) actors plan and conduct their operations, affecting Western countries in one way or another ('hybrid is understood here as involving a *quasi*-state entity in terms of its structure and the territory controlled). The literature examined here is silent on the 'B' element when it comes to the overall relationship between the Middle East/Gulf countries and Western states.² This study is not about the domestic policies on terrorism of the states in the Middle East/Gulf (see on this Josua, 2021). Mainly for illustrative reasons, I will provide an overview of the features and development of purely conventional terrorist attacks in 18 Middle East/Gulf countries as part of the sparse record of BW attacks (see below).

- *Second*, with respect to the growing importance of Lone Wolf Jihadists/small cells (a "two-pack" of Lone Wolves) since around 2010, the Middle East now appears in a different light: Based in a Middle East/Gulf country (often difficult to identify), jihadist terrorists have increasingly assumed the role of instructors to motivate and supervise sympathizers in the West in carrying out attacks.

Two more recent trends are associated with the increased relevance of jihadist terrorists: the use of less sophisticated conventional weaponry and, here again, the fortunately exceptional role of biological weapons as an element of CBRN threats. Both developments have been empirically documented over the years among others by EUROPOL's annual "EU Terrorism Situation and Trend" ("TE-SAT") reports. *It goes without saying that there is no reason whatsoever to belittle the terrible impact of Lone Wolves/small cells using conventional means – every person who perishes from such attacks counts and is one fatality too many.*

By concretizing and correcting the inadequate perception in the relevant BW-related literature regarding terrorism orig-

inating in the Middle East/Gulf, my contribution aims at providing a new view – and thus overcoming "something of an "interpretative impasse." This deficit was accurately identified almost two decades ago by a leading and prolific researcher on terrorism, Gary Ackerman (2005: 140). To be sure, research in this area has been enriched, not least by contributions using quantitative methods which in part have been made possible by the impressive "Profiles of Incidents involving CBRN and Non-State Actors" (POICN) database developed by Ackerman and colleagues at the National Consortium for the Study of Terrorism and Responses to Terrorism (START). Although it has provided additional relevant data (see below), POICN did not change the fortunate fact that has already been mentioned, was true in 2005, and still is: that we have "not experience[d] any major attacks." In fact, Ackerman's ambivalent assessment (2005: 140) is still applicable today: The scholarly and policy-related literature has "increasingly begun to recycle the same interpretations and staid shibboleths," while "several excellent works [...] have emerged."³

What is more, analyzing the Western literature on the Middle East/Gulf between the poles of super/mega and low-tech/amateurish terrorism allows us to reduce – at least to some extent – the research deficits articulated in two more recent contributions:

The first deficit regards the almost entirely absent focus on weapons of mass destruction (WMD). As Bart Schuurman summarized his project on "reviewing trends and gaps, 2007-2016" (2019: 463 – original quotation in bold) by and large terrorism research has retained a "strong focus" on al-Qaeda, jihadist terrorism "more generally," and the geographical areas "most strongly" associated with this type of terrorist violence (Schuurman, 2019: 463). Referring to Andrew Silke's 2009 overview, Schuurman remarked that the field's focus on WMD terrorism was one of the two dimensions that had received less attention in the literature. Silke found that while from 2002–2004 5.7 percent of articles studied WMD in relation to terrorism, this number dropped to 3.7 percent from 2005 to 2007. Presenting his own findings,



Schuurman (2019: 473) concluded that the “downward trend does appear to have continued,” since WMD “never featured in the top-5 most frequently encountered keywords in the 2007–2016 period.”

The second deficit involves the missing “full overview of the abundant academic literature that exists about terrorists’ motives and potential to use WMD or CBRN agents.” While Koehler/Popella (2020: 1673) understandably noted that it was “beyond the scope” of their article to provide such an overview, this deficit is characteristic of the state of the art of terrorism research across the board.

Regarding the first deficit, this EXTENDED POLICY FORUM will differentiate and specify the term WMD and its relationship to CBRN, limited for obvious reason to the ‘B’ element of the CBRN weapons spectrum – the general rule of thumb being that not every CBRN is a WMD: Neither radiological ones nor some categories of bioweapons (see below) can be regarded as true weapons of *mass* destruction, that is, inflicting casualties and injuries in the (tens and hundreds of) thousands, and not confined to a limited area and actually affecting only a few people. Thus, CBRN/WMD, which are often used interchangeably, certainly have a common core of mass *destruction* (also affecting the material world on a grand scale), and not just as a *disruption* of various processes in the social, political and economic realm (see Kubbig, 2018: 2). There is consensus among both groups of experts on the need to differentiate between biomaterials/agents with true WMD capability, such as botulinum toxin (BTX) and poisons like ricin which can only be used to kill a small number of individuals (as a matter of definition: materials/agents will only become weapons if they are “successfully” placed on a delivery vehicle [Carus, 2001: 19; Zanders, 1999: 18] – admittedly both notions are often used as synonyms).

CBRN/WMD are not just one end of the broad weapons spectrum with conventional/low-tech means as the dominant theme at the other end. More importantly, the terms “amateurs,” “dilettantes” or “wannabes”/“would-be terrorists” appear in the context of the remarkably less im-

portant CBRN. This aspect, which is often deliberately overlooked or simply ignored in favor of the frequently overstated importance of the Internet, is presented in some detail here and is deserving of attention in research.

Regarding the second deficit, the limitations of this EXTENDED POLICY FORUM, which covers only relatively familiar studies, reports and articles in the bioterrorist area from more than half a century, are obvious. What is more, I will place emphasis on capability-related aspects for which empirical evidence is available – to the detriment of the dimension of intentions/motives. The emphasis on capabilities is warranted because of the central role that scientific knowledge and technical skills have been playing in the “success” or failure of BW attacks. Capability is also closely connected to a leitmotif of this study: examining, whenever possible, lone super/megaterrorists. In addition, the relationship between intent and capability, which is seen as a gap by the group of the *more cautious and sober* experts (mostly coming from/working in Europe, especially Scandinavia, and Australia) will structure the analysis. Addressing the issue of the Middle East/Gulf as the only or main breeding ground of Islamists’ intentions/motives is beyond the scope of this review; the literature on this topic, which also examines so-called “homegrown” radicalization in Western countries, is simply too vast.

There are two more limitations: This study does not discuss biotechnology, mainly because there is no viable Middle East/Gulf-related data as the basis for sound assessments. In addition, the mostly hypothetical discussion of the relationship between COVID-19 and bioterrorism has so far not offered a sound basis for drawing firm conclusions. I will take up the issue in a concrete way toward the end of this study when discussing Gary Ackerman’s co-authored research note (Ackerman/Peterson, 2020).

Against this backdrop, this EXTENDED POLICY FORUM 2021/22 will proceed by briefly presenting the empirically sound record that Middle Eastern jihadist terrorists have so far not been able to con-

duct a biological attack; this will be done in the context of the fortunately sparse record of bioterrorism in general. It is self-evident that superterrorism does not play a role here (*Part I*). What follows in chronological order in *Part II* are extensive reviews of two major studies representing the pre-1995 and post-1995 period, which corresponds with the pre-“5/11” and 9/11 eras. The ADCON study of 1972, which focused entirely on “Superviolence” by sub-state groups in the U.S., was the first of its kind, addressed the *problématique* in many respects; it also introduced the “organized paranoid” as a potential superterrorist. In 1995, the activities of the Japanese Aum Shinrikyo sect in Tokyo marked a new phase in (the research on) terrorism. While the Middle East/Gulf played only a sketchy role in the Aum context, “the super-empowered individual” was assessed in an ambivalent way. The Harvard/Belfer Center Study of 1998 has to be seen in the shadow of the sect and its activities.

Part III starts with the anthrax letters in 2001 (causing five deaths and 21 injuries) in the wake of September 11 – two major dates marking the beginning of a new era in bioterrorism in particular. The Middle East/Gulf explicitly entered the discussion and remained a continuous element associated with al-Qaeda and later the Islamic State. In 2001, the question arose whether Middle Eastern actors or (an) American scientist(s) were responsible for “5/11” as a synonym for “Catastrophic Bioterrorism”, as the *alarmists* saw it – and contested by a *more cautious and sober* assessment of the second ‘camp’ of experts.

This chapter is followed by a review of two representative studies in 2008/2009 which reveal deep fears, partly hyped forecasts, and partly flawed analyses mostly in regard to the Middle East/Gulf-based al-Qaeda as core elements of the mindset of the *alarmist/most concerned* experts. *Part III* ends by presenting the mindset of the *more cautious and sober* experts with their focus on low-tech/amateurish terrorism, including the component of (poor) trade-craft. This includes their new, critical questions and their sober look back at events and the literature, as well as their focus on the widening gap between the intent and the capability of al-Qaeda, which is chang-

ing its strategy and tactics toward the use of less sophisticated weapons.

In *Part IV* the specific CBRN/WMD-related dimensions analyzed at the organizational level will be applied in this longitudinal review to Lone Wolf Jihadists/small cells mostly well connected in one form or another to a major organization. Reviewing the LJW problem between the poles of superterrorism and low-tech/amateurish terrorism and the emphasis on capabilities in terms of scientific know-how and technical skills will also structure the following chapters. The Broader Middle East/Gulf will again be omnipresent, especially in the form of al-Qaeda and the IS. The dividing line in formulating and assessing all these dimensions will be the boundary between the *alarmist/more concerned* group of experts and the prevailing outlook among analysts in the *more cautious and sober* ‘camp.’ A special focus of this review of the literature will be on the Internet and the role it plays for Lone Wolf Jihadists. This includes electronic contacts between jihadist instructors mostly affiliated with al-Qaeda and the Islamic State and presumably located in the Broader Middle East/Gulf at one pole and the LWJ, probably in the U.S. and Europe, at the other.

All this will be assessed again with an emphasis on scientific know-how and technical skills. The extensive review of the writings of Jeffrey D. Simon and especially Gary Ackerman and his various co-authors will reveal a variety of modes of hyping/exaggeration, culminating in the almost omnipotent “super-empowered individual.” As a lone terrorist an individual like this is the extreme example of the major case both experts are tirelessly making: CBRN/WMD, which by definition includes the ‘B’ component, is increasing. Instead of providing a brief survey of low-quality CBRN-related manuals and jihadist forums with an emphasis on the ‘B’ element, this review of the literature broadens the focus for research by including EUROPOL’s annual “EU Terrorism Situation and Trend” reports. The European practitioners endorse the positions of the group of *more cautious and sober* experts on amateurish LWJ with their low-key scientific knowledge, limited technical skills, and poor tradecraft.

Part V of this longitudinal review will summarize the main results concerning the role of the Middle East/Gulf and its traditionally bad and undifferentiated image in the United States and Western Europe as *the* terrorist hot spot. Of course, new light can be shed on the central issue: Why BW have *not* been used so far – and what this means for the arguments of the competing groups of experts?

Examining lone terrorists considered “amateurs,” “dilettantes” or “wannabes”/“would-be terrorists” in the CBRN realm creates the opportunity for this EXTENDED POLICY FORUM issue to set the stage for the “ricin attack” in Cologne in June 2018, which fortunately was foiled. A Tunisian-German jihadist couple in the Chorweiler district of Cologne plotted to manufacture a “ricin bomb,” in other words, “to combine the ricin with explosives, ball bearings and bladed weapons” (EUROPOL, TE-SAT 2018: 19). The thwarted “ricin attack,” which attracted worldwide attention including experts, can contribute to answering the following relevant question for the overall research question: Was this planned (and in many respects utterly hyped) “ricin attack” by the “two-pack” of Lone Wolf Jihadists an exception to the rule of conventional plots by jihadist terrorists – or would it indicate a new trend of highlighting biomaterials/weapons?

Transparent Common Basis for the Literature Review – Consensus on the Fortunately Sparse Record of Bioterrorism with a Subordinate Role of the Middle East/Gulf

The Essential Empirical Findings

As already briefly mentioned in the introductory chapter, when it comes to the tangible impact of non-state bioterrorism in terms of actual casualties and injuries, until now the Broader Middle East/Gulf has not been affected. All well-documented terrorist bioactivities after the Second World War (thus including the time span since the 1970s covered in this study) were confined to the two highly industrialized countries of Japan and the United States.

As to actors and agents, that is, jihadist groups or LWJ, there is a clear and positive record: None of them has ever carried out a “successful” mass-casualty or small attack with biological materials/weapons. Nevertheless, the issue is much more complicated in at least the following respects: Al-Qaeda’s strong motivation and efforts in the BW area are well documented (see below), while at the level of individual jihadists the foiled Cologne “ricin” case already mentioned has revealed a wide variety of interactions on the Internet between IS/ISIS instructors and the “two-pack” of Lone Wolves in Cologne. What is more, the so-called London “ricin plot” involves a specific feature of both the Broader Middle East/Gulf and LWJ/small cells: This case was hyped and instrumentalized to justify the planned U.S.-led war with British participation against the regime of Saddam Hussein in March 2003 (Archer/Bawdon, 2010). But no traces of ricin were found and there was no “ricin cell.”

The sparse record clearly shows a low number of casualties and injuries: According to the Federal Bureau of Investigation (FBI), up to now (2021/22) the first and sole “successful” act of bioterrorism on U.S. soil with a lethal impact was committed by the American microbiologist Dr. Bruce Ivins previously mentioned, a Lone Wolf in the strict sense of the word (see detailed definition at beginning of *Part II*). Working at the U.S. Army Medical Research Institute of Infectious Diseases in Fort Detrick/MD, he was “fully trained, with access to pathogenic strains and optimum working conditions” (Leitenberg, 2009: 100; Simon, 2013: 95-107 – see more below). Through his most common delivery vehicle – letters filled with anthrax – he caused five deaths in the United States in 2001 and just over 20 injuries. By comparison, in Norway on July 22, 2011: Lone Wolf Anders Breivik killed 77 persons by conventional means.

The other true Lone Wolf in the historical record of bioterrorism was not “successful.” He was Larry Wayne Harris, a member of the Identity Christian Church with links to white supremacist groups. He discussed disseminating BW agents with crop-duster aircraft and other methods



and was arrested in 1995 and 1998 because he had talked openly about BW terrorism and made threatening remarks to U.S. officials. Harris does not really fit in any terrorist categorization: “*Is Larry Harris a Terrorist?*” Jessica Eve Stern (2000a: 243) asked.⁴

Seventeen years prior to the anthrax letters, in 1984, the first clear-cut “successful” bioterrorist attack had also occurred in the United States. In contrast to those letters, it was an extremely low-tech incident, in which no one died. The Rajneeshees, a religious cult, used *Salmonella typhimurium*, a non-lethal food-poisoning bacterium. Unlike the Japanese Aum Shinrikyo sect, which employed biological weapons on a large scale to fulfill an apocalyptic prophecy (see below), this American cult had a specific objective: The sect wanted to contaminate restaurant salad bars in the small town of The Dalles in the state of Oregon in order to influence a local election and to seize political control of Wasco County. Cult members, many of whom had PhDs, “lacked an external constituency and hence were not subject to the normal constraints that apply to politically motivated groups” (Carus, 2000b: 137). Approximately 751 people became ill and some 45 were hospitalized. “There were no fatalities. This is the only bioterrorism incident in which human illness has been verified.” (Carus, 2001: 7) Both the Rajneeshees and Aum Shinrikyo sects are not “terrorist” groups, as the term is ordinarily understood and do not fit the instrumentalization of religion, especially by Islamists.

The sparse results of “successful” bioterrorist activities include a small overall impact because of technical failure: In at least two incidents in which mass casualties were intended, none occurred.

- The first case in point is the Aum Shinrikyo sect which between April 1990 and March 15, 1995, launched 17 terrorist attacks of which more than a dozen included *biological* agents. Before turning to the use of chemical agents on March 15, 1995, the group had earlier spread botulinum toxin, the most poisonous substance known, and *Bacillus anthracis*, the active agent for anthrax, from street-cleaning

trucks, automated suitcases, and from the roof of its own compound (Danzig et al., 2012: 20-21; Dolnik, 2007, 2008, 2010; Volders, 2021: 102; see also Kaplan, 2000: 221 – and Kaplan/Marshall [1996] with critical remarks on this book by Falkenrath/Newman/Thayer, 1998, p. 25, Box No. 1, note 1; Leitenberg, 2000: especially 161).

But its biological program was, “from start to finish, a serial flop” (Smithson/Levy, 2000: 80; see also Danzig et al., 2012: 4) – despite the fact that the cult had extraordinary financial resources of “approximately \$1 billion” (Staff Statement, October 31, 1995: 57) available to it, made use of semi-professional capabilities, and invested enormous time and effort in their program (Leitenberg, 2000: 160). Former Secretary of the Navy Richard Danzig, who had warned in 2003 in the context of the anthrax letters of “Catastrophic Bioterrorism” (see below), concluded later that “chemical weapons are likely to be more accessible than biological capabilities for terrorist groups intent on killing substantial numbers of people” (Danzig et al., 2012: 4; but see self-contradictory assessment by Ellis, 2014: 213). There is consensus that, among other things, the sect did not master dissemination of biological agents by aerosolization (Carus, 2001: 19; Danzig et al., 2012: 4; see also the discussion below of the study by Falkenrath/Newman/Thayer, 1998).

- The second organization that is known to have intended mass murder but also failed because of the delivery system it selected was R.I.S.E., a small ecoterrorist group (Carus, 2001: 19; see in this context also Ackerman, 2003; Kallenborn/Bleek, 2020). They planned BW aerosol attacks dispersed by an aircraft to poison the Chicago water supply system in 1972, but R.I.S.E. “lacked the scientific and technical expertise” to carry out the plot (Carus, 2000a: 70). An examination by ADCON Corporation (Berkowitz et al., 1972: 1-15; see also 8-88) had already concluded in the

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» *The low number of incidents with biological agents by violent non-state actors (VNSA) – confirming the traditional record of no casualties – was corroborated by Gary Ackerman and colleagues on a much broader basis, that is, by using their very valuable POICN database.* «

early 1970s that the “popular ‘reservoir attack’ with chemical or biological agents [would be] both costly and ineffective.”

- Although they did not intend to cause mass casualties, the fairly small cell of four right-wing, anti-government members constituting the Minnesota Patriots Council considered using an entirely different mechanism to spread ricin, allegedly in order to assassinate local and federal law enforcement officials. Ricin was combined with the solvent dimethyl sulfoxide (DMSO) and aloe vera and smeared on door-knobs, in the hope that it would penetrate the skin of the victims. The intended use of DMSO was foiled. The fairly small cell of four tax-resistance activists were the first persons to be convicted and sentenced in 1994 and 1995 under the 1989 Biological Weapons Anti-Terrorism Act (Tucker/Pate, 2000: 172, 159, 169).

Essential Lessons from the Empirical Findings

Several relevant lessons will provide the basis for this EXTENDED POLICY FORUM issue, especially for assessing the two different groups of experts:

The “Sparse Historical Record” (Parachini, 2003: 41 – bold in original) of bioterrorism has been confirmed at different points in time right up until today (2021). In the past, this thorough and sober assessment was based especially on the case study “Toxic Terror,” edited by the late Jonathan B. Tucker (2000) and on the comprehensive accounts by Carus (2001) as well as by Purver (1995) and in a much more concise and systematic overview than the latter’s 1995 analysis (1997; see also 1996/97). I will cite two authoritative reports representing different groups, with Jonathan B. Tucker belonging to the *more cautious and sober* ‘camp’ of experts, while the trio of the Harvard/Belfer study, Falkenrath/Newman/Thayer, are regarded as the moderate wing (*concerned scholars*) of the *alarmist/most concerned* group of academics. Gary Ackerman will be widely quoted as agreeing on and substantiating the sparse record. The experts, however,

sharply diverge on how to assess a future trend in bioweapons. Throughout the long period covered in this study the *alarmists* in particular repeatedly make the point that the major reasons for their gloomy assessment are greater (commercial) accessibility combined with technological progress or even breakthroughs (even if these are outweighed by repeated events indicating or proving the contrary). As Falkenrath/Newman/Thayer state (1998: 27, 35 – *my italics*):

The record is relatively brief: while numerous attempts have been made to acquire NBC [nuclear, biological and chemical] weapons – by states more than by non-state actors (individuals and groups) – serious attempts to use them are rare. [...] Fewer cases have been documented in which non-state actors used *harmful* biological agents to various ends.

However, Tucker (2000: 253) summarizes that, taken as a whole, the use of CBW (chemical/biological weapons) is “strikingly infrequent. The historical record also includes few such incidents in which mass casualties were intended, and none in which they occurred.”

The low number of incidents with biological agents by violent non-state actors (VNSA) – confirming the traditional record of no casualties – was corroborated by Gary Ackerman and colleagues on a much broader basis, that is, by using their very valuable POICN database. Their assessment is based on a more recent phase: “At present, there is no evidence of a successful mass-casualty attack by a VNSA with a contagious bio-agent, and according to POICN there have been only 11 small-scale incidents involving biological agents since 2012 [until 2016].” (Ackerman/Jacome, 2018: 27) This is important and good news in the sense that not a single *harmful* incident occurred until 2016. POICN supports the findings of the Countering Lone-Actor Terrorism [CLAT] database (Ellis et al., 2016: 8-9) and of EUROPOL’s reports until 2021 (see below); see also AOAV, April 30, 2020; National Consortium, July 2020).

The Middle East/Gulf has played an overall



subordinate role as a problem area in the field of bioterrorism, while the record for jihadists (both organizations and LWJ) regarding factual casualties and injuries has remained positive. According to Ackerman/Jacome (2018: 30) the overall picture is as follows: Of the 38 CBRN incidents recorded since 2012, POICN has attributed 18 cases to lone actors and autonomous cells driven not only by religious (obviously jihadist) but also by ethno-national motives. There is a need to establish in how many of the incidents jihadists and more specifically LWJ were involved. It would be important to learn how many of the 144 CBRN events in which there was “evidence of intent to use a weapon” (Binder/Ackerman, 2019: 10) involved a biological agent. The answer would make it possible to better assess the ‘B’ element, including the gap between intent/motivation and capability, in quantitative terms.

Although this study does not analyze terrorist activities in the BW area *within* the respective countries of the Broader Middle East/Gulf, but only with respect to their affects in the European Union (EU) and the United States, the table covering the long period of 1980 to 2016 provides an informative overview of the remarkable disparity in the kinds of attack in 18 Middle Eastern/Gulf countries, without specifying the weapons used (Morris/LaFree/Karlidag, 2021: 160). More recent data covering the years 2002 to 2019 can be found in the IEP/Institute of Economy and Peace’s (2021: 47) “Global Terrorism Index 2020.” To the best of my knowledge and based on the data mentioned above, biological agents/materials and weapons did not play a role at all.

Two striking results should be noted: *First*, the great variability in terms of total conventional attacks for the listed Middle East/Gulf countries – this contradicts the fact that “many observers stereotypically associate” (Morris/LaFree/Karlidag, 2021: 160) this region with terrorism. In the case of the Gulf states, the largest number of total incidents occurred in Iraq and in Yemen. The fewest attacks took place in Qatar and Kuwait, while the total number of conventional attacks was much higher in Saudi Arabia. *Second*, terrorist attacks across the board in the Middle East/

Gulf are a “relative recent phenomenon,” “steeply rising” after the U.S.-led invasion of Iraq in 2003, peaking in 2013 and, although declining, remaining “at relatively high levels” until 2016 (Morris/LaFree/Karlidag, 2021: 162). It can be added that this continued to 2019 (National Consortium, July 2020: 3). As especially the European Union Agency for Law Enforcement Cooperation data will show later, there is a striking correlation between the development of regional terrorist attacks by conventional means and the trend of Islamist terrorist incidents in the European Union and the United States. The same applies to the non-occurrence of biological attacks (admittedly, establishing the reasons for these phenomena is not the object of this EXTENDED POLICY FORUM issue).

It is important to distinguish between small-scale and mass attacks involving CBW (Shea/Grotton, May 20, 2004: 1-13). As Tucker, (2000: 254-245) summarized the findings of his important anthology of 12 case studies:

Just because chemical and biological agents are often described as ‘weapons of mass destruction’ does not mean that the ability to inflict mass casualties is an inherent property. The use of [...] the biological toxin ricin for assassination purposes is fundamentally different from releasing an aerosol of anthrax over a city. [...]

A general lesson is that terrorists may seek to employ CBW agents for a variety of purposes and to deliver them in various ways, with the aim of inflicting either discrete or indiscriminate casualties.

Concerning ricin, both the editors of the comprehensive volume “Jihadists and Weapons of Mass Destruction” (Ackerman/Tamsett, 2009a: xx) and the three authors of the Harvard/Belfer Center study (Falkenrath/Newman/Thayer, 1998: 16, 33) concur with Jonathan Tucker’s assessment that this toxin is not suitable as a true WMD. Moreover, the POICN database sheds light on the use of the different categories of agents and their *overall non-harmful* impact. Of the 107 events related to biological agents between 1990 and 2016, the selected agent was unknown in 27 incidents while a toxin was the primary agent

in the remaining 80 cases, with the dominant one being ricin (Binder/Ackerman, 2019: 11).

Highly technical/scientific expertise has turned out to be the major condition for “success” and failure with efficient delivery techniques as the most decisive and challenging component (with the sending of ‘anthrax’ via normal letters constituting an exception). The American microbiologist Bruce Ivins is the unique proof for the link between outstanding expertise and “success” – a fact that lends itself to focus whenever appropriate on the role of scientists, which is not always negative, but can be positive in a solution-seeking way. The other four cases show that both the “successful” Rajneeshee movement and the three failed/foiled ones (Japanese sect, R.I.S.E./Minnesota Patriots Council) employed low-tech delivery mechanisms.

The case involving using DMSO/aloë vera hand lotion to disseminate ricin should be seen as a well-documented example of amateurish bioterrorism. The method, which would not have resulted in the expected effect (penetration of the skin), was based on “cookbooks” whose ineffective recipes were revealed in the London “ricin case”; it is highly likely that they were the origin of the DMSO method applied by the Tunisian-German jihadist couple to a totally unaffected hamster in the thwarted Cologne “ricin plot” in 2018. These examples again demonstrate that a biological agent is not necessarily a biological weapon (Carus, 2001: 19-24). It is transformed into a weapon only if there is a mechanism for effectively spreading the lethal/harmful agent: This implies that there is also a major difference between terrorism with biological/chemical *agents and materials* on the one hand and terrorism with *weapons* on the other.

In sum, all these lessons can be complemented, refined and at least partly corrected. This involves, at first glance, developing the “concept” of the “super-empowered individual” and variants of hype/exaggeration. Missing in this summary as a relatively new phenomenon are the additional barriers that have made the use of bio-weapons less attractive.



Part II: Two Studies in the Context of (Potential) U.S. Upheavals (1972) and in the Aftermath of the Attacks of the Japanese Sect Aum Shinrikyo (1998) with the Middle East/Gulf Absent

With Elements of Both Expert Groups: The Explorative ADCON Study on “Superviolence” in the U.S. Introducing the “Organized Paranoid” as a Potential Superterrorist (September 29, 1972)

The Study, Its Heterogeneous Groups of Authors and Its Context – The Almost Absent Middle East/Gulf

The substantive report “Superviolence: The Civil Threat of Mass Destruction Weapons” was the result of ADCON Corporation’s project group consisting of principal investigator B. J. Berkowitz and his colleagues H. Frost, E. J. Hajic and M. Redisch (Berkowitz et al., 1972). The study, written for the Advanced Research Projects Agency (ARPA, later renamed DARPA) of the U.S. Department of Defense, has rarely been cited and quoted (one notable exception is Ron Purver, 1995, at that time a strategic analyst in the Canadian Security Intelligence Service, who in his comprehensive report on CB terrorism quoted the ADCON study many times; see also Advisory Panel..., 15 December, 1999: 24, note 80; Rosenau, 2001: 300, note 46). The report, addressing the use of WMD “by domestic agents for attack or threat directed against US civil society” (p. 1-1), was mainly triggered by concerns that nuclear material might be stolen and used for terrorist activities.

