Ehrenfried Petras, East German Spy, and the Late 1960s West German Biological and Chemical Weapons Affair

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Abstract

In 1968 the microbiologist Dr. Ehrenfried Petras (1930–1980), a long-time researcher at the Institut für Aerobiologie (Institute of Aerobiology) (IAe) of the West-German research organization Fraunhofer-Gesellschaft, defected to the German Democratic Republic. There he publicly claimed that the IAe served to develop and test biological and chemical warfare agents. Although Petras's claims that the IAe conducted offensive research are unverifiable, archival material suggests two reasons why Petras's accusations were not fully unfounded: (1) In 1967 the German Ministry of Defence had plans to produce at the IAe small amounts of biological and chemical agents for research purposes including synthesizing new substances. (2) There is evidence dating from 1964 that "O-secondary-butyl-methylfluorphosphoric acid ester" (= 2-butylmethylphosphonofluoridate), which Petras mentioned as an example of the test of newly developed and hitherto unknown organic phosphorus compounds, had been synthesized at the private suggestion of one of the scientists working at the IAe.

Introduction

In the midst of November 1968 the microbiologist Dr. Ehrenfried Petras (1930–1980), who had worked for nearly nine years at the Institut für Aerobiologie (Institute of Aerobiology) (IAe) of the West-German research organization Fraunhofer-Gesellschaft (FhG), defected to the German Democratic Republic. In a broadcast of the East German television on 23 November 1968 and during an international press conference on 6 December 1968 Petras claimed that the IAe, located in the village of Grafschaft[1] in North Rhine-Westphalia and officially founded for research on antidotes to ABC weapons, in reality served to develop and test biological and chemical warfare agents.[2] Petras's defection to the East and his accusations aroused international

1 Since 1. 1. 1975 Grafschaft has been part of the town of Schmallenberg, which lies in Sauerland.

2 See Ehrenfried Petras, "Statement by Dr. rer. nat. Ehrenfried Petras former Director of the Laboratory for Microbiology of the Institute of Aerobiology in Grafschaft/Sauerland, West Germany," in Dr. Petras Sounds the Alarm, ed. Ministry for Foreign Affairs of the GDR (Dresden: Verlag Zeit im Bild, [1968]), 7–17. For the German version of Petras's statement to the press see Ehrenfried Petras, "Erklärung von Herrn Dr. rer. nat. Ehrenfried Petras, ehemals Leiter des Labors für Mikrobiologie des westdeutschen Institutes für Aerobiologie in Grafschaft/Sauerland," in Dr. Petras schlägt Alarm, ed. Ministry for Foreign Affairs of the GDR (Dresden: Verlag Zeit im Bild, [1968]), 7–18. The German version was also published in the West German journal *Blätter für deutsche und internationale Politik* 14 (1969), no. 4 (April 1969): 438–444. A slightly different version is contained in another publication by the East German Ministry for Foreign Affairs: Ehrenfried Petras, "Aus der Erklärung von Herrn Dr. rer. nat. Ehrenfried Petras, ehemaliger Leiter des Labors für Mikrobiologie im westdeutschen Institut für Aerobiologie in Grafschaft/Sauerland, auf der internationalen Pressekonferenz am 6. Dezember 1968," in Bonn bereitet Giftkrieg vor, ed. Ministry for Foreign Affairs of the GDR (Berlin: Staatsverlag der Deutschen Demokratischen Republik, 1969), 13–24. Petras did not agree with the alarmist title "Bonn bereitet Giftkrieg vor" ("Bonn prepares chemical war") (personal communication by Karin Petras, the widow of Ehrenfried Petras).

attention.[3] As already suspected in 1968 and as we now know with certainty[4], during his time at the IAe Petras had been a spy working for the GDR.

Petras's behaviour had a parallel in that between August 1968 and January 1969 six other scientists and engineers who worked in West-German companies and research institutes defected to the GDR, accusing the FRG of developing nuclear weapons. It is almost certain that these scientists were also spies, some of them clearly mentioned by name by the former double agent Werner Stiller.[5] Their accusations, as in the case of Petras, were part of a political campaign organized in detail by the Ministerium für Staatssicherheit (MfS) (Ministry for State Security) of the GDR in order to discredit and denounce the FRG on an international level.[6]

Unsurprisingly, in the FRG mainly left-wing oriented students endorsed Petras's allegations.[7] But West German officials could not fully ignore Petras's claims, because they were explosive with regards to international law. With its entry into the West European Union in 1954 the FRG had officially renounced the production of ABC weapons. Since the FRG's declaration concerned only the *production* of ABC weapons, from a theoretical point of view the wording of the treaty did not prohibit offensive research on and development of ABC weapons.[8] However, as a rule West German authorities interpreted the interdiction in this wider sense.

Reacting to Petras's assertions West German authorities pointed out that research at the IAe and at similar institutions was completely defensive in nature and served the sole aim of developing antidotes to biological and chemical agents. Moreover, there is no indication that the inspection of the IAe by the Armament Control Agency of the WEU in June 1969 revealed anything suspicious.[9] The same is true for an inspection by the VDW (Vereinigung deutscher Wissenschaftler – Association of German Scientists) in February 1970.[10]

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3 See "German Scientist Defects to East," *New York Times*, 24 November 1968, 13; "Around the World; Defector Accuses Bonn of Studying Germ Warfare," *Washington Post*, 7 December 1968, A14; Ralph Blumenthal, "Three West German Scientists Leave Jobs and Return to East," *New York Times*, 5 January 1969, 2.

4 See Erhard Geißler, "Biowaffen für die Bundeswehr? Dr. Petras und „die Entlarvung der westdeutschen B-Waffen-Rüstung" durch das MfS," *Zeitschrift des Forschungsverbundes SED-Staat*, 2005, 18:72–103, on pp. 82–83. For a description of Petras's life and work see Stefan Kirschner and Stefan Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft und die Verteidigungsforschung in den 1960er Jahren (Augsburg: Rauner, 2006), pp. 79–112.

5 Werner Stiller, Im Zentrum der Spionage (Mainz: v. Hase & Koehler, 1986), pp. 79–93; Werner Stiller, Beyond the Wall. Memoirs of an East and West German Spy (Washington: Brassey's (US), 1992), pp. 48–55.

