

- Obligations (EC-36/DG.16 dated 4 March 2004, Corr.1 dated 15 March 2004 and Add.1 dated 25 March 2004); Information on the Implementation of the Plan of Action for the Implementation of Article VII Obligations (S/433/2004 dated 25 June 2004); Second Progress Report on the OPCW Plan of Action Regarding the Implementation of Article VII Obligations (EC-38/DG.16 dated 15 September 2004; Corr.1 dated 24 September 2004; and Corr.2 dated 13 October 2004); Report on the OPCW Plan of Action Regarding the Implementation of Article VII Obligations (C-9/DG.7 dated 23 November 2004); Third Progress Report on the OPCW Plan of Action Regarding the Implementation of Article VII Obligations (EC-40/DG.11 dated 16 February 2005; Corr.1 dated 21 April 2005; Add.1 dated 11 March 2005; and Add.1/Corr.1 dated 14 March 2005); Further Update on the Plan of Action Regarding the Implementation of Article VII Obligations (EC-41/DG.12 dated 15 June 2005 and Corr.1 dated 24 June 2005); Report on the Plan of Action Regarding the Implementation of Article VII Obligations (EC-42/DG.8 C-10/DG.4, dated 7 September 2005; Corr.1 dated 26 September 2005; C-10/DG.4/Rev.1 EC-M-25/DG.1 dated 2 November 2005; Add.1 dated 8 November 2005; and Corr.1 dated 10 November 2005).
- ¹¹ Reports on the sessions of the Council: paragraph 6 of EC-36/3, dated 26 March 2004; paragraph 7 of EC-38/2 dated 15 October 2004; subparagraphs 6.1 to 6.3 of EC-40/2 dated 18 March 2005; subparagraphs 5.11 to 5.13 of EC-41/5 dated 1 July 2005; paragraph 7 of EC-42/5 dated 30 September 2005; and subparagraphs 3.1 to 3.3 of EC-M-25/4 dated 11 November 2005.
- ¹² Subparagraph 9.1 of the Report of the Ninth Session of the Conference of the States Parties (C-9/6, dated 2 December 2004).
- ¹³ Conference decision C-9/DEC.4 dated 30 November 2004, www.opcw.org.
- ¹⁴ Note by the Director-General: Report on the Plan of Action Regarding the Implementation of Article VII Obligations (EC-42/DG.8 C-10/DG.4 and Corr.1 respectively dated 7 and 26 September 2005; EC-M-25/DG.1 C-10/DG.4/Rev.1, Add.1 and Corr.1, respectively dated 2, 8 and 10 November 2005).
- ¹⁵ One-hundred and fifty-six drafts have been submitted by 93 States Parties. In some cases, States Parties have requested advice on drafts several times during their governmental consultative process. Most of the drafts commented on are still going through the process of parliamentary approval.
- ¹⁶ United Nations Security Council resolution 1540, dated 28 April 2004.
- ¹⁷ See further, Article IV of the UN-OPCW Relationship Agreement, Council document EC-MXI/DEC.1 dated 1 September 2000, adopted by the Conference in C-VI/DEC.5 dated 17 May 2001.
- ¹⁸ The follow-up decision expresses the objective “measures ... to ensure **fulfilment** by all States Parties of their Article VII obligations,” (operative paragraph 14) in contrast to the original Action Plan decision language, “measures ... to ensure **compliance** by all States Parties with Article VII” (operative paragraph 19).
- ¹⁹ C-10/DG.4/Rev.1 EC-M-25/DG.1, page 3, paragraph 12.

Historical Note no. 5

Alibek, Tularaemia and The Battle of Stalingrad

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False allegations of the development, production and/or use of biological weapons (BW) were major triggers for the biological arms race that took place after World War I,¹ and in the end led to the invasion in Iraq by the US and their allies.

In this paper, I will deal with claims that the Soviet Red Army used *Francisella tularensis* as a biological weapon in WW II. Throughout WW II the Germans were very afraid of enemy use of BW following the discovery of the French BW facility *Laboratoire de prophylaxie* at the *Poudrerie nationale du Bouchet* in Vert le Petit.² Every outbreak of infectious diseases or intoxications in the homeland and in occupied regions, especially those deviating from the norm, had been thoroughly investigated.³ But by the end of WW II, only a few cases of biosabotage had been detected by the Germans.⁴

So when Ken Alibek, alias Kantjan Alibekov, a former director of the Soviet BW organization *Biopreparat*, alleged after his defection to the West that the Soviet Red Army had used *Francisella tularensis* as a weapon against German troops in WW II, it was not only scholars of BW history who took notice.