It is first of all its necessarily explorative character, which makes this comprehensive report important for the chronological design of this EXTENDED POLICY FORUM

issue: The study from 1972 is based on “only a few examples of (unsubstantiated) threats and their use” of hazardous materials such as biological pathogens (pp. 1-1–1-2). The half dozen incipient superviolent incidents in the United States included claims of intent, aborted or detected plots, and hoaxes, “[n]one really materializes as an example of superviolence, in other words, none demonstrates the necessary combination of motive, overcoming of restraints, intent, and adequacy of resources (p. 1-10; quotation: 6-7).

One of those incidents was temporarily attributed to Weather Underground, a radical leftist anti-Vietnam war group, after Jack Anderson, a prominent columnist of the *Washington Post*, had stated in an article on November 20, 1970 that the organization had attempted to acquire incapacitating agents from the U.S. Army’s biological warfare and defense research center at Fort Detrick in Maryland. An analysis of the reactions which appeared one day after Anderson’s article suggested that Weather Underground “probably did not seek to acquire or employ biological or chemical weapons” (Parachini, 2000: 43). In this in-depth article, John V. Parachini (2000: 53) concluded that unless “new evidence” emerged (which to the best of my knowledge has not been the case to date [2021/22]), “scholars should drop the case of Weather Underground as an early example” of terrorists seeking WMD.

This implies that almost all incidents in the United States and especially in Japan were yet to happen. The ADCON report presents preconditions for the future (non-)use of such hazardous pathogens, especially botulinum toxin (ricin was not regarded as a potential WMD and was therefore not mentioned). The reflections on the probability of BW attacks are remarkably general. The four authors break new ground by introducing and discussing a broad range of pathological sole actors/Lone Wolves representing special variations of the “super-empowered individual” at the individual and group/organizational level.

All in all, the authors of the ADCON report combine elements of the mindsets

of both groups of experts making it incoherent at times but in general inspiring. Admitting that I cannot do justice to the complexity of the report, I will be selective according to the structure presented at the outset of this EXTENDED POLICY FORUM issue and applied in the following sections.

As I will briefly discuss, these dimensions outweigh the fact that the states of the Middle East/Gulf (and any other country in the international community) are almost absent from the report, which mentions at the non-state level only the Popular Front for the Liberation of Palestine (PFLP) as a terrorist organization (p. 9-26). This is not only due to the report’s explicit focus on the United States, but even more to the fact that conventional terrorist attacks in the Middle East/Gulf played a marginal role at that time. The U.S./Canadian literature made little reference to Middle East/Gulf-related WMD terrorism. Robert K. Mullen (1978: 87) referred to an unpublished conference paper which in 1979 became part of a book mentioning only PFLP, Fatah and PFLP-trained national groups with no reference to WMD (Russell/Banker, Jr./Miller, 1979: 7-9). Even 17 years later, Ron Purver (1995: 132) referred in his valuable, comprehensive report on CB terrorism to Mullen’s source, which had not yet been updated.

Focusing on the nuclear dimension in a sketchy way, Roberta Wohlstetter (1976: 99) concluded that the “most likely place for terrorism on a grand scale” seemed to be the Middle East; she referred to the PFLP and the Popular Democratic Front for the Liberation of Palestine (PDFLP). The U.S. historian hypothesized that the “desperate character and doctrine” of these two organizations were “consistent with fewer qualms about large number of enemy deaths.” Wohlstetter (1976: 101) was entirely vague on terrorists and “certain biological weapons.” Walter Laqueur (1977: 231), while covering terrorist actors and activities to a more detailed degree, stated in the context of the Palestine Liberation Organization (PLO) that there had not been “as yet a single attempt at terror



on the grand scale.” Although it could not be taken for granted that most of the existing groups would not use that option, he had been cautious earlier concerning the special effect of a grand scale biological weapon’s use (Laqueur, 1977: 231):

An epidemic [...] could spread to all parts of the globe, which makes it impractical for international terrorism. A weapon of this kind is more likely to be used by a madman, rather than by political terrorists. For these and other reasons the use of biological weapons despite their greater availability seems less likely than the use of chemical agents [...].

Tempora mutantur: At that time, the 1970s, as Laqueur’s study documents, Europe was a greater concern than the Middle East/Gulf because of different kinds of terrorist groups, especially in Spain, Germany and Italy.

Scientific-technical Capability as Less Important Than Intentions in the Complex Bundle of Enabling and Inhibiting Factors in the Use of Potentially Lethal Pathogens by Terrorists

Berkowitz et al. (1972: 1-1) make clear at the outset of their report that the availability of technical information “in the context of a decade of heightened civil violence” would allow individuals with appropriate skills to use hazardous agents “to the detriment of society.” And yet the ADCON study of 1972 reminds today’s readers of the obvious: The actual or threatened use of WMD in a domestic context is an “extraordinary act; it is not merely an extension of familiar form of violence. The gap between ‘ordinary’ violence and superviolence is a real one” (p. 1-9). Within a broad spectrum of motives (p. 2-25) the following five factors have to come together for terrorists to “succeed”: highly developed scientific-technical skills, charismatic leadership, deep commitment in order to sustain the prolonged effort of a superviolent plot, psychological willingness to take lives, and unique, overlapping

resources (pp. 1-9, 2-34 – 2-36, 9-18). The project group concluded that it would be “extremely rare” to find “individuals” (p. 2-37) who integrate all these factors.

There are barriers in the process of developing a “pathogen threat”: They include the selecting and acquiring an appropriate seed culture, cultivating an adequate quantity, keeping it in a viable state, and disseminating it effectively (see below). The authors argue that all this is doable because the scientific-technical hurdles are not too high and therefore manageable. In my entire review the authors are at the low end in this respect (pp. 8-65 – 8-66):

It is obvious that the key resources needed are trained and skilled personnel. An experimental microbiologist and a pathologist, or someone who combines these capabilities, would be crucial to the threat group. In fact, their presence would be largely determinant in directing the group toward the biological pathogens. Supplemented with a little help and advice from an aerosol physicist and a meteorologist, a completely adequate set of capabilities would be at hand. [...] Should the terrorists’ plan require larger than laboratory scale quantities of pathogens, someone with experience in the fermentation or vaccine industries would make a strong contribution to the group.

Part of this rather optimistic assessment is the reference to the readily available literature concerning all information needed and to commercially available equipment such as “fermentors suitable” (quoting on p. 8-66 Hedén, 1967: 641) for a potentially effective terrorist plan. In more concrete terms, the ADCON team addresses the financial aspect and presupposes a low-cost enterprise: to isolate the seed culture, for instance, a “competent” microbiologist and a “small” bacteriology laboratory would be needed “for less than \$3,000” (p. 8-50).⁵

As we shall see throughout this EXTENDED POLICY FORUM issue, the four authors set the stage for a tradition of similar low-

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» *In their concrete scenarios the ADCON experts assure the reader again that “there is no dearth of open information regarding the technical requirements for developing a BTX [botulinum toxin] threat” – in fact, the textbook and monograph references cited by them “provide adequate starting points for a literature search which would produce all the information necessary to support the production of BTX for terrorist purposes.”* «

cost assessments through the subsequent decades until today (see also Purver, 1995: 9-14). The same applies to the tradition of a critical stance which already existed at that time and was expressed by R.W. Mengel (quoted in Purver, 1995: 11). In his view the complex endeavor to use a biological weapon obviously required a “larger group” than assessed by the ADCON study: “[A]t least three to five members with a full range of capabilities, including training, tactics, technical knowledge, resources, and operational experience, is considered the optimal number.”

Reflecting its extremely limited empirical basis, in my view the 1972 ADCON report provides an optimistically time-bound appraisal concerning the decisive role of dissemination techniques. The four authors assume that the “use of aerosol delivery systems from light aircraft, small watercraft, moving vehicles or pre-emplaced sources does represent a practicable delivery mode for a civil threat. [...] The standard concept of releasing an aerosolized biological agent from a vehicle moving across the wind upwind of the target requires only limited resources and therefore represents a practicable civil threat” (p. 8-3).

The ADCON study discusses the use of the two toxins, which, as mentioned, the Japanese apocalyptic sect had spread in March of 1995 in Tokyo: botulinum toxin and *Bacillus anthracis*, the causative agent for anthrax, out of street cleaning trucks, automated suitcases, and from the roof of its own compound. The authors state that an anthrax aerosol attack for 60,000 fatalities could be “effectuated by a truck-mounted dispenser driven around and through a city. Large crowds which remain in enclosed spaces for moderate lengths of time are ideal targets” (p. 9-9).

In their concrete scenarios the ADCON experts assure the reader again that “there is no dearth of open information regarding the technical requirements for developing a BTX [botulinum toxin] threat” – in fact, the textbook and monograph references cited by them “provide adequate starting points for a literature search

which would produce all the information necessary to support the production of BTX for terrorist purposes.” In addition, the four authors reiterate that the “primary skills required are those of a microbiologist rather than a chemist as a member of the threat group” (p. 8-42). “It is not our intent to leave the reader with the impression that the chemical and biological attacks described here are ‘easy’ in an absolute sense; however, they are appreciably easier than the NW [nuclear weapons] attack. [...] *Specialists who have developed chemical and biological weapons for the military services know what can be done and what is required*” (p. 9-9 – my italics).

Do these remarks pass the reality test in view of the failed attempts especially by the Japanese sect? Is the Berkowitz team increasing the level of expertise required enormously by referring to skills of military people? Or did Aum Shinrikyo hire the wrong experts? On the historical record there is consensus, including *alarmists/most concerned* experts, that dissemination represents by far the greatest challenge. The authors agree, but it is “not too severe” (p. 9-8).

But unlike that group, the Berkowitz team (p. 9-18 – my italics below) asks: “What, then, are the *inhibiting* factors which *prevent* superviolent attacks from occurring?” The answer is a mixture of the conditions for “success” just mentioned above and the characteristics of the group leader (to be specified below):

We suggest that they stem from the very low likelihood of combining comprehensible motivation with the necessary degree of severe mental illness. [...] It is incorrect to argue the likelihood of superviolence on the basis of technical practicability or availability of materials; the essential element is the threat group leader.

Among the barriers are the safety problems that, in the four experts’ view, the terrorists have to solve, something that can be done (pp. 8-65 – 8-66). In discussing seven hurdles, the ADCON report regards only one as a real challenge (later dismissed by many experts in view of



subsequent Islamist-related attacks): the “devastating reprisals” small groups bring about (quoting on p. 8-63 Hedén, 1967: 663). (The especially gifted individual as an important inhibiting/enabling factor will be discussed in the next section).

Trailblazing Terrorist Profiles of Almost Omnipotent Mentally Ill/Charismatic Individuals and Group Leaders

The ADCON report features for the first time in connection with the possible use of CBRN/WMD at the individual level the Lone Wolf terrorist as a “true paranoid:” characteristically acting alone and not trusting other individuals (p. 3-14), thus anticipating the prototype of Theodore Kaczynski, who was unknown at the time but whom we will encounter in practically all the U.S. works analyzed here. The same applies to the group level. Despite its analytical depth, the study directed by Berkowitz nevertheless encompasses only the narrow topic of mental illness. In this respect it dwarfs all subsequent attempts at portraying various kinds of often roughly composed “super-empowered individuals,” while ignoring important features such as ideology and religion as driving forces for terrorism.

The mega-individual is not just active as a true Lone Wolf but is also regarded as the leader of an “autocratic group” whose formation is not seen as “improbable.” The description, presented almost a century prior to the worldwide visibility of the Japanese sect, is, as we shall see, analytically far superior to the one provided a quarter of a century later by the three Harvard/Belfer Center experts Falkenrath/Newman/Thayer as well as by Gary Ackerman and his colleagues.

Such a group which preempts, as Ron Purver (1997: 71) succinctly observed, Shoko Asahara and his Aum Shinrikyo cult, would be characterized by a “hypnotic, charismatic leader; a self-legitimizing, ethnocentric perception of their own sovereignty; a viewpoint which dehumanizes and depersonalizes their enemy; a high degree of isolation and incommunicative-

ness with respect to society; and a belief that superviolence is essential and that loss of life is inconsequential. [...]

The psychotype most likely to fill the critical role in a superviolent plot is the *organized paranoid*. This is an extremely rare psychosis characterized by long-term stability, brilliance, conviction, and – most importantly – overt personality traits which hide the person’s true nature from all but the most searching psychiatric examination” (pp. 1-6– 1-7).

Unlike the “super-empowered individual,” for the Berkowitz team the superviolent individual is *not* omnipotent. This type can release his paranoid tensions quite easily without the necessity for capturing the entire power structure of a nation. This individual shows weaknesses which allow to overcome the pessimistic, in fact fatalistic approach associated with the “super-empowered individual.” These weaknesses offer opportunities for prevention and early detection: “It is important to remember that not only has this kind of individual left a lifelong trail of crimes or near-crimes behind him, but, most significantly, that he is not an ‘all-around’ individual; he suffers from perceptual gaps and delusions which offer good promise for either the failure or the disclosure of a mass threat operation” (pp. 9-18 – 9-19). Again, Shoko Asahara and his sect come to mind. The ADCON study team did not think of a specific U.S. group, for they were clear that politically active organizations such as the Black Panthers lacked the centralized structure needed “for developing a superviolent capability” (p. 2-42; see also 1-5 – 1-6).

It is quite clear that the ADCON report remains within the limits of mental illnesses underscoring the group leader as the decisive factor. Without ignoring these aspects and the importance of the organizational structure emphasized in earlier (Crenshaw, 1985) and more recent (Volders, 2021) publications, it can be said: The observed characteristics of the Japanese sect stress the scientific-techno dimension as the crucial inhibiting or (in other cases) enabling factor. What is missing in the report of

the Berkowitz team, however, is the Bruce Ivins type of scientist. This probably has to do with the fact that the study portrays scientists mostly as a politicized group of citizens (pp.1-10, 6-8).

General Predictions

Concerning forecasts and scenarios, Berkowitz et al. (p. 6-10) present five levels of belief ranging from conceivable to practicable, which they correlate with relative likelihoods (pp. 9-54 – 9-55). The project group bluntly brushes aside the volumes that “have been written (and more will be)” on probability: “We know of no objective basis on which the probability of occurrence of superviolence will be estimated. Nonetheless, this is the crux of the matter, the key issue, on which decision making with respect to responses must rest” (p. 6-11). Arranged generally in order of “decreasing *intuitive* probability” (p. 9-56 – my italics) the project team summarizes its conclusions regarding the occurrence of superviolence in eight propositions (p. 9-56):

1. Threats and attacks with conventional means are far more likely than those involving weapons of superviolence.
2. [...]
3. Sham threats of superviolence are more likely than real ones.
4. Threats of superviolence involving chemical or biological weapons are more likely than those involving nuclear weapons.
5. The likelihood that a serious attempt to acquire instruments of superviolence will be initiated is greater than the likelihood that it will prove successful. [...]
6. [...]
7. The probability that some community in the United States will be exposed to a real, superviolent threat or attack in a given time period is greater than zero.

To be sure, some of these propositions look quite self-evident (for instance point 4.) and are hardly analytical. This intuitive order of probability demonstrates the dilemma of all kinds of prediction. Rough as they are, the propositions look almost commonsensical, and yet from today's perspective they would pass any reality check. This is in stark contrast with the to-be-discussed methodologically sophisticated forecasts associated with an astounding, apparently accurate prediction, including concrete dates at which specific incidents would happen. Nevertheless, the limits of even this general look into the future are evident. Even if the four authors' indirect anticipation of the specific structure of the Japanese sect is acknowledged, the central importance they attribute to the almost omnipotent superviolent terrorist for the efficient running of the organization misses the crucial point, as we shall see in the next chapter. The charismatic leader was, among other things, not able to organize the scientific-technical skills necessary for employing effective biological weapons.

The fact that the organizational focus of the ADCON report was too narrow, since the lack of scientific-technical expertise obviously made the crucial difference between "success" and failure, is also demonstrated in the broader context of the order of intuitive likelihood with respect to the three specific WMD, i.e. nuclear, chemical and biological weapons. My reading of the ADCON study is that in the authors' view these three categories represent a decreasing order of complexity. The irony is that the turning of the Aum Shinrikyo from biological to chemical weapons prompted analysts to reverse the order of likelihood of biological and chemical weapons, with the latter being easier to employ in a somewhat more efficient way.

To be sure, the ADCON report anticipated the Ted Kaczynski and Shoko Asahara type of "super-empowered individual" (which around 2000 was complemented by at least the Middle East/Gulf-related omnipotent figure Ramzi Yousef). However, it had an enormous analytical weakness deriving from the low importance it attributed to scientific-technical skills: As

mentioned, the Berkowitz team did not include the Bruce Ivins-type of scientist as a both highly determined *and* specialized expert (with additional access to pathogens). Any kind of anthrax incident of 2001, for instance, would have been unimaginable for the four authors.

Against this backdrop it is logical but hardly convincing when Berkowitz, Frost, Hajic and Redisch (p. 9-57; see also Clutterbuck, 1990: 51) conclude their study with the following bioweapons-related observation, which also contradicts their view mentioned above of the constantly increasing availability and accessibility of the elements needed for an efficient biological attack:

We find that an illicit biological attack can have as great (or greater) an anti-personnel impact as a nuclear attack, and that it could have been mounted any time during the past 25 years with a lesser expenditure of resources. The purpose of this observation is to suggest that the technical capability for superviolence is not new; had the motive and intent existed, the event would have occurred. We believe that those who perceive a real superviolent threat must offer more than a catalogue of opportunities for troublemaking based on scientific and technical feasibility if their warnings are to be heeded.

In view of both the scarcely existing empirical basis of biological attempts and the attacks to come, this final statement looks ignorant and arrogant. As we shall see in the next chapter, the authors of the Harvard/Belfer Center study provide a more differentiated view by presenting two different groups of sub-state actors: With the exception of the Japanese sect, there are non-state actors who possess the technical ability to acquire and use NBC, but have expressed no interest in committing NBC terrorism; and there are those groups that are interested but are unable to employ WMD (Falkenrath/Newman/Thayer, 1998: 45-59, 59-62, respectively). Needless to say, the Middle East/Gulf will be involved in this context.

Concerned Harvard Experts Under Aum Shinrikyo's 'Bio-chem Clouds' – The Middle East/Gulf with the Highest Risk of Mass-casualty and the Ambivalent Assessment of Superterrorists (1998/99)

The Study, the Mindset of the Authors, Its Context – and Its Impact

The comprehensive Belfer Center study "America's Achilles' Heel" by Richard A. Falkenrath, Robert D. Newman and Bradley A. Thayer (1998), finalized some two and a half years in November 1997 after the unprecedented terrorist activities in Tokyo by the apocalyptic Japanese sect, was written in the shadow of those incidents (as the authors remark at various points). The volume relates to important aspects of the pre-1995 phase of nuclear, biological and chemical weapons (NBC) but it also covers a new period of research on bioterrorism. It argues in a programmatic way that the threat of NBC terrorism across the board should be treated as a "first-order national-security challenge" (p. 261) requiring appropriate responses and policies.

The volume stands for a new understanding of how to perceive and deal with terrorism that, in terms of geography, goes far beyond the United States. After the Aum Shinrikyo attack the small community of researchers exploded. As Jessica Stern (1998/99: 176) remarked in her comment on Richard Falkenrath's subsequent summary (1998) of the Belfer Center study in *Survival*: Since then, the field has attracted attention from a wide range of analysts and journalists associated with a lot of reporting on the subject which "has been careless and exaggerated, creating a mood of political paranoia."

Jessica Stern was referring on the one hand to the exaggeration that the Aum Shinrikyo case proved that NBC attacks "resulting in hundreds of thousands of deaths are all but inevitable". On the other she criticized the "overreaction and hasty decisions" (of the Bill Clinton administration) to launch a cruise missile attack against a pharmaceu-



tical plant in Sudan; the facility was said to be manufacturing precursors for chemical weapons and was allegedly linked to Osama bin Laden (Stern, 1998/99: 178).⁶

The three Harvard experts position themselves in their book (on which I will mainly focus) between the “alarmist view,” which considers terrorist use of WMD “a virtual certainty,” and a complacent stance for which the trio does not present a satisfying definition. “Each school of thought contains grains of truth, but the correct view lies somewhere between the two extremes” (p. 27). The trio refers to the alleged ‘complacency’ group (or in my terminology the more *cautious and sober* group of experts) only by citing three of their representatives (p. 27, note 2). But as the later exchange of views between Falkenrath (1998/99) and Karl-Heinz Kamp (1998/99), one of the identified “complacent” experts, reveals, there is basic agreement on virtually all nuclear-centered issues.

Moreover, the only sentence in Kamp’s comment in *Survival* on bioterrorism explicitly endorses Falkenrath’s position: “If a terrorist organization wanted to inflict mass casualties, it could easily use biological or chemical weapons which, as Falkenrath lucidly describes, are quite simple to acquire or produce” (Kamp, 1998/99: 170). ‘Complacency’ is not central enough to provide a dividing line; this applies to K. Scott McMahon (1996) and probably to the title of Wayne Biddle’s contribution (which I could not obtain) drawing attention to the conservative attitude of terrorists in using simple and reliable weapons.

In my categorization, the Belfer Center trio belong to the moderate ‘wing’ of the *alarmist/most concerned* group of analysts who draw a clear line by refuting the inevitability of a catastrophe, thus not assuming an automatism. In addition, the three authors do not provide a precise timeline specifying when a certain event is highly likely to occur – “the likelihood of such an attack cannot be predicted” (p. 215). The predicted rising BW threat remains non-specific – only at the very end (p. 214) of the relevant chapter do the authors state that under certain conditions the “wish” to use WMD could “rise inexorably.” In

their view, there is no reason to be *alarmist/overly concerned*, yet certainly to be *concerned* in the sense that disturbing trends mean that new policies will be necessary. The Belfer Center team shares the assessment of the fortunately poor results of bioterrorist incidents with both the *alarmist* and the *more cautious and sober* group of experts (p. 28): “A combination of motivational constraints and technological barriers explains why the thresholds to acquisition and use of real NBC [for WMD] weapons by non-state actors have almost never been crossed.” Close reading reveals that the authors remain prudent, deliberate and considered in some respects.

As is the case for virtually all (Western) analysts, for the Belfer Center experts Aum Shinrikyo’s attacks are not just an exception, but are indeed a watershed marking a new phase in terrorism (p. 213 – my italics):

Until Aum Shinrikyo, the non-state actors that have been capable of acquiring and using NBC weapons have been uninterested in doing so, and those that may have been interested in employing weapons of mass destruction have been unable to do so. Now, however, both parts of this generalization are becoming questionable.

The lethal attacks of March 1995 “stand” for discontinuity in terrorism and, hence, for research related to this field. The case in point is the often-quoted Brian Jenkins (1975: 4, quoted on p. 49-50) motto “Terrorists want a lot of people watching, not a lot of people dead.” It was no longer applicable in the BW area, since the cult sought mass casualties, although it had some “success” in the chemical and none at all in the biological realm. The Aum shock waves pervade the book: The cult changed it all and led to all the sudden negative assessments of the future trend. Associated with these waves is a constant flow of mostly subtle exaggeration, in the form of both overstatements and understatements. Thus, the trio have not lived up to their self-set standard of correctness (or better: analytical adequacy), although they are certainly aware of the danger of exaggerating (p. 340): “We have tried to

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make this threat assessment as convincing as possible, but not at the price of overstating our case.”

In the entire book the Harvard trio deal with the sect’s nefarious BW activities by and large in terms of an understatement: as if it had *not* failed and as if its efforts had been a great success.⁷ This is the trio’s own academic Achilles’ Heel confusing their sect-inspired perception with the reality of BW failure and low number of fatalities caused by chemical weapons. This affects their presentation of the BW failures, their way of arguing and their list of possible terrorist groups. Not surprisingly, all these efforts are geared toward making the case for a rising threat in the bioterrorist area.

Unfortunately, Falkenrath/Newman/Thayer do neither argue convincingly nor provide clear-cut data in making the case for their central concern in the BW area: The ‘likelihood of acts of NBC terrorism in the future is low, but it is not zero, *and it is rising*’ (Falkenrath, 1998/99: 180 – my italics added to Falkenrath’s contribution in *Survival*) in which he quotes from his previous article (1998) which stimulated the debate. Throughout their volume Falkenrath/Newman/Thayer make the same central claim, but perhaps due to the fact that there are differing agreements within the trio the book contains relativistic and even contradictory statements. The assessment of a growing menace is certainly necessary, in order to elevate the menace to a first-order national-security issue justifying a broad range of national responses.

My review will take issue with the view of a rising threat in the BW area for the following reasons (see below in greater detail): Unlike their presentation of a Middle East/Gulf-related terrorist “super-empowered individual,” the Harvard trio – for good reasons – do not characterize the sect’s charismatic leader in an exaggerated way as a kind of superterrorist. However, the experts do not provide an adequately detailed and coherent analysis of the cult’s complete BW failures. This raises the suspicion that an extensive examina-

tion would have weakened their claim of a rising BW menace. Instead, their assessment is not guided by facts but by the power of a watershed perception of terrorism inspired by the Aum Shinrikyo sect. What is more, the authors’ claim that there is an expanding range of non-state groups causing human casualties on a massive scale is contradicted by other statements they make and is not supported by facts. Last but not least, the Middle East/Gulf is seen by Falkenrath/Newman/Thayer as the next high-risk region when it comes to mass casualties, while superterrorists of different kinds are discussed in their outlook section – neither dimension is dealt with in an analytically adequate way.

A Rising BW Threat? (I) Shoko Asahara – The Superterrorist That Isn’t in the Context of the Cult’s Neglected BW Activities

Against the backdrop of the almost omnipotent charismatic group leader predicted by the Berkowitz team in their 1972 ADCON study, it would have been easy for the Belfer Center trio to characterize Shoko Asahara in this way. To be sure, their restricted and concise traits are sufficient to convey the impression that the characteristics of the god-like authoritarian Aum guru even superseded those ADCON projections by far in terms of “ambition, size, and breadth of activity” (Kaplan, 2000: 207). And yet Shoko Asahara is correctly not seen as a superterrorist, because the empirical analysis reveals the gaps between grandiose desires and unlimited motivation for mass murder by WMD on the one hand and the poor results, especially in the BW realm, on the other. A projection is no longer possible in this case – this explains the role of additional “super-empowered individuals.”⁸

It is striking (but not surprising in view of their overall goal of documenting the rising BW threat) that the three experts devote only one short paragraph (p. 20, Box No. 1) plus some scattered sentences to the cult’s failed BW activities. Moreover, they do not provide any technical details: There is only scant information about the

level and scope of Aum’s scientific efforts. Information is not only sparse but also contradictory and unsystematic: Did Aum Shinrikyo recruit “a variety of highly trained scientists, including graduate students in physics, chemists, electrical engineers, doctors, and biologists, several of whom had been educated at top Japanese universities” (p. 19, Box No. 1) – or (p. 129, note 65) did it recruit only “several well-educated but apparently not highly competent scientists”?

