



Russia's Toxic Legacy

by Lt. Col. (res.) Dr. Dany Shoham

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EXECUTIVE SUMMARY: The recent poisoning on British soil of Sergei Skripal, a former Russian military intelligence officer who acted as a double agent for the UK's intelligence services, and his daughter Yulia with a very rare nerve agent of the Novichok type appears almost certainly to have been conducted by the Russians. While the attack is part of a long chain of similar incidents, it was an overwhelming event diplomatically, politically, practically, and in terms of intelligence. Two similar incidents in London exhibited common elements linking them to the Skripal attack. Together, they shed light on the apparatus that might be responsible.

The quest for untraceable, incurable poisons and undetectable modes of employing them has long preoccupied intelligence services oriented towards political assassination. In addition to being a major medico-technical challenge for both perpetrators and investigators, that quest has serious diplomatic and political dimensions.

In 1978 and 2006, two notorious assassinations (among many others in the UK and elsewhere in the world) occurred in London. Those two assassinations bear a strong resemblance to the recent attack on former Russian military intelligence officer Sergei Skripal and his daughter on British soil and thus warrant reexamination.

The Russian toxic legacy in the UK goes back to the late 1970s, when the Cold War was at its fiercest. Georgi Ivanov Markov was born in Sofia, Bulgaria and died in London in 1978 due to poisoning by ricin, a deadly plant protein biotoxin (weaponized for wide-scale warfare as well). He was executed by DS (Durzhavna Sigornost, or Bulgarian State Security) with vital assistance from the then Soviet KGB.

An independent journalist, Markov was Bulgaria's most revered dissident and Bulgarian Communism's arch enemy. Bulgarian Communist dictator Todor Zhivkov asked the KGB to help him silence Markov, and his request was granted.

The KGB elected to use a camouflaged weapon. A folding umbrella was adapted with a firing mechanism and silencer with which to shoot a small pellet at close range (one and a half to two meters). The "Chamber" – namely, Department 12, Directorate S (the KGB Operational Technical Support Directorate) – adapted the umbrella tip to enable it to shoot the victim with a tiny metal pellet containing ricin. The pellet was designed to penetrate clothing and lodge in the skin.

On the day of his assassination, Markov worked a double shift at the BBC. After finishing the early morning shift, he went home for a rest and some lunch. Returning to work by car, he drove to a parking lot on the south side of Waterloo Bridge. It was his habit to take a bus across the half-mile bridge to BBC headquarters in Bush House. After parking his car, Markov climbed the stairs to the bus stop. As he neared the queue of people waiting for the bus, he experienced a sudden stinging pain in the back of his right thigh. He turned and saw a man bending to pick up a dropped umbrella. The man, who was facing away from Markov, apologized. The assassin then hailed a taxi and departed.

Though in pain, Markov boarded the bus to work. The pain continued. Markov noticed a small blood spot on his trousers, told colleagues at the BBC what had happened, and showed a friend a pimple-like red swelling on his thigh. By evening, he had developed a high fever. He was hospitalized and treated for an undetermined form of blood poisoning. His condition quickly worsened, and he did not respond to medical treatment. The next day he went into shock, and after three days of agony and delirium, he died.

During an autopsy performed at Wandsworth Public Mortuary, a tiny metal sphere the size of a pinhead was found in the wound in Markov's leg. When the doctors attempted to extract the "pin," a tiny pellet fell onto the table. The police took the pellet to the Chemical and Microbiological Warfare Establishment at Porton Down, commonly called the "Germ Warfare Center." There, it was examined by a team of Britain's foremost specialists in forensic medicine as well as, reportedly, Dr. Christopher Green of the CIA.

The 1.52mm-diameter pellet embedded in Markov's leg was composed of 90% platinum and 10% iridium. Two 0.34-mm holes had been drilled into the pellet, possibly with a high-technology laser, at right angles to one other, producing an X-shaped cavity. The holes were empty.

Investigators were unable to establish what type of substance had been used, but the pellet was sufficient to determine that Markov had “not died of natural causes.” BATS (British Anti-Terrorist Squad) detectives then joined the Scotland Yard investigating team. After weeks of research and experimentation, in January 1979, a Coroner’s Inquest ruled that Markov had been murdered with the ricin toxin.