Francisella tularensis, the agent causing tularaemia, is one of the most pathogenic bacteria known, and can be easily disseminated. For these reasons, it is considered a candidate BW agent.⁵ Experts of a CDC Strategic Planning Workgroup placed *F. tularensis* in that category of biological agents that “have the greatest potential for adverse public health impact with mass casualties”.⁶ In the past, *F. tularensis* has been studied, produced, weaponized, and stockpiled by Japan, by the US, and by the Soviet Union.⁷ France likewise at least considered the use of *F. tularensis* before WWII.⁸ Recently, concerns have once again focused on the possible use of this agent for bioterrorism,⁹ and *F. tularensis* was indeed procured by the Rajneeshee sect while planning their bioterrorist activities in 1984,¹⁰ though in the end, they decided to use *Salmonella typhimurium* as a sabotage agent instead.¹¹

However, there had been no claims that this agent had ever actually been used for hostile purposes.

But in a hearing in 1998, Alibek mentioned: “My own analysis of a tularaemia outbreak among German troops in southern Russia in 1942 indicates that this incident was very likely the result of the USSR’s use of biological weapons.”¹²

Alibek repeated and substantiated this claim in his widely read book *Biohazard*. A similar claim was made recently in the Russian newspaper *Pravda*.¹³

As a cadet in 1973, Alibek was reportedly requested by one of his professors to evaluate a “mysterious outbreak of tularaemia on the German-Soviet front shortly before the Battle of Stalingrad in 1942”. He assessed the voluminous *History of Soviet Military Medicine in the Great Patriotic War 1941-1945* as well as scientific journals from the war-time period, and he came to the conclusion mentioned above.¹⁴

But one should have some reservations about Alibek’s claims, not least because he based them neither on personal experience nor on documents conclusively proving the alleged use of *F. tularensis* as BW by the Red Army. Moreover, in the absence of hard facts, Alibek’s claims are not convincingly supported by his arguments, which are summarized below.

Hence, the members of a “Working Group on Civilian Biodefense”, convened by the Center for Civilian Biodefense Studies, Johns Hopkins University Schools of Medicine, mentioned rather cautiously that “Ken Alibek has suggested that tularaemia outbreaks affecting tens of thousands of Soviet and German soldiers on the eastern European front during World War II may have been the result of intentional use”¹⁵ [emphasis added]. Other experts pointed out, that Alibek’s “report has not been substantiated”.¹⁶ Croddy and Krcalova, in evaluating several reports published in Soviet-Russian journals, concluded that the epidemic was not caused by the deliberate dissemination of *F. tularensis* but rather “was a natural outbreak” caused by “a complete breakdown in public health infrastructure”.¹⁷

Up to now, only a few contemporary German sources have been considered¹⁸ in order to prove or disprove Alibek’s claim. Therefore, encouraged by Stefan Winkle¹⁹ I undertook to assess – in addition to some Russian papers – more contemporary reports published by German medical officers – three of whom were serving in a panzer army at the time in question – and to compare them with the arguments made by Alibek and the author of the *Pravda* paper, respectively:

1. A “mysterious outbreak of tularaemia on the German-Soviet front [occurred] shortly before the Battle of Stalingrad in 1942”.²⁰

But: The outbreak of 1942 was not “mysterious” at all, since it was not the first epidemic of tularaemia in the land-bridge between the Black Sea and the Caspian Sea. Since 1926²¹ several large outbreaks had been reported:²² in 1938 there was an epidemic causing several thousand cases of tularaemia,²³ and another large outbreak occurred during the winter of 1941-42.²⁴

Tularaemia was in fact endemic in that region.²⁵ For this reason, an effective protective system had been organized by the Soviet administration before the German occupation. An important element of the protective system involved wiping out mice and other murine rodents (the main transmitters of the disease – and of plague, which was also endemic in that area) by the use of so-called “deratisators”.²⁶ In January 1941, recommendations had also been issued by the High Command of the Soviet Southwest army in order to prevent tularaemia.²⁷

2. Alibek claims that a large outbreak of tularaemia suddenly occurred in the Volga region first among

*German panzer troops late in the summer of 1942. Within a week of the initial German outbreak, thousands of Russian soldiers and civilians living in the Volga region also came down with tularaemia.*²⁸ Likewise, according to the article in *Pravda* “[t]he use of infected rats against the Nazi army had an inverse effect too: the disease came over the front line, and infected a lot of Soviet soldiers”.