The analytical deficits of neglecting the failed BW attacks are quite considerable. The crucial question concerning Aum’s biological weapons program “Why Did it Fail?” is not asked. Yet it could have been answered in a systematic way, as RAND analyst William Rosenau’s (2001) substantive article accepted by *Studies in Conflict & Terrorism* at the end of October 2000 and published in the following year, showed – despite the “paucity of data” which Rosenau (2001: 293) admitted and which would also have been a challenge to the Belfer Center experts. Rosenau’s outstanding contribution examines what later empirically sound studies (especially Danzig et al., 2012: 4, 18-28; see as a variation Bleek, 2018) and a theory-informed work (Volders, 2021) have presented in greater detail.

Concerning the lack of scientific-technical expertise, the trio’s relatively vague mention of disciplines could have been replaced by the pointed statement: In order to create a biological weapon, Aum would have needed the “full set of scientific and technological skills that would have helped ensure their success, such as the talents of a pathologist, an engineer, a meteorologist, and an aerosol physicist” (Rosenau, 2001: 296). In more specific terms, the RAND analyst presents three dimensions which the apocalyptic cult did not master:

1. the challenge of acquiring sufficiently lethal strains of botulinum toxin and anthrax bacilli;
2. the difficulty in preparing those agents for dissemination and in dispersing them;



- the limitations imposed on Aum's biological weapons efforts by the nature of the organization itself.

Concerning the last dimension, it is not by accident that Rosenau (2001: 300, note 51) refers to the Harvard experts, since they rightly emphasize the Aum's "erratic leadership" (p. 23, Box No. 1). Their most convincing insights concern the hampering if not inhibiting impact of the organizational conditions under which effective research efforts were hardly possible. Aum scientists were socially and physically in isolation, and ruled by an increasingly paranoid guru, and they became divorced from reality and unable to make sound scientific judgments. In addition, loyalty to Shoko Asahara was much more important than scientific reasoning and decision-making. The Belfer Center experts conclude that under such conditions "nihilistic religious movements may pose less of a threat than they otherwise appear to" (p. 24, Box No. 1). Against this backdrop, the charismatic leader's essential role as a *superviolent individual (or superterrorist) in keeping a BW project running smoothly (as stated by the ADCON study), is not supported at all* by the trio's convincing Aum reality check.

A Rising BW Threat? (II) Instead of Sober Lessons from Aum's BW Failures, Exaggerated, Unconvincing and Contradictory Statements

An extensive, systematic analysis would have made it possible for the three Belfer Center researchers to put their own requirements for a terrorist group into perspective and draw convincing conclusions. But this is not the case for three main reasons.

First reason: Overly optimistic/exaggerated capabilities assumed for their own scenario. Take their own set, which overlaps that of Rosenau and the Berkowitz project team conducting the ADCON study (Falkenrath/Newman/Thayer, 1998: 112):

The minimum desirable group would have one competent microbiologist (undergraduate-level training or

higher), one experimental physicist or mechanical engineer able to work with aerosol technology, and sufficient funds – less than a few hundred thousand dollars would be needed – for research, testing, production, and weaponization.

The Belfer Center authors introduce this set of requirements immediately after stating that for such "a small team of individuals" a "biological weapons project faces no hurdles that would be insurmountable." They distance themselves from amateurish "terrorist cookbooks" mentioned in the press" (see also their remarks about amateurish terrorism on pp. 199-200). The BW projects they envisage are clearly "beyond" that level (p. 112).

It may be asked whether Falkenrath/Newman/Thayer would have been less optimistic in their capability judgment had they taken Aum's hampering or even inhibiting specifics in the organizational area extensively into consideration.

Second reason: The newly discovered determinants for a grim BW future with its inherent overstatements are not new but are pre-1995 phenomena. As mentioned above, the authors made the plausible point that a "combination of motivational constraints and technological barriers explains why the thresholds to acquisition and use of real NBC weapons by non-state actors have almost never been crossed" – with the exception of the Japanese sect. The Harvard experts have dealt in great detail with two categories of non-state actors in this respect: a) those who possess the technical ability to acquire and use NBC but have expressed no interest in committing NBC terrorism (Falkenrath/Newman/Thayer, 1998, 45-59); and b) those who are interested but not able to employ WMD (pp. 59-62).

Looking ahead in the shadow of the Tokyo incidents in March 1995, the three authors identify the following factors as new possible/probable determinants of a grim future trend: Information on selecting and producing agents is readily available; agent seed stocks are accessible in part because of dual-use equipment and supplies; de-

livery vehicles can be developed, although with some difficulty; attempted acquisition of simple biological weapons by a competent non-state actor "is unlikely" to be detected by law enforcement agencies in advance of an attack (pp. 112-126; quotation: 123).

Already at first glance many references cited by the trio identifying increased possibilities of bioterrorism (pp. 112-126) are *pre-1995*, some of them go back to the 1970s. The most frequently quoted studies by the Office of Technology (OTA) were published in 1992 and 1993. Moreover, looking back, it is possible to find comparable descriptions, almost verbatim, in the chapter "Requisite Capabilities" in Ron Purver's literature review (1995, 9-14; see also 100-102). It is astounding that the Harvard experts who have quoted so many times from this report, do not specifically refer to the relevant literature cited and quoted by Purver. To present just two examples:

First, concerning the technically most demanding yet central challenge for an effective large-scale bio-attack – having effective means of delivery available, which Aum Shinrikyo had not mastered – Kupperman/Smith (1993: 41, quoted in Purver, 1995: 12) stated *two years before* the Tokyo incidents:

Aerosol dispersal technology is easy to obtain from open literature and commercial sources, and equipment to aerosolize biological agents is available as virtually off-the-shelf systems produced for legitimate industrial, medical, and agricultural applications. With access to a standard machine shop, it would not be difficult to fabricate aerosol generators and integrate components to produce reliable systems for dispersing microorganisms or toxins.

To be sure, the Harvard trio do not quote Kupperman/Smith directly—this is in accordance with the fact that the duo represent the "alarmist view," rejected by Falkenrath/Newman/Thayer (1998: 27, note 1).⁹ But in terms of substance the

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trio rely on other pre-1995 sources which take the same view as Kupperman/Smith do. And yet, the three Belfer Center experts are only somewhat more cautious regarding off-the-shelf aerosol generators. In their view, they would not do an effective job, but would make it “considerably easier” (121-122; quotation: 122) for the would-be attacker to build or modify an efficient delivery device. The Harvard trio describe numerous technical difficulties, yet, in the end, they conclude that several high-performance technologies “can efficiently produce large, stable clouds of respirable aerosol” (p. 122).

Second, regarding the availability and accessibility of the relevant scientific-technical know-how for building a BW, a look back into Ron Purver’s pre-1995 literature review (Purver, 1995: 10) is very informative. To quote just two authors: “In fact, everything one needs to know to build a biological weapon can be found in a public library,” and “Generic directions [for mass producing a bioweapon] are freely accessible in open literature.” The trio concur that a great deal of information has been present “in libraries for years,” and they make the point that, because of the Internet, access to that information “has never been easier” (Falkenrath/Newman/Thayer, 1998: 176).

But instead of presenting these phenomena as a process, the Harvard experts spend 11 pages (pp. 171-182) dealing extensively with the broader context of economic, educational and technological progress resulting in the expansion of the social knowledge base and the “increasing ease” of access to information. To what avail? Both developments lead for the authors to the fact that the spectrum of non-state actors capable of acquiring and using NBC weapons is “clearly increasing” (p. 169).

Third reason: Finally retreating from their core prediction of a rising WMD menace. At the end of their essential chapter on the threat of NBC attacks by non-state actors the three experts provide contradictory statements on whether the assumed increasing range of sub-state groups fulfill three

conditions – being NBC-capable, being interested in causing mass destruction and using specifically biological weapons to this end: At this crucial point the authors’ filter becomes narrow, culminating in the question: “But will such groups actually employ nuclear, biological, or chemical weapons?”

While they write about an “expanding range of groups” being able to carry out and having an interest in mass killing, they are at the same time cautious in two respects: The first regards a numerical increase in the number of those groups and the second concerns the actual use of WMD, as the question above already indicates. The three authors finally admit: “There is *scant evidence of an increase* in the number of groups interested in having anything to do” with WMD. “Virtually all known groups continue to find that the tried-and-true arsenal of conventional weapons provides the tools they need.” Equally important, “only a handful of individuals and groups – most of them in the lunatic fringe – have been caught in possession of, or attempting to acquire, materials or equipment that could be used” in a BC weapon – Aum Shinrikyo being the only exception.

The authors must be given credit for being blunt about one fundamental issue: These “few cases are not a strong indicator of a rising level of interest” in WMD. At this crucial juncture they finally introduce one essential argument: the assumed interest of a few groups in causing mass casualties *by conventional* means and not necessarily by WMD. This paves the way for a broader spectrum of future trends thus relativizing the authors’ fixation of WMD: “It is possible that none of these capable, bloodthirsty groups will choose to resort to NBC weapons.” (All previous quotations on p. 170, in one case italics added by me). The Belfer Center experts were right in stating that it was difficult to speculate in 1998 whether Aum Shinrikyo was an anomaly or the first of many WMD-armed non-state actors to come (p. 176). Meanwhile, we can say that the sect has not created a new pattern specifically in



the BW area, as the absence of the feared copycat effect (pp. 211-212), which has *not* taken place, vividly shows.

The Middle East/Gulf in the post-1995 and pre-2001 Harvard Study: Not Too Threatening in the WMD Area, and Superterrorists Not Yet Looming

The role the Middle East/Gulf plays for the Belfer Center experts is mostly determined by the 1998 publication date of its study, which makes it a post-Aum and pre-9/11 or pre-al-Qaeda volume. The shadow of the 'bio-chem clouds' of Tokyo can easily be seen where the three Belfer Center authors attribute the trend toward mass-casualty terrorist activities to religious extremists with an apocalyptic theology and to Sh'ite terrorists operating in the Persian Gulf against U.S. forces and the sheikdoms (p. 214). How time-bound the survey on the Middle East/Gulf is can be seen in their assessment of the Kurdish guerillas who were regarded not as coalition partners but as actors hostile to U.S. interests (p. 213).

The pre-al-Qaeda era manifests itself distinctly in the context of intensifying efforts against U.S. presence and influence in the region (pp. 188-194). The authors make clear that those problems as well as the increasing role of religious conflicts (p. 182) are occurring within the Middle East/Gulf – al-Qaeda's strategy of hitting the "far enemy" in its homeland is still to come. In fact, Falkenrath/Newman/Thayer (p. 188) highlight that religious and political motives for terrorism "clearly reinforce one another in the Middle East, especially the Persian Gulf." More importantly, "they do so in a manner that suggests that this is the region where the risk of mass casualty terrorism against U.S. targets is growing most rapidly."

At first glance mass-casualty terrorism may be linked entirely to WMD (the study toward the end of the chapter on sub-state actors does not differentiate among the specific weapons, so the 'B' element should be seen as part of the acronym),

but this is not the case. The Belfer Center study is very much informed by two major *conventional* bombings in Saudi Arabia. The first, at the offices of the U.S. program manager for security assistance with the Saudi Arabia National Guard in Riyadh, killed seven people and wounded 40 on November 13, 1995. On June 25, 1996, the second bombing at Khobar Towers housing complex for U.S. Air Force personnel in Dhahran led to 19 American casualties and injured over 500. While the authors deal with these incidents in their sub-state section, they had to leave the question of who was responsible for the bombings open at that time. They suspected elements of radical Shia Islamists were possibly assisted by not clearly identifiable states sponsoring terrorism, notably Iran and Iraq.

Middle East/Gulf sub-state actors are categorized and listed in a figure (p. 169) which shows the three major overlapping components mentioned above:

The first circle, covering actors capable of NBC weapons acquisition and use, lists as the only traditional group the PLO; *the second circle*, representing actors interested in causing mass casualties (but not by using WMD), includes Hezbollah in addition to Kurdish guerillas; *the third circle*, mentioning groups interested in using NBC weapons, does not include Middle East/Gulf-related groups; only the lunatic fringe and right-wing militias.

One point is visible in the figure: Not surprisingly, Aum Shinrikyo is the only highly dangerous spider in the net where all three circles overlap. Unlike many other countries – the United States, Russia, Australia, Germany, Taiwan, Sri Lanka and the former Yugoslavia – for its international operations the cult was not interested in Middle East/Gulf countries (Staff Statement, October 31, 1995: 69-83). Close to Aum in the figure presented and therefore a potential WMD menace, are two very different actors: Ramzi Yousef, the "leader and mastermind" (Parachini, 2000: 187) behind the World Trade Center (WTC) bombing in 1993 with a possible Middle

East/Gulf connection (see below), and the Bosnian Serbs who have nothing to do with that region. This is good news for the Middle East/Gulf.

These actors are part of a heterogeneous list of terrorists which includes all kinds of individuals and groups from an extremely diverse political spectrum with a broad range of motives and skills. Their weapons are not specified and they could be NBC across the board (Falkenrath/Newman/Thayer, 1998: 214-215). Contrary to the claim of the Belfer Center study this list does not constitute a profile (p. 214). By contrast, among the allegedly few non-state terrorist actors, two types of "super-empowered individuals" have become part of the authors' list:

First, understandably it is not Aum's "charismatic" (p. 29, Box No. 1) leader Shoko Asahara whose (relative) inefficiency in the BC weapons area was disclosed even in the brief remarks in the Harvard volume. Rather it is the Theodore Kaczynski type of megaterrorist, taken from the American historic-"cultural" pool with its traumatic and psychotic elements, that is to say, a "highly intelligent, hubristic individual" who "might" be drawn to WMD as a way of "proving his or her own superiority," as the "Unabomber" was drawn to "sophisticated letter bombs." Over almost two decades prior to his arrest in 1996 Theodore Kaczynski had mailed several letter bombs that killed three people and injured more than twenty (Simon, 2013: 75-79). The Harvard authors admit that this would be a "rare individual of this type," since such a person would not only be "motivated to kill on a massive scale," but would also be willing to disregard his or her "own instincts of self-preservation" (Falkenrath/Newman/Thayer, 1998: 211).

Second, the "next Hitler or Lenin" type of superterrorist, which is utterly different from the first category, is the intellectual input of former U.S. Under Secretary of Defense for Policy and Director of the Arms Control and Disarmament Agency, Fred Iklé, to the Belfer Center study. With this term Iklé referred to a "charismatic

leader who combines utter ruthlessness with brilliant strategic sense, cunning and boundless ambition – and who gains control over just a few weapons of mass destruction” (Iklé, 2006: ix; the earlier Iklé text [1997] to which the trio refer did not include the “next Hitler”). Given Iklé’s Swiss background, the historic-“cultural” pool of the “super-empowered” individual is Europe/Eurasia.

Earlier in the book, the three experts had expressed strong doubts about this type (if he or she ever appeared) concerning the actual use of WMD: “But if such a person were to emerge, would he or she eschew weapons of mass destruction?” (Falkenrath/Newman/Thayer, 1998: 207) Iklé’s grand views expressed in 2006 raise further questions: Why are Osama bin Laden or the North Korean dynasty of despots missing? The same applies to Stalin in whose era the Soviet Union actually developed and tested nuclear bombs of any size. In his booklet of 2006 Iklé added Hitler to Lenin correctly stating that “[o]nly late in 1941 did Hitler’s strategic folly emerge” (Iklé, 2006: 73) which contradicts the author’s above-mentioned criterion of “brilliant strategic sense” which was mentioned above. The appearance of the superterrorist, which may have been in part a concession to Fred Iklé, was only temporary; it vanished in Falkenrath’s *Survival* article in 1998/99.

One superterrorist is *not yet* on the list of “super-empowered individuals” in the pre-9/11 study: WTC bomber Ramzi Yousef, a Pakistani citizen naturalized in the U.S., who claimed to have been born in the Gulf state of Kuwait and to have relatives in the Broader Middle East/Gulf (Parachini, 2000: 187). As mentioned above, the three Harvard authors do not automatically link non-state violence and the will to cause mass casualties to the use of WMD – this applies to Ramzi Yousef, too. Despite his possible interest in chemical weapons and technical competence, Yousef, who reportedly possessed chemical “cookbooks,” decided to use only conventional explosives (to Parachini [2000: 185], the February 1993 bombing marked the “beginning of an ugly new phase of terrorism involving the indiscriminate killing of civilians”

by conventional means). But Yousef also threatened to use chemicals, as Parachini (2000: 201) pointed out. Walter Laqueur’s general suggestion has luckily not become reality: that in view of more indiscriminate killing, “terrorists may draw the line at weapons of superviolence likely to harm both foes and large numbers of relatives and friends” (Falkenrath/Newman/Thayer, 1998: 203, including note 77; Laqueur quoted on p. 203, note 78).

As we shall see, for terrorist expert Gary Ackerman and his various co-authors Ramzi Yousef is, together with Bruce Ivins, the prototype of an almost “super-empowered individual.” However, it is not Theodore Kaczynski who looms large in articles *cited* by Ackerman and colleagues who developed the self-acclaimed concept of the “super-empowered individual.”

To sum up, Falkenrath/Newman/Thayer have not provided a coherent and convincing analysis of a growing threat of bioweapons (what this EXTENDED POLICY FORUM issue focuses on) as part of the broader NBC/WMD spectrum. The power of their Aum-inspired perception became evident in their assessments throughout the book. The supposedly increasing number of (potentially) dangerous groups has remained vague and often contradictory. Finally, while continuing to emphasize certain sub-state actors’ interest in mass casualties, they abandoned their fixation on WMD and broadened the menu; conventional weapons became the *deus ex machina*.

Thus, the Harvard trio has not even excluded future non-use of WMD in their analysis, which rejected forecasts and dealt more with possibilities than probabilities. More than a quarter of a century later it is quite evident that almost none of the feared trends, factors and incidents discussed in the Belfer Center study have become reality. About three years after the watershed incidents in Tokyo the three experts certainly provided a narrow yet important spectrum of perspectives and problems, especially for decision-makers to think about. All in all, the superterrorists remained sporadic, disparate aliens. The selection of sub-state actors in the

Middle East/Gulf as being potentially dangerous in the CBRN area was mostly time-bound. However, with their focus on WMD conventional weapons with a similarly large-scale destructive impact were lost from view. What is more, the rise of amateurish terrorism, mentioned only in a cursory way, was not on their agenda.

PART III: “5/11”, 9/11 and al-Qaeda Shape the Discourse on Superterrorism and Low-tech/Amateurish Terrorism with the Broader Middle East/Gulf Omnipresent

After 1993 (the WTC bombing) and 1995 (Aum), 2001 is the third and probably most distinct year marking a new phase in terrorism intent on inflicting mass casualties and its BW-related dimension: the mailings of anthrax spores, which occurred in autumn that year in the context of the New York incident on September 11. With 9/11 the Broader Middle East/Gulf struck at the “far enemy” on the enemy’s own territory. Both incidents drew al-Qaeda into the political arena as the dominant actor, because there were at first uncertainties concerning the anthrax perpetrator. When U.S. authorities became increasingly confident that a single, highly specialized scientist was behind the mailing of the contaminated letters, this special Lone Wolf actor became the second factor shaping the debate among experts in the United States. In terms of the BW dimension and its relevance, it cannot be overlooked that killing five people and injuring 11 (“5/11”) is far from mass murder, while 9/11 had nothing to do with CBRN/WMD but raised fears that non-conventional terrorist activities leading to real mass killings were not only possible but (highly) probable.

The double incidents of “5/11” and 9/11 were decisive factors – highly different as they were – in that in the U.S., which was the dominant arena, they shaped the mindset of the two major groups of experts, the *alarmist/most concerned* (in principle with



the variant of the *concerned/more moderate*) and the *more cautious and sober* analysts with their respective allies in the political realm. These ‘camps’ of thought will structure the review of the literature on bioterrorism from the Middle East/Gulf between the poles of superterrorists and low-tech terrorists/amateurs. In *Part III* it will be possible, *first*, to briefly present the divergent intra-American positions on the anthrax letters in 2001; *second*, to select from among the subsequent vast number of studies and articles two representative publications of the *alarmists/most concerned* experts of 2008 and 2009; and *third*, to devote an entire chapter to the *more cautious and sober* group of analysts.

Positioning the Two Expert Groups in the Intra-American Controversy over “5/11” – Are Middle Eastern Actors or (an) American Scientist(s) Responsible?

In the wake of the attacks of September 11, 2001, the impact of the anthrax letters on the politico-psychological situation in the United States, in particular in the capital, cannot be overestimated. For many, if not most, it was dramatic, in fact traumatic: The anthrax attack “placed our entire Nation in a state of high anxiety,” Rep. Tom Lantos (December 5, 2001: 2) stated at a Congressional anthrax hearing. According to the FBI, Dr. Bruce Ivins, the microbiologist working in the sophisticated U.S. biodefense program at the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick/MD, was the perpetrator. Only in August 2008, after almost seven years, did the FBI publicly state that the anthrax mailer was Dr. Ivins – a finding still questioned by some people (Blum/Neumann, June 22, 2020) but confirmed by and large by a panel of the U.S. National Academy of Sciences almost two and a half years later in January 2011 (Simon, 2013: 102).

On the FBI website the mailer had been vaguely described as probably a male adult with a scientific background and access to a source of anthrax, probably from a lab-

oratory in the United States. This person was portrayed as a non-confrontational person holding no grudges and preferring to be alone. FBI officials acknowledged that the domestic profile of a Lone Wolf was patterned on the “Unabomber,” more precisely Theodore Kaczynski, who over a period of 18 years prior to his arrest in 1996 mailed several letter bombs that killed three people and injured 29 (Cole, 2008: 39; Simon, 2013: 75-79). Could “someone like the “Unabomber” or al-Qaeda have produced this anthrax without the involvement of a state?” Rep. Henry J. Hyde (December 5, 2001: 1) asked in his opening remarks at a hearing on the issue. Thus, a single individual or a domestic group was just one option, but there were other indicators that pointed in the direction of the Middle East/Gulf (see also Ackerman/Pate, 2001/08: 26). Yet there was “no solid evidence” that al-Qaeda ever weaponized anthrax. If the perpetrator were “an amateur” who was able to develop the material without advanced training, the issue would be “especially ominous,” greatly expanding the field of possible perpetrators, whether domestic or international (Cole, 2008: 38-39).

Ivins prepared and about a week after 9/11 started sending through the U.S. mail system a half dozen, perhaps more, letters containing powdered anthrax spores to journalists and politicians. Although the anthrax letters resulted in “relatively few casualties” and injured just over 20 persons, they created “massive disruption” especially of the U.S. postal services and “demonstrated the potential for devastating consequences” (Cole, 2008: 23; quotations: 27).

The activities of the microbiologist had a considerable impact and generated highly alarmed threat assessments among experts. Former U.S. Secretary of the Navy Richard Danzig (2003: following quotations on p. vii, 1), reflecting the mood among the *alarmist/most concerned* experts and politicians, wrote in his report “Catastrophic Bioterrorism” that terrorists might inflict “great trauma” upon us by using BW. “When the anthrax letters were mailed, 11 people contracted inhalational

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anthrax, 5 of whom died. Call this ‘5/11.’” Three years later, strategic thinker Fred Iklé arbitrarily increased the number to “more than a dozen fatalities” (Iklé, 2006: 63) and projected — quite out of context and without meeting the standards he had set for his “Impact Statements” as Director of the Arms Control and Disarmament Agency: “A single individual could spread a nationwide pandemic using a highly contagious virus.” (Iklé, 2006: 84).

Concerning a sober look at the Japanese sect and “5/11” in the context of 9/11, Jason Pate and Gary Ackerman (2001/08: 25) were among those experts who correctly categorized the anthrax letters as an “entirely new phenomenon” of bioterrorism. “They moved the threat of bioterrorism, which had previously been mostly theoretical, closer to reality.” And yet, contrary to the *alarmists*, both experts provided in a nutshell the major arguments constituting the mindset of the *more cautious and sober* group of experts:

- *First*, they not only followed the traditional Brian Jenkins motto but correctly placed the low “5/11” numbers in the overall context of conventional terrorism. The “biological Unabomber” as a possible perpetrator – and this is in contrast to Gary Ackerman’s later introduction of the “super-empowered individual” – appeared as a ‘normal’ down-to-earth actor: Compared with the overall fewer than 1,000 U.S. casualties caused by terrorism until 9/11, “anthrax incidents have been small in scale, with the apparent intent of frightening rather than killing large numbers of people.” The terrorists “may also not have been motivated to inflict mass casualties, even if they could.”
- *Secondly*, the two authors carried out a reality check by referring to critics who emphasized the “significant technical hurdles to the use of chemical or biological weapons to cause mas-

sive numbers of casualties.” The Japanese sect is a case in point for the duo: “Despite Aum Shinrikyo’s vast financial resources and scientific expertise, it was unable to perpetrate mass-casualty attacks with either chemical or biological weapons.”

- *Third*, the two authors provided a major standard argument for the *non*-use of CBRN/WMD by pointing out that “large numbers of casualties can be caused by terrorists without resorting to WMD. The September 11 terrorists did not require advanced weaponry to cause mass casualties and mass destruction. They used a low-technology operation and returned to decades-old terrorist tactics – hijacking planes – to achieve their goals” (all quotations in Ackerman/Pate, 2001/08: 27).

As we shall see in *Part IV*, Dr. Bruce Ivins, the highly skilled Lone Wolf perpetrator behind the anthrax mailings, will become more and more the personification of the “super-empowered individual.” The long-term design of this review will make it possible to analyze the development of this crucial dimension in Gary Ackerman’s writings.

The Mindset of *Alarmist/ Most Concerned Experts (I) – Their BW-related Deep Fears, Exaggerated Forecasts, and Partly Flawed Analyses: The “World at Risk” Report (2008)*

In the aftermath of Aum and the anthrax mailings in the wake of 9/11, there were several surveys of experts within the arms control/security community in the United States and beyond. The goal was in all cases clear: to instrumentalize the authority and reputation of experts with their mostly grim, alarmist forecasts in urging the U.S. administration to implement more efficient policies in the area of nonprolif-

eration and counterterrorism. Biological weapons were either part of the survey activities, as in the case of Senator Lugar (2005), or they were the only concern (CSIS/Carnegie Endowment for International Peace, 2006).

“World at Risk” was the dramatic title of a political-programmatic report of the prominent bipartisan Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism (Graham/Talent [chairpersons], 2008: 11). This body was set up in 2007 by an act of the U.S. Congress with a specific mandate to assess the situation and provide within 180 days a strategy and concrete recommendations with an emphasis on preventive policies. Without being fatalistic, the report included precise dates for catastrophic attacks which could be avoided by the urgent preventive set of measures it presented.

“The Future of Jihadists and WMD. Trends and Emerging Threats” was the title of an article by Gary Ackerman which also included pessimistic forecasts in its so-called Delphi survey (Ackerman, 2009a). Under the leadership of Ackerman, the projections were developed about the same time (January to March 2008) by a group of 19 U.S. experts (plus one coopted European); these experts were mainly academics, most of them contributors (Ackerman, 2009a: 379, Appendix 1) to the comprehensive and thorough study “Jihadists and Weapons of Mass Destruction” (Ackerman/Tamsett [eds], 2009). The Delphi survey should be seen as part of Ackerman’s publications. The Graham/Talent report and the Delphi survey on WMD-related forecasts led by Ackerman, both covering the political and academic realms, were inter-related through Ackerman’s (2009b) mainly positive review of six and a half pages of the “World at Risk” report.

The dramatic design of the “World at Risk” report, both in language and contents of the Graham/Talent Commission, was obviously designed as a wake-up call



for decision-makers to take urgent steps. Alarmism and exaggeration go hand in hand, especially with respect to forecasts. The report is not written with a pen, but with a brush. The Commission's members included prominent experts, among them Graham Allison from Harvard University, an academic well known for his alarmistic views especially with respect to nuclear terrorism (Allison, 2004). Its eye-catching overture stated that it was "more likely than not" that a weapon of mass destruction – probably a biological weapon – would be used in a terrorist attack "somewhere in the world by the end of 2013" (Graham/Talent [chairpersons], 2008: xv).