6 See Das Bonner Kernwaffenkartell. Ziele, Methoden, Hintergründe, ed. National Council of the National Front of Democratic Germany and Ministry of Foreign Affairs of the German Democratic Republic (Berlin: Staatsverlag der Deutschen Demokratischen Republik, [1969]); the English version was published by the same editors under the title Bonn's Nuclear Arms Pool. Aims, Methods, Background Facts (Berlin: Verlag Zeit im Bild, [1969]).

7 See Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, pp. 8–9.

8 SIPRI [Stockholm International Peace Research Institute], The Problem of Chemical and Biological Warfare, Vol. V: The Prevention of CBW (Stockholm: Almqvist & Wiksell International, New York: Humanities P., 1971), pp. 200; 213, n. 47; 219. See also Knut Ipsen, "Sicherheitspolitische und völkerrechtliche Aspekte der biologischen und chemischen Kampfmittel," *Europa-Archiv*, 1972, 27:589–600, on p. 594; Thilo Marauhn, Der deutsche Chemiewaffen-Verzicht. Rechtsentwicklungen seit 1945 (Berlin etc.: Springer, 1994), pp. 177–178, 180.

9 Cf. Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, 75–78. The original inspection report by the Armament Control Agency of the WEU is not open to the public. Its release requires the consent of all member states of the WEU (Geißler, "Biowaffen für die Bundeswehr?," p. 94).

10 See Geißler, "Biowaffen für die Bundeswehr?," p. 91.

Nevertheless, suspicion of the activities at the IAe has never been fully dispelled. This is due to the fact that no other West German research institute was nearly as shrouded in mystery as the IAe in the 1960s. Furthermore, our conclusion that Petras's accusations were not completely unfounded is based on archival material that was not accessible to the inspections at that time.

The IAe as a de facto military research institute in the 1960s

The IAe belonged to the "Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung" (Fraunhofer Society for the Advancement of Applied Research), a purely civilian research organization. Nevertheless, in the 1960s the IAe was de facto controlled by the West German Ministry of Defence.

The IAe was founded in 1959 on the initiative of Dr. Karl Bisa († 2003), chief of the local silicosis-hospital in Grafschaft, who worked on a method of decontaminating the body from heavy metals and radioactive particles with the help of chelating agents, which were to be applied in the form of aerosols.[11] Until 1964 the IAe was exclusively funded by the West German Ministry of Defence.[12] From 1965 on the IAe consisted of two departments: the so-called neutral department and a department that was under the direct control of the Ministry of Defence. From the beginning the Fraunhofer-Gesellschaft had planned the establishment of a neutral department, but the Ministry of Defence delayed its realization. When in 1965 the neutral department finally was in a position to take up research, its funding comprised less than a tenth of that of the Ministry's department.[13]

The IAe was not the only institute of the FhG which was in its beginning exclusively funded by the Ministry of Defence. Out of the eight FhG research institutes in 1959 four, including the IAe, were completely financed by the Ministry in their first years of existence.[14] Moreover, even the "civilian" research institutes of the FhG sometimes carried out research commissioned by the Ministry of Defence. For instance, at the "Institut für hygienisch-bakteriologische Arbeitsverfahren" (Institute of Sanitary-Bacteriological Working Methods) in Munich, founded in 1956, the share in project funding by the Ministry of Defence amounted to between 28 and 58,5 % in the years from 1960 to 1966.[15] Furthermore, the FhG provided extensive support for the administration of research projects funded by the Ministry of Defence and carried out either by individual researchers or at independent and university research institutes.[16]

11 Cf. Karl Bisa, "Über eine Methode zur Abwendung von strahleninduzierten Effekten einiger radioaktiver Schwebstoffe durch Anreicherung der Atmosphäre mit Aerosolen des Monocalciumkomplexes der Dinatrium-äthylendiamin-tetraessigsäure," *Chemie – Ingenieur – Technik*, 1956, 28:295; Karl Bisa, "Eigenschaften von komplexbildenden Substanzen und deren Anwendung als Aerosole bei Schädigungen durch toxisch wirksame Schwermetallschwebstoffe," *Zeitschrift für Aerosol-Forschung und -Therapie*, 1956, 5:209–220.

12 Letter of the executive director (Geschäftsführer) of the FhG, August Epp, to the president, vice-president, head of the senate and president of the research council of the FhG (Präsident, Vizepräsident, Vorsitzender des Senates und Vorsitzender des Forschungsbeirates der FhG), 7 April 1966 (Institut für Zeitgeschichte [Institute of Contemporary History], Archive of the Fraunhofer-Gesellschaft (FhG), archive signature: ED 721/511), p. 1. Subsequent references to material from the archive of the FhG kept at the "Institut für Zeitgeschichte" will be abbreviated as "IfZ", followed by the archive signature.

13 See Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, pp. 29–30.

14 Helmuth Trischler, Rüdiger vom Bruch, Forschung für den Markt. Geschichte der Fraunhofer-Gesellschaft (München: C. H. Beck, 1999), pp. 74, 405–406.

15 Hans-Willy Hohn, Uwe Schimank, Konflikte und Gleichgewichte im Forschungssystem. Akteurkonstellationen und Entwicklungspfade in der staatlich finanzierten außeruniversitären Forschung (Frankfurt a. M., New York: Campus, 1990), pp. 202–203.

16 See Trischler, vom Bruch, Forschung für den Markt, pp. 74, 77.

Due to this close connection to the Ministry of Defence, within the scientific community the FhG was perceived as the "prolonged arm of the Ministry of Defence".[17] Having expected from its cooperation with the Ministry of Defence not only an improvement of its financial situation but also a gain in prestige,[18] the FhG was now concerned that it might descend to being considered a cover organisation of the Ministry of Defence.[19]

Scientists at the IAe who wanted to publish their results had to ask the Ministry of Defence for permission, which was in most cases denied.[20] Inside the Ministry of Defence the official in charge of the IAe was Dr. Siegfried Glupe, referee of section T II 4. Glupe was notorious for his exaggerated secrecy policy even towards other sections of the Ministry of Defence. In September 1967 responsibility for the IAe was transferred to Dr. Wolfgang Strathmann, referee of section T II 2 of the Ministry of Defence.[21]