But: The outbreak did not affect German troops first. When German troops approached the region some soldiers developed tularaemia “subsequent to infections among the Russian civilian population”.²⁹ Gerhard Rose, Chief Consultant in Tropical Medicine to the German Air Force, pointed out in an interrogation “that the Germans were greatly surprised to find extensive epidemics of tularaemia in Russia among the civilian population in the Donetz Basin and along the Black Sea”.³⁰ Besides, the outbreaks of tularaemia did not start in the summer but in the winter: the 1941-42 outbreak lasted from October until June, with a peak in January (14,000 cases)³¹, and the 1942-43 epidemic started in November and lasted until the end of February.³²

3. According to Alibek, the number of cases of tularaemia rose from a normal figure of about 10,000 in 1941 to more than 100,000 in 1942, whereas the incidence of the disease returned to 10,000 in 1943.

But this assertion is to be doubted, too. The peak of the 1942-43 epidemic was not reached in 1942 but in mid-January 1943.³³

Furthermore, according to the leading Soviet epidemiologist Victor Zhdanov, about 100,000 cases per annum had been reported throughout the 1940s and not only in that particular year.³⁴ And in any case, independently of the difference in these figures, the following numbers make it clear how marginal the impact of the epidemic actually was on the capability of the German troops: While Gerhard Rose recalled that the cases of tularaemia among the Russian people during the war “numbered hundreds of thousands”³⁵, only 130 German soldiers suffered from tularaemia in 1941-42³⁶, and during the period 1939-43³⁷ altogether 1771 cases of tularaemia had been diagnosed in the German field forces (plus an additional two in the replacement forces). Moreover, these figures include cases diagnosed among troops serving in Norway. Hence, the claim made in the *Pravda* article that “about 50 percent of German prisoners who were taken captive after the battle of Stalingrad, were suffering from classic symptoms of tularaemia”³⁸ is simply not credible.

From a German perspective, tularaemia was indeed a war disease, but of much less importance than other diseases.³⁹ In fact, in a contemporary monograph on war diseases, tularaemia was not even mentioned at all⁴⁰.

4. Alibek mentioned that most of the journals he studied in the course of his evaluation “reported this as a naturally occurring epidemic”. Nevertheless, he came to a different conclusion⁴¹.

But like Winkle⁴² and like Croddy and Krcalova⁴³ I am convinced that the journals studied by Alibek drew the correct conclusions. One of the papers which should have been available to Alibek during his studies in 1973 was published

by leading Soviet expert I.I. Rogozin⁴⁴. Rogozin observed that there had been a massive multiplication of infected rodents. He concluded that “a decisive source of the infection [with *F. tularensis*] revealed the inhalation of dust when contaminated straw was used as mattresses”. This assessment is to be taken very seriously since Rogozin was head of the anti-epidemic department of the People’s Health Commissariat (i.e. the Ministry of Health) who himself studied the outbreak in 1942 on the spot^{45 a}. Correspondingly, according to a Soviet monograph, since the fighting persisted in the region throughout the normal period of the grain harvest, the crops were left standing in the fields, providing ample food for the murine rodents, and causing an intensive multiplication in their numbers. That supported their infection with *Francisella tularensis*. In consequence, the infected animals contaminated large areas of the regions of Rostov, Stalingrad and Woroschilowgrad and caused outbreaks of tularaemia in that area⁴⁶.

These conclusions totally correspond with assessments drawn and published during WW II by German medical officers in at least eight articles. Each of these papers describe more or less at length that the outbreak was caused by field mice, forest mice, shrews and other rodents, which multiplied rapidly because crops remained unharvested and the grass uncut because of the war, thus providing a large source of food for the rodents⁴⁷.

Another reason for the enormous multiplication of the rodents – according to both German and Russian experts – was that the systems established to prevent plague and tularaemia had totally collapsed as a consequence of the war^{48, 49}.

The animals – a high percentage of which were infected with *Francisella tularensis*⁵⁰ – excreted the bacteria with their faeces so that the bacteria were disseminated with the dust from the fields and/or with contaminated bread and other food⁵¹. The majority of soldiers treated in a military hospital specializing in tularaemia had been infected orally by contaminated bread and other food.⁵² Gerhard Rose recalled that tularaemia “was transmitted by direct contact through food, or by mice and rats”⁵³. Occasionally the bacteria had been transmitted also by insects (especially mosquitos and ticks)⁵⁴, by contaminated water⁵⁵ and – sometimes – by biting mice⁵⁶. (The outbreaks of 1926 and 1928 were caused by water rats who were present in consequence of the flooding of the river Volga⁵⁷.)