The Bipartisan Commission did not state who the perpetrators would be, but it became clear that its report was heavily influenced by both the anthrax mailings and the attacks on September 11, so that scientists, and especially al-Qaeda, became the major focus. With reference to potential evil scientists, the Commission (p. 11) stated pointedly:

[...] given the high level of know-how needed to use disease as a weapon to cause mass casualties, the United States should be less concerned that terrorists will become biologists and far more concerned that biologists will become terrorists.

For good reasons the Commission gave prominence to biosafety problems and drew attention to laboratories. In his review Ackerman (2009b: 3) rightly highlighted the report's "somewhat novel" reference to dangerous so-called "insiders." The report also dealt with measures for preventing the theft or diversion of dangerous pathogens. The Commission recommended initiatives for securing them, promoting a culture of biosecurity/biosafety and advancing bioforensic capabilities (pp. 24-34). Since BW programs could be hidden in seemingly scientific and industrial organizations operating in a decentralized and transnational way, in-

novative intelligence collection would have to adapt accordingly – by taking advantage of the international (in)formal networks among scientists operating as early warning sensors for the misuse of biotechnology (p. 98). Another scientist-related aspect of the "World at Risk" report involved the understandable but ultimately unwarranted fear that not only American but also Russian scientists (Salama/Hansell, 2005: 642-643) who had lost their jobs in the wake of the dissolution of the USSR could be tempted to help terrorists manufacture a biological weapon.

The Bipartisan Commission's main focus (perhaps fixation) became al-Qaeda, which represented the broad range of jihadist terrorists. The Commission regarded this group as a unitary, static actor. Consequently, it was clear for these experts that this organization would never give up its search for biological and nuclear weapons capable of inflicting mass casualties (the report excluded chemical and radiological weapons). The possibility of scientists becoming BW terrorists was again relevant. The Commission accepted the "current rudimentary nature" of terrorist capabilities but cautioned that terrorists were trying to upgrade them "and could do so by recruiting skilled scientists. In this respect the biological threat is greater than the nuclear" (p. 11).

The Commission's members could not imagine that al-Qaeda (and later the Islamic State) would drastically change their military strategy and tactics by emphasizing the use of unsophisticated weapons. For them, the question of a WMD attack, most probably on the United States, was not a matter of if but of when. But on what assumptions, data, and sources were these seemingly precise predictions for the period up to 2013 based? The authors did not provide an explicit and plausible answer and obviously assumed that their readers would take the forecasts for granted because of the authority associated with the members of the Commission.

The Mindset of *Alarmist/Most Concerned Experts (II)* – Their BW-related Deep Fears, Exaggerated Forecasts, and Partly Flawed Analyses: Gary Ackerman's Predictions (2009) in the Context of Other Works of His (2004, 2009)

Ackerman Quitting the Group of the More Cautious and Sober Experts

With his sound analysis of the anthrax letters in 2001 (with Jason Pate) as a starting point, Ackerman's "Recommendations," co-authored with Jeffrey M. Bale in 2004 (Bale/Ackerman, 2004), serve as a stepping stone to 2009 (the individual chapters are each attributed to single authors, but both experts can be considered to be the authors). Basically, the "Recommendations" are a structured review of the literature, making the case for WMD research with a fairly clear expectation of a rising threat across all categories of CBRN/WMD. An example is how strongly Gary Ackerman refers to the Belfer Center volume, summarizing all factors supporting this claim (Bale/Ackerman, 2004: 43, esp. note 102). In the BW area Ackerman cites the technological possibilities associated in particular with effective means of aerosol dispersion, despite the significant hurdles that still existed. He refers to the anthrax mailings as proof that the production of aerosolized spores by a "technically proficient terrorist or terrorists" is at least feasible, although he is forced to admit that in technical terms the mailings were not a WMD incident (Bale/Ackerman, 2004: 56).

The Harvard/Belfer Center study, which is one of the most often quoted and cited sources in the "Recommendations", is reduced in significance to one of the "better-researched book-length studies" in his co-authored "Introduction" to his comprehensive co-authored book on jihadists and WMD (Ackerman/Tamsett, 2009a:

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xxviii, note 15). Gary Ackerman, who in 2001 wrote as a *more cautious and sober* expert, had meanwhile switched to the *alarmist/most concerned* group. This change may have been due to his growing preoccupation with jihadist terrorists, or, as indicated below, he may have already become frustrated with the fact that his assumption of a rising BW threat manifesting itself in catastrophic events was *not* occurring.

The Similarly Grim CBRN/WMD-related Forecasts – Not Becoming Reality Either

At about the same time (January to March 2008) as the Bipartisan Graham-Talent Commission was writing its dramatic report with its apocalyptic forecast, Gary Ackerman was conducting his Delphi survey (Ackerman, 2009a). In his detailed review of the “World at Risk” report he rightly criticizes the sloppy way of not providing “some explanation” of the provenance of “such a grim forecast,” arguing: “Without it, there is no basis for judging the assumptions, data, and reasoning on which the statement is based and thus to weigh this particular conclusion against contrasting claims made by others.” Here he recommends the model survey “conducted by this reviewer”: Its assumptions are transparent, its methodology is reflected in a sophisticated way and caveats are built in (all quotations in Ackerman, 2009b: 6).

Ackerman (2009a: 378) summarized the results of the fine-tuned survey covering the demanding forecasts for short-, medium- and long-term (five, ten, and even 25 years) as follows:

The results of the Delphi study are sobering. A panel of experts participating in a structured elicitation has collectively estimated that the probability of jihadists successfully perpetrating a WMD attack within the next twenty-five years is substantial, and that this probability will increase as time passes. Jihadists are perceived as already having the motivation and either presently or in the near future will likely have the capability to engage in at least some forms of WMD

terrorism. Moreover, the majority of experts believe that there will likely be more than one WMD attack by jihadists over the next twenty-five years and that at least several thousand people will be harmed in these attacks. This would seem to put the forecast of experts far closer to the worst-case scenario [...] than to the best-case end of the spectrum.

Within this time span of 25 years, “most of the experts” believe that jihadist terrorists are more likely to manufacture CBRN on their own than to attempt to purchase or steal them. As to the initial WMD target, there is “at least a partial consensus on the most likely location (Western Europe)” (quotations in Ackerman, 2009a: 378). The short-term forecast for the next five years (again until around 2013) presents a ranking of the most likely types that jihadists might use out of the entire spectrum of CBRN. Biological weapons rank in third place only; the preferred weapons would be chemical and then radiological; nuclear weapons would be last. Biological weapons would remain in place three in the ten-year forecast (around 2018) but ranked second in the prediction for the next 25 years. Sunni jihadists are seen as the most likely perpetrators within the next ten years (Ackerman, 2009a: 382, 385-386).

One further advantage of the longitudinal design of this EXTENDED POLICY FORUM 2021/22 is that it makes it possible to go beyond the mere academic categorization of pessimistic, pragmatic and optimistic schools of thought, whose CBRN risk assessments, while drawing on the same limited data, arrive at strikingly different conclusions (Koblentz, 2011: 501). We are now able to use reality as the arbiter of the alarmists' forecasts and the quality of their underlying analysis. In 2021/22 we can even include about half of Ackerman's longest time line of 25 years, which expires in 2033.

What are transparent assumptions and methodological finesse worth in hindsight, now that the similarly gloomy predictions of the Delphi survey have not become reality and have also turned out to be ex-



aggerated? Contrary to Ackerman's claim, the analytical and methodological superiority of the survey was not useful "to better evaluate the results" (all quotations in Ackerman, 2009b, 6). In fact, the predictions by both the Bipartisan Commission and the Ackerman-led expert group (in the latter case the political or academic target groups are not at all clear), raise some questions: *First*, how can *major differences* between the two groups of experts, for instance the different rankings of biological weapons and the disagreement on the U.S. or Western Europe as the most probable location of a WMD attack be explained — are the predictions too precise? *Second*, what accounts for the greater relevance of bioweapons (from place three to two in the longer time frame) in the second expert group — are the forecasts too fine-tuned? *Third*, how can the *major similarities* between the purely authority-based forecasts of the Bipartisan Commission and the methodologically 'superior' predictions of the Delphi survey be explained?

In his both thorough and fair review of the Commission's report Gary Ackerman (2009b: 5) strongly criticizes the "lack of context for many of its conclusions" as one of the publication's "primary shortcomings." The "most egregious example of this" (p. 5) is the above-mentioned "greater than 50% likelihood of WMD use by terrorists within *five* years." The Delphi survey provides a similarly grim forecast, referring to "*only* within a *ten*-year period" (p. 6 — my italics). In the case of the first half of the long-term forecasts which ended in early 2001, the question how they can be more than mere guesswork cannot be avoided. In their "Recommendations" Bale/Ackerman (2004: 70) are quite critical of those analysts who seem to believe that they can "devise a 'magic bullet' in the form of a sophisticated model that will allow Western security agencies to predict when particular terrorist groups are likely to carry out such attacks." Both the Bipartisan Commission's and Ackerman's forecasts, with their apparently accurate dates, timetables and taxonomies of WMD use come close to pretending to offer such a "magic bullet."

The Delphi Survey and Ackerman's Other Writings on Al-Qaeda and the Jihadists Amid Partly Flawed Analyses

As already mentioned, the Delphi survey conducted by Gary Ackerman should not be seen in isolation but as part of his earlier work, especially his co-authored "Recommendations" (Bale/Ackerman, 2004), and the co-authored "Conclusion" (Tamsett/Ackerman, 2009) of their co-edited major study on jihadists and WMD. It is striking that already in 2004 the "Recommendations" rejected the "simplistic and erroneous" notion that al-Qaeda constitutes a single organization (as assumed by the Bipartisan Commission), or that transnational Islamist terrorism "is all" being coordinated by bin Laden (Bale/Ackerman, 2004: 68, note 217). Instead, the authors see al-Qaeda as a "loose, hybrid network consisting of four overlapping levels" (Bale/Ackerman, 2004: 68).

The authors took over this differentiated view of al-Qaeda as a non-hierarchical organization without a well-defined command structure from Jason Burke, 2003: 12-17), four years before Marc Sageman (2008b) published his widely discussed study "Leaderless Jihad" — but their WMD-related conclusions can neither be found in Burke's work nor in the publications of the *more cautious and sober analysts*, who emphasize the increasing trend toward low-tech weaponry. In 2009, Gary Ackerman and his co-author Tamsett (2009: 407/416, note 11) referred to Sageman's new book and his equally complex view of al-Qaeda.

In both years (2004 and 2009) co-author Ackerman stated that "it may well be these affiliated cells of extremists who are most prone to want to carry out mass-casualty attacks, possibly using CM or BW agents or crude RDDs [radiological dispersal devices], attacks that might be virtually impossible to predict, much less forestall." The "Recommendations" add that they "*may well lack the wherewithal to do so*" (Bale/Ackerman, 2004: 68 — my italics). In 2004, Ackerman (as well as his co-author Bale) admitted (concurring with a book by Nadine Gurr/Benjamin Cole, 2000: 74) that

especially due to inefficient dissemination techniques, the development of weapons of mass destruction "capable of causing extremely large levels of casualties is the least likely to emerge" (quoted in Bale/Ackerman, 2004: 66).

Against this backdrop, in the worst-case scenario of WMD terrorism, members of an operationally sophisticated Islamist terrorist group surprisingly emerge. In the BW area terrorists are now regarded as being able to effectively disperse aerosolized pathogen agents, possibly with the further assistance of an unemployed bioweapons expert. Another possibility for this scenario to materialize would be state-sponsored terrorism emanating from North Korea or Iran (Bale/Ackerman, 2004: 66). Five years later, Ackerman (and Tamsett) remarked in the same vein (and this reminds us again of the Bipartisan Commission) that the "successful" jihadist cell would need to recruit "the right type of insider" (Tamsett/Ackerman, 2009: 407).

As mentioned above, Russian scientists turned out not to be a problem. As Ackerman well knows, state-sponsored terrorism is driven by interests in the WMD area, as the example of Saddam Hussein, who did not assist or even transfer CBRN-related technology/concrete weapons to non-state actors like al-Qaeda even when his regime was directly threatened, showed. Before the U.S.-led war against Iraq, Ackerman/Snyder (2002: 46) did not rule out the possibility that under extreme pressure Saddam Hussein could distribute parts of his WMD arsenal to terrorist organizations. Two years later, Iraq was no longer on the list of state sponsors of terrorism (Bale/Ackerman, 2004: 66).

At least with respect to the above-mentioned scenarios, in 2004 Ackerman and his co-author faced the dilemma that WMD attacks leading to more than 1,000 casualties (either dead or injured) were regarded as the least likely. In 2009, however, their forecasts, with one exception, dealt only with such WMD attacks. This is certainly not compatible with the assessment that "the current threat of WMD used by jihadists is not very high, primarily owing

to their lackluster demonstrated capabilities to acquire and weaponize CBRN agents” (Tamsett/Ackerman, 2009: 413).

The Ever Rising CBRN/WMD Menace and the Emergence of the Empowered Individual

What are the prospects for the future? Ackerman, year after year in article after article on the topic, has had an easy yet elusive escape by referring to the “most rapid and significant changes in coming years” in which “new obstacles are likely to be outweighed by the tremendous facilitative effects of advances in science and technology, combined with the worldwide diffusion and commercial exploitation of these technologies as a result of increased globalization” (Tamsett/Ackerman, 2009: 414). The clear result of the *quasi*-autonomous characteristic of the rising WMD threat is presented in the metaphor of a snowball: “Initially it is rather far away,” but “as time passes, the snowball gathers speed and grows in size, so that by the time it eventually reaches us, it has become a paradigm-shifting WMD” (Tamsett/Ackerman, 2009: 415).

This fixation with the constantly (not necessarily linearly) rising menace as a variant of hype must be seen in the context of the most serious conceptual deficit both in the 2004 building block and the Delphi survey conducted by Ackerman: the ignoring of the relevance of conventional weapons used by (jihadist) non-state actors to cause mass-casualty terrorist attacks. As the plausible and relaxed taxonomy of the ADCON study of 1972 showed, conventional weapons were considered to be the most likely form of attack. In the case of the Belfer Center study, Falkenrath/Newman/Thayer finally arrived at attack options that included conventional weapons. The use of this type of weapon as a proven alternative is one factor which explains why WMD – and by implication the biological component – have *not* been employed by (jihadist) terrorists.

Most striking is the changing role of Lone Wolves between 2004 and 2009. In the

“Recommendations” they are portrayed as “disgruntled” (p. 66) single actors loosely associated with the right-wing American “militia” movement. Five years later, the combined factors mentioned above are thought likely to lead to the “empowerment of individuals, small groups, and existing network operations,” which in turn will “undoubtedly play to the jihadists’ advantage” (Tamsett/Ackerman, 2009: 414). To be sure, the empowered individual has been discovered, but in Gary Ackerman’s publications this individual has five more years to develop before qualifying for the “super” label which will dominate all subsequent articles.

The Doubtful Value of Overly Grim Forecasts

At first glance, credit must be given to Gary Ackerman (2005: 140) for having proposed dealing with overlooked factors in terrorism research; overcoming fatigue, “something of an ‘interpretative impasse.’” The development of informed threat assessment methodologies for “practical purposes” (p. 141) is one of three options he suggested as a promising way out. Since from today’s perspective all the predictions of whatever kind discussed in the gloomy Delphi survey failed, it can now be seen as part of the terrorism research about whose “level of understanding and knowledge” Andrew Silke (2001: 1) had written years before: It had not achieved a level that would make it possible “to explain why certain events have happened and be able to accurately predict the emergence and outcome of similar events in the future.”

The methodologically sophisticated researcher is well aware of the perils of prediction, which may include negative effects on the reputation of academics. This may explain why Ackerman found it necessary to adequately and self-critically re-evaluate the “highly dynamic” domain (Ackerman, 2009a: 378). Unfortunately, this is not the case in all his own subsequent publications mentioned in my review. At the same time, this failure can be regarded as a major factor in propelling the discussion forward of

the ever-increasing menace ultimately culminating in a catastrophic incident.

To close on a partly positive note, the only value that can be seen in both sets of forecasts is the policy relevance of the assessments (and in the case of the Bipartisan Graham/Talent Commission the concrete recommendations): The future threat of jihadists using WMD will grow unless dramatic countermeasures are adopted (Ackerman, 2009a: 378; 2009b: 7). Even if Ackerman’s point in his review that the “World at Risk” report would help to “ameliorate the threat” (Ackerman, 2009b: 7) is accepted, the question may be asked: Did the experts fearing superterrorism really believe in the efficacy of the actual counterterrorist measures of the U.S. and its coalition partners – limited and misconceived as they were as a global war on terror with its overemphasis on unilateralism and military force at the expense of a multilateral approach and policy instruments (anonymous [Michael Scheuer], 2007; Clarke, 2004; Lustick, 2006; Mueller, 2006 – see different assessments in hindsight: Byman, 2019 and Davies, 2021)? More importantly, could policy-relevant information be generated without the considerable range of forms of exaggeration in both publications?¹⁰

The More Cautious and Sober Experts Checking Reality with a Focus on Low-tech Terrorism and Changing Broader Middle East/Gulf-related Terrorist Organizations (1999-2015/16)

The elements of this mindset consist of questioning the traditional CBRN/WMD focus with a sober look back to Aum Shinrikyo and, to a lesser extent, “5/11” as a non-mega event; an emphasis on low-tech terrorism in the broader conventional area, and an analytical look at how al-Qaeda and later ISIS were developing and what their organizational and political changes in terms of strategy and tactics meant for the – in fact widening – gap be-



tween intent and capability. It is significant that in this group of experts there is not a single counterpart to the *alarmist* publications that have been reviewed, since the representatives of this 'camp' vary widely geographically including, in addition to the United States, Europe with an emphasis on Scandinavia, and Australia. Needless to say, this review of the literature has had to adapt accordingly.

New, Critical Questions and a Sober Look Back

By taking empirical developments and the minor record of bioterrorism seriously, experts in this group approach the problem of bioterrorism differently from the *alarmist/most concerned* 'camp' with its fixation on megaterrorism. "Re-visiting the 'Super-Terrorism' Debate" (Dolnik, 2008: 3 – bold in original) becomes their over-all leitmotif. "An unlikely threat" (Tucker/Sands, 1999: 46 –bold in original; see also Tucker, 2004) is their assumption, and "Grounding the Threat in Reality" (Smithson/Levy, 2000: 11 – in bold) their programmatic approach. This situation leads to the critical questions: Why have CBRN/biological (or chemical) *not* been used since the activities of the Aum Shinrikyo sect in the mid-1990s (Dolnik, 2008: 3)? Or: Is CBRN-related terrorism "Hype, Hoax or Waiting to Happen?" (Stenersen, 2008a) The first question questions the fears of the *alarmists*, especially their concern that the biological efforts and actual chemical attacks of the Japanese sect would be copied at various places. The second question addresses the intensity of the fears and the urgent anticipation, in fact certainty, that catastrophic mega-size events would happen soon.

Historical developments proved that the members of this expert group were right: The apocalyptic year of 2013, as imagined by the Bipartisan Commission chaired by Bob Graham and Jim Talent, passed without the predicted catastrophe of a bioterrorist attack "somewhere in the world." What is more, the trend this group of skeptics expected went in the opposite di-

rection as forecast by the *alarmists*, moving toward the use of less sophisticated weapons of (mass) disruption instead of mass destruction.

Al-Qaeda and the Gap between Intent and Capability

Without ignoring and belittling al-Qaeda's intentions and CBRN-related activities, by the time the Commission's report was published (2008) the *more cautious and sober* experts had developed a more adequate view of al-Qaeda's capabilities, and later, of those of the Islamic State. They did not ignore Osama bin Laden's moral and religious justifications for the use of CBRN weapons and his determined statements providing a strategic rationale for their use, which was also presented by representatives of the other group of analysts (Mowatt-Larssen, 2011). Bin Laden had reportedly pursued the development of biological and chemical weapons since the early 1990s. It was "widely agreed" (Stenersen, 2008a: 117) that during the Afghanistan period (mid-1990s to 2001) al-Qaeda members reviewed open-source information on CBRN materials and weapons, and conducted experiments with crude chemicals and toxins, possibly including the purchase of viable biological and chemical warfare agents.

During operations in Afghanistan, coalition forces found traces of ricin and anthrax at five or six sites, as well as evidence of an interest in plague, cyanide, and botulinum toxin (Cronin, March 28, 2003: 4). Al-Qaeda had a CBRN program code-named "al-Zabadi" (curdled milk/yogurt) with an initial budget of \$2,000 to \$4,000 (Pita, 2007: 483; Stenersen, 2008a: 117, based on the same source). These were strong indications that the organization's activities had been "merely in an early conceptual phase by 2001," carried out by "a few dedicated people" within the al-Qaeda core (Stenersen, 2008a: 117; see also Dolnik, 2008: 8-9). According to Cole (2018: 104; see also 156), "[i]t was assessed that al-Qaeda might have acquired the necessary production facilities to support

» *By taking empirical developments and the minor record of bioterrorism seriously, experts in this group approach the problem of bioterrorism differently from the alarmist/most concerned 'camp' with its fixation on megaterrorism.*

[...]

This situation leads to the critical questions: Why have CBRN/biological (or chemical) not been used since the activities of the Aum Shinrikyo sect in the mid-1990s (Dolnik, 2008: 3)? Or: Is CBRN-related terrorism "Hype, Hoax or Waiting to Happen?" (Stenersen, 2008a). «

‘a very limited production of chemical and biological agents’, although the equipment had not yet been used and no live biological agents were discovered there.”

Al-Qaeda’s activities are put into perspective and qualified as “barely initiated, rudimentary, and failed” attempts, thus demonstrating the technical and scientific limits of “a true international terrorist organization with a wide organizational structure, demonstrated initiative, and a record of successful, albeit conventional attacks” (Leitenberg, 2009: 99-100; see also Stenersen, 2008a: 116-117). Since the interruption of the al-Qaeda BW project in December 2001, there had been “no indications” that the group “has resumed those efforts” (Leitenberg, 2009: 100; see also Leitenberg, 2005: 39) With this differentiated empirical analysis, the intent-capability question is seen in a new way: as a gap. This is the major conclusion of the most detailed and differentiated study by Salama/Hansell (2005: 639) on al-Qaeda and CBRN:

Capability does not equal intent, and no amount of anti-Western animosity, religious fervor, wishful thinking, enthusiasm, or threatening rhetoric from al-Qaeda can overcome the formidable challenges involved in the weaponization and deployment of high-end CBRN agents. These hurdles can only be overcome if and when the al-Qaeda movement acquires such scientific capability that fortunately still appears beyond its means.

Amid al-Qaeda-related Organizational Changes, the Gap between Intent and Capability Widened

These techno-scientific challenges/hurdles became even more pronounced in the following years in the wake of al-Qaeda’s organizational changes, something which the *alarmist/most concerned* ‘camp’ rejected or did not grasp – although the changes are admittedly widely debated: In a nutshell they would make the trend to sophis-

ticated weapons more likely. The case in point is the dispute between two leading researchers on terrorism, Bruce Hoffman (2008a; 2008b) and Marc Sageman (2008a) in *Foreign Affairs* in mid-2008 (see on this also Stepanova, 2014: 51-53; Wichmann, 2014: 239-332). The central bone of contention between the two scholars was exactly to whom the threat of terrorism was to be primarily attributed to. In his critical review of Sageman’s book “Leaderless Jihadism,” Hoffman takes the view that a central core of al-Qaeda is still active in the borderland between Afghanistan and Pakistan. By contrast, Sageman provides a new look at al-Qaeda’s organizational structures: al-Qaeda as the dominant actor has ceased to exist (however, his views on WMD [pp. 175-176] are sketchy). For Sageman (2008b: 143) al-Qaeda has become a “disconnected global network,” a “leaderless jihad” as the “natural outcome of a bottom-up mechanism of group formation in a specific environment shaped by top-down counterterrorist strategy.”

This new look denies the residual strategic command function of core al-Qaeda beyond a symbolic and ideological role. It also questions the role of its regional affiliates in Muslim regions. The main driving force of global jihad is seen in a looser network of small cells active in more than 70 countries, in particular in Western rather than Muslim states. Their pledges of loyalty to al-Qaeda have been more nominal than substantive, since most of the small cells have strong home-grown roots and, hence, their agenda is tied to regional or local conflicts.

A more moderate view acknowledges that Central al-Qaeda, located in Afghanistan and Pakistan, has lost its predominant position; its decline shows that it is “ideologically exhausted, financially depleted, and internationally fractured” (Celso, 2014: 198). It emphasizes that the global jihad movement’s center has shifted toward regional affiliates in Muslim regions (Humud [coord.], October 10, 2014). Al-Qaeda’s ideological adherents at the ‘grass-roots’

level of small cells and individuals have become powerful new actors, homegrown and operating in Western countries. Their rise is seen in two different ways: either as the jihad movement’s creative capacity adapting to a changing environment, or as a sign of central al-Qaeda’s decline as a consequence of counterterrorist measures by the U.S. and its allies.

Both points of view can be found as the two sides of the same coin with Abu Musab al-Suri, the ‘architect’ of global jihad (see in general Lia, 2008; Wichmann, 2014: 248-252). The first perspective echoed by Sageman is expressed in his call for a move away from a hierarchical focus on highly orchestrated attacks to global Islamic resistance. This includes heavy emphasis on small cell terrorism within the framework of light guerilla warfare, civilian terror and secret methods, “especially on the level of individual operations and small Resistance Units completely and totally separated from each other” (quoted in Kelvington, 2017: 26). “Al-Suri managed to capture all these tactics and concepts in a singular slogan, which would help morph Al-Qaeda and its affiliates from a hierarchical organization into a social movement and decentralized yet global ‘leaderless jihad.’” (Kelvington, 2017: 26) The second side of the coin reflects the fact that in view of the asymmetrical battlefield, especially with the U.S., there is no alternative to al-Qaeda’s shift in strategy: “The enemy has forced us to do so.” (Quoted in: Kelvington, 2017: 38)

The “continual process of transnationalization of terrorism and the associated rise of global decentralized networks of small cells operating independently of any central command” (Dolnik, 2008: 10) widens the gap between intent and capability. In fact, those who even saw an inverse relationship between the two components were right: In a hostile environment, terrorists’ “increasing motivation” faced even more limited capability to overcome the technological obstacles associated with mass-casualty CBRN weapons activities.



Dolnik's prognosis for the upcoming trend in terrorist operations turned out to be correct for the years to come marked by the rise (and fall) of the Islamic State: The jihadists' operationally less challenging plots and attacks would be associated with decreasing rather than increasing, technological sophistication (Dolnik, 2008: 10, 2007: 175-179; see also Parachini, 2001: 403).

For this review of the literature, it is again at this point relevant to broaden the horizon by including EUROPOL's annual "EU Terrorism Situation and Trend" reports, which support Adam Dolnik's prognosis at an empirical level. The report for the year 2018 for instance still stressed the "diminished sophistication" in the preparation and execution of jihadist terrorist attacks contributing to a "lower number of casualties in completed attacks" (EUROPOL, TE-SAT 2019: 8). The associated shift toward a Lone Wolf strategy was due to developments within the Islamic State which had begun earlier. In 2010 al-Qaeda began efforts to broaden its anti-West campaign of violence in the Arabian Peninsula by including Lone Wolves and thus smaller, one-off attacks, although at the time the overall call to jihad did not "resonate strongly." ISIS's Lone Wolf strategy prioritized "frequency over sophistication," and in a September 14, 2014 speech, its spokesman called for supporters to conduct "as many attacks as possible" (Kagan et al., 2016: 24-25; quotations: 25)

This call was based on the assumption that individually launched frequent attacks, "coupled with the existence of its physical caliphate," would lead to a general atmosphere of terror "surpassing the effects of al Qaeda's large-scale attacks against the West" (Kagan et al., 2016: 25, 26). At that time fear of Western surveillance was "the driving factor" (Kagan et al., 2016: 25) leading both organizations to support the emergence of Lone Wolf Jihadists. The emphasis of this strategy was clearly on asking recruits to immigrate to Syria and Iraq, that is, to areas where supporters were under the organization's

rule, while helping defend its still expanding territory and thus at a time when ISIS changed from "Network to Organization" (Hashim, 2018: 138).