At first sight one might wonder why the Ministry of Defence had decided to cooperate with the FhG instead of founding its own institute for ABC research. The Ministry's main motive seems to have been that the FhG enabled contacts with the private economy and independent research and science.[22] A close, unmediated interaction between military and research as was the case with the former Army Weapons Agencies of the Wehrmacht was both politically undesirable and known for its ineffectiveness.[23] Neither was a direct, permanent and large-scale cooperation between university research institutes and the Ministry of Defence a real option. This becomes clear from a statement by the Bundesrechnungshof (Federal Court of Auditors) in 1966 that "for security considerations (highly effective poisons) and psychological reasons (recalling the Nuremberg trials) the university institutes refused to work – even on a low scale – on dangerous substances in the course of developing chemical prophylaxes and therapeutical defence means against chemical warfare agents."[24] Similarly, an internal document of the Ministry of Defence remarks that "results relevant for the Bundeswehr [literally "Federal Defence Force", i. e. West Germany's Federal Armed Forces] can only come from Grafschaft [i. e. the IAe] or from another institute of the Bundeswehr[25], because on the one hand the universities do not want to work on highly

17 August Epp, Die ersten 25 Jahre der Fraunhofer-Gesellschaft (Wörthsee/Steinebach: self-published, 1984), 2 parts, part II, p. 49.
18 See Trischler, vom Bruch, Forschung für den Markt, p. 79.
19 See file note by Epp, 19 November 1962, "Betr.: Institut für Aerobiologie: Verteidigungsforschung – neutrale Forschung" ["With reference to Institute of Aerobiology: defence research – neutral research"], "Besprechung am 5. 11. 1962" ["meeting on 5 November 1962"] (IfZ, ED 721/512; also in ED 721/215).
20 See Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, pp. 40–42.
21 Ibid., pp. 63–65.
22 Ibid., p. 24, n. 103.
23 See Trischler and vom Bruch, Forschung für den Markt, pp. 69–72.
24 Translation by the authors. See Bundesrechnungshof [Federal Court of Auditors] to Bundesminister der Verteidigung [Minister of Defence], 27 October 1966 (Bundesarchiv-Militärarchiv [Federal Archive, Department Military Archive] Freiburg [subsequently refered to as "BA-MA"], archive signature: BW 1/368712), first appendix: "Entwicklungsgeschichte, Aufgaben und Organisation des Instituts für Aerobiologie" ["history of development, tasks, and organisation of the Institute of Aerobiology"], p. 2. In the German original the cited passage reads: "daß sich die Hochschulinstitute aus sicherheitsmäßigen (hochwirksame Gifte) und psychologischen Gründen (Erinnerung an die Nürnberger Prozesse) weigerten, selbst in kleinstem Rahmen mit gefährlichen Substanzen im Zuge der Entwicklung von chemisch-prophylaktischen und therapeutischen Abwehrmitteln gegen C-Kampfstoffe zu arbeiten."
25 Incidentally, this formulation indirectly implies that the Ministry of Defence regarded the IAe as an institute of the Bundeswehr, although it was officially run by the FhG.

toxic phosphoric acid esters and on the other hand results from other phosphoric acid esters cannot simply be transferred to warfare agents, as experience has taught."[26]

It is important to note that the foundation of the IAe fell into a period when the FRG strove for a nuclear option. Franz Josef Strauß (1915-1988), Minister of Defence from 1956 to 1962, was the strongest advocate of providing the Bundeswehr, founded in 1955, with nuclear weapons. Given that World War II had ended only a decade before, the situation was complicated, both on the part of West Germany's allies and former enemies and the German population itself.[27]

Furthermore, when joining the Western European Union (WEU) in 1954 the Federal Republic of Germany had committed itself not to manufacture atomic, biological and chemical weapons on its territory.[28] This self-commitment had its origin in a corresponding declaration by Chancellor Konrad Adenauer (1876–1967) on 3 October 1954, during the London Nine-Power Conference.[29]

However, there was room for interpretation. Thus leading German politicians such as Chancellor Adenauer and Minister of Defence Strauß held that the declaration of 1954 was valid only "rebus sic stantibus", that is under the reservation that no fundamental change of circumstances should happen.[30] Furthermore Strauß and Adenauer

26 Translation by the authors. See Department InSan I 3 of the Ministry of Defence [InSan = Inspektion des Sanitäts- und Gesundheitswesens der Bundeswehr (inspectorate of the sanitary and health service of the Bundeswehr)], 26 May 1967, "Vermerk" ["file note"], "Betr.: Sitzung des wissenschaftlichen Beirates des Institutes für Aerobiologie in Grafschaft bei Abt. T am 26. 5. 1967" ["With reference to the meeting of the scientific advisory council of the Institute of Aerobiology in Grafschaft at department T on 26 May 1967"] (BA-MA, BW 24/2250), p. 3 (statement by OFA [=Oberfeldarzt, i. e. lieutenant colonel in the medical corps] Dr. Helm of department InSan I 3): "Tatsächlich können die für die Bundeswehr wichtigen Ergebnisse nur aus Grafschaft oder einem anderen Institut der Bundeswehr kommen, da einerseits die Universitäten nicht mit hochtoxischen Phosphorsäureestern arbeiten wollen, und da andererseits Ergebnisse mit anderen Phosphorsäureestern – wie die Erfahrung gelehrt hat – nicht ohne weiteres auf die Kampfstoffe übertragen werden können."

27 See Mark Cioc, Pax Atomica: The Nuclear Defense Debate in West Germany during the Adenauer Era (New York: Columbia University Press, 1988); Hans-Peter Schwarz, "Adenauer und die Kernwaffen," *Vierteljahrshefte für Zeitgeschichte*, 1989, 37:567–593; Marc Trachtenberg, A Constructed Peace. The Making of the European Settlement, 1945–1963 (Princeton, NJ: Princeton University Press, 1999), pp. 231–240; Cathryn Carson, Going Nuclear: Science, Politics, and Risk in the Federal Republic of Germany in the 1950s (The BMW Center for German and European Studies, Edmund A. Walsh School of Foreign Service, Georgetown University, Working Paper No. 8–04, March 2004, http://cges.georgetown.edu/files/Working_Paper_Carson_8–04.pdf); Bruno Thoß, NATO-Strategie und nationale Verteidigungsplanung (Munich: Oldenbourg, 2006), pp. 223–245, 331–511.