In order to protect the German troops from tularaemia, the soldiers were advised to follow the recommendations - issued by the Soviet Southwest army back in 1941 - not to take up quarters in contaminated villages or, better still, to bypass the villages altogether. Contaminated hay or straw should be contained in trenches and burned. Such activities should be performed preferably “by civilians who had already survived tularaemia”⁵⁸.

5. *Because 70 percent of the infected persons suffered from pulmonary tularaemia, Alibek concluded that “only exposure to a sudden and concentrated quantity of tularaemia could explain the onslaught of infections in the German troops alone” and that the pneumonic form of the disease “could only have been caused by purposeful dissemination”.*⁵⁹ *Indeed, according to a German publication, 80% of the patients did suffer*

*from pulmonary tularaemia*⁶⁰. *And a Russian expert reported that 95.2% of Soviet soldiers were affected by pulmonary tularaemia in December 1942 – January 1943*⁶¹.

But this high percentage of pulmonary infections is not a proof of the hostile spread of the pathogens. Pulmonary tularaemia arises not only after a deliberate spread of *F. tularensis*, but also because of inhaled dust from contaminated straw, hay or soil. Most of the cases of inhalationary tularaemia had been caused by the use of hay for bedding in dug-outs and trenches⁶². Rogozin concluded from such data that the inhalation of dust was the decisive factor for the infection⁶³. In some cases, the occurrence of the disease disappeared within days when a military camp was moved from a field to a forest. On the other hand, soldiers developed tularaemia within a short time - even within 36 hours - when a bivouac was transferred from a forest to a field⁶⁴.

6. *When Alibek told his professor that the pattern of the disease “suggests that this epidemic was caused intentionally”, the professor asked him not to talk about this assumption again and never to mention it to anyone*⁶⁵. *This reaction “convinced” Alibek that the “Soviet troops must have sprayed tularaemia at the Germans. A sudden change in the direction of the wind, or contaminated rodents passing through the lines, had infected our soldiers and the disease had then spread through the region”*⁶⁶.

But the reaction of the professor is clearly not proof substantiating Alibek’s assumption. On the contrary, the professor might have been attempting to prevent his student from spreading a crazy unproven idea.

7. *Later Alibek met an elderly lieutenant colonel of the Red Army, who worked in a secret BW laboratory in Kirov during WW II. The officer told him that a tularaemia weapon had been developed in 1941. He left Alibek “with no doubt that the weapon had been used”*⁶⁷.

*Presumably the Soviet pre-war BW programme did indeed already include activities with *F. tularensis**⁶⁸. *According to leading BW expert Professor Heinrich Kliewe, a Soviet prisoner of war had testified before the German Abwehr in 1942 that “joint experiments with tularaemia agents were made with good success on the Isle of Vosroschdenije. The bacteria emulsions were supposedly filled in ‘tanks’ fastened to motor vehicles. They were dispersed as microbe clouds under high pressure in the direction of the wind; also little glass balloons and infected metal darts were dropped from airplanes”*⁶⁹. *This information prompted Kliewe in 1943 to recommend measures for protection from hostile spread of *F. tularensis* and other pathogens*⁷⁰. *By the way, allegations regarding the misuse of *Francisella tularensis* have a long tradition in the USSR. In 1931 German epidemiologist Professor Heinrich Zeiss was expelled from the Soviet Union after being involved in the control of plague, tularaemia and other infectious diseases for more than ten years.*

Zeiss was accused of having provided German facilities with F. tularensis “for military purposes” (note 71). 48 of his Russian collaborators were imprisoned. About ten years later leading Soviet microbiologists have been accused and imprisoned again, some of whom even executed, because they had allegedly performed biosabotage and spread, inter alia, tularaemia between 1939-41 (Merkulov, note 72).

But Kliewe did not mention any alleged or actual use of bacteria as weapons by Soviet troops or saboteurs⁷³. Apart from Alibek’s claims, there have been no reports on the actual use of *F. tularensis* as a warfare agent or in bioterrorist attacks. There have been also no other reports regarding an alleged use of BW by the Red Army which was obviously not prepared to use such weapons during WW II for several reasons⁷⁴. Neither German medical officers nor Soviet authors considered in their publications the possibility of a hostile spread of tularaemia agents as a possible source for the infections observed. Likewise, the sanitary officers did not discuss such a possibility in private contacts with Eduard Boecker of the Robert Koch-Institute, Berlin, who was involved in the diagnostics of tularaemia and other diseases during the war⁷⁵. After the war Kliewe mentioned the “alleged possibility of the Russians using bacterial clouds of plague and tularaemia”⁷⁶ but testified that “although there seems to have been a belief that the Russians were all ready to use BW there is complete absence of any documentary proof of this, despite the fact that the Germans overran two of the alleged BW stations”⁷⁷. Similarly, Walter Hirsch, head of the German BW committee *Arbeitsgemeinschaft Blitzableiter* reported that “[o]nly the employment by the [BW] agents [presumably studied by the Russians] in the hinterland, mainly in Warsaw, and few other large places in the zone of communications such as Kiev and Minsk could be ascertained by the Germans”⁷⁸.