Starting in late 2015/early 2016, however, with the Islamic State's first signs of geographical stagnation and losses coupled with shortage of funds and increasing difficulties, ISIS changed its strategy. It now stressed its preference for small actions in the West as a means of compensating for its eroded ability to carry out large-scale operations. At this time, the call seemed to resonate among supporters in the West, since the number of Lone Wolf attacks doubled in 2015 and 2016 compared with 2010 to 2014 (Byman, February 14, 2017).

But as EUROPOL's subsequent annual reports show until 2019, after the peak in 2016, with 13 attacks by Islamists causing the largest number of injured people (374) and 142 deaths (EUROPOL, TE-SAT 2017: 49). The curve of jihadist-related incidents turned downwards, as did the number of fatalities (62), whereas the number of persons injured (819) increased considerably (EUROPOL, TE-SAT 2018: 54). In 2020, the agency reported for the year 2019 (EUROPOL, TE-SAT 2020: 14) that the total number of incidents in the European Union "decreased slightly" (21 in 2019; 24 in 2018); all but one of the seven completed or failed attacks, which killed 10 people and injured 26, were committed by individuals acting alone (EUROPOL, TE-SAT 2020: 11, 33, 35). In its most recent report in 2021 for the year 2020, (EUROPOL, TE-SAT 2021: 43, 42) the agency stated, however, that the number of completed jihadist attacks in the EU, Switzerland and the UK "in 2020 more than doubled compared to 2019", when "ten completed jihadist terrorist attacks [...] killed 12 people and injured more than 47. Four jihadist attacks were foiled" – far fewer than the 21 thwarted in 2019.

Part IV: Lone Wolf Jihadists as "Super-empowered Individuals" or Low-tech/Amateurish Terrorists (since about 2010)

Five Conceptual Elements of the Debate in the Conventional Area – Their Positive Role for Structuring the CBRN/WMD-related Realm and Their Limits

For this longitudinal review the challenge and chance in *Part IV* is to position the specific CBRN/WMD-related dimensions in the overall debate on Lone Wolves/small cells and LWJ using conventional weaponry in a way that benefits the discourse while at the same time making the differences between the weapons areas clear. This means, in the first place, distilling definitions, while avoiding simplistic notions of Lone Wolves overcome by the intense debate, and making use of categorizations for positioning LW(J) in the broader context of sub-state actors, including the dimension of communication. As we shall see, the CBRN/WMD realm has its specifics and own dynamics – not all relevant dimensions of the debate on conventional LW(J) attacks can be transferred.

Analyzing the LJWJ problem between the poles of superterrorism and low-tech/amateurish terrorism will continue to provide a structure for all the chapters that follow together with emphasis on capabilities in terms of scientific know-how and technical skills. This will require discussion of the intentions/motives of the perpetrators to prepare and conduct a bioterrorist attack. Thus, the issue of radicalization will enter the analysis as a subordinate aspect. Needless to say, the Broader Middle East/Gulf will again be omnipresent, especially via al-Qaeda and the Islamic State of Syria and Iraq.

» *Nonetheless, the Lone Wolf metaphor – Caschetta himself provides several examples – is widely accepted in academia, the public (Berntzen/Björgo, 2021) and politics (including the oft-cited former U.S. President Barack Obama [Moskalenko/McCauley, 2020: 97]), even in the jihadist world. Thus, the term used internationally should not be abandoned with notions such as “lone actor” or “individual actor” as synonyms. Moreover, the oxymoron of Lone Wolfe packs should be acceptable, preferably limited to a “two pack,” and thus standing for a small cell.* «

As in *Part I*, the dividing line in formulating and assessing all these dimensions will be the *alarmist/most concerned* group of experts (with its *concerned/moderate* wing) and the *more cautious and sober* ‘camp’ of analysts. A special focus of this review will be the Internet and the role it plays for LWJ. Here, the following two aspects will be relevant: *First*, how communication between the jihadist instructors, presumably in the Broader Middle East/Gulf as well as the LWJ at the other end of the electronic communication system (probably in the U.S. and Europe) can be assessed in terms of scientific know-how and technical skills. *Second*, in principle a brief survey of CBRN-related manuals and jihadist forums with an emphasis on the ‘B’ element would be helpful (even though I will make the case for an alternative in this EXTENDED POLICY FORUM issue). The central research question of this review of the literature remains paramount: “Why Have Biological Weapons *Not* Been Widely Used by Terrorists?” (OTA, 1992: 39 – in original in bold with my italics)? Again, the answer is to be found at the level of Lone Wolves, a test for the groups of experts regarding their analytical capability and closeness to reality.

First element: Strict definitions for the LW metaphor are suggested in the literature reviewed. Several authors such as Simon (2013: 39-87), Michael (2012) and more recently Moskalenko/McCauley (2020: 95-96) have presented broad definitions of Lone Wolves including active shooters, assassins and hijackers. After “decades of overuse” the time is overdue for A. J. Caschetta to abandon this metaphor or at least define it in a strict sense. The expression “Lone Wolf” terrorism should only be applicable “when the crime is terrorism and the criminal works alone.” They are the “truly unknown, unpredictable solitary attackers.” Only three “killers” would fit this strict definition, microbiologist Bruce Ivins, Ted Kaczyński and Anders Breivik. “Every other known terrorist has had connections that make the ‘lone wolf’ label incongruous” (quotations in Caschetta, 2016)

In fact, those often prematurely labeled “Lone Wolves” have usually turned out to be affiliated with terrorist groups (Caschetta, 2016; Byman, February 14, 2017). Consequently, the metaphor is seen as a dangerous misnomer, since wolves “never hunt alone – they hunt in packs” (Weimann, February 28, 2014). One metaphorical alternative suggested by Caschetta (2016) is bees. Unlike the Lone Wolf – an “individual” whose “strongest instinct is self-preservation” and who “can survive alone” – a “solitary bee is a member of a community that instinctively works to grow and defend that community.” Jenkins has suggested the “stray dog” as a metaphorical alternative (quoted in Ganor, 2021: 25).

Nonetheless, the Lone Wolf metaphor – Caschetta himself provides several examples – is widely accepted in academia, the public (Berntzen/Björgo, 2021) and politics (including the oft-cited former U.S. President Barack Obama [Moskalenko/McCauley, 2020: 97]), even in the jihadist world. Thus, the term used internationally should not be abandoned with notions such as “lone actor” or “individual actor” as synonyms. Moreover, the oxymoron of Lone Wolfe packs should be acceptable, preferably limited to a “two pack,” and thus standing for a small cell.

Second element: The virtual consensus in the literature reviewed – Lone Wolves (across the board) are connected to the outside world. In their three-year empirical research project, Schuurman et al. (2019: 771) found that “ties to online and offline radical milieus are critical to lone actors’ adoption and maintenance of both the motive and capability to commit acts of terrorism.” This insight solidifies and broadens earlier critical contributions (see above) including expert and journalist Jason Burke’s “The myth of the ‘lone wolf’ terrorist” (Burke, March 30, 2017; see also Hofmann, 2020, and Klausen/Johnson, March 29, 2016). But even Schuurman et al. (2019: 771, 773), who see a need to “fundamentally” reconsider the entire LW concept, differentiate when it comes to the importance of social ties, underscoring the capabili-



ty-related act of violence: “Many of the individuals that we have come to think of as ‘lone wolves’ are, on closer inspection, better understood as alone largely and only with regard to the actual commission of the act of violence.”

Schuurman et al. (2019: 771, 773) also emphasize that ties to others can be relevant to acquiring or maintaining the practical skills necessary for carrying out terrorist attacks – most Lone Wolves are “not the stealthy and highly capable” actors as many experts may imagine them to be. These empirical findings are relevant once the capability aspect is stressed, especially in the context of low-tech terrorism/amateurs (associated with poor tradecraft). Although intentions/motives in the broader context of radicalization and recruitment are subordinate in my review, the general relevance of LWJ’s ideology, which makes Lone Wolves part of a broader community, could become relevant for the sequence of preparing and conducting an attack.

This insight will guide the two planned ricin-related case studies irrespective of Caschetta (2016) who strongly suggests that a jihadist may “attack solo but he is always supported by a community that believes he is partaking honorably and piously in a 1400-year old tradition.” In the same vein, Winter (2015: 27) drew attention to the elements of “belonging” and the “idea of brotherhood” in the caliphate stressed by propagandists. Winter is supported by (Easterly/Geltzer, May 23, 2017), who emphasized that terrorists “are no longer really alone – nor do they consider themselves to be.”

Third element: The constructive Denkfigur (conceived idea) of a continuum of attacks with single actors and highly complex organizations at each pole. While showing that attackers often prematurely labeled “Lone Wolves” subsequently proved to be affiliated with terrorist groups, analysts have struggled to find a systematic categorization. Caschetta’s (2016) mentioned observation that virtually “every known terrorist has had connections that make the ‘lone wolf’ label incongruous,” is based on numerous well-documented cases which cannot

be ignored in the mid-2010s cases in the United States and in Europe. Instead of supporting the restrictive use of the “Lone Wolf” term (as suggested by Caschetta), Byman (February 14, 2017) has recommended positioning terrorists on a spectrum indicating gradual differences in the level of contact with an established group with varying organizational complexity:

When it comes to affiliation with a group, terrorists exist on a spectrum. At one end lie established organizations. The 2015 Paris attacks, for example, in which terrorists killed 130 people, involved a relatively large network of individuals operating in Belgium and France. ISIS fighters had trained many of them in Syria, and the group’s leadership coordinated the operation. At the other end of the spectrum lies someone such as Ted Kaczynski, the so-called Unabomber, who killed three people and injured more than 20 others during a 17-year campaign of mail bombings. Kaczynski lived alone, had no ties to any organized group, and formulated his one agenda.

Individuals like the San Bernardino killers [...] lie closer on the spectrum to the Unabomber than to the Paris attackers, but they were not totally isolated.

An article by Bridget Moreng (September 21, 2016), threat analyst at Valens Global in Washington, D.C., has not only relativized the relevance of the Internet (see below), but has also highlighted the broader external strategy and the sophisticated structures through which the operations of ISIS were organized, especially its high-profile operations in Europe, notably in France since November 2015. As Moreng (2016) states: “Although it is fairly opaque, bit by bit, analysts have been able to piece together” the “hierarchical chain of command” of one of ISIS’s wings.

In their reconstruction of ISIS’s preplanning and outsourcing strategy in the 2015 Paris attack (surprisingly without referring to Moreng’s article), Zoli/Williams (2021)

have taken up her major point in much greater detail. Their emphasis on ISIS’s organizational and bureaucratic capabilities in orchestrating the complex and sophisticated attacks is well argued (the authors also refer to the 2014 Jewish Museum of Belgium and the 2016 Brussels Airport incidents).

However, instead of positioning the November attacks at the high end of the continuum, Zoli/Williams (2021: 827) initially constructed a (later to be modified – see below) “lone wolf versus organization distinction” obviously by assuming that the attacks would overwhelmingly be attributed to a single actor: Stating Lone Wolves would be a “misnomer for these types of operatives as it mistakenly assesses an attack as standalone, ignores the intricate network that supports and enables the operative, and underestimates the reach and influence of ISIS as an organization in mobilizing local supporters” (Zoli/Williams (2021: 827).

Fourth element: The graded electronic relationship (a virtual variation of the continuum mentioned above) as a helpful analytical tool in the literature reviewed. The case in point is the relationship between an individual terrorist actor/small cell and instructors/mentors of an organization such as al-Qaeda and the Islamic State: As the difference between “inspired,” “guided”/“instructed” or “enabled”/“controlled remotely” can be regarded as fluid and imprecise, they consider a broad range of electronic interactions. The graded relationship was developed by Gartenstein-Ross (March 27, 2017), based on an earlier article by him and Barr (July 26, 2016). I follow Florian Hartleb (2020: 55; see also Ellis, 2016: 43-44) who has placed the categories in the opposite order:

- ‘[G]enuine’ lone wolves: no communication whatsoever with Jihadi networks (either online or in person)
- ‘virtual, loosely connected’ lone wolves: There is evidence of connecting via chatrooms or other digital channels. However, no direct instruction is given

- *‘virtually instructed’ lone wolves*: A planner in the Middle East or Far East, for example, gives concrete instructions and orders, and in this way helps with ‘operationalisation’ (targets for murderous attacks, technical assistance), and ensures that the assailant is ‘immortalised’ by claiming responsibility
- *practically trained lone wolves*: trained by IS or other organisations (*foreign fighters*), for example smuggled into Europe as so-called refugees with their remit or orders.

Fifth element: Scientific knowledge and the technical skills of the jihadist communicators at both ends as vital factors. For appropriate assessment of the relevance of the Internet for LWJ/smalls cells in preparing and conducting BW attacks the entire spectrum of the literature needs to be considered.

At one end of the spectrum analysts have emphasized the high quality and direct influence of instructions via the Internet in the conventional area for group or LWJ attacks; the notion ‘superterrorism’ was not used but the term “*Islamic State virtual entrepreneur*” (see, for example, Melagrou-Hitchens/Hughes, 2017). For other experts the “Internet as Al Qaeda’s Catalyst for Global Terror”, or “*Electronic Jihad*” (Rudner, 2017: 10 – quotations in original in bold) was seen as a “key technology” for jihadist consciousness-raising, recruitment, training, fund-raising and operational activities (Rudner, 2017: 11).

The well-documented “enabled”/remote-controlled” attack in India by the Islamic State shows the power of the Internet for knowledgeable and determined instructors and their students. In this case, a single young engineer named Mohammed Ibrahim Yazdani was guided by IS operatives exclusively via the Internet for 17 months through every step including the choice of bullets for killing the victims on Indian soil. Rukmini Callimachi (February 4, 2017) reports in her article in great detail that for the “most part, the operatives who are conceiving and guiding such attacks are doing so from behind the wall of anonymity. When the Hyderabad plotters were arrested last [2016] summer, they

could not so much as confirm the nationalities of their interlocutors in the Islamic State, let alone describe what they looked like. Because the recruits are instructed to use encrypted messaging applications, the guiding role played by the terrorist group often remains obscured.” (See on this in general Gartenstein-Ross/Blackman, January 7, 2017)

At the other end of the spectrum a number of experts took quite a cautious view of the role of the Internet (see examples in Pantucci/Ellis/Chaplais, 2015: 12-13) emphasizing for instance that its relevance as a “training ‘camp’ might be overstated” in assembling conventional bomb devices (Nesser, 2008: 250). Others drew attention to al-Qaeda e-learning courses referred to as “Bomb-Making for Beginners” while stressing the risk for participants, that is, of potentially revealing their identity (quotations in Stenersen, 2013: 25 [quoted title in original in bold] and 35, respectively).

Bridget Moreng (September 21, 2016) and Zoli/Williams (2021) relativized the Internet in the broader context of coordinated conventional attacks (see above) mentioning LWJ/small cells as well. The Washington-based analyst cautioned that it would be “highly problematic” to assume that operations carried out by “one or two attackers have simply been inspired by ISIS’ call for independent strikes across the world”: Such a view “underestimates ISIS’ broader external strategy and dismisses the sophisticated structure through which its operations are organized,” especially its “high-profile operations” in Europe (notably in France since 2015). Zoli/Williams (2021: 827 – my italics below) relativized their critical remarks about single actors: “Paris conveys the precise mechanisms through which organizations provide benefits that ‘lone wolves’ may lack, *even as the lone wolf versus organization distinction may be misleading*. These deployed cohorts, once tracked, indicate ISIS is administratively more complex than many acknowledge [...], not an Al Qaeda loose network, but an agile bureaucracy adept at integrating operatives into training and attack planning pathways, while exploiting affiliates to extend its logistics reach.”

Despite the added value of the five conceptual elements, their positive role remains limited because of the specifics and unique dynamics of the CBRN/WMD area. In the first place, the literature reviewed on the conventional realm does not take account of the manifold forms of hyping which will be emphasized in the following sections on Simon and Ackerman/their various co-authors – culminating in variations of the “super-empowered individual.” The two groups of experts will again follow two different sets of research questions: The *alarmists/most concerned* analysts will continue to make the case for the existence of a rising CBRN/WMD menace, while staying inside their world of *unconventional* weapons. The crucial question on the *non*-selection especially of BW is simply outside their mindset. For the *more cautious and sober* experts, however, developments in the conventional realm at the LW(J) level will be part of their mindset (this is another reason for including the five conceptual elements). EUROPOL’s annual reports will be the arbiters for both groups of experts regarding the adequacy of answers to the crucial research question.

The Alarmists/Most Concerned Experts and the (Mega-hyped) CBRN-related Lone Wolf Jihadists

Prominent Terrorist Expert Jeffrey D. Simon Constructing Lone Wolves’ Preference for Using BW among CBRN

With his broad LW definition encompassing all kinds of terrorism and criminal activities with Lone Wolf Jihadists as just one component, Jeffrey D. Simon assumes that individual terrorists are as dangerous as terrorist groups and cells that exist worldwide, including organizations such as al-Qaeda (or later the Islamic State must be added). This comparison, with its inherent objective of inflicting mass casualties, makes Lone Wolves potential super-terrorists even in the conventional area:

- *First*, LW have proven to be among the most innovative and creative in terrorism history.



- *Second*, they are not part of group decision-making processes or group pressure that might stifle creativity, which in turn allows Lone Wolves to act upon any scenario they may think up.
- *Third*, they are virtually taboo free, meaning there are few or no constraints on their level of violence, since they do not need to be concerned with alienating supporters.
- *Fourth*, they are much harder to identify than organizations or even cells, as there are no group members to arrest – except when they talk loosely on the Internet about their plans (see below).
- *Fifth*, individual terrorists are inexpensive, as they finance themselves.
- *Sixth*, they allow an organization to claim responsibility for violence – thus often exponentially increasing media attention.
- *Seventh*, Lone Wolves can create the intended atmosphere of terror and fear, because they can strike anywhere any time (Simon, 2013: 89-112; see also Byman, February 14, 2017; Michael, 2012: 168-169).

Despite Simon's broad definition of single actors, these individuals are not conceptualized as part of a continuum. They are basically lone militants without the manifold connections to their supportive ideological or even operational environment discussed above. This construct makes them prone to being conflated.

However, there was more than a decade between Simon's first publication (Simon, 1987) and his contribution to Brad Robert's (2000) important collection of articles, in which he deals not only with Lone Wolves, but also with the issue of CBRN in their hands, preferably biological weapons. In his conceptually coherent and analytically innovative study of 1989 (to date one of the best works written on terrorists and BW), Simon focuses solely on groups and their preference for using bioweapons (Simon, 1989: 22), as he also does in his work "The Terrorist Trap" (1994: 358-365). Initially, in 2000, Simon (2000: 69 – my italics) is somewhat more cautious in

assessing the capabilities of Lone Wolves compared with terrorist groups, stating that there is "*sometimes* little difference" between them. Thus, there is a certain development until 2013.

From 2013 until 2019, Lone Wolves were "prime candidates" for using WMD for the reasons just mentioned, especially those mentioned in the first three bullet points. He continually warns especially against bioweapons in the hands of single actors (Simon, 2013, 108-111, quotation: 108; see also 2019: 179), although he considers chemical weapons of mass destruction to be the easiest for a LW with a background in chemistry to manufacture.

Acquiring, producing and dispersing biological agents is somewhat more difficult, but it's still within the ability of those lone wolves with scientific backgrounds. While Bruce Ivins had the expertise to produce the particular strain of anthrax that he sent through the mail to his various targets, not every lone wolf who chooses to use bioweapons needs to be a Fort Detrick microbiologist. [...]

The technological barriers for a lone wolf interested in producing and disseminating a biological agent are not insurmountable. (Simon, 2013: 110-111, 250; quotation: 108, 110).

Conflating the Lone Wolf

In 2013, Jeffrey D. Simon goes a major step further by conflating the LW to the "megalomaniacal hyperterrorist." The researcher refers to a *post-9/11* article by Ehud Sprinzak, November 17, 2009), making the observation that "some leaders of terrorist groups" have been portrayed as having "similar personalities to those of lone wolf terrorists." At this point he introduces Sprinzak's exaggerated terminology with which he obviously concurs (Simon, 2013: 42-43). According to Sprinzak, the event of September 11 revealed an "entirely new category of terrorism" with "a new enemy: the megalomaniacal hyperterrorist" operating according to an "altogether different logic." Such terrorists "tend to be loners. They think big, seeking

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to go beyond ‘conventional’ terrorism and, unlike most terrorists, could be willing to use weapons of mass destruction. They perceive themselves in historical terms and dream of individually devastating the hated system.” Among them are Osama bin Laden, the leader of Aum Shinrikyo, Timothy McVeigh (the 1995 Oklahoma City bomber), and Ramzi Yousef (the main man behind the 1993 World Trade Center bombing) – the latter is portrayed by Ehud Sprinzak as a “classical example” of his “‘Great Man’ theory of terrorism”: Yousef openly discussed “his dream of seeing one of the World Trade Center towers fall into the other, causing 250,000 casualties” (quotations in Sprinzak, 2001).¹¹

This wording and thinking in mega terms at the individual level very closely resemble the following poignant lines about angry “super-empowered individuals” by Thomas Friedman (see next section).

Gary Ackerman and His Selective Introduction of the “Self-empowered Individual” to Terrorism Research

It is Gary Ackerman who, with his varying co-authors, introduced this term to terrorism research eleven years later after it had been coined by the prominent *New York Times* columnist Thomas Friedman (2003: 5):

So you have today not only a super-power, not only Supermarkets, but also what I call “super-empowered individuals.” Some of these super-empowered individuals are quite angry, some of them quite wonderful – but all of them are now able to act much more directly and much more powerfully on the world stage.

Osama bin Laden declared war on the United States in the late 1990s. After he organized the bombing of two American embassies in Africa, the U.S. Air Force retaliated with a cruise missile attack on his bases in Afghanistan as though he were another nation-state. Think about that: on one day in 1998, the United States fired 75 cruise missiles, at \$1 million apiece,

at a person! That was the first battle in history between a superpower and a super-empowered angry man. September 11 was just the second such battle.

‘Super,’ ‘hyper,’ ‘mega’ (Müller, 2003: 21) or ‘ultimate’ (Stern, 1999) became the key words for the “angry” individual, his weapons, their manifold impact as well as for the reactions to his terrible activities – all this raises him to the league not only of a nation-state, but in fact to a superpower. In his profound overview of LW terrorism, George Michael (2012: 4) cites U.S. journalist Fred Zakaria claiming that (as Michael put it) the “new face of terror consists of local groups across the world connected by a global ideology.” Referring to Friedman, George Michael continues by stating that today we were witnessing the age of the “super-empowered individual” who, “if adequately armed with a weapon of mass destruction,” could “effectively declare war on the world.”

Friedman’s term is not confined to the journalistic area but enters the academic arena in its economic meaning (Barnett, 2009: 295) and in its exclusively “angry” variant via Gary Ackerman CBRN/WMD-related terrorism research – for Thomas Friedman the term has an explicitly positive side, as his example of Nobel Peace Prize winner Jody Williams shows (Friedman, 2003: 5-6; but see Ackerman/Pinson, 2014: 242, note 9).

Partly Murky U.S. Sources for the Game-changing “Super-empowered Individual”

For Ackerman, this negative notion has remained an important element of his approach to LWJ and CBRN/WMD (of course including biological weapons) in all his publications up to his “Research Note” on “Terrorism and COVID-19” (Ackerman/Peterson, 2020). The notion is certainly not an (elaborated) “concept”: The term is nothing more than a label used as an eye-opener by the well-known journalist of *The New York Times*. Ackerman was using Friedman’s term without adding academic flesh to the journalistic bone, for

instance by referring to Max Weber’s classical contribution to a charismatic authority/leadership and the extensive discussion it triggered. This may have to do with the fact that the contents of the “super-empowered individual” go back to the blog “Night of the Lone Wolves” by Adam Elkus (November 28, 2007; this longer text is not available anymore; see also Elkus/Burke, 2010) and his colleagues such as Mark Safranski [July 27, 2007]. The label pales in comparison with the intensity of the psychiatry-based approach on outstanding Lone Wolves presented by the Berkowitz team in 1972.

These “atomistic game-changers” constitute a single (and often singular) individual who can “shock the entire system [...]”. Their core characteristics are that they have superior intelligence, the capacity to use complex communications or technology systems, and act as an individual or a ‘lone-wolf.’” The “end result,” Ackerman and Pinson continue, “*according to the pessimists*” (my italics) is: If one of these Lone Wolves chooses to attack the system (here the direct quotation from a core passage of Elkus’ blog begins) “the unprecedented nature of his attack ensures that no counter-measures are in place to prevent it. And when he strikes, his attack will not only kill massive amounts of people, but also profoundly change the financial, political, and social systems that govern modern life.” The apocalyptic essence of these remarks cannot be overlooked.

While Ackerman/Pinson signal distancing (“according to the pessimists”) from the “concept” in their 2014 article, it is quite clear that they themselves embrace it by taking an even more pessimistic view than Adam Elkus (and, for obvious reasons, much more than Friedman): The duo argue that “the most likely means by which to accomplish this level of system perturbation is through the use of CBRN agents as WMD,” but surprisingly and in a confusing way they state in the first half of the same sentence that “largest truck or aircraft bombs” could do the job too (all quotations from Ackerman/Pinson, 2014: 228). Disruption and destruction are conflated and thus no longer analytically



distinct. This delicate intellectual baggage continues to be carried by Gary Ackerman and his new co-author Michelle Jacome in their 2018 article.

Here again, the characteristics of this “super-empowered individual” are reminiscent of Theodore Kaczynski’s profile in the above-mentioned pre-9/11 study by Falkenrath/Newman/Thayer. It may not be accidental that Gary Ackerman and colleagues do not mention Kaczynski by name, for they have two entirely different types in mind whom they put together under the “super-empowered” lone wolf label. One of these is Ramzi Yousef, the mastermind of the World Trade Center bombing in 1993 and maternal nephew of Khaled Sheikh Mohamed, a household name in the post-9/11 world who obviously does not need any introduction by Ackerman and his co-authors. The other one posing a “significant CBRN threat” is the evil example of “[t]echnical insiders” (Ackerman/Jacome, 2018: 30), that is, the technically and scientifically highly skilled microbiologist working in a setting with access to dangerous source material: Not surprisingly, this is Dr. Bruce Ivins, the only person so far whose activities inflicted casualties, killing five, using anthrax as a bioweapon.

The duo elevate Bruce Ivins metaphorically into the category of “super-empowered individuals” instead of analyzing this monstrous scientist in the appropriate context of outstanding – yet misused – expertise in a particular laboratory. In this respect the contrast with Jeffrey D. Simon, for whom any determined student could become, in a do-it-yourself way, a sort of Bruce Ivins, is clear. And so is the major difference from Ackerman’s own sober analysis co-authored in 2001 in the wake of the mailings of the anthrax letters: As mentioned in *Part I*, Ackerman/Pate did not attribute any grandiosity to Ivins, assessing the anthrax incident as small in scale, and conducted without the intent of killing large numbers of people (Ackerman/Pate, 2001/08: 25).