28 Through the "Protocol Modifying and Completing the Brussels Treaty" (Protocol No. I), signed on 23 October, 1954, in Paris, the Federal Republic of Germany joined the "Treaty of Economic, Social and Cultural Collaboration and Collective Self-Defence" (Treaty of the Western European Union); see *Bundesgesetzblatt*, 1955, part II, No. 7 (25 March 1955), pp. 258–261 (including English and French versions). The Protocol gained effect in the FRG on 6 May, 1955. "Protocol No. III on the Control of Armaments" from 23 October, 1954 (*Bundesgesetzblatt*, 1955, part II, No. 7 (25 March 1955), pp. 266–273) contains in article 1 the cited renunciation of the production of ABC weapons.

29 See Annex I to Protocol No. III (*Bundesgesetzblatt*, 1955, part II, No. 7 (25 March 1955), p. 269).

30 See Franz Josef Strauß, "An Alliance of Continents," *International Affairs*, 1965, 41:191–203, on p. 200; Konrad Adenauer, Erinnerungen 1953–1955 (Stuttgart: Deutsche Verlags-Anstalt, 1966), p. 347; John Newhouse, De Gaulle and the Anglo-Saxons (London: André Deutsch, 1970), pp. 59–60; Schwarz, "Adenauer und die Kernwaffen," p. 578; Franz Josef Strauß, Die Erinnerungen (Berlin: Siedler Verlag, 1989), p. 310; Matthias Küntzel, Bonn und die Bombe. Deutsche Atomwaffenpolitik von Adenauer bis Brandt (Frankfurt/New York: Campus, 1992), pp. 17–23; Hanns Jürgen Küsters, "Souveränität und ABC-Waffen-Verzicht. Deutsche Diplomatie auf der Londoner Neunmächte-Konferenz 1954", *Vierteljahrshefte für Zeitgeschichte*, 1994, 42:499–536, on pp. 531–535.

interpreted the declaration of 1954 to the effect that Germany had in fact renounced the production of ABC weapons on *its* territory but not as to the territory of *another* state.[31] Indeed Minister of Defence Strauß and his French and Italian colleagues had signed a secret protocol dated 25 November 1957 for the joint production of atomic weapons. De Gaulle, who became Président du Conseil on 1 June 1958, annulled this treaty in the same month.[32]

Although the FRG's efforts to obtain its own nuclear weapons failed at the end of the 1950s, it was clear that in the near future the Bundeswehr would be equipped by the U.S. with mobile launching bases for tactical nuclear weapons. Eventually, in 1959 the first Bundeswehr units with nuclear-capable surface-to-surface *Honest John* rockets were established, followed by the deployment of *Sergeant* missiles beginning in 1961.[33] However, "the United States kept strict control over the nuclear warheads".[34]

Documents of the Military Archive in Freiburg show that in 1960 and 1961 the Führungsstab (Joint Chiefs of Staff) of the Bundeswehr prepared a reorganisation of its departments in the field of ABC weapons in order to incorporate future tasks concerning questions of ABC warfare (ABC-Kriegführung), deployment of and defence against ABC weapons (Fragen der ABC-Kriegführung bei Einsatz und Abwehr), and ABC armament (Bewaffnung auf dem ABC-Gebiet).[35]

Of course the question arises of how the foundation of the IAe related to this background. In a file note from September 1960 August Epp (1912–2003), the executive director (Geschäftsführer) of the FhG, states that Minister of Defence Strauß, who was a member of the FhG senate, had personally declared the work at the IAe to be necessary and emphatically ordered it to be carried out.[36] But of what kind was this work?

Some documents allow insight into the research tasks of the IAe as formulated at the beginning of its existence. In a file note from August 1964 Glupe cites the research tasks of the IAe from the years 1960 and 1961, commenting that they are still valid

31 Gustav Schmidt, "Die Auswirkungen der internationalen Vorgänge 1956 auf die Strukturen des Kalten Krieges," in Das internationale Krisenjahr 1956. Polen, Ungarn, Suez, ed. Winfried Heinemann and Norbert Wiggershaus (Munich: Oldenbourg, 1999), pp. 639–688, on pp. 674–675, n. 160; cf. Adenauer, Erinnerungen 1953–1955, p. 347.

32 See Colette Barbier, "Les négociations franco-germano-italiennes en vue de l'établissement d'une coopération militaire nucléaire au cours des années 1956–1958", *Revue d'histoire diplomatique*, 1990, 104:81–113; Georges-Henri Soutou, L'alliance incertaine. Les rapports politico-stratégiques franco-allemands, 1954–1996 (Paris: Fayard, 1996), pp. 78–101, 136–139; Ulrich Lappenküper, Die deutsch-französischen Beziehungen 1949–1963, 2 vols., Vol. I: 1949–1958 (Munich: Oldenbourg, 2001), pp. 1180–1199; Thoß, NATO-Strategie und nationale Verteidigungsplanung, 492–495, 510. For the wording of the protocol of 25 November 1957 see Documents diplomatiques français, ed. Ministère des Affaires étrangères, 1957, vol. II (Paris: Imprimerie nationale, 1991), document no. 380 (pp. 762–763).

33 Christian Tuschhoff, Deutschland, Kernwaffen und die NATO 1949–1967. Zum Zusammenhalt von und friedlichem Wandel in Bündnissen (Baden-Baden: Nomos, 2002), p. 92; Thoß, NATO-Strategie und nationale Verteidigungsplanung, pp. 448–449.

34 Cioc, Pax Atomica, p. 9.

35 Fü B III 3 to Fü B IV 1 [Fü B = Führungsstab Bundeswehr], Bonn, 21 October 1960 (BA-MA Freiburg, BW 2/417); Fü B IV 1 to 13 other departments of the Ministry of Defence, Az: [= Aktenzeichen (file number)] 10-02-05, Tgb.Nr. [= Tagebuchnummer (log entry number)] 5999/60, Bonn, 14 November 1960 (BA-MA Freiburg, BW 2/417); Fü B IV 1 to 15 other departments of the Ministry of Defence, Az. 10-02-05, Tgb.Nr. 6560/60, Bonn, 13 December 1960 (BA-MA Freiburg, BW 2/417); Fü B IV 1 to 14 other departments of the Ministry of Defence, Az: 10-02-05, Tgb.Nr. 3214/61, Bonn, 7 June 1961 (BA-MA Freiburg, BW 2/417).