8. According to Alibek, “such large numbers” of German panzer troops suffered from tularaemia that the Nazi campaign in southern Russia ground to a temporary halt, thus suggesting that the German defeat at Stalingrad was at least partially caused by that outbreak⁷⁹.

The 4th Panzer Army did indeed interrupt their advance towards Stalingrad, **but** already in July 1942 – five months before the first cases of tularaemia occurred in November of that year⁸⁰. The advance of the troops towards Stalingrad was not delayed by the disease, but by Hitler. On 13 July 1942 he gave orders to change the direction of their advance southward to support the 1st Panzer Army, that had orders to cross river Don south of Stalingrad near Rostov, and to approach the Caucasus Mountains⁸¹. This decision was revised only 18 days later when Hitler ordered instead that the 4th Panzer Army were to attack Stalingrad⁸².

According to the well-known military expert Basil Henry Liddell Hart, Hitler’s order of 13 July was a major cause for the German defeat in the battle of Stalingrad⁸³. The *Führer* was responsible for the disaster, and not *Francisella tularensis* (independent of whether the disease was weaponized and spread by the Red Army or not).

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Notes

- ¹ Geißler, E. *Anthrax und das Versagen der Geheimdienste*. Berlin: Kai Homilius Verlag, 2003.
- ² Geißler, E. *Biologische Waffen – nicht in Hitlers Arsenalen. Biologische und Toxin-Kampfmittel in Deutschland von 1915 bis 1945*. Münster: LIT Verlag, 2nd revised ed., 1999, pp. 293-300.
- ³ Geißler 1999, *op.cit.*, pp. 423-438.
- ⁴ *ibid.*
- ⁵ World Health Organization 1970, *Health Aspects of Chemical and Biological Weapons. Report of a WHO Group of Consultants*, Geneva, pp 75-76; World Health Organization, *Public Health Response to Biological and Chemical Weapons: WHO Guidance*, 2nd ed., Geneva: World Health Organization, 2004, pp 250-254; Dennis, T., T.V. Inglesby, D.A. Henderson et al. “Tularaemia as a biological weapons. Medical and public health management”, *J.Amer.Med.Assoc.* vol 285 no 21 (2001), pp 2763-73.
- ⁶ Rotz, L.D., A.S. Khan, S.R. Lillibridge et al. “Public health assessment of potential terrorism agents”, *Emerging Infectious Diseases* vol 8 no 2 (2002), pp 225-230.
- ⁷ Dennis et al., *op.cit.*
- ⁸ Kliewe, H. 1941, “Vortragsnotiz für den Herrn Chef des Stabes”. Geheim. National Archives College Park, Record Group 319, Box 1, Folder BW 2, pp 15-18.
- ⁹ Oyston, P.C.F., A. Sjostedt and R.W. Titball, “Tularaemia: bioterrorism defence renews interest in *Francisella tularensis*”, *Nature Reviews/Microbiology* vol 2 (December 2004), pp 967-78. www.nature.com/reviews/micro.
- ¹⁰ Miller, J., S. Engelberg and W. Broad, *Germs: Biological Weapons and America’s Secret War*, New York: Simon & Schuster, 2001, p 27.
- ¹¹ Török, T.J., R.V.Tauxe, R.P. Wise et al. “A large community outbreak of salmonellosis caused by intentional contamination of restaurant salad bars”, *J.Amer.Med.Assoc.* vol 278 no 5 (1997), pp 389-95.
- ¹² Alibek, K. “Terrorist and intelligence operations: potential impact on the U.S. economy”. Statement before the Joint Economic Committee, U.S. Congress, 20 May 1998. www.house.gov/jec/hearings/intell/alibek.htm
- ¹³ “Soviet army used ‘rat weapon’ during WWII” [In Russian]. *Pravda* 5 February 2005. http://english.pravda.ru/printed.html?news_id=14923. Quoted in *The CBW Conventions Bulletin* No 68 (June 2005), p 21.
- ¹⁴ Alibek, K. with S. Handelman. *Biohazard*, New York: Random House, 1999, pp 29-30.
- ¹⁵ Dennis et al. 2001, *op.cit.*
- ¹⁶ Oyston et al. 2004, *op.cit.*