Several years later, two former top KGB officers, Oleg Gordievsky and Oleg Kalugin, publicly admitted Soviet complicity in Markov’s murder by means of ricin.

In 1994, the British Parliament asked Russia to help locate 15 former KGB agents who might have been involved in or had knowledge of the Markov murder. The request remains unanswered. The Markov case remains officially unsolved. No one has been brought to justice, though the evidence points fairly clearly to the involvement of Bulgarian and Soviet elements, chiefly the KGB.

The KGB officially ceased to exist in November 1991, but its successor organization, the FSB (Federal Security Service of the Russian Federation), is functionally extremely similar. While many alterations were undertaken, the underlying system did not substantially change. The KGB’s policy of political assassination on foreign soil was continued by the FSB, as was demonstrated by the murder of Alexander Litvinenko.

A former FSB officer who specialized in tackling organized crime, Litvinenko and several other FSB officers publicly accused their superiors, in November 1998, of ordering the assassination of Russian tycoon and oligarch Boris Berezovsky. Litvinenko was arrested the following March on charges of exceeding the authority of his position. He was acquitted in November 1999 but re-arrested. The charges were dismissed in 2000, at which time he fled to London and was granted asylum in the UK. There, he worked as a journalist, writer, and consultant for British intelligence.

Naively, perhaps, Litvinenko wrote two books during his time in London wherein he accused the Russian secret services of staging several acts of terrorism in an effort to bring Vladimir Putin to power. He also accused Putin of ordering the murder in October 2006 of Russian journalist Anna Politkovskaya.

On November 1, 2006, Litvinenko suddenly fell ill and was hospitalized in what was determined to be a case of poisoning by radioactive polonium-210. He died on November 23. He thus became the first known victim of lethal polonium 210-induced acute radiation syndrome.

On the day he fell ill, Levchenko met with two former KGB agents. Though both denied any wrongdoing, a leaked US diplomatic cable revealed that one of them had left polonium traces in the house and car he had used in Hamburg.

In January 2007, British officials said police had solved Litvinenko's murder. They had discovered "a 'hot' teapot at London's Millennium Hotel with an off-the-charts reading for polonium-210, the radioactive material used in the killing."

Significantly, a senior British official said investigators had concluded the murder of Litvinenko was "a 'state-sponsored' assassination orchestrated by Russian security services." Eventually, at a London court hearing in 2015, a Scotland Yard lawyer concluded that "the evidence suggests that the only credible explanation is in one way or another the Russian state is involved in Litvinenko's murder".

Polonium-210 is often regarded as the "perfect poison" because the alpha particles emitted by this radioisotope cannot travel through skin or paper. It would therefore be easy to smuggle a tiny amount of it into a foreign country in a glass vial. Also, the substance is very difficult to detect through either hospital tests or with airport scanners because it emits hardly any gamma radiation, which is what Geiger counters look for. Polonium also has no color or taste, so it can be added to food or drink without detection by the person ingesting it. When it decays inside the body, it continues to cause damage for weeks on end.

The recent attempted assassination of Sergei Skripal and his daughter in Salisbury involved another mode of poisoning, however.

Recruited in Spain to British intelligence in 1995, Skripal passed on state secrets and blew the cover of numerous Russian agents. A colonel in Russian military intelligence, he headed the personnel department, which provided him access to valuable information. He was arrested in Russia in 2004, and in 2006 was sentenced to 13 years in a high security detention facility.

In 2010, Skripal, along with three other Russian nationals imprisoned for espionage, was freed as part of a spy swap for ten Russian agents arrested in the US. The UK government insisted on Skripal's being included in the swap. Skripal then made the critical miscalculation of resuming his provision of information to the UK and other Western intelligence agencies for a period of time.

The extent of Skripal's treason was apparently perceived by the Russians as entirely unforgivable as a matter of principle. Moscow may have been conveying the following tacit message by agreeing to his swap: "We will

include Skripal on the list of anti-Russian spies to be freed, but that does not mean we will never harm him in the future, no matter where he is located."

The toll on Skripal's family grew remarkably high. His wife died in 2012 of disseminated endometrial cancer, his brother died in 2016, and his son died at age 43 in March 2017 in unknown circumstances while on a visit to Saint Petersburg. All these deaths displayed suspect pathologies and chronologies.