36 File note by Epp, 26 September 1960 (IfZ, ED 721/512), "Betr.: Institut für Aerobiologie, Grafschaft" ["With reference to Institute of Aerobiology, Grafschaft"], "Weiterer Ausbau des Institutes" ["Further extension of the Institute"], p. 2. Epp refers to Glupe as his source.

and shall remain in effect for further years. Remarkably, under the headline "B-Defence" he mentions among other research items the problem of whether "microorganisms can be altered in such a way that every possibility of immunization remains ineffective". Moreover, the section "C-Defence" contains the question of "what nerve agents must be reckoned with in the future".[37]

Further information on the IAe's research tasks is provided by the FhG's economic plan (Wirtschaftsplan) for the IAe for the financial year 1961. There it is stated: "The general purpose of this research [at the IAe] consists in the exploration of laws under which gases and suspended particles admixed to the atmosphere produce by their association a synergistic activation from the physical point of view, while in the biological sense they increase the toxicity of a single involved irritant [Reizstoff]. The lowering of such tolerance limits by physical and chemical manipulation of the aerosol and living beings can be expected as result of these researches."[38]

It is quite clear that research programmes such as those mentioned by Glupe or in the economic plan produce results that could easily be used for the development of new BC weapons. Thus it cannot be ruled out that work at the IAe was originally planned to include offensive aspects. However, neither can this be demonstrated, since any ambitious defensive research programme that does not stop at known BC weapons but tries to consider possible future developments, as well, will deal with the same subjects.

Petras's claims in the light of the documentary sources

Drawing on documents mainly from the Military Archive in Freiburg and the Archive of the FhG, which is kept at the Institut für Zeitgeschichte (Institute of Contemporary History) in Munich, we wanted to find out whether Petras's assertions contained anything factual. Having published in 2006 our findings in German[39] we now wanted to make our main results accessible to an international audience. Moreover, in the meantime we have arrived at a new assessment of Petras's accusations.

In our previous publication we focussed on the unverifiability of Petras's claims that research at the IAe was of an offensive character. Through the end of 1966 the IAe delivered more than 50 papers to the responsible section T II 4 of the Ministry of Defence. On 24 November 1966 Bisa sent a list with the titles of these papers to Glupe.[40] Originally destined for research on the whole field of ABC defence, work at the IAe soon concentrated on chemical agents. Most of the papers delivered to the

37 Glupe's file note from 27 August 1964 was copied in extracts and forms annex 4 of a letter by the Bundesrechnungshof (Federal Court of Auditors) to the Minister of Defence, Frankfurt a. M., 27 October 1966 (BA-MA, BW 1/368712). We have cited from this annex, and the translation is ours. The original version reads as follows: "2. B-Abwehr [...] 2.5.1 können Kleinstlebewesen so verändert werden, daß sämtliche Immunitätsmöglichkeiten wirkungslos bleiben? 3. C-Abwehr [...] 3.1.1 mit welchen Nervengiften ist in Zukunft zu rechnen?".

38 See "Wirtschaftsplan des Instituts für Aerobiologie [...] für das Rechnungsjahr 1961" ["economic plan for the IAe for the financial year 1961"] (IfZ, ED 721/514, part II: "(70-5) IAe Haushalt/Spenden [budget/donations] 1957–1978"), p. 4: "Der allgemeine Zweck dieser Forschung besteht daher in der Erkundung von Gesetzmässigkeiten, unter welchen der Atmosphäre beigemengte Gase und Schwebstoffe durch ihre Assoziation eine synergistische Aktivierung vom physikalischen Standpunkt hervorrufen, im biologischen Sinne aber die Toxizität eines einzelnen beteiligten Reizstoffes anwachsen lassen. Die Herabsetzung solcher Toleranzgrenzen durch physikalische und chemische Manipulationen am Aerosol und in Lebewesen ist als Ergebnis dieser Forschungen zu erwarten."

39 Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft.

40 The list mentions 51 research papers as well as nine other papers, which Bisa expected to be completed by the end of the year; see letter by Bisa to Glupe, 24 November 1966 (BA-MA, BW 1/368710).

Ministry of Defence were classified. Unfortunately, we have not been able to find them even in the Military Archive in Freiburg. Judging by the titles of these papers the task of the IAe was to investigate the effects of chemical agents such as phosphoric acid esters and psychotoxic substances in order to develop antidotes. This indicates that the objective of this research was defensive.[41]

That Petras's allegations were completely unwarranted has also been stated by Geißler.[42] In contrast, relativizing our own previous assessment we are of the opinion that some sources allow the interpretation that Petras's accusations were not totally unfounded. This conclusion rests mainly on two circumstances.

(1) In 1967 there were far-reaching plans by the West German Ministry of Defence to extend the IAe and to widen its scope of research. The IAe was to be dislocated, but one branch should stay in Grafschaft. The time needed to plan and construct the institute at its new location was estimated at 10 years.

Remarkably, the paper by the Ministry of Defence mentions as the future task of the branch in Grafschaft "the production of small amounts of biological and chemical agents for research, testing and instruction" including the "synthesis of new substances". The complete passage reads as follows (translation by the authors): "As the task of the branch [in Grafschaft] should be envisioned the production of small amounts of biological and chemical agents for research, testing and instruction. Such an institution will in any event become necessary when the stocks extant at the ErpSt [Erprobungsstelle] 53[43], which stem from finds of old war ammunition, are exhausted. Indeed, we also receive small amounts of agents from other NATO states, but we cannot rely on this in the long run. Moreover, threat assessment requires the synthesis of new substances. For the realization of this task (department "technology of warfare agents") Grafschaft would be downright ideal. For the production of biological agents and for testing the effect of chemical agents the extant keeping of animals at Grafschaft could also continue to be used."

The passage ends with the remark: "NB! The production of chemical agents for research, testing, and instruction purposes is allowed according to annex II to protocol no. III of the Treaty of Brussels[44]."[45]

41 We are aware that results gained from defensive research on chemical warfare agents can likewise be used for offensive means. But this general dual use problematic is another subject not to be discussed in this paper.

42 See Erhard Geißler, Anthrax und das Versagen der Geheimdienste (Berlin: Kai Homilius Verlag, 2003), pp. 209–218; Geißler, "Biowaffen für die Bundeswehr?".