- ¹⁷ Croddy, E. and S. Krcalova. "Tularemia, biological warfare, and the battle for Stalingrad", *Military Med.* vol 166 no 10 (2001), pp 837-38.
- ¹⁸ Geißler 1999, *op.cit.*, pp 890-91.
- ¹⁹ Winkle, S. "Biowaffen-Legende von Stalingrad", *Hamburger Ärzteblatt*, no 5 (2005) pp 232-37; Winkle, S, *Geißeln der Menschheit. Eine Kulturgeschichte der Seuchen* 4th revised ed., Düsseldorf: Artemis & Winkler, (2005), pp 1155-66.
- ²⁰ Alibek 1999, *op.cit.*, p 30.
- ²¹ Zeiss, H. "V. Die Pest in Rußland. I. Pestähnliche Lymphdrüsenentzündungen im Wolgadelta 1926. (Tularämie?)", *Münchener med. Wochschr*, no 27 (1929), pp 1137-39.
- ²² Jusat, H. 1964, "Die geographische Verbreitung der Tularämie auf der Erde von 1911 bis 1959", in E. Rodenwald (Hrsg.) *Geoepidemiologischer Atlas*, vol 3 (1964), pp 35-37.
- ²³ Bogendorfer, L., Saleck and H. Kairies. "Über das Auftreten von Tularämieerkrankungen an der Ostfront". *Der Deutsche Militärarzt* vol 7 no 11 (1942), pp 669-73.
- ²⁴ *ibid.*
- ²⁵ Zeiss, H. "Die Geomedizin des Ostraumes", *Deutsches Ärzteblatt* vol 73 (1943), pp 130-142.
- ²⁶ Walther, K. "Seuchenvorkommen und Seuchenbekämpfung in Südostrußland", unpublished manuscript, 1944[?].
- ²⁷ Quoted by Bogendorfer et al. 1942, *op.cit.*
- ²⁸ Alibek 1999, *op.cit.*, p 30.
- ²⁹ Gaede, D. and A. Kairies. "Untersuchungen zur Epidemiologie und Diagnostik der Tularämie", *Der Deutsche Militärarzt*, vol 8 no 1 (1943), pp 30-35.
- ³⁰ Combined Intelligence Objectives Sub-Committee. "Interrogation of General Gerhard Rose, Vice-President of the Robert Koch-Institute, Berlin, and Chief Consultant in Tropical Medicine to the German Air Force". CIOS Target N. 24/329 Medical, 25-26 June 1945. Public Record Office, Kew, UK, WO 208/3971.
- ³¹ Jusat 1964, *op.cit.*
- ³² Korth, W. "Serologische und bakteriologische Ergebnisse während einer Tularämie-Epidemie im Osten", *Zbl. Bakteriol. I Orig.* vol 151 (1945) pp 394-99.
- ³³ *ibid.*
- ³⁴ Zhdanov, V. 1960, opening speech, 13th WHO General Assembly, 3 May, quoted by H. Jusat 1964, *op.cit.*
- ³⁵ Combined Intelligence Objectives Sub-Committee 1945, *op.cit.*
- ³⁶ Müller, H. "Vorläufiger Sanitätsbericht des deutschen Heeres 1939-1943". Unpublished manuscript, 1944[?].
- ³⁷ Fischer, H. *Der deutsche Sanitätsdienst 1921-1945*. Osnabrück: Biblio Verlag, , vol 4C (1985), p 3430.
- ³⁸ *Pravda* 2005, *op.cit.*
- ³⁹ Kupplich, Y. *Funktion und Leistungen der Beratenden Internisten im Heeressanitätsdienst der deutschen Wehrmacht 1939-1945*, Dissertation: Universität Leipzig, 1996.
- ⁴⁰ Schloßberger, H. *Kriegsseuchen*. Jena: Gustav Fischer Verlag, 1945.
- ⁴¹ Alibek 1999, *op.cit.* p 30.
- ⁴² Winkle 2005, *op.cit.*
- ⁴³ Croddy and Krcalova 2001, *op.cit.*
- ⁴⁴ Rogozin, I.I. 1970, "Prophylaxis of tularaemia during the Great Patriotic War" [in Russian]. *Zh. Microbiol. Epidemiol. Immunobiol.* vol 47 no 5 (1970), pp 23-26.
- ⁴⁵ Belousowa, T. 1998, "Plague" [in Russian], *Sowerschenno Sekretno*, No. 10, pp 18-19.
- ⁴⁶ Smirnov, E.I., W.A. Lebedinskij and N.S. Garin. *War and Epidemics* [in Russian], Moscow, 1988.
- ⁴⁷ Gaede and Kairies, 1943, *op.cit.*; Randerath, E. "Zur pathologischen Anatomie und zur Frage der Einteilung der Erscheinungsformen der Tularämie des Menschen", *Münchener Med. Wschr.* vol 90 no 32/33 (1943), pp 461-64; Schulten, H. and Scheppach "Das klinische Bild der Tularämie", *Münchener Med. Wschr.* vol 90 no 32/33 (1943), pp 464-66; Bogendorfer. "Tularämie", *Klin. Wschr.* vol 22 no 48/51 (1943), p 761; Korth, 1945, *op.cit.*
- ⁴⁸ Rogozin 1970, *op.cit.*
- ⁴⁹ Walther 1944[?], *op.cit.*
- ⁵⁰ Schad. "Beitrag zur Epidemiologie, Bakteriologie und Serologie der Tularämie", *Der Deutsche Militärarzt*, vol 8 (1943), pp 620-21.
- ⁵¹ Landsiedl, A. 1942, "Ein Beitrag zur Epidemiologie und Symptomatologie der Tularämie", *Der Deutsche Militärarzt*. vol 7 no 10 (1942), pp 644-47.
- ⁵² Holler, G. and H. Wagner. "Erfahrungsbericht. Betr.: Berichterstattung über die Beobachtungen bei Tularämie-Kranken im Reserve-Lazarett Gablitz in der Zeit vom 30.7.1942 bis 8.4.1943". Bundesarchiv – Militärarchiv, Freiburg i.Br., RH 12-23/159, 1943.
- ⁵³ Combined Intelligence Objectives Sub-Committee 1945, *op.cit.*
- ⁵⁴ Rogozin 1970, *op.cit.*; Gaede and Kairies, 1943, *op.cit.*
- ⁵⁵ Rogozin 1970, *op.cit.*; Bogendorfer 1943, *op.cit.*
- ⁵⁶ Bogendorfer et al. 1942, *op.cit.*, Schulten und Scheppach 1943, *op.cit.*
- ⁵⁷ Zeiss, H. "VI. Die Pest in Rußland. II. Die pestähnlichen Seuchen an der Oka und dem Ural im Jahre 1928. Tularämie?", *Münchener medizinische Wochschr.* no 32 (1929), pp 1342-45.
- ⁵⁸ Bogendorfer et al. 1942, *op.cit.*
- ⁵⁹ *ibid.*
- ⁶⁰ Schulten and Scheppach 1943, *op.cit.*
- ⁶¹ Boldyrev, T.T. "Experiences of Soviet Medicine during the Great Patriotic War" [in Russian], quoted by Rogozin, *op.cit.*
- ⁶² Bogendorfer et al. 1942, *op.cit.*
- ⁶³ Rogozin 1970, *op.cit.*
- ⁶⁴ Schad 1943. *op.cit.*
- ⁶⁵ Alibek, *op.cit.*, p 30.
- ⁶⁶ *ibid.*
- ⁶⁷ Alibek 1999, *op.cit.*, p 31.
- ⁶⁸ Hirsch, W. *Soviet Chemical Warfare and Biological Warfare Preparations and Capabilities*, Washington, DC; US Army Chemical Intelligence Branch, 104, 1951. Sussex Harvard Information Bank.
- ⁶⁹ Kliewe, H. 1943A, "Der Bakterienkrieg". Geheime Kommandosache. 19. Januar 1943, National Archives, College