The Novichok ("newcomer" in Russian), a highly advanced category of nerve agents, typifies the top chemical warfare weapons created by the Soviets/Russians. Novichok agents were designed to meet the following criteria:

- to be appreciably more deadly than the most toxic chemical warfare agent known in the West, namely VX;
- to be undetectable by NATO-standard chemical detection equipment;
- to defeat NATO's chemical protective gear, and, ideally, antidotes;
- to be safer to handle, chiefly in terms of binary-patterned producible compounds; and
- to circumvent the Chemical Weapons Convention list of controlled substances and related inspection regimes.

The mission was accomplished, largely clandestinely, in the form of a spectrum of organophosphorus substances, usually fluorinated. The most potent compounds from this family, Novichok-5 and Novichok-7, are supposedly around five to eight times more toxic than VX. The "Novichok" designation refers to the binary format of the agent, with the final compound referred to by its code number (A-232 and A-234, respectively).

Novichok agents are probably deliverable as liquid aerosols, powdered aerosols, or gases via a variety of systems, namely artillery shells, aerial bombs, rockets, missiles, and spraying devices, including those adapted for guerrilla warfare and self-destruction mechanisms or spontaneously decomposing toxicants.

The pathological impact of Novichok agents could be intentionally delayed by the weapon designer or attacker so as to blur the time, place, and physical source from which the poison is released. This might have been the case in the Skripal attack. Skripal and his daughter were found unconscious on a public bench one day after Yulia had flown from Russia into London's Heathrow Airport, whereas a policeman seriously injured by the toxin was poisoned following a visit to Skripal's house.

The British investigators looking into the Salisbury incident are likely to draw conclusions from the two precedents of 1978 and 2006, as well as others, despite the years that have passed. There are certainly parallels to be examined. A

significant difference between the Salisbury case and those two main precedents could be the mode of delivery of the toxicant into the victims' bodies. In the earlier attacks, delivery was direct (injection into the leg or insertion into a cup of tea), while in Salisbury, it was apparently environmental (as indicated by the serious effect on the policeman and the mild poisoning of another 20 people). The methods of infiltrating the poisons into the UK constitute their own separate issue as well.

Ironically, in September 2017, Russia announced that it had destroyed its own entire CW arsenal (which had been the world's largest), though this declaration cannot be verified. It might be assumed, nonetheless, that the Russians retain a stock of Novichok agents for purposes of both large-scale and guerrilla warfare.

Although unconnected, the political assassination in February 2017 of North Korean ruler Kim Jong-un's estranged half-brother, Kim Jong-nam, in Malaysia by North Korean agents warrants attention. (Moscow was indirectly involved insofar as the North Korean agents, who were affiliated with Pyongyang's Ministries of State Security and Foreign Affairs, flew back to Pyongyang from Kuala Lumpur on the day of the assassination via Vladivostok, Russia). South Korea's request to detain four of the suspects was rejected by Russian officials on the grounds of lack of evidence. While the assassination of Jong-nam was accomplished by means of the well-known nerve agent VX, the nerve agent employed in Salisbury was probably much more advanced and elusive. This is unsurprising as the Russian CW program is far ahead of the North Korean.

Tensions between London and Moscow are on the rise, and a genuine crisis is developing with the West. But foremost, perhaps, is the fierce confrontation between the British and Russian intelligence communities, which are among the most elite and sophisticated in the world. British and Russian intelligence have a long and hostile rivalry that overshadows the political and diplomatic spheres.

Collectively, the Salisbury incident and the two earlier poisoning incidents represent a toxic Russian legacy in three different modes: a biological protein toxin derived from castor beans (ricin); an extremely rare, naturally occurring radioactive chemical element (radionuclide polonium-210); and a synthetic nerve agent (Novichok). Administered in various ways, all three are highly lethal, cause incurable illness, and are largely untraceable, suggesting malign forces behind incidents that were written off as "cause of death unknown."

An extraordinarily thorough investigation is being conducted by a variety of British national agencies to unravel the Salisbury incident to the last detail. The conclusion will in all likelihood be that it was a Russian operation.

Lt. Col. (res.) Dr. Dany Shoham, a microbiologist and an expert on chemical and biological warfare in the Middle East, is a senior research associate at the Begin-Sadat Center for Strategic Studies. He is a former senior intelligence analyst in the IDF and the Israeli Defense Ministry.

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