43 "ErpSt 53" is the abbreviation for "Erprobungsstelle 53 der Bundeswehr" ("Test Centre 53 of the Bundeswehr") in Munster/Lager in Niedersachsen (Lower Saxony), today "Wehrwissenschaftliches Institut für Schutztechnologien – ABC-Schutz (WIS)" ("Research Institute for Protective Technologies and NBC Protection"). The Erprobungsstelle 53 was founded in 1958, but the history of the site as test ground for chemical agents dates back to World War I, when at the end of 1916 a plant for filling chemical weapons was constructed in Breloh ("Gasplatz Breloh") near Munster; see Dietrich Stoltzenberg, Fritz Haber: Chemist, Nobel Laureate, German, Jew (Philadelphia, PA: Chemical Heritage Press, 2004), pp. 144–145, 153; see also Ludwig Fritz Haber, The Poisonous Cloud. Chemical Warfare in the First World War (Oxford: Clarendon Press, 1986), pp. 120, 141, 190, 251; Margit Szöllösi-Janze, Fritz Haber 1868–1934. Eine Biographie (München: Beck, 1998), pp. 356–358.

44 Cf. above, n. 28.

45 Department InSan I 3 of the Ministry of Defence [InSan = Inspektion des Sanitäts- und Gesundheitswesens der Bundeswehr (inspectorate of the sanitary and health service of the Bundeswehr)] to InspSan [= Inspekteur des Sanitäts- und Gesundheitswesens der Bundeswehr (inspector of the sanitary and health service of the Bundeswehr)], Az. [= Aktenzeichen (file number)] 42-18-00, Bonn, 23 June 1967, "Anlage" ["annex"]: "Sachstandsbericht und Empfehlungen betr. Fraunhofer-Institut für Aerobiologie" ["assessment report and recommendations concerning Fraunhofer-Institute of Aerobiology"], Bonn, 16 June 1967 (BA-

The above-cited document needs to be commented on. The chemical agents that were investigated at the IAe were made available by the Ministry of Defence, which obtained them from allied states.[46] In some cases, as with the nerve agents Tabun and Soman, the Ministry also resorted to World War II stocks of the German Army.[47]

It is questionable whether the apodictic remark that the Treaty of Brussels allowed the FRG to produce chemical agents for research, testing, and instruction was really justified, considering that in 1970 SIPRI arrived at the conclusion that it was unknown "what arrangements the Agency[48] has for controlling production of the relatively small amounts of single-purpose products[49] that the FRG might need for CBW R & D work; at present such materials are imported from allied countries, for example from the USA and France."[50]

Leaving aside possible problems from the point of view of international law, another, still more important question arises concerning the above-cited plans by the Ministry of Defence to have the IAe produce small amounts of biological and chemical agents for research purposes including synthesizing of new substances: What did these plans mean in the perception of the IAe's employees?

It is not clear how many details the employees at the IAe knew of these plans by the Ministry of Defence, but obviously they had heard of them and were concerned. Reacting to rumours and in order to calm the scientists at the IAe, in March 1968 the Ministry of Defence presented them a declaration that (1) the development and production of ABC weapons had never been contemplated, (2) the FRG had renounced the development and production of ABC weapons with its entry into the WEU, (3) the compliance with this commitment was controlled by the WEU, and (4) in case of non-compliance offenders could be prosecuted.[51] Every scientist at the IAe, among them also Petras, had to confirm by his signature that he was aware of this declaration.

After Petras's defection to the GDR the Ministry of Defence released a statement to the press on 24 November 1968, in which it referred to the just-mentioned declaration with the following words: "In order to make sure that no A, B and C agents are developed or produced even in smallest amounts, all institute members – including Dr. Petras – were obliged that they do not only have the right, but also the duty to file a

MA, BW 24/2250), pp. 31–32: "Als Aufgabe für die Dependance wäre die Herstellung von biologischen und chemischen Kampfstoffen für Forschung, Erprobung und Unterricht in kleinen Mengen vorzusehen. Eine solche Einrichtung wird ohnedies erforderlich, wenn die bei der ErpSt 53 vorhandenen Vorräte, die aus Funden alter Kriegsmunition stammen, aufgebraucht sein werden. Kleine Mengen an Kampfstoffen erhalten wir zwar auch von anderen NATO-Ländern, doch können wir uns darauf nicht auf die Dauer verlassen. Das Studium der Bedrohung macht im übrigen auch die Synthese neuer Substanzen erforderlich. Zur Durchführung dieser Aufgabe („Abteilung Kampfstofftechnologie") wäre Grafschaft geradezu ideal. Für die Herstellung biologischer Kampfstoffe und die Testung der Wirkung chemischer Kampfstoffe könnte auch die in Grafschaft vorhandene Tierhaltung weiter genutzt werden. NB! Die Herstellung chemischer Kampfstoffe für Zwecke der Forschung, Erprobung und Ausbildung ist nach Anlage II zu Protokoll Nr. III des Brüsseler Vertrags erlaubt."

46 Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, p. 51, n. 251.

47 Ibid., pp. 50–51, n. 250. On research on chemical warfare agents during the Third Reich see Florian Schmaltz, Kampfstoff-Forschung im Nationalsozialismus. Zur Kooperation von Kaiser-Wilhelm-Instituten, Militär und Industrie (Göttingen: Wallstein, 2005).

48 i. e. the Armament Control Agency of the WEU.

49 Single-purpose products are substances exclusively for military use.

50 SIPRI, The Prevention of CBW, pp. 203–204.

51 For the wording of the declaration, which we have summarized in English, see Geißler, "Biowaffen für die Bundeswehr?," p. 78. Geißler did not know the background for the declaration, i. e. the above cited plans by the Ministry of Defence.

demand for prosecution in case of putative offences against this. All members have accepted this directive by their signature."[52]

As we have seen, the truth of the matter is that the Ministry of Defence had planned the production of small amounts of biological and chemical agents for research purposes including synthesizing of new substances. Therefore the addition "even in smallest amounts" in the official press release was *not* true. Neither was it part of the original declaration that the members of the IAe had signed. Another discrepancy between the original declaration and the form in which the Ministry rendered it in the press release consists of the absence from the original form of any obligation for the members of the IAe to file a demand for prosecution.[53]

While it is credible that the Ministry of Defence did not intend to produce B and C *weapons* at the IAe, it is also clear that its ambitious plans to produce biological and chemical agents for research purposes including synthesizing of new substances would have meant – if they had been realized – a completely new dimension in the activities at the IAe. This is obviously witnessed by the reaction of the employees.