- Park (NACP), RG 319, Box 3 Folder BW 14, 77-88. English translation: "Bacterial War". Top secret. In: ALSOS Mission 1945a, "Intelligence Report. Official German Documents and Reports on BW. H-H/168", 24 May. Report Nr. C-H/303:28-36. NACP RG 319 G2 P-Project File, Box 3.
- ⁷⁰ Kliewe, H. 1943b, An Oberkommando der Wehrmacht, Chef des Wehrmachtssanitätswesens. "Betr.: Abwehr- und Schutzmaßnahmen gegen Sabotageakte mit Bakterien". Geheime Kommandosache. 14. August 1943. NACP, RG 319 Box 3 BW 14:150-152; Kliewe, H. 1943c, An Herrn Amtschef AWA. "Betrifft: Schutz- u. Abwehrmaßnahmen gegen Sabotageakte mit Bakterien". Geheime Kommandosache. 15. September. NACP RG 319, Box 3, Folder BW 14: 160-161. English translation: "Protective and defensive measures against sabotage activity with bacteria". Top secret. In ALSOS Mission 1945a, *op.cit.*, pp 69-70.
- ⁷¹ Zeiss, H. Schreiben an die Medizinische Fakultät der Universität Hamburg, 16. April 1931. Bundesarchiv Koblenz R73/223 fol. 1-, pp 85-87.
- ⁷² Merkulov, V. 1941, Letter to the people's commissars for state security of the unions and autonomous republics, top secret. [In Russian]. Central Archives of the Ministry of Defense of the USSR, Fonds 500, Opis 21452, Delo 1, 47-53, especially p. 50. [A German translation is reproduced in part in Geißler 2003, *op.cit.*, pp 92-93.
- ⁷³ Kliewe 1943a, *op.cit.*
- ⁷⁴ Bojtsov, V. and E. Geissler 1999, "Military biology in the USSR, 1920-45", in E. Geissler and J.E. van Courtland Moon (eds.) 1999, *Biological and Toxin Weapons: Research, Development and Use from the Middle Ages to 1945*, Oxford: Oxford University Press, 199, pp 153-67.
- ⁷⁵ Winkle 2005, *op.cit.*
- ⁷⁶ ALSOS Mission 1945b, "Intelligence Report. Report on the interrogation of Professor H. Kliewe, May 7-11th 1945". 13 May 1945. Report No. A-B-C-H-H/149, p 4.
- ⁷⁷ ALSOS Mission 1945b, *op.cit.* pp 5-6.
- ⁷⁸ Hirsch 1951, *op.cit.*
- ⁷⁹ Alibek 1999, *op.cit.* p 30.
- ⁸⁰ Korth 1945, *op.cit.*
- ⁸¹ Hitler, A. 1942, Fernschreiben OKH Gen.St.d.H. Op.Abt. (I) Nr. 420538/42. Geheime Kommandosache. 13. Juli. Reprinted in: P.E. Schramm (Hrsg.) 1961-79, *Kriegstagebuch des Oberkommandos der Wehrmacht (Wehrmachtführungsstab)*, Bonn, vol 3/2, pp 1282-83
- ⁸² Halder, F. 1942, Fernschreiben OKH Gen.St.d.H. Op.Abt. (I) Nr. 420573/42. Geheime Kommandosache. 31. Juli. Reprinted in: Schramm 1961-79, *op.cit.*, p 1285.
- ⁸³ Liddel Hart, B.H. *The Other Side of the Hill*, Zürich: Amstutz, Herdeg & Co, 1948.