Three years later, in their 2004 “Recommendations” Bale and Ackerman (2004:

64, note 204) sound somewhat different when they acknowledge that the anthrax letters came “closest to constituting bona fide WMD terrorist attacks”; curiously enough the authors stated that the incident “thankfully” did not “fulfill *all* the criteria for WMD terrorism” (my italics) – in my view, except for using BW, by causing five fatalities Ivins does not fulfill any other criteria for a WMD attack, but far from mass casualties. Yet even in 2004 Ackerman still had a long way to go via the ‘merely’ empowered individual before the perpetrator of 2001 was blown up in 2014 to a monster.

How does Ackerman arrive at the presumed emergence of an almost “super-powered individual”? This development did not come out of the blue but in fact reflects in Ackerman’s thinking the already “dramatic shift in the WMD terrorism threat picture” (Ackerman/Jacome, 2018: 23). This shift in turn cannot be understood without bearing in mind various rapid technological advances in specific biological and chemical areas:

At the conceptual extremity of the confluence of these trends [see below] affecting both technology and our adversaries lies the superempowered individual, a single fanatic or misanthrope with the power to upend the entire social system through his or her own actions. While we have not yet seen any unambiguous cases, individuals like Bruce Ivins and Ramzi Yousef *come close*. This type of individual has the capacity to pose a grave threat, yet, if combined with an intense ideological motivation, might be prone to scales of violence that make them even *more likely* to select CBRN weapons to conduct a WMD attack than any terrorist organization witnessed so far. (Ackerman/Jacome, 2018: 33 –my italics, with reference to Friedman and Elkus on p. 36, note 44)

‘Thinking mega’ not only expressed itself in the ‘qualitative’ form of super individuals but in a quantitative variant as well. For all those all-encompassing rapid technological developments had the effect that

obstacles to obtaining source materials for CBRN weapons “are overcome” with the threatening impact: “the possibility of a successful WMD attack increases” (Ackerman/Jacome, 2018: 31) – these wordings and lines of thinking are in principle familiar from Gary Ackerman’s 2004 “Recommendations” co-authored with Jeffrey M. Bale. The practically unlimited and rapid dissemination of technology with WMD potential, especially the unprecedented diffusion power of the Internet, will lead to the “‘democratization’ of means of mass destruction” (Ackerman/Jacome, 2018: 32) which thus became available to a large number of “more accomplished users.”

The Function of the “Super-empowered Individual” as a Core Component of Gary Ackerman’s Desperate Efforts to Make the Case for a Rising Threat of CBRN/WMD in the Hands of LW(J)

It is striking that the conflated Lone Wolf (and specifically the single jihadist actor) conflated to a monster, emerges in Ackerman’s co-authored article for the first time in 2014 – the year before, Ackerman/Pinson (2013: 54) referred to “lone actors with varying motivations” only, and only Anders Breivik was mentioned by name, and none of the above-mentioned evil-doers. It is coincidental that in the 2014 article the duo present for the first time its CBRN-related figures from its own database – Gary A. Ackerman is introduced as the Director of the Special Projects Division at the “National Consortium for the Study of Terrorism and Responses to Terrorism” (START), and Lauren E. Pinson as a Senior Research/Project Manager at START.

The role of the exaggerated LW is ambivalent in the Ackerman/Pinson 2014 (226 – following quotation in original in bold) article with the presumptuous title equating Lone Wolves/autonomous cells with “An Army of One.” The “super-empowered individual” label is first of all an alien “concept” which contradicts the very core figures and their interpretation by both scholars: The “data confirms the general perception that, historically, lone actors

» *If the record is different, Ackerman and his various co-authors arbitrarily construct a (potential) contrast with the grim future: They refer to authorities such as David Hume who “warned us not to put too much stock in prior experience – while historical patterns can often be invaluable indicators, the future is an undiscovered country variously populated by Black Swans and Wild Cards” (Ackerman/Pinson, 2014: 241, and as a matter of cut and paste, Ackerman, 2009c: especially 15-16; see also Ackerman/Asal, 2008: 186).* «

have engaged in *cruder, smaller scale, and less frequent* CBRN plots and attacks than their formal terrorist organization counterparts” (Ackerman/Pinson, 2014: 240-241 – my italics).¹²

In fact, the “frequency of attacks and events seems to have *decreased since 2005*” (Ackerman/Pinson, 2014: 241 – my italics). In the following observation the duo go back to Brian Jenkin’s traditional definition cited above: Lone actors and small cells “prefer to settle for a successful, albeit crude, attack that at least causes disruption and *garners publicity* rather than to attempt a true WMD attack. *This is hardly the behavior of the super-empowered individual of our [sic!] nightmares*” (Ackerman/Pinson, 2014: 241 –my italics). In 2014 “at least 29 uses of CBRN materials as weapons” by lone actors/small cells had a “potential for public fear and *disruption*” (Ackerman/Pinson, 2014: 239 – my italics) and not for *destruction*.

The “super-empowered individual” term also stands for the continuously grim outlook of the CBRN in the hands of Lone Wolf (Jihadists): “The probability that the wrong individual will come into contact with the wrong technology at the wrong time might thus be trending inexorably upwards” (Ackerman/Pinson, 2014: 241). Again, the basic issue is the desperate search for the increasing CBRN/WMD threat. This involves a number of inconsistencies as well as conceptual and analytical defects characterizing Ackerman’s poorly thought-through co-authored articles. The label of the “super-empowered individual” he introduces cannot bridge or camouflage these. Even worse, the label may exacerbate the deficits.

First, the past is used in an inaccurate and ambivalent way to make it fit Ackerman’s case for a rising WMD menace. It is inaccurate to refer in 2014 to the above-mentioned data from 2014 as past figures, when they were clearly figures from what was then the present and part of a falling trend. The past serves the terrorism researcher well when he refers to the two examples of the “super-empowered individual” – Ivins and Yousef – coming “close” (Ackerman/Jacome, 2018: 33) or “extremely close” (Ackerman/Pin-

son, 2014: 241). If the record is different, Ackerman and his various co-authors arbitrarily construct a (potential) contrast with the grim future: They refer to authorities such as David Hume who “warned us not to put too much stock in prior experience – while historical patterns can often be invaluable indicators, the future is an undiscovered country variously populated by Black Swans and Wild Cards” (Ackerman/Pinson, 2014: 241, and as a matter of cut and paste, Ackerman, 2009c: especially 15-16; see also Ackerman/Asal, 2008: 186).

Second, several findings are incoherent. In a surprising move, Gary Ackerman ignores the above-mentioned rising number of “more accomplished users” from the history of CBRN (biological agents/weapons included): A “few terrorists” and “only a handful of VNSAs” (Ackerman/Jacome, 2018: 33) will “ever proceed” through the complex process of acquiring and using WMD technology. He also ignores “our [changing] adversaries” in the Muslim world at large typified by the Kahn Academy. Ackerman/Jacome (2018; quotations: 32 and 33) state that “[m]ost terrorists are decidedly conservative most of the time and imitative in their use of weapons and tactics.” Finally, the swift spread of new technologies and expanded information networks in a globalized world (Ackerman/Pinson, 2014: 227) is at odds with the authors’ assessment that “most terrorists hardly operate at the cutting edge of science” (Ackerman/Jacome, 2018: 32).

Third, the diagnosis and prognosis of Ackerman and his different co-authors has so far remained sketchy, limited and mostly one-sided. It is academically not adequate for authors to reuse their own comments on the complexity of rapid and interacting technologies and developments in article after article when the cut-and-paste procedure is all too visible (see Ackerman/Pinson, 2013: 54-55, and Ackerman/Jacome, 2018: 32, respectively). To cite Ray Kurzweil (2006) in this context is not sufficient (Ackerman/Jacome, 2018: 36, note 40).

What is missing is a more balanced analysis reflecting the comprehensive state of the art in the substantive literature on bioterrorism which *a)* would (tend



to) support Ackerman's views (see e.g., Carlson, November 21, 2008; Koblentz, 2010, 2020); *b*) would present a pro and con position (e.g., Tucker, 2011; Tucker/Zilinskas, 2006); and *c*) would focus on the key term 'tacit knowledge' ('invented' by Polanyi [1966/2009], extended by Collins [2001] and applied to bioweapons proliferation [Vogel, 2006; Ouaghran-Gormley, 2012]), thus meeting an important requirement of the essential role of scientific expertise and technical skills. (For an excellent and differentiated discussion, see Deutscher Ethikrat/German Ethics Council, 2014.) This implies a sound assessment of the do-it-yourself literature, which for Ackerman suggests easy and unlimited dissemination of knowledge and materials with potential WMD application in the biological area (see opposing positions by Baldo [2017] and Jefferson/Lentzos/Marris, 2014).

Fourth, despite contrary claims Gary Ackerman and colleagues have not managed to tackle the issue of hype and initiate the announced re-evaluation of Ackerman's earlier predictions. It is noteworthy and honorable that Ackerman has repeatedly made the hype problem an issue (Ackerman/Pinson, 2013: 52), while distancing himself from what he calls unduly alarmist views (Ackerman/Tamsett, 2009a: xi) and "[s]ome of the hype surrounding WMD terrorism [that] is overblown" (Ackerman/Jacome, 2018: 33). In emphasizing POICN's unique value, he regards it as "essential that both scholars and policymakers avoid the hype surrounding a handful of prominent historical cases and gain a balanced perspective" (Binder/Ackerman, 2019: 14).

And yet, especially in the case of the conflated Bruce Ivins, Gary Ackerman and his respective co-authors achieved what they explicitly wanted to avoid, namely "to fall into the hype trap" – even though in a rare clear-cut statement without any 'ifs' both experts expressed the view that "existing trends do not indicate a catastrophic threat (or at least not much more of a threat than conventional terrorism), and it is not guaranteed that any of the factors we have just described will manifest in an upswing in the number or scale of terrorist events" (Ackerman/Pinson, 2013: 56).

As to Gary Ackerman's forecasts and his claimed requirement of a "constant re-evaluation of any estimates" (Ackerman, 2009: 378): Given that (social) science is a self-correcting process, I would have expected the convener of the Delphi survey to comment at some point on the mismatch between those predictions and the results of the POICN database cited earlier. For example, Ackerman's most recent (co-authored) publications in 2018 and 2019 do not explicitly question the entirely overblown forecasts of 2008, which have not become reality within the five- and ten-year timespan in 2013 and 2018, respectively. The accuracy of the second half of the long-term predictions for the 25 years until 2033 is still unknown.

Thus, instead of admitting in 2013 (for instance in his co-authored article with Lauren Pinson of that year) that his forecasts of 2008 had not materialized, Ackerman commented positively on the quality of the group of experts and their predictions for 2018, five years ahead. Ackerman/Pinson (2013: 56) confirmed their "sober assessment of a growing [CBRN] threat" by citing the 2008 Delphi survey in which 16 out of 20 of the "world's leading experts" in terrorism and CBRN weapons yielded an average predicted probability of a large-scale WMD attack "by 2018 as little over 50%." Without a self-critical look back, the prognosis could be seen as a detraction from the failed forecast of 2008. This is all the more the case since in the literature reviewed Ackerman has not commented in a self-critical way on the fact that the – actually exaggerated – attacks forecast for 2018 have not occurred either.

What is more, a sober and differentiated analysis of the so far quite positive record of bioterrorism not being perpetrated or the central question why BW were *not* used would have brought the relevant but overlooked factors to the fore – among them *a*) the major shift in al-Qaeda's/ISIS's policy significantly devaluing CBRN/WMD while preferring unsophisticated conventional weapons at the individual level; and *b*) the advantages for LWJ of selecting easily available conventional weaponry. Such a re-evaluation would have constituted a firm basis for Ackerman's views on

the current WMD-related terrorist issue, including LWJ, and the way he conceptualizes and assesses the dramatic threat development to come.

To focus on the technological dimension as one facet of the complex developments described by Ackerman is analytically inadequate. Against this backdrop, it is important to return to his earlier reflections in 2005 on the character of emerging technologies and the speed aspect, that is, the speed of terrorists shifting to possible WMD use in the context of "emerging technologies" as a "very important, yet underresearched" question: "Five years? Ten? Fifty?" In addition, WMD as a "disruptive technology" would have to be related to "both swift and comprehensive" behavior on the part of terrorists (Ackerman, 2005: 142). At least two problems would have emerged: *First*, if the research design is not extended by including conventional weapons as preferred weapons of choice, the results are likely to confirm the purely negative working assumption concerning "disruptive technologies." Second, the core problem terrorism researchers will encounter even more today than in former times is the "paucity" of "serious" CBRN incidents and the "absence of any true WMD attacks by terrorists" (Ackerman, 2005: 140). His own POICN database is the best proof of this situation.

Fifth, misquoting an academic opponent to make the case for an increasing CBRN/WMD menace. The doyen of terrorist research in any critical review of the literature, Walter Laqueur [1999: 259], once expressed the fear that "lone individuals are among the most likely candidates to use weapons of mass destruction" (without a specific reference to jihadists). Ramón Spaaij (2010: 864; 2012: 73) refuted Laqueur's claim, for which he saw "no empirical evidence." Spaaij's position, in turn, was criticized by Ackerman/Pinson, who put Spaaij into the wrong category of experts who "doubt that lone actors or autonomous cells would ever pose a serious WMD threat" (Ackerman/Pinson, 2014: 239 – my italics).

But this is *not* what Spaaij wrote. For him, LW are simply not "among the most likely" candidates. As outlined above, 2014

was the year Gary Ackerman developed, together with his various co-authors, the variations of the “self-empowered individual” which contradicted the empirical core finding of his own data already quoted. For the past and the present it suggested no alternative to agreeing with Spaaij: (The “data confirms the general perception that, historically, lone actors have engaged in cruder, smaller scale, and less frequent CBRN plots and attacks than their formal terrorist organization counterparts. In fact, the frequency of attacks and events seems to have decreased since 2005” (Ackerman/Pinson, 2014: 240-241). Regardless of this issue, the fundamental difference between the Australian researcher and the two American experts regarded their assessment of the future in the WMD area constituting their mindsets.

Sixth, how to tackle this kind of monster? Ehud Sprinzak’s (November 17, 2009) answer not quoted by Jeffrey Simon (2013: 42-43) was clear: The “best way” to deal with “megalomaniacal hyperterrorists is through preemptive military strikes on known terrorists and yes, through increased investments in human intelligence aimed at identifying hitherto unknown or potential megalomaniacal foes.” Gary Ackerman understandably does not have a direct answer on how to tackle this extreme type of “misanthropic” Lone Wolf (see Ackerman/Pinson, 2014: 241). But there is a sharp turn in his incoherent argumentation and one surprise: “[I]n all but a few scenarios” a “true” WMD is probably out of reach of our “most vehement and capable adversaries,” despite their “clear interest” (Ackerman/Jacome, 2018: 33-34).

As far as biological weapons are concerned, Ackerman considers it unlikely that they would be stolen from a state arsenal. In the wake of all his (co-authored) publications cited, his “good news” that such a theft would be “preventable” with “current security and non-proliferation approaches” comes out of the blue. It would be helpful if Ackerman had incorporated new ideas that have been developed in the mainstream literature, e.g., a high-level conference process modeled after the Nuclear Summits from 2010 to 2016, more

stringent measures related, for instance, to the Biological and Toxin Weapons Convention (BTWC), or the implementation of UN Res. 1540 (2004).¹³

Seventh, what accounts most probably for the development of Ackerman’s evil individual into the “super-empowered individual”? In 2005, the expert succinctly described the situation which contributed to fatigue in research on terrorism in terms of the already mentioned “paucity” of “serious” CBRN incidents and the “absence of any true WMD attacks by terrorists” (Ackerman, 2005: 140). In my view, this delicate situation could not be overcome by the proposals he advanced at that time. The challenge was much greater for the (emerging) START Founder Director Gary Ackerman and his co-authors, among them START Research Manager Lauren E. Pinson (2014) and START Deputy Director Michelle Jacome (2018). It may sound trivial, but it seems plausible that the excessively overstated single actor emerged as an additional way of making the case for a rising CBRN/WMD threat – even though or because the empirical findings of their database were increasingly incompatible with the central claim. It is not clear, however, whether the START funders would be attracted by the conflated metaphors as an efficient wake-up call – or whether they would be estranged because of the manifold contradictions and the contrast with reality the label ‘super-empowered individual’ implies.

Eighth, the “super-empowered individual” is implied in Ackerman’s most recent (2020) co-authored article on COVID-19. The term itself is not mentioned in the article, but the “more generally misanthropic terrorists” (obviously not necessarily Lone Wolves) to which the “potential increase in the likelihood of bioterrorism” may be restricted, have again crept into his own apocalyptic thinking (Ackerman/Peterson, 2020: 64). The two authors remark that only a “small percentage of terrorists might be inspired” by the spread of COVID-19, stressing the ideological affinity of apocalyptic millenarian extremists, among them jihadists like ISIS (again, not necessarily Lone Wolves), whose worldview “contains strains of millenarianism” (Ackerman/Peterson, 2020:

63). It does not come as a surprise that the two authors have not acknowledged in their necessarily speculative “Research Note” that “The Ultimate Bioterrorist: Mother Nature!” (Clark, 2008: 71 – capital letters) eclipsing all nightmares caused by imagined evil terrorist activities, may have the power to deter instead of inspire both Lone Wolves and groups.

The Alarmists/Most Concerned Experts and the Overstated Role of the Internet for CBRN-Related Lone Wolf Jihadists

A Brief Survey of the Literature Reviewed Independently of the Major Groups of Experts

For this critical review of the literature on biological agents/weapons some general remarks about the role of the Internet for LW Jihadists in connection with CBRN/WMD are important before I turn to the first group of analysts. It can be stated in general terms that this area is the most neglected one. It may be understandable that the enormous literature focusing on conventional weapons preferred by Lone Wolf Jihadists is not interested in the electronic aspects of CBRN – needless to say including biological weapons. (As we shall see in the next section, the literature related to the *more cautious and sober* ‘camp’ will assess the CBRN dimension in the context of the dominant trend toward the less sophisticated, in fact, simple weapons selected and used by LWJ.)

Even sensationalist reports by *Vocativ* “analysts” Shiloach (October 22, 2015), Lynch/Shiloach (November 16, 2015) and Kavanaugh/Shiloach (March 4, 2016) dealing with the encrypted messaging service *Telegram* focus on jihadist instructions for carrying out conventional attacks by LWJ without mentioning biological materials and weapons. This deficit may be due to the simple fact that CBRN are not mentioned by the sources rather than these authors deliberately choosing to exclude such materials and weapons.



Such restrictions can be found in the academic literature which omits details for manufacturing and using, for instance, biological materials/weapons (see e.g., Post [ed.], 2004; Salama/Hansell, 2005: 645 [“Disclaimer”]; Weimann, 2006: esp. 124). This situation may indicate why the highly sensitive nature of CBRN has made it a subordinate issue in the academic literature. Additional publications other than the ones just listed includes Gabriel Weimann’s (2006: 123-129) work “Terror on the Internet” sharing Ackerman’s basic position. Moreover, sound information is provided by Loeb, 2009; Forest/Salama, 2009; and especially by Salama/Bursac, 2009 – all three of which are substantial contributions to the Tamsett/Ackerman volume on jihadists and WMD. The fundamental and outstanding publication on the issue to date is Anne Stenersen’s master’s thesis (2008b) with a remarkably detailed chapter on the role of low-quality bio-chem tutorials and forums on the Internet for amateurish jihadists/LWJ (see next chapter). As far as I can see, it was cited/quoted neither by any author in that volume on jihadists and WMD nor by Jeffrey D. Simon).

Nevertheless it may be asked why this very issue is not addressed systematically and in depth by Gary Ackerman and his colleagues in their (peer reviewed) articles (the same could be said about Simon’s books). Ackerman briefly states in a cursory way in his co-authored “Conclusion” to this volume: While “the accuracy of information concerning CBRN materials disseminated over these [electronic] media is still subpar, this burgeoning digital infrastructure makes it more likely that any technical, CBRN-related breakthroughs that do occur will be quickly disseminated across the jihadist community” (Tamsett/Ackerman, 2009: 407).

Thus, for Ackerman those manuals and forums do not at present constitute a threat but are likely under certain conditions to become an increasing menace – this position is in accordance with his overall assessment mentioned earlier. Even at the lowest scientific-technical levels, technological developments can only occur in an escalatory manner – a downward spi-

ral in terms of de-escalation is not part of Ackerman’s intellectual mindset. The same holds true for non-innovation, stagnation, a change to a different technology, and even avoiding copycatting as forms of non-learning among jihadists caused by a variety of organizational and political factors – determinants that will enter the arena with Anne Stenersen’s look at the issue.

But I hold that this is not the entire reason for not dealing in depth with individual jihadists as amateurs: They would not only be compatible with Ackerman’s fundamental claim of the increasing CBRN threat, but also with his focus on the “super-empowered individual” – although, as shown, his own articles on POICN contradict his highly unrealistic fantasies (the same could be applied to Simon). The following section will provide variations on the theme of exaggeration.

Jeffrey D. Simon and Gary Ackerman – Two Different Ways of Hyping the Role of the Internet

In order to remain focused, I will proceed by concentrating on Jeffrey D. Simon and Gary Ackerman who have both tended to exaggerate the relevance of the Internet for CBRN (and specifically bioweapons). Both experts have done so in different ways in making the case for a rising threat in the CBRN/WMD area: Simon has extrapolated from the conventional realm which has forced him to proceed as if the Internet played an essential role for terrorist behavior (which he cannot prove in concrete terms). Ackerman has exaggerated the relevance of the Internet by mispresenting the substance of his sources, thus violating basic academic standards. Both experts share the challenge that they, in contrast with terrorism researchers analyzing the central role of the Internet in the conventional area, have to deal with an almost non-existent – at the same time utterly sensitive – empirical basis. They have been facing the enormous gap between the major role of the Internet for future negative developments as mentioned above and the lack of concrete BW-related incidents in the past and present.

» The fundamental and outstanding publication on the issue to date is Anne Stenersen’s master’s thesis (2008b) with a remarkably detailed chapter on the role of low-quality bio-chem tutorials and forums on the Internet for amateurish jihadists/LWJ (see next chapter). As far as I can see, it was cited/quoted neither by any author in that volume on jihadists and WMD nor by Jeffrey D. Simon. «

As already stated, Simon and Gary Ackerman are interested in making the case for the menace emanating from Lone Wolves as one way of proving their basic assumption of an increasing jihadist-related CBRN/WMD menace. As a result, it is not by accident that they have not systematically discussed the role of the Internet for jihadist manuals/tutorials and forums on this category of weapon; this includes electronic interactions between al-Qaeda/ISIS instructors based in the (Broader) Middle East/Gulf and jihadists in the Western world willing to commit CBRN attacks. The corresponding manuals/tutorials, which were brought to light in the literature already mentioned (see especially Stenersen's master's thesis below), do not support their fundamental view of a growing menace – on the contrary.

Jeffrey D. Simon's starting point is his claim that the “fifth wave of terrorism – the “Technological Wave” – “may have already emerged” (not taken up in his most recent book [Simon, 2019]). This new phase is becoming evident through the growing impact “particularly the Internet” is having on “virtually every aspect” of terrorist activity, especially that of Lone Wolves, jihadists included (Simon, 2013: quotations 245). The Internet is in his view a major tool for preparing and conducting assaults with CBRN, yet it is also an alternative to radicalization by personal encounters with Islamic mentors.¹⁴

As to the importance of the Internet for gaining access to biological agents/BW and using them by LW, there is a formidable gap between Simon's claim and the online ‘reality’: With Bruce Ivins as a reference point, he (as mentioned) stated that “not every lone wolf who chooses to use bioweapons needs to be a Fort Detrick microbiologist.” In his view, there is enough publicly available information to “help” (Simon, 2013: 108) a determined LW to launch a biological attack. As mentioned above, in stark contrast to Gary Ackerman, Jeffrey Simon obviously implies that there is no basic difference between a do-it-yourself student and the highly skilled American microbiologist who for this author merely reveals “how dangerous” (Si-

mon, 2013: 95) Lone Wolves can be using BW.

In addition, Simon does not mention appropriate CBRN manuals that are available to learn from on the Internet, but cites one case only where a British Lone Wolf used two handbooks to make nail bombs. Yet this single actor was not able to effectively assemble the components detailed in the web-based guides (Simon, 2013: 31) that were purchased, which tells a lot about the technical inaccuracy even of tutorials offering instruction on conventional weapons. In his most recent study on the “Alphabet Bomber” (Simon, 2019: 170-172) he repeated his earlier argument (Simon, 2013: 235-236) that the Internet is not exclusively a “Dark Web” (Weimann, 2016), but a double-edged sword: Since there is a tendency for Lone Wolf terrorists to talk a lot, they give law enforcement personnel the opportunity to track suspicious people. Again, why Simon, who writes his works with the mind of a detective, could not obtain CBRN-related manuals is surprising.¹⁵

Gary Ackerman and his colleagues have dealt with this issue in the context of the obvious difficulties that must be overcome in order to “sort hype from reality and determine the true nature and extent of the [CBRN] threat” (Ackerman/Pinson, 2013: 52). Here, a clarifying note is in order from my side for, admittedly, characterizing an issue as exaggerated involves a subjective element and thus constitutes a grey area for making adequate assessments. Ackerman/Pinson (2013: 52) can be taken as an example [the first case more precisely described below in Pita/Gunaratna, 2009]:

In 1997, then Secretary of Defense William Cohen held up a five-pound bag of sugar on television and declared (without giving any technical context) that it could wipe out half the population of a major city. In his 2005 book, former Congressman Curt Weldon claimed, on the basis of a less-than-credible source, that Iran, Hizb Allah and Al-Qaida were jointly planning to launch a strike potentially with nuclear or radiological weapons on US soil. On the other hand,

there are those such as Ohio State University's John Mueller [2007; see also 2006], who believe that fears of terrorists using nuclear weapons are overblown. [...]

Complicating matters further is the fact that CBRN terrorism is not static – even if we could all agree on the level of threat today, we still need to be concerned about the future threat trajectory.

I will not discuss in detail the issue that, to the best of my knowledge, Ackerman has not seriously discussed the works of John Mueller (2006, 2007). The crucial and critical point here is that the incorrect way of dealing with the factual contents of relevant sources raises the question: In view of Gary Ackerman's usual accuracy in identifying his sources, does this reveal anything more than sloppy research? Whether intended or not the three examples presented below reveal facets of exaggeration, because the professed CBRN threats were not referred to in the sources. The basic academic requirement of speaking the truth through sources (to modify a co-authored article of his [Ackerman/Pinson, 2016]) should be applied here, too.

First example: In 2013, these two authors referred to “2012 issues” – actually two (EUROPOL, TE-SAT 2013: 19) – of Al-Qaeda in the Arabian Peninsula's (AQAP) magazine *Inspire* which “direct” LWJ to “target non-combatant populations and specifically permit the use of chemical and biological weapons” (Ackerman/Pinson, 2013: 54). The source cited by the duo – an article published by the National Threat Initiative (NTI) on May 3, 2012, referring in turn to *Global Security Newswire (GSN)* – is more specific and accurate; it mentions that the *Inspire* contribution was “posthumously” published by Anwar al-Awlaki, who had been killed in a September 2011 U.S. aerial strike in Yemen alongside magazine editor Samir Khan.