Furthermore, if the Ministry's plans had been brought to light by somebody regarded as more trustworthy than the East German spy Petras and if their disclosure had been presented in a factual and sober manner and not embedded in a large array of exaggerations by the East German propaganda machine, they might have gained more attention in the West.

2. Petras mentioned "O-secondary-butyl-methylfluorphosphoric acid ester"[54] (= 2-butylmethylphosphonofluoridate) as an example of the testing of newly developed and hitherto unknown organic phosphorus compounds at the IAe. We are able to show that the Ministry of Defence had sent this substance in April 1964 to the IAe in order to have it tested. What is more, there is circumstantial evidence that this *new* chemical agent had been synthesized at the suggestion of one of the scientists of the IAe. However, obviously the scientist acted on his own. Furthermore it is not clear where the substance was synthesized, but in all likelihood not at the IAe itself. The details are as follows.

On 9 April 1964 the Ministry of Defence sent two substances to the IAe for study there. One of these two substances was VX; the other was 2-butylmethylphosphonofluoridate, which is explicitly mentioned and the unknown biochemical effects of which as a chemical agent were to be tested at the IAe.[55]

Regarding the possible origin of 2-butylmethylphosphonofluoridate a letter by Bisa to the FhG from 15 April 1964 has proved to be informative. In his letter, which was co-signed by Oldiges, the head of the chemical department, and by the safety

52 Translation by the authors; see statement to the press by the information and press centre (Informations- und Pressezentrum) of the Ministry of Defence, Bonn, 24 November 1968 (BA-MA, BW 1/25350): "Um sicherzustellen, daß keine A-, B- und C-Kampfmittel auch in geringsten Mengen entwickelt oder hergestellt werden, sind alle Institutsangehörigen – so auch Dr. Petras – verpflichtet worden, daß sie nicht nur das Recht sondern auch die Pflicht haben, bei vermeintlichen Verstößen hiergegen Strafantrag zu stellen. Diese Weisung haben alle Angehörigen mit ihrer Unterschrift akzeptiert."

53 Such an obligation was introduced only later, after Petras's defection; see Geißler, "Biowaffen für die Bundeswehr?," p. 78, n. 43.

54 Ehrenfried Petras, "Statement by Dr. rer. nat. Ehrenfried Petras former Director of the Laboratory for Microbiology of the Institute of Aerobiology in Grafschaft/Sauerland, West Germany," p. 14.

55 Letter by Glupe (Ministry of Defence, Department T II 4) to Bisa, Bonn, 9 April 1964, Az. [= Aktenzeichen (file number)] 71-08-00-01, Tgb. Nr. [= Tagebuchnummer (log entry number)] 682/64 (BA-MA, BW 1/368710). Glupe calls the substance "O-sec.-Butyl-methyl-phosphonofluoridat".

representative of the IAe,[56] Bisa mentions a telephone conversation on 14 April 1964 between Oldiges and another scientist working at the IAe, whose name we will keep confidential by calling him "Dr. X". This conversation referred to the transfer of two new toxic substances by the Ministry to the IAe, where they arrived on 11 April 1964. The names of these two substances are not given. As the letter reports, Dr. X told Oldiges that one of the two substances had been synthesized at his suggestion[57] by modifying a known chemical agent in order to alter its toxicity. Moreover, we learn from the document that Oldiges clearly disapproved of his colleague's unauthorised procedure because it brought research at the IAe close to the development of new chemical agents. In contrast, the implicated scientist was fully convinced of the legitimacy of his behaviour, pointing out that other states were working in the same direction and that even without his intervention this substance would have been transferred to the IAe for testing. Bisa further notes in his letter that the Ministry had told him that the substance was an American product, not mentioning that its synthesis was originally suggested by a member of the IAe.[58]

Given the close connection in content and time between the Ministry's letter to Bisa from 9 April 1964 and Bisa's letter to the FhG from 15 April 1964 we can safely assume that the two substances of which Bisa spoke in his letter from 15 April 1964 are the same as the two chemical agents sent by the Ministry on 9 April 1964, that is VX and 2-butylmethylphosphonofluoridate. In this case the new chemical agent that had been synthesized – at a place still unknown – at the unauthorized suggestion of one of the IAe's scientists was 2-butylmethylphosphonofluoridate, as the synthesis of VX and related compounds dates from British and American research in the 1950s[59].

It is still unknown where 2-butylmethylphosphonofluoridate had been synthesized before it was sent by the Ministry of Defence to the IAe for testing. In the *draft* of his statement to the press Petras claimed that "this substance originated from the research and production programme of the Bayer AG".[60] In the final press release this assertion is missing.

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56 Letter by Bisa, Oldiges, and W. Dorl (safety representative of the IAe) to Epp (executive director of the FhG), 15 April 1964 (IfZ, ED 721/517). The letter is cited in Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, pp. 56–57.

57 "auf seine Anregung hin", in the original highlighted by spacing out.

58 We have summarized the following passage: "Er [i. e. Oldiges] habe am 14.4.1964 eine telefonische Unterredung mit Herrn Dr. [...] gehabt, die sich auf zwei neue toxische Substanzen bezog, die auf Veranlassung von Herrn MRR [= Ministerialrat (Ministerial Counsellor)] Dr. Glupe am 11.4.1964 dem Institut überstellt wurden. Unter diesen beiden Substanzen befindet sich eine, die nach Aussagen von Herrn Dr. [...] auf seine Anregung hin hergestellt worden war. Es handelt sich um eine Molekül-Veränderung eines bekannten Kampfstoffes mit dem Zwecke einer veränderten Toxizität. In einer telefonischen Beschreibung der Substanzen hat Herr MRR Dr. Glupe mir [i. e. Bisa] gegenüber nicht erwähnt, daß die Urheberschaft für die Herstellung dieser Substanz aus dem Institut stammt. Es handele sich vielmehr um ein amerikanisches Produkt, dessen Eigenschaften noch unbekannt seien.
In einem heutigen Telefongespräch hat Herr Dr. Oldiges Herrn Dr. [...] gegenüber geltend gemacht, daß er erhebliche Bedenken anmelden muß, wenn die Forschung des Institutes sich der Entwicklung von Kampfstoffen nähere. Hierzu gehöre nicht nur die Entwicklung neuer, sondern auch die Änderung bekannter Kampfstoffe. Herr Dr. [...] behauptet, daß diese Entwicklung z. Zt. sehr nahe liege und mittlerweile auch von anderen Staaten ausgeführt wäre. Auch ohne seine Intervention wäre dieser Kampfstoff zur Prüfung unserm Institut überstellt worden."