Report from Geneva

Review no 24

The Biological Weapons Convention Meeting of States Parties, 2005

As reported in *Bulletin 68* (June 2005), the Meeting of Experts of the States Parties of the Biological and Toxin Weapons Convention (BWC) on 13 to 24 June 2005 had made significant progress in considering the single topic identified for 2005:

v. The content, promulgation, and adoption of codes of conduct for scientists;

by producing a report (BWC/MSP/2005/MX/3 dated 5 August 2005 – this and other official BWC documentation is available at <http://www.opbw.org>). Attached to the report as Annex I was a paper prepared by the Chairman listing the considerations, lessons, perspectives, recommendations, conclusions, and proposals drawn from the presentations, statements, working papers and interventions made by delegations on the topics under discussion at the Meeting. The report, as in the report from MX/2004 a year earlier, stated that '[t]he Meeting of Experts noted that it was the Chairman's view that the paper could assist delegations in their preparations for the Meeting of States Parties in December 2005 and in its consideration of how best to "discuss, and promote common understanding and effective action on" the topic in accordance with the decision of the Fifth Review Conference.'

This provided the States Parties with an excellent starting point from which to develop language to meet the requirement of the mandate for the Meeting of State Parties in December 2005 to 'discuss, and promote common understandings and effective action'.

Preparations for the Meeting of States Parties, 2005

The Final Report (BWC/MSP/2004/MX/3 dated 5 August 2005) of the Meeting of Experts comprised a report of 5 pages together with Annex I, a 39 page listing of the considerations, lessons, perspectives, recommendations, conclusions, and proposals drawn from the presentations, statements, working papers and interventions made by delegations on the topic under discussion at the Meeting; and Annex II, a 6 page listing of the documents of the Meeting of Experts.

The Chairman, Ambassador John Freeman of the UK, wrote to the States Parties on 20 September 2004 to say that he intended to continue to follow precedent established in previous years of this process and will work with the regional groups and individual States Parties closely and transparently. To that end he attached a five page synthesis of the Annex to the report of the Meeting of Experts encompassing the considerations, lessons, perspectives, recommendations, conclusions and proposals drawn from the presentations, statements, working papers and interventions from that