The crucial point is that at the end of their brief CNN source *NTI/GSN* quote Tim Lister and Paul Cruickshank (May 2, 2012) who state that there was “no indication” that the al-Qaeda franchise in Yemen or



“any other part” of the terrorist network had developed “any sort of chemical or biological or weapon capability.” Against this backdrop, Ackerman’s/Pinson’s (2013: 54) fear that “[s]uch edits could sway the weapon selection of lone-actor jihadists in Western nations” rings hollow (by the way, Ackerman’s co-authored article of 2018 could have assessed whether that fear had become reality or not).

Inaccuracy arouses suspicion because of its manipulative character when the sources cited by Ackerman/Jacome (2018: 30, notes 36 and 37) do not corroborate their CBRN-related claims at all but, on the contrary, support the shift of jihadis toward conventional weapons – exactly the trend which Ackerman and his colleagues have ignored. Two additional examples:

Second example: Ackerman/Jacome (2018: 30) identify the “disturbing trend” that terrorist organizations “continue to promote insider attacks using CBRN weapons,” citing again as evidence the magazine *Inspire* through which al-Qaeda began “promoting and instructing lone actors attacks” in 2010. In her quite extensive, well-researched article Katie Worth (July 14, 2016, cited on p. 35, note 36 of the duo’s 2018 article) quotes Raffaello Pantucci who, however, makes no mention of CBRN attacks when al-Qaeda “began openly inciting lone wolf attacks” in its 2010 *Inspire* magazine. Instead, Worth hastens to emphasize that the emerging Islamic State adopted the strategy of carrying out modest assaults.

Third example: “ISIL and other groups invite individuals to become ‘walk-on terrorists,’ and provide them with the blueprints for conventional *and* (my italics) unconventional weapon attacks.” Tom Mockaitis (November 1, 2017) acknowledges that “[t]oday’s lone wolves are different” and that groups like ISIS “encourage them to become walk-on terrorists, promising to bless their attacks after the fact.” Mockaitis cited by Ackerman/Jacome (2018: 36, note 37) refers to two instances in Nice and Berlin (July and December 2016, respectively), where the perpetrators used “a truck as an improvised tank to mow down ordinary people.” Yet Mockaitis, contrary

to the Ackerman/Jacome claim, does not mention *unconventional* weapons of any kind.

The More Cautious and Sober Experts – Analyzing CBRN-related Low-tech/Amateurish Lone Actors with Middle East/Gulf Connections Properly

As my critical review has shown, the members of this ‘camp’ have examined the trend that widened the gap between intentions and capabilities in a plausible way: The hostile environment for terrorists has limited their ability to overcome the technological obstacles associated with mass casualties caused by CBRN weapons. This explains their operationally less challenging plots and attacks associated with decreasing technological sophistication. This core finding of prominent members of this expert group (Dolnik, 2008) can be applied to the LW(J) and their behavior in the wake of planning and conducting CBRN (specifically bioweapons) attacks as well. We can go two steps further (admittedly in the blurring contexts of groups and even ISIS).

First, as later corroborated by EUROPOL’s annual reports, these experts present strong arguments why terrorists prefer simple conventional weapons over for instance biological agents/weapons (see, among many, Parachini, 2001; Katon et al., 2021: 140). Solid academic studies working with facts instead of fantasies have pointed to the very high number of casualties caused by conventional weapons (Hege-mann/Kahl, 2018: 53). Leading French terrorist expert Gilles Kepel (October 16, 2021: 87) has added a new argument regarding the situation in France: For their main purpose of recruiting new fighters in great numbers for the jihad, terrorists prefer conventional weapons such as knives (*Stichwaffen*), killing only a few people yet in a cruel way, as the decapitation of the teacher Samuel Paty shows. At least in France, the public has been so shocked that in Kepel’s view the use of such unso-

phisticated weapons is counterproductive for the political goal of recruiting.

Second, Michael Kenney has provided a framework in the conventional area which can be applied to jihadists and CBRN as well. The two central conceptual elements “*techne*” and “*mētis*” can be understood as a counter-approach to the “stereotype of highly sophisticated ‘super’ terrorists” (Kenney, 2010: 912). The familiar notion ‘*techne*’ stands for the technical knowledge that militants acquire through formal instruction and knowledge-based means such as bombmaking tutorials (p. 911):

Terrorism requires knowledge, knowledge about whom or what to attack – and how to attack them. Building a bomb requires familiarity with chemicals that are combined to form explosives compounds, detonators that ignite the chemicals to create the explosion, and electrical devices or fuses that trigger detonation.

Michael Kenney has adopted the central term ‘*tracraft*’ from intelligence circles; “*mētis*” addresses the issue of adequate behavior as another prerequisite for “successful” plots: “To plan and perform attacks, terrorists must know how to operate secretly in hostile environments without detection from law enforcers” (p. 911) But jihadists often lack a talent for *tracraft* by being “surprisingly sloppy” or by committing “basic errors” (p. 912). One should add, however, that in selecting their weapons of choice terrorists need to be aware of necessary precautions ensuring their own safety. The resulting LWJ profile of a “poorly empowered individual” can be entirely different from (if not the opposite of) the “super-empowered individual.” Without any doubt, however, these amateurs seem to be “stupid, although they can be “deadly” too (to borrow the slightly modified poignant description from the title of Kenney’s article [p. 911]). Thus, it is imperative not to underestimate or minimize jihadist terrorists and their evil actions.

In addition especially to the article by Salama/Bursac (2009) the literature reviewed provides, as already mentioned, two pub-

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lications by Norwegian expert Anne Stenersen (2008b), the first being her master's thesis "Al-Qaeda's Quest for Non-Conventional Weapons, 1996-2006. The history behind the hype," accepted in Spring 2008 by the Department of Culture Studies and Oriental Languages, University of Oslo; see also her summary (Stenersen, 2007). This thesis is the most profound analysis as yet of al-Qaeda sympathizers on the Internet, focusing on online manuals and forums for using bio-chem agents/weapons and delivery vehicles. It is the only academic study available based on (formerly) public sources in Arabic. In view of the thesis's rich and hardly noticed material it makes sense at first glance to draw heavily on it in order to concretize the amateurish jihadist in the biological area, including (poor) tradecraft-related aspects.

However, I will proceed in a different way for the following reasons:

First, Stenersen's empirical findings could easily be refuted and devaluated as historical without any possible importance for today's discussion.

Second, it is beyond the limits even of this EXTENDED POLICY FORUM issue to go into detail on these complex matters, which deserve a special case study with a continuous emphasis on intent and capability in the broader context of superterrorism vs. low-tech/amateurish jihadist terrorism including electronic communication between IS-instructors and the LWJ. The case in point would be the German "ricin trial:" At center stage was a Tunisian/German "two-pack" of jihadist Lone Wolves who were arrested in 2018 and sentenced in 2020 for having jointly planned to explode the combined ricin toxin with shrapnel in a busy indoor location. My preliminary research suggests that Anne Stenersen's empirical findings are not mere history. In fact, they can be related to the "ricin trial" via the manuals connected to the London "ricin plot" (from 2002 to 2005), which could become a case study related to the Gulf states, preferably in 2023, thus marking the 20th anniversary of the beginning of the U.S.-led war against Iraq.

Third, to fulfill the requirements of a review of the literature, it would be enriching to extend the academic focus by including EUROPOL's annual "EU Terrorism Situation and Trend" reports, which in turn document how the position of the group of *more cautious and sober* experts on single jihadist terrorists is corroborated by the European practitioners (even without any desire to lump them all together in this group of analysts).

The following summary will not only show how porous and fruitful the boundaries between academia and the policy realm can be with respect to analyzing Lone Wolf Jihadists. It will also reveal relevant dimensions, even if these will not be presented in a systematic way.

Amateurish Single Actors, Their Poor Tradecraft and Preference for Simple Weapons

Here, EUROPOL (TE-SAT 2012: 18) presents central aspects discussed above as elements of Kenney's approach:

Lone actor terrorist attacks, however, remain largely amateur in their planning and execution, and a low-occurrence phenomenon overall. The success of an individual violent jihad attack is likely to be dictated by a combination of skills and training, together with ease of access to both weaponry and the potential target. Thus far, individual jihadists have been incapable of reaching professional levels of planning and execution. Despite instructing aspiring terrorists on the need for methodical preparation, the impetuous and semi-impetuous nature of many individual violent jihadists' planning activities suggests that al-Qaeda remains unable to instill discipline and restrain impulsive acts. Despite the promotion of good tradecraft and security measures by the online magazine, Inspire, the indiscretion and conspicuousness of many lone actors when obtaining component elements for an attack indicates the shortcomings of al-Qaeda's individual jihad strategy. Moreover,



through continued glorification of incompetent attackers, al-Qaeda has not encouraged scrutiny of failed attacks in order to avoid repeating earlier mistakes. Consequently, many individual violent jihad plots have failed or have not achieved their full potential.

The Limited Role of the Internet

Again, EUROPOL (TE-SAT 2015: 11) succinctly comments:

Threats of terrorist attacks using CBRN substances continue to appear on terrorist Internet forums and social media. Closed forums are also used to discuss possible mod operandi for CBRN attacks and to share knowledge via manuals, recipes and information about high-profile targets. Technical information is not always accurate, but may remain a source of inspiration, including for lone actors.

In the subsequent years, EUROPOL has reported on CBRN-related topics appearing in terrorist propaganda. Various jihadist media have used social media channels, in particular the cloud-based messaging app *Telegram*, to express their intention to carry out CBRN attacks. For instance, in May 2016 a “jihadist tutorial on ricin extraction, addressing lone actors, was published online” (EUROPOL, TE-SAT 2017: 16). Three years later, EUROPOL mentioned a 2019 campaign of a pro-IS group via a cloud-based instant messaging service promoting the use of biological weapons: “Some of the content provided instructions on how to produce biological weapons and suggested how and where to deploy them” (EUROPOL, TE-SAT 2020: 21 – original in bold).

Interestingly enough, in the previous year (2019) the agency had identified a decline of the Internet’s role, admittedly referring to conventional material (EUROPOL, TE-SAT 2019: 18; see also TE-SAT 2018: 13):

In most cases, knowledge transfer with regard to HME [home-made explosives] and IED [improvised ex-

plosive devices] production was facilitated by the use of online, often encrypted, social networks and forums. While there were still cases of targeted instructions or remote assistance by virtual advisors on encrypted social platforms, an increasing trend of collecting bomb-making knowledge from readily available online open sources (...) was noted.

CBRN Materials Emerge – No Incidents Reported

In 2015, EUROPOL included, also for the first time, CBRN “substances” (not weapons!) in its annual report (TE-SAT 2015) for the year 2014. The agency stated that in 2014 “no terrorist attacks” had occurred in the European Union involving “CBRN materials,” while the intention to use them has been expressed in terrorist propaganda “mainly by religiously inspired individuals and groups” (all quotations in EUROPOL, TE-SAT 2015: 11). The same applied for 2015 – “no major terrorist incidents” with CBRN materials occurred. Although CBRN substances remained “highly attractive” to terrorists across the board, the agency mentioned the traditional hurdles: They were “difficult to acquire, transport, handle and deploy without particular scientific knowledge and technology.” It is remarkable that this EUROPOL report differentiated between biocrimes and bioterrorism: Several incidents in 2015 involved the “actual or attempted malevolent use of CBRN materials with criminal or unknown intentions,” whereas jihadist terrorists and their sympathizers had in recent years “regularly expressed threats” involving CBRN materials in their propaganda. The likelihood of CBRN attacks (*per definitionem* including bioterrorism) were assessed as “being low” during those years (all quotations in EUROPOL, TE-SAT 2016: 13).

One year later, EUROPOL’s report for the year 2016 (TE-SAT 2017: 16) stated with a mixture of relief and concern: On the one hand “no large-scale CBRN attacks in the EU by any terrorist group” were reported. On the other, the Islamic State had “significantly improved” its capacity to

produce explosives and improvised explosive devices by adapting existing military ordnance stolen and retrieved from abandoned or conquered military facilities to develop CBRN weapons which could “later be used in attacks.” Also, EUROPOL expressed its concern that the Islamic State “might have recruited, voluntarily or by force, scientists previously working in the chemical, biological or radio-nuclear sectors.” Fortunately, these concerns were not warranted with respect to biological materials and weapons.

The Foiled LWJ ‘Ricin’ Attack in Cologne in 2018 – Not Proving a New Terrorist Pattern

In its TE-SAT 2018 report for the year 2017 EUROPOL continued to stress the gap between jihadists’ intentions and interest in acquiring CBRN materials on the one hand and the difficulties in applying them on the other: As in previous years “no terrorist attacks” using CBRN substances were recorded in the European Union. A matter of attention was once again that the “proposed simple methods with use of available means allow untrained individuals, even lone actors, to put in practice attacks with CBRN materials.” The report referred solely to several documents from the “Knights of Lone Jihad” series, released by *Furat Wilayah Channel* in English in 2017 which “specifically suggested” CBRN scenarios involving food and water contamination as possible terrorist tactics of lone actors. In fact, a disrupted plot in Greece involved threats by “anarchists” to contaminate food products in Athens and Thessaloniki (all quotations in EUROPOL, TE-SAT 2018: 14).

Then, in the following year (2018), for the first time two incidents involving biological materials in Köln/Cologne-Chorweiler and Paris brought the ricin toxin to the fore in Europe in different ways (see Flade, 2018; Piper, June 6, 2019). A third incident was uncovered in Sardinia in November that year, when a Lebanese citizen was arrested for preparing a chemical-biological plot. Unlike the first two cases, the Sardinia incident could not be associated with any terrorist attack, despite the high

toxicity of the substances found (EUROPOL, TE-SAT 2019: 19; no updates in 2020 and 2021 reports). An Egyptian national was arrested in France on May 11, 2018; at his apartment in Paris a black powder from extracted pyrotechnics and several tutorials explaining how to make an IED and how to use ricin to conduct a terrorist attack were seized (EUROPOL, TE-SAT 2019: 19; see also *fax.net*, May 18, 2018).

The arrest of a “two-pack” of Lone Wolves in Cologne in 2018, an IS-guided/instructed Tunisian jihadist and his (former) German wife, stood out – as did their sentencing in 2020 to ten and eight years imprisonment respectively for having jointly planned to explode the combined ricin toxin with shrapnel in a busy indoor place. Fortunately, in view of all databases mentioned above, from today’s perspective the incident has so far remained a “biological exception to the conventional rule”: It was not repeated/copycatted and – with the wisdom of hindsight in 2021/22 – does not constitute “A New Threshold in Jihadi Bio Terror” (Flade, 2018; similarly Piper, June 6, 2019). In addition, the foiled attack was not proof of a new terrorist “pattern,” as Peter Frank, Public Prosecutor General, then feared (quoted in *ntv*, June 7, 2019). What is more, the good – and corroborating – news is that, in its detailed chapter on jihadist terrorism in Europe and all other relevant regions (of course the Middle East/Gulf included) in its last report in 2021 for the year 2020 (pp. 42-77), EUROPOL makes no mention of CBRN in connection with either jihadist groups or LWJ.

Part V: Summary, Conclusions and Outlook

Summary and Conclusions: The Fortunately Sparse Record of Bioterrorism, the Role of Exaggeration and the Omnipresence of the Middle East/Gulf in the Literature Reviewed

My longitudinal critical review of the literature on “Bioterrorist Activities in the Middle East/Gulf, the European Union and the United States” has examined publications on this topic over the half century from the early 1970s to the present. Its central research question has been asked from time to time. In the words of the Office of Technology Assessment (1992 – in original in bold with my italics): “Why Have Biological Weapons *Not* Been Widely Used by Terrorists?” A specific emphasis has been on examining the literature between the poles of hyperterrorism, with its inherent element of hyping and amateurish terrorism.

Focusing on the exaggeration issue is not *per se* a new focus, as several of the titles cited have made clear, among them the still inspiring anthology “Hype or Reality” edited by Brad Roberts (2000) or the programmatic question raised by Anne Stenersen (2008a) “Hype, Hoax or Waiting to Happen?” (it relates to nuclear terrorism but is applicable to bioweapons). What is more, the authors of the publications examined have at times reflected on hyping – the four experts of the Berkowitz team producing the ADCON study on “Superviolence”, the three authors Falkenrath/Newman/Thayer of the Belfer Center volume, Jeffrey D. Simon, and Gary Ackerman/Lauren Pinson.

For several reasons this critical review of the relevant literature with a focus on U.S. publications is not a replay of earlier overviews with an emphasis on hyping:

- Its longitudinal character has made it possible to examine bioterrorism in phases and understand research on it as *first, event-oriented* (in relation to the pre-1995, pre-2001 and post-2001 periods) and *second, actor-oriented* especially in terms of Islamist groups and Lone Wolf Jihadists.
- The central research question with its specific emphasis on the hype issue suggests the introduction of two groups of experts between which the academic and political debates about bioterrorism have been conducted: on the one hand the *alarmist/most concerned* experts (including a not so out-

spoken *concerned/moderate* wing), and on the other the *more cautious and sober* analysts. The bone of contention has *not* been the fortunately poor record of bioterrorist attacks. Over the decades, the controversy between these two groups has always concerned the probability of future attacks by both organizations and Lone Wolves, among them jihadists at center stage.

- Within the frame of the central research question the mindsets have made it possible to structure the debate along the following lines: *First*, the determinants of bioterrorism in terms of its enabling *and* inhibiting effects; *second*, the specific relationship between capabilities and intentions/motivation of evildoers – this review has emphasized their better documented capabilities in terms of scientific knowledge and technical skills. These have turned out to be the crucial obstacle to the manufacture of biological agents/materials as weapons, in other words, when they are placed on effective delivery vehicles. Motivation has not been neglected in this review but has been dealt with as a subordinate issue involving the gap between capability and intent. *Third*, the trends or probability of jihadist terrorists using CB(R)N/WMD and conventional weapons.
- As far as the hype issue is concerned, the empirical material considered has suggested dividing it into functions and forms, with a distinction of the latter dimension in subtle and clear-cut variations.

What is more, this EXTENDED POLICY FORUM 2021/22 issue has combined all those issues with a specific focus on the Middle East/Gulf as the core of the broader region consisting in addition of Pakistan, Afghanistan and the North African countries. There is a sustainable prejudice that this region, with its nucleus (the Gulf states), has been prone to exporting terrorism widely – conventional and unconventional weapons, the latter category consisting of CBRN/WMD and with them biological means of violent attack – prepared and conducted by both evil ji-



hadist organizations such as al-Qaeda and ISIS as well as Lone Wolf Jihadists.

As part of the KAS/APOME POLICY FORUM series on terrorism and CBRN, this EXTENDED POLICY FORUM 2021/22 issue has good news: The general prejudice is unfounded, and the record covering the timespan of fifty years is clear – no jihadist group or Lone Wolf Jihadist has ever carried out a “successful” mass-casualty or small attack with biological materials/weapons such as anthrax. When it comes to the tangible impact of non-state bio-terrorism in terms of actual casualties and injuries, the Broader Middle East/Gulf has not been involved until today. All well-documented terrorist bioactivities since the Second World War were confined to the two highly industrialized countries of Japan and the United States (*see Part I*).

In the wake of 9/11, the tenacious search of Islamist organizations such as al-Qaeda for biological agents/materials and weapons means that the Middle East/Gulf is omnipresent in the literature. This reflects the high level of alertness in the political realm, especially in the United States. Fortunately, until today the record on which Gary Ackerman and his colleagues have presented the most reliable figures mentioned in *Part I* can be assessed as involving very limited “success.”

Why is this so: “Why Have Biological Weapons *Not* Been Widely Used by Terrorists?” And how will this be in the future?

While confirming former studies by elaborating on the central relevance of scientific knowledge and technical skills as part of the different mindsets, the authors of the studies reviewed have provided different answers and points of view. This has led to new insights not only into the Middle East/Gulf-related perspective, which has turned out to be a specific part of the chronological long-term design and the various conceptual and substantive facets. What is more, the longitudinal design has revealed which factors have propelled the debates about the BW attacks that have *not* occurred so far.

Summarizing the Studies Reviewed – the Presence of the Middle East/Gulf and the Role of Hype

The study by ADCON Corporation on “Superviolence” (1972) by Berkowitz et al. in the pre-1995 era displaying features of both expert groups. With its focus entirely on the United States, the Middle East/Gulf (together with all other nations) is for understandable reasons virtually completely absent in the discussions of terrorism. Although the comprehensive report on which this section focuses was written for ARPA and thus indirectly for the U.S. Department of Defense, hype (concerning both its functions and forms) is hardly applicable due to the following factors:

- The report’s *research design* includes inhibiting determinants for “Superviolence.”
- Concerning the *relationship between capabilities and intentions* the team clearly identified lack of intention as accountable for the record of bioterrorism. This was at that time certainly a bold (and hardly tenable) position, because the empirical record of bioterrorist activities was poor; not surprisingly, scientific and technical capabilities were regarded as of low importance for explaining the record.
- The Berkowitz team’s position on *trends/the probability of terrorists using CB/R/N and conventional weapons* was relaxed in that the four ADCON experts emphasized an intuitive taxonomy concerning the employment of weaponry. It started with conventional instruments as the most likely to be used, with CBW occupying the middle ground and nuclear means of destruction being regarded as the least likely to be used.

In fact, the Berkowitz team (1972: 9-16) ridiculed and criticized fantastic scenarios involving direct superviolent attacks. They stressed that basic plots could be developed around virtually any issue from foreign policy to the environment. It would simply

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be necessary to “flavor the issue with that degree of fanaticism needed to override normal inhibitions and to postulate the existence of a technically qualified group, swept along in this fanatic fervor, becomes willing or compelled to apply its skills to the production and use of a mass destruction weapon. Such plots are the stuff of which thriller fiction is made.”

As to the outstanding role of omnipotent mentally ill/charismatic individuals and group leaders, the hype issue can in my view hardly be taken seriously, for the following reasons: *First*, the authors make the important differentiation that those specific individuals are (unlike Ackerman’s creatures) *almost* omnipotent; *second*, the “*organized paranoid*” type is based on a considerable amount of psychiatric literature; *last but not least*, those individuals are not thought to display an increasing CBRN/WMD menace in order to justify a new and more adequate governmental policy in the bioterrorist area – the ADCON study assesses the WMD threat as “greater than zero” but not as rising. The core assumption of the rising threat explains the role of subtle hyping by the three moderate/concerned Belfer Center analysts Falkenrath/Newman/Thayer in their study “America’s Achilles’ Heel” (1998).

The volume “America’s Achilles’ Heel” (1998) in the post-1995 period/the pre-2001 era by the moderate/concerned Belfer Center analysts Falkenrath/Newman/Thayer. This comprehensive study was published three years after the *chemical* attacks of the apocalyptic Aum Shinrikyo sect in March 1995 in Tokyo, which killed 13 people and injured several thousand (all intense attempts by the cult to manufacture *biological* weapons had failed). Nevertheless, these activities marked a new era in both terrorism and research on the subject. At the same time, the al-Qaeda era still lay three years in the future.

The three experts also wrote their study as though the biological activities had been “successful.” The shadow of the ‘biochem clouds’ of Tokyo can easily be seen

when the Belfer Center trio relate the trend toward mass-casualty terrorist activities to religious extremists with an apocalyptic theology and to Sh’ite terrorists operating in the Persian Gulf against U.S. forces and the sheikdoms. How time-bound the survey of the Middle East/Gulf is, becomes evident in the assessment of the Kurdish guerillas who, unlike today, were seen not as coalition partners but as actors hostile to U.S. interests.

The pre-al-Qaeda era manifested itself distinctly in the context of intensifying efforts against U.S. presence and influence in the region. The Harvard authors made it clear that those problems, as well as the increasing role of religious conflicts, took place in the Middle East/Gulf – al-Qaeda’s strategy to hit the “far enemy” in its homeland was still to come. In fact, the experts highlighted that religious and political motives for terrorism reinforced each other in the Middle East, especially the Persian Gulf.

At first glance, mass-casualty terrorism seems to be very directly related to *WMD* (with the ‘B’ element included). But this is not the case. The Belfer Center study was very much informed by two major *conventional* bombings in Saudi Arabia.

Unlike the assessment of the ADCON study (the WMD threat is “greater than zero”), the core objective of the three Belfer Center authors was to make *the case for a growing CBRN/WMD threat* as a first-order national-security issue, in order to justify a broad range of national responses. With that, the subtle variation of hype entered their analysis: I have shown that the basis for the assumed rising threat was academically not sound, since the sources cited were mostly pre-1995 and thus did not reflect the latest facts related to the presumed new trend.

Their previous insight concerning *the relationship between capability and intentions* remained basically intact: There were terrorist groups which were able to employ CBRN/WMD but not interested in doing so and other groups which were interested

but not able to implement those terrorist activities. The Tokyo events of March 1995, however, led to a *different perception* of a rising threat. The *moderate/concerned* and at the same time in several respects differentiated Belfer Center study considered among others the *rejection of precise (worst-case) predictions*.

As for superterrorists, they remain aliens for the Harvard experts – the way they are dealt with cannot be characterized even as hyped in a subtle way. One of them is *not yet* on the list of “super-empowered individuals” in the pre-9/11 study: World Trade Center bomber Ramzi Yousef, a Pakistani citizen naturalized in the U.S. who claimed to have been born in the Gulf state of Kuwait and to have relatives in the Broader Middle East/Gulf. The three Harvard authors do not automatically link non-state violence and the will to cause mass casualties to the use of WMD – this applies to Ramzi Yousef, too (*see Part II*).

The year 2001 changed everything. Not only because of 9/11, but because of “5/11” as well – the latter date refers to the fact that that in the wake of the September 11 attacks the anthrax spores mailed in autumn of that year led to the death of five persons and the injuring of 11 others. Here the question arose: Who were the perpetrator(s) – (an) American scientist(s) or a Middle East/Gulf-based jihadist organization? The U.S. authorities became increasingly confident that a single, highly specialized scientist was behind the lethal mailings. And there was no solid evidence that al-Qaeda ever weaponized anthrax.

The double incidents of “5/11” and 9/11 were such decisive factors – highly different as they were – that in the United States, the dominant arena, they started shaping the mindset of the two major groups. The review has dealt with three (publication) events, mostly at the organizational level, revealing the specifics of the opposing mindsets concerning BW terrorism with the *alarmists* propelling the controversy:



The lethal anthrax letters of autumn 2001. Former U.S. Secretary of the Navy Richard Danzig, reflecting the mood among the *alarmist/most concerned* experts and politicians, coined the term “Catastrophic Bioterrorism” – terrorists might inflict “great trauma” by using BW. It cannot be overlooked, however, that killing five people and injuring 11 is far from mass murder, while 9/11 had nothing to do with CBRN/WMD, although it aroused the fear that non-conventional terrorist activities leading to real mass killings were not only possible but (highly) probable.

Concerning a *more cautious and sober* look at the Japanese sect and “5/11” in the context of 9/11, Gary Ackerman and his co-author Jason Pate, while correctly categorizing the anthrax letters as an “entirely new phenomenon” in bioterrorism, put the deadly letters into perspective in 2001: The possible perpetrator appears as a ‘normal’ down-to-earth actor. In addition, compared with the overall fewer than 1,000 U.S. casualties caused by terrorism until 9/11, the anthrax incidents were regarded as small in scale, with the apparent intent of frightening rather than killing large numbers of people. Even more importantly, the two authors provided a major standard argument for the *non-use* of CBRN/WMD by pointing out that mass killings could be caused by terrorists *without* resorting to WMD.

The controversy also raises the important point of the stability of the mindsets of the analysts as an important factor propelling the debate on the side of the *alarmists/most concerned* experts. Unlike Jeffrey D. Simons, the other prominent analyst – Gary Ackerman, whose writings we have followed for some twenty years in this long-term review of the literature – left the ‘camp’ of the *more cautious and sober* experts in the early 2000s. In the context of Lone Wolf terrorists, Ackerman increasingly viewed Dr. Bruce Ivins as nearly the epitome of the negative type of the “super-empowered individual.”