59 See Eric A. Croddy, "V-Agents," in: Weapons of Mass Destruction. An Encyclopedia of Worldwide Policy, Technology, and History, 2 vols., Vol. I: Chemical and Biological Weapons, ed. Eric A. Croddy (Santa Barbara, CA; Denver, CO; Oxford, England: ABC-CLIO, 2005), pp. 313–314; Kim Coleman, A History of Chemical Warfare (Houndmills; New York: Palgrave Macmillan, 2005), p. 86.

60 The translation is ours; see "Erklärung von Herrn Dr. rer. nat. Ehrenfried Petras, ehemals Leiter des Labors für Mikrobiologie des westdeutschen Institutes für Aerobiologie in

To our knowledge the first description of the effects of 2-butylmethylphosphonofluoridate in public scientific literature can be found in the paper by D. B. Coult, D. J. Marsh and G. Read on "Dealkylation Studies on Inhibited Acetylcholinesterase"[61]. Coult and Marsh belonged to the "Chemical Defence Experimental Establishment" at Porton Down (England) and Read to the Department of Chemistry of the University of Exeter. In their paper they describe the rate of dealkylation of the enzyme acetylcholinesterase inhibited by organophosphates (f. i. 2-butylmethylphosphonofluoridate). It was supposed that dealkylation of the inhibited acetylcholinesterase prevents it from being reactivated by oximes, which normally act as antidotes. With 2-butylmethylphosphonofluoridate the dealkylation rate was 20 times higher than with Sarin. Soman evinced the highest dealkylation rate.[62]

But let us return to Bisa's letter from 15 April 1964. Bisa knew very well the far-reaching implications of the unauthorized procedure of one of his scientists. Thus he asked the FhG for clarification whether the accused employee (1) acted by order of the Ministry of Defence or (2) had the right – as a member of the IAe, but without the director's knowledge – to submit proposals that were possibly illegal or collided with the present research assignment of the IAe to the referent in charge at the Ministry. Bisa considered the clarification of these questions decisive for "whether he would have to revise his promise, solemnly given to the president and the presidium of the FhG, not to pursue any development of warfare agents", adding: "perhaps it should be clarified whether the development of agents in the Institute of Aerobiology meets with the consent of the legislature, respectively of the FRG, so that we can plead a legal emergency if need be."[63]

Other documents show that the employee stood in direct contact with the Ministry of Defence. On 11 May 1964 he resigned his employment at the IAe. With his resignation the FhG considered the affair "settled for the time being."[64]

Grafschaft/Sauerland," BStU, ZA, MfS-ZAIG 10629, folio 107–152, at folio 137: "Diese Substanz stammt aus dem Forschungs- und Produktionsprogramm der Bayer AG [...]". The abbreviations in the archive signature have the following meaning: BStU, ZA = Der Bundesbeauftragte für die Unterlagen des Staatssicherheitsdienstes der ehemaligen Deutschen Demokratischen Republik, Archiv der Zentralstelle, Berlin; MfS-ZAIG = Holdings Ministerium für Staatssicherheit (Ministry for State Security), Zentrale Auswertungs- und Informationsgruppe (Central Evaluation and Information Group).

61 David B. Coult, D. J. Marsh, and Gordon Read, "Dealkylation Studies on Inhibited Acetylcholinesterase," *The Biochemical Journal*, 1966, 98:869–873.

62 Ibid., p. 872. For more recent research on the effects of 2-butylmethylphosphonofluoridate (IBMPF) see Dana Kaplan, Arie Ordentlich, Dov Barak, Naomi Ariel, Chanoch Kronman, Baruch Velan, and Avigdor Shafferman, "Does "Butyrylization" of Acetylcholinesterase through Substitution of the Six Divergent Aromatic Amino Acids in the Active Center Gorge Generate an Enzyme Mimic of Butyrylcholinesterase?," *Biochemistry*, 2001, 40:7433–7445.

63 See the letter mentioned in n. 56. We have summarized the following passage: "[...] bitte ich [i. e. Bisa] um dringliche Klärung, ob 1. Herr Dr. [...] die Abänderung eines bekannten Kampfstoffes zum Zwecke einer veränderten Giftigkeit als Beauftragter des Ministeriums vorgeschlagen hat, oder 2. Herr Dr. [...] als Angehöriger des Institutes für Aerobiologie ohne Wissen des Instituts-Direktors berechtigt ist, dem zuständigen Referenten im Ministerium Vorschläge zu machen, die unter Umständen ungesetzlich sind und mit unserem jetzigen Forschungsauftrag kollidieren.
Die Klärung dieser Fragen [ist] [in the original "sind" instead of "ist"] entscheidend, ob ich die dem Präsidenten und dem Präsidium der Fraunhofer-Gesellschaft abgegebene feierliche Versicherung: keine Kampfstoffentwicklung zu betreiben, revidieren muß. Es wäre unter Umständen zu klären, ob die Entwicklung von Kampfstoffen im Institut für Aerobiologie die Zustimmung des Gesetzgebers bzw. der Bundesrepublik Deutschland findet, damit wir uns gegebenenfalls auf einen gesetzlichen Notstand berufen können."

64 Kirschner and Johannsen, Das Institut für Aerobiologie der Fraunhofer-Gesellschaft, p. 59.

Conclusion

Any assessment of Petras's claims must take into consideration that his statements were embedded in a large array of propagandistic exaggerations. It is not possible to reconstruct what Petras originally reported to the Ministry for State Security of the GDR and what had been added by the East German propaganda machine. Whether he had any noticeable influence on the final version of his public statement is more than questionable.

While it cannot be said that the IAe served to prepare the production of biological and chemical weapons, Petras's accusations were not fully unfounded, and this for two reasons: (1) In 1967 there existed ambitious – although never realized – plans by the German Ministry of Defence to produce at the IAe small amounts of biological and chemical agents for research purposes including synthesizing of new substances. (2) There is strong circumstantial evidence dating from 1964 that "O-secondary-