Two representative publications of the alarmists/most concerned experts of 2008

and 2009. (1) “*World at Risk*” (2008) was the dramatic title of a political-programmatic report of the prominent Bipartisan Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism chaired by Bom Graham and Jim Talent. The report encompassed both the anthrax mailings and the attacks on September 11, so that next to al-Qaeda (through which the Broader Middle East/Gulf was present at the organizational level) the dubious role of scientists became its major focus. Concerning the hype issue in all its aspects, we are confronted here with its classical function: to make a drastic wake-up call for decision-makers to take urgent steps.

Amid their constructive proposals, the typical intellectual fallacies of the *alarmists* could not be overlooked: The Committee members could not imagine that al-Qaeda (and later the Islamic State) would drastically change their military strategy and tactics by emphasizing the use of *unsophisticated* weapons. Under the assumption of these stable intentions, the capability question became a matter of time: a WMD attack, preferably on the United States, was not a question of if but of when. Alarmism and hyping went hand in hand in seemingly precise and entirely authority-based forecasts. The report’s eye-catching overture stated that it was “more likely than not” that a weapon of mass destruction – most probably a biological weapon – would be used in a terrorist attack “somewhere in the world by the end of 2013.”

(2) Gary Ackerman’s article “*The Future of Jihadists and WMD. Trends and Emerging Threats*” (2009), which has to be seen in the context of other works of his, reveals the fixation with CBRN/WMD, primarily at that time related to al-Qaeda, which again brings in the Broader Middle East/Gulf at the organizational level. The central research question of this review of the literature would have to be slightly and yet distinctly modified for Gary Ackerman and his co-authors: “Why Have Biological Weapons *Not Yet* Been Widely Used by Terrorists?”

Unlike the Bipartisan Commission, in their writings in 2004 and 2009 Gary Ackerman and his various colleagues adopted a differentiated view of al-Qaeda as a non-hierarchical organization without a well-defined command structure. In 2004 Ackerman and his co-author stated that affiliated cells of extremists, who are most prone to want to carry out mass-casualty attacks on their own initiative, possibly using CW or BW agents, might well lack the wherewithal to do so; five years later he and his co-author stated in the same vein that the current threat of WMD use by jihadists is not very high, primarily owing to their demonstrated low level of capability to acquire and weaponize CBRN agents. So far, so good – members of the *more cautious and sober* group would have concurred.

But now the crucial difference enters the debate – and with it the issue of hyping in terms of both its clear-cut function and its clear-cut forms: The future trend cannot be extrapolated from the past and present, but it is highly likely to be characterized by a rising menace in the CBRN/WMD area. The pessimistic forecasts in the so-called Delphi survey of early 2008 conducted by Ackerman supported the assumed trend using academically sound means, which the “World at Risk” report lacked as Ackerman made clear in his review. And yet, the similarly gloomy and seemingly accurate predictions of the Delphi survey turned out to be hyped, too, and did not become reality either; they should be seen as mere guesswork.

There is no single counterpart to the alarmist’s publications reviewed within the group of more cautious and sober experts – the representatives of this latter ‘camp’ are widely distributed geographically. Their programmatic approach emerged as an empirically sound and analytically (superior) alternative, in fact, an anti-superterrorism concept. This mindset involved

- questioning the traditional CBRN/WMD focus with a sober look back at Aum Shinrikyo and to a lesser extent “5/11” as a non-mega event;

- an emphasis on low-tech terrorism in the broader conventional area;
- an analytical look at how al-Qaeda and later ISIS were developing and what their organizational and political changes in terms of strategy and tactics meant for the relationship – in fact the widening gap – between intent and capability.

» *Of special relevance in this context were the manifold forms of hyping which have characterized the sections on prominent terrorist experts Jeffrey D. Simon and Gary Ackerman and the latter's various co-authors – culminating in variations of the “super-empowered individual.” The conflating of ordinary scientists or the highly skilled microbiologist Bruce Ivins with Middle East/Gulf-related Ramzi Yousef so they appear as quasi-Frankenstein monsters able to destroy entire societies with BW and other weaponry shows especially Ackerman's desperation to compensate for the lack of the data he would have needed for his central claim – even worse, the figures from their own START database indicated a decreasing menace.* «

Leading proponents of this ‘camp’ such as Adam Dolnik made a prognosis of the upcoming trend of terrorist operations that differed sharply from the *alarmist* publications and their continuous assumption of a rising CBRN/WMD threat. Dolnik's look ahead turned out to be correct for the years to come marked by the rise (and fall) of the Islamic State: The jihadists' operationally less challenging plots and attacks would be associated with decreasing rather than increasing technological sophistication. The academics were supported by EUROPOL's annual “EU Terrorism Situation and Trend” reports at the empirical level. The associated shift toward a lone wolf strategy was due to developments within the Islamic State which had begun earlier (see Part III).

At the level of the Lone Wolves the discussion on single actors regarding conventional weapons was in principle helpful to structure the debate on LW and CBRN/WMD. And yet the specifics and individual dynamics of the CBRN/WMD area cannot be overlooked. Once again, the dividing line in all these matters lay, of course, between the *alarmist/more concerned* group of experts and the *more cautious and sober* ‘camp’ of analysts. A special focus of this review was the Internet and the role it plays for LWJ.

Here, the following aspect was relevant, again demonstrating the omnipresence of the Middle East/Gulf in its specific form: How to assess the communication in terms of scientific know-how and technical skills between the jihadist instructors presumably in the Broader Middle East/Gulf as well as the LWJ at the other end of the electronic communication (probably in the U.S. and Europe)? The central research question of this review of the lit-

erature remained paramount: “Why Have Biological Weapons *Not* Been Widely Used by Terrorists?” At the level of Lone Wolves, the answer is again related to their analytic capability and closeness to reality.

The *alarmists/most concerned* analysts continued to make the case of a rising CBRN/WMD menace at this level, while remaining within their world of *unconventional* weapons – simple means of violent attacks such as knives remained a blind spot for them. Of special relevance in this context were the manifold forms of hyping which have characterized the sections on prominent terrorist experts Jeffrey D. Simon and Gary Ackerman and the latter's various co-authors – culminating in variations of the “super-empowered individual.” The conflating of ordinary scientists or the highly skilled microbiologist Bruce Ivins with Middle East/Gulf-related Ramzi Yousef so they appear as *quasi-Frankenstein monsters*¹⁶ able to destroy entire societies with BW and other weaponry shows especially Ackerman's desperation to compensate for the lack of the data he would have needed for his central claim – even worse, the figures from their own START database indicated a *decreasing* menace.

This is not sound science. What is more, Ackerman and his two co-authors dealt with the factual contents of their sources in an adequate way. These terrorist researchers violated general academic standards to back their ongoing claim that the WMD/CBRN menace has been increasing. Ackerman's list of forms of hyping is anyway quite long. It includes the inaccurate and ambivalent way the past is used to make it fit Ackerman's case for a rising WMD menace as well as several incoherent findings and one example misquoting an academic opponent – again to strengthen the case that the CBRN/WMD menace is on the rise. In a cut-and-paste-way, Ackerman's central positions have been transferred from article to article.

This productive terrorist researcher has also stressed that advances in science and technology, combined with the worldwide diffusion and commercial exploitation of these technologies as a result of increased globalization, would lead to an



increasing WMD threat. This was an additional pattern of argument that propelled the BW debate despite the past and current non-existing BW menace. There was one more mechanism in this regard: Despite contrary claims, Gary Ackerman and colleagues have not managed to tackle the hype issue and initiate the announced re-evaluation of his earlier predictions – such an effort might have undermined their basic claim.

Finally, due to its specific longitudinal character, the review was able to show how prolific writer Jeffrey D. Simon advanced his view that bioweapons have been the preferred weapons of choice by (jihadist) terrorists since 1989, whether at the group or individual level. This assessment has remained simply a *view*, as it could only be derived from sparse data which in turn were related to *unconventional* weapons; this can be regarded as a form of hype. It seems that Simon did not find it necessary to check his view against reality.

Turning to the *more cautious and sober* experts, in the literature reviewed here Michael Kenney has provided a framework for the conventional area which can also be applied to jihadists and CBRN. The two central conceptual elements “*techne*” (tradecraft in terms of knowledge) and “*mētis*” (in terms of adequate behavior for operating secretly in hostile environments without detection by law enforcers) can be understood as a counterapproach to the “stereotype of highly sophisticated ‘super’ terrorists” (Kenney, 2010: 912). In reality, however, terrorists often lack both qualities resulting in the LWJ profile of a “poorly empowered individual.” Anne Stenersen’s work has provided detailed material on the type of low-tech/amateurish terrorists in the CBRN area which is saved for a case study on the German “ricin trial.” As documented in the text, the technically poor quality of the manuals and forums on the Internet is confirmed by EUROPOL’s findings. But there should be no doubt that it remains imperative not to underestimate jihadist terrorists and their evil actions.

Needless to say, for the *more cautious and sober* experts, however, developments in the

conventional realm at the LW(J) level, too, are part of their mindset. This implies a preference for unsophisticated weaponry thus introducing another relevant factor in answering the central research question “Why Have Biological Weapons *Not* Been Widely Used by Terrorists?” There is no need to modify it the way this would be done by the *alarmists*. While it would be foolish not to adopt the major finding of the ADCON study – namely that the threat of a BW attack “is greater than zero” – it seems hyped to speak of a rising threat in this area. If EUROPOL’s annual reports are accepted as the arbiter regarding the competition between the two groups of experts and their divergent positions, the result should be clear (*see Part IV*).

Against this backdrop, the grave deficits revealed call for mechanisms to increase the quality of the discourse on bioterrorism and cease the continuing arguments. They have become overdue. The following measures at three levels come to mind:

- *The personal level of authors and co-authors:* Regardless of their individual standpoint, all academics ought to consider it their duty to fulfill the basic tasks of keeping the cut-and-paste procedure at a minimum in a transparent way, present the contents of the sources used correctly and – especially if they can be identified – to correct their previous positions if they have been overtaken by events. Reality checks are an inherent element of academia and so is self-correction.
- *The level of peer reviews and the editing/publication business:* Having encountered a substantial literature in this longitudinal review it might be wondered why anonymous colleagues and finally the editors of an issue-specific volume or even a series allow articles to pass which contain grave factual inconsistencies. In addition, reviewers and editors should be aware of the context of an author’s publication – again with the goal of keeping ‘old stuff,’ which drags on from year to year, at a minimum.

- *The level of workshops and forums on the state of the art in the discourse on bioterrorism with members of the different groups of experts present (perhaps with an institution in the Arab/Gulf world as a neutral organizer, thus offering an opportunity to bring in new actors):* One main impression from reviewing the U.S.-dominated literature is that direct communication among different groups of analysts, not to mention colleagues with opposing views, has scarcely been taking place. A major implication of this deficit is that central arguments have taken on a *quasi-autonomous* character (*Eigendynamik*). They have not been challenged, among them are explicatory factors such as globalization, development of ‘disruptive technological paths,’ and democratization.

These proposals should not be understood as mechanisms of a cancel culture, but as ways to conducting traditional and valuable academic business by exchanging arguments in a communicative setting.

Outlook: Reducing the “Poverty” of BW Incidents and Concretizing the Importance of the Middle East/Gulf: Two Case Studies with the Central Theme of Hype

Case studies have remained the crucial building blocks on which reliable bioterrorism research could be based – despite their limits which have triggered quantitative studies by Ackerman/Pinson (2014), Asal/Ackerman/Rethemeyer (2012), Ivanova/Sandler (2006, 2007), Sandler (2014) with their own shortcomings such as inconclusiveness and contradictory results (see Koehler/Popella, 2020: 1673 for a concise and critical summary). For the time being, in bioterrorism research the envisaged two case studies can constitute a sound alternative to premature and speculative reflections on developments and events (apparently) related to COVID-19. Two “ricin trials” in which this toxin played a central role have been briefly mentioned in my review: The trial

in London in the wake of the beginning of the U.S.-led war to topple the regime of Saddam Hussein in Iraq (March 20, 2003) and the trial in Düsseldorf.

Their added value can best be described by referring to Gary Ackerman's already quoted need to overcome the fatigue factor in research on terrorism arising from the "paucity" of "serious" CBRN incidents and the "absence of any true WMD attacks by terrorists" (Ackerman, 2005: 140). In both cases the issue of hype goes far beyond the role it has in the studies discussed. Both in the UK and in Germany exaggeration enters the realm of politics; in London it is world politics. The "ricin trial" in Düsseldorf has to be seen in the context of deep public concern about ISIS-related terrorism. Both events, although some 15 years apart, are still having an effect today.

In the London "ricin trial" the deliberate hype consisted in speculating that the toxin was in the hands of a London-based Islamist terrorist cell. However, neither the ricin nor the cell existed. The purpose of the assumed ricin was not only to provide an additional justification for going to war against Saddam Hussein but also to consolidate the domestically highly controversial role of the Tony Blair government as an ally of the George W. Bush administration. The case centers around the (in)famous appearance before the UN on February 5, 2003 by Colin Powell, then U.S. Secretary of State. As will be well remembered, on that day Powell displayed a vial of poison as apparently solid proof of Saddam's links with terrorist activities and the London "ricin cell's" involvement in a wide network with leading terrorist Abu Musab al-Zarqawi as mastermind. However, Powell's speech was based on false intelligence and, to him, a blot in his career and source of lifelong regret.

Virtually every obituary of Powell after he died in October 2021 referred to this incident at the United Nations and quoted the former Secretary of State. The suggested focus will also make it possible to analyze Abu Musab al-Zarqawi's scores of terrorist attacks especially in Iraq. Ironically, this case study is also about unintended conse-

quences, as al-Zarqawi, a no-name before Powell's UN speech, all of a sudden became a worldwide-known terrorist – a fact that bolstered his position in pursuing his activities in Iraq.

The debate about bioterrorism is not just history, and it is not far away. At the level of individual jihadists, the foiled Cologne ricin case in 2018 has revealed manifold interactions on the Internet between IS/ISIS instructors and the "two-pack" of Lone Wolves in the Chorweiler district of Cologne. Here, the Tunisian-German jihadist couple planned to manufacture a "ricin bomb," by combining ricin toxin (one of the most dangerous poisons) with explosives, ball bearings and bladed weapons. The thwarted so-called "ricin attack" in 2018 attracted worldwide attention and raised the question whether it was, as already mentioned, an exception to the rule of conventional plots by jihadist terrorists – or whether it indicated a new trend toward the use of biomaterials/weapons.

As different as the two cases are (and without going into detail here), they provide new insights into

- the in part questionable role of experts (both government-dependent and independent) in presenting obviously exaggerated – actually false – knowledge about the mass-casualty impact of ricin;
- the role of the juridical world – prosecutors and judges – and of the media, thus broadening the horizon of many existing case studies on bioterrorism;
- the, in the meantime increased, importance of agencies in foiling the (Cologne) attack;
- the world of the terrorists as amateurish actors, thus shedding new light on several features that complement and correct the image of the "super-empowered individual." These include poor tradecraft as a crucial element of amateurish terrorism as well as an often overlooked deficit in the often overemphasized role of the Internet. The poor scientific knowledge and technical skills (if they exist at

all) of both ISIS-related instructors and the recipients in Western Europe challenge many studies on the organizational and weapons-related know-how of terrorists (see on this Goerzig, 2019; Jackson, 2006; Jones, 2006; Kettle/Mumford, 2017; Moghadam, 2013; Tishler, 2018).

Last but not least, both ricin cases demonstrate in detail a central feature of my longitudinal review of the literature on bioterrorism: The negative image of people from and in the Middle East/Gulf as terrorists. What is more, the London and Cologne/Düsseldorf cases broaden my research path with its focus on capabilities by investigating the role of intent in terms of radicalization of the terrorists – thus again concretizing the vast literature on the role of the Middle East/Gulf and the Western world in these processes.

The factor of change as a long-term process in the bioterrorism area, as especially emphasized by Ackerman, implies the element of surprise. As almost the entire history of bioterrorism is a history of failed and foiled attempts, "successful" incidents cannot be excluded in the future. In this context the high-ranking al-Qaeda terrorist Ayman al-Zawahiri comes to mind. Maybe he became interested in bio-weapons because of the fear they caused especially among U.S. decision-makers. One of his e-mails stated that it was "the enemy" who brought BW to his attention, possibly as a result of the already mentioned appearance of then-U.S. Secretary of Defense William Cohen on *ABC News* on November 16 holding up a five-pound sugar package: Cohen was expressing fears that if it were to contain spores of *Bacillus anthracis* – the etiological spores of anthrax – and spread over Washington, D.C., half of the city's population would die; see the photo in Tucker/Sands, 1999: 46, a copy of which was allegedly also found in Afghanistan (Pita/Gunaratna, 2009, with various sources).

Frightening people by employing 'dormant' bioweapons in a surprising move could happen again, yet it is nevertheless important to stress the different contexts then and now. In 1998, the three Belfer



Center authors wrote that “it is possible, however, that the public is growing increasingly inured to bombings and other low-lethality attacks, or that a hostile non-state actor will come to believe that this is so. A single conventional bomb, the most destructive tool of traditional terrorism, can reliably kill at most a few hundred people, but cannot kill a few thousands. Even if a terrorist organization has no particular interest in killing large numbers of people, it may still believe that it must create sufficiently widespread and intense fear to achieve its objectives” (Falkenrath/Newman/Thayer, 1998: 206). Irrespective of the contradiction in this statement between interest and belief it may be asked whether the strategic and tactical calculus of terrorists being active in a hostile environment has meanwhile changed – the public has *not* been growing “increasingly inured” at all – on the contrary: The beheading of French schoolteacher Samuel Paty on October 16, 2020 for instance caused shock waves all over France and far beyond, making the traditionally academic distinction between mass destruction and mass disruption obsolete.

This raises the question: Have we already entered a new phase of jihadist terrorism characterized by a modified pre-1995 Brian Jenkins principle, namely that these terrorists want to see a lot of people suffer by killing a few *exclusively with conventional means*? If that were true, the future of CBRN could, like the past, be happily bleak. This scenario would make the various functions of hype obsolete, too. ■

Notes

- 1 The arguments used by OTA (1992: 39-40) are taken from Simon (1989: 11) without mentioning the source. For a similarly concise summary of hurdles see Wiener (1991: 130) and Lowe (1997).
- 2 For a reliable indicator see the country reports of the CRS/Congressional Research Service, Library of U.S. Congress, regularly updated. For Saudi Arabia at different times, see Cordesman (2003: 161-227; March, 2018). A recent overview of Iran's policy in the field of terrorism saw no reason to mention the ‘B’ component at all (Malakoutikhah, 2020).
- 3 The critical reference to recycling may in certain instances apply to Ackerman himself. The reference to a “*recent* [sic!] survey of over 120 books, journal articles, monographs and government reports” (Ackerman, 2005: 140 – my italics) reappeared almost verbatim [“more than” had been changed to “over”] four years later in Ackerman (2009c: 13) in a volume edited by Ranstorp/Normark (2009).
- 4 The [in]famous “Alphabet Bomber” Muharem Kurbegovic, who may indeed already in the 1970s have been “A Lone Wolf Terrorist ahead of His Time” (Simon, 2019), is not included in this summary, because he planned to use a cannon to fire *chemical* nerve gas shells at the U.S. Capitol.
- 5 Figures vary widely. While Kathleen Bailey is quoted as being absolutely convinced that a major biological arsenal could be built with \$10,000 worth of equipment (see Falkenrath/Newman/Thayer, 1998: 112, note 25), the Central Intelligence Agency was reportedly much more cautious: According to its estimates, the cost of equipping a facility for the production of biological agents for mass-casualty terrorist operations “would likely seem to fall anywhere in the \$200,000 to \$2 million range – certainly not trivial sums” (Advisory Panel..., December 15, 1999: 23).
- 6 In addition to Jessica Stern, Karl-Heinz Kamp (1998/99) and Joseph Pilat (1998/99) were asked by the editors of *Survival* to comment on Falkenrath's contribution, because just after its publication, on August 20, 1998, the Clinton administration took that decision against the Sudanese facility (on Kamp see below).
- 7 For a different and differentiated view see Kelle/Schaper, 2001: 2-6. The PRIF authors are an exception in arguing that compared to nuclear weapons, the “technical uncertainties linked to the procurement of biological weapons are greater” (p. 36).
- 8 As shown, the three Belfer Center experts were not alone, many Western analyses emphasized the gaps and limits, with the exception of Adam Dolnik (2010: 144), who in his concluding remarks used the term “‘superterrorist’ organization” of the “megalomaniac leader” Shoko Asahara in order to describe the future “prototype” terrorist group. But Dolnik relativized his assessment, emphasizing the uniqueness of the sect whose activities were not copycatted by any other group until now.
- 9 The same applies to the *alarmists* Douglass/Livingstone (1987) who are at the same time used by the trio as a reliable source. See e.g., p. 34, note 13, and p. 38, note 27.
- 10 Gloomy predictions were presented by other terrorism researchers. See for instance the similarly precise forecast (“High Probability” – original quotation in bold) by a non-specified report in 2003 to the U.S. government (referred to by Rolf Mowatt-Larsen, 2010: 9) on WMD attacks by al-Qaeda on the United States within the next two years. Also, it is ironic that Jessica Stern had opened her book “The Ultimate Terrorists” two years before 9/11 with the scenario-related question: “What if terrorists exploded a homemade *nuclear* bomb at the Empire State Building in New York City?” (Stern, 1999: 1 – my italics) As we all know, this is one of the many examples showing how disastrous conventional weapons can be, in the case of 9/11 commercial aircraft.

- 11 Sprinzak is an unusual case in this review of the literature. He is one of the few ‘converters’ changing sides within the largely stable mindsets of experts, expressing both his previous and newly taken positions with great fanfare and furor. 9/11 changed his mind entirely. In his pre-9/11 article he chastised the supporters of superterrorism in extremely harsh words (see Sprinzak, 1998, practically non-revised 2000; see also Post/Sprinzak, 1998). In his 2001 article he put even the murderer of Israeli Prime Minister Yitzhak Rabin on the list of superterrorists.
- 12 The “general perception” – probably more accurate: the empirical record – led to a previous hypothesis of Asal/Ackerman/Rethemeyer (2012: 235 – following quotation in original in bold: “The larger a terrorist organization, the more likely it will be to pursue CBRN weapons.” As we shall see, this hypothesis will be corrected in Ackerman’s writings by the dominance of the “super-empowered individual.”
- 13 Admittedly, the literature on both issues – a lot published quite a while ago – can be best described as bits and pieces; as far as I can see, there is no systematic and comprehensive analysis. *On the BTWC*, see, for example, Finlay/Tamsett, 2009; Kelle/Nixdorff/Dando, 2015; Kelle/Schaper, 2001: especially 15-16; Lentzos, July 26, 2018; Reaching Critical Will, 2019; Trezza, April 27, 2020; Tucker, 2010: especially 57; see various useful articles dealing with old and new problems, in *The Nonproliferation Review* 27: 4-6, 2020. *On UN Res. 1540 (2004) and dimension of biosecurity*, see Barletta/Sands/Tucker, 2002; 1540 *Compass* series, especially Martellini/Novossiolova (2014).
- 14 The empirical case in point in the non-CBRN area is young British Roshonara Choudhry. The absolute role of the Internet allows the terrorism researcher to ignore the social aspects of radicalization. For Simon, Choudhry is, to use Paul Gill’s terms, not “cyber-enabled” but “cyber-dependent” (Gill, 2019: 193 referring to Gill et al., 2017: especially 114). She never contacted al-Qaeda chief ideologue in Yemen, Anwar al-Awlaki, directly. Instead, she downloaded and listened to “more than one hundred” of his sermons, which, as Simon states, obviously had a clear impact of her becoming radicalized: On May 14, 2010 Choudhry unexpectedly attacked British MP Stephen Timms with a knife (certainly not a CBRN!). The MP survived and the attacker was given a life sentence with a minimum of 15 years (Simon, 2013: 141; quotation: 140). Note the general counterposition by Jytte Klausen (2021: 439) under the title of the section “Don’t blame the Internet” (Klausen, 2021: 438 – in original in bold): “Seamus Hughes, who served as a counterterrorism expert in the Obama administration and transitioned into academia, bluntly describes the obsession with Internet radicalization as “overblown.” I agree. [...] The growth of terrorist internet jihadist extremism is best explained by a simple axiom: to become a terrorist you have to know one. You can meet and flirt online, but true love is only to be found in real life.”
- 15 The literature reviewed does not make it possible to analyze whether (and if so how) Walter Laqueur assessed the role of the Internet for his clear-cut statement above on lone actors as “among the most likely candidates” to use WMD (Laqueur was introduced in the previous chapter as a prominent representative of the megaterrorism mindset). As Conway (2017: 79) observed, Laqueur’s position on the role of the Internet was in general contradictory.
- 16 It is important to note that the “dangerous character” of Frankenstein was originally designed by Mary Shelley as a divided personality consisting of a scientist and a monster (see Weart, 1988: 65). This division is definitively not made by Ackerman.

Abbreviations

ADCON	Advanced Concept Research Corporation
AOAV	Action on Armed Violence
AQAP	Al-Qaeda in the Arabian Peninsula
ARPA	Advanced Research Projects Agency (subsequently DARPA)
B	Biological
BTX	Botulinum Toxin
B(T)WC	Biological (and Toxin) Weapons Convention
BW	Biological Weapon(s)
CB	Chemical/Biological
CBRN	Chemical, Biological, Radiological and Nuclear Weapons
CBW	Chemical/Biological Weapon(s)
CLAT	Countering Lone-Actor Terrorism (database)
CNN	Cable News Network
CRS	Congressional Research Service
CSIS	Center for Strategic and International Studies
CW	Chemical Weapon(s)
DARPA	Advanced Research Projects Agency (previously ARPA)
DMSO	Dimethyl Sulfoxide
EU	European Union
EU-ROPOL	European Union Agency for Law Enforcement Cooperation
FBI	Federal Bureau of Investigation
GSN	Global Security Newswire
HME	Home-made Explosives
HSFK	Leibniz-Institut Hessische Stiftung Friedens- und Konfliktforschung
IED	Improvised Explosive Device(s)
IEP	Institute of Economy and Peace
IS/ISIS	Islamic State/Islamic State in Syria and Iraq



ISIL	Islamic State in Iraq and the Levante
LW	Lone Wolf/Wolves
LWJ	Lone Wolf Jihadist
MD	Maryland
MENA	Middle East and North Africa
MIT	Massachusetts Institute of Technology
MP	Member of Parliament
NBC	Nuclear, Biological and Chemical Weapons
NTI	Nuclear Threat Initiative
NUPI	Norwegian Institute of International Affairs
NW	Nuclear Weapon(s)
OTA	Office of Technology Assessment
PDFLP	Popular Democratic Front for the Liberation of Palestine
PFLP	Popular Front for the Liberation of Palestine
PLO	Palestine Liberation Organization
POICN	Profiles of Incidents involving CBRN and Non-State Actors
PRIF	Peace Research Institute Frankfurt (member of the Leibniz Association)
RAND Corp.	Research and Development (Institute in the U.S.)
RDD	Radiological Dispersal Device(s)
RUSI	Royal United Services Institute for Defence and Security Studies
START	Study of Terrorism and Responses to Terrorism (database)
TE-SAT	EU Terrorism Situation and Trend (EUROPOL's annual report)
UN Res.	Resolution of the United Nations
VNSA	Violent Non-State Actors
WMD	Weapon(s) of Mass Destruction
WTC	World Trade Center

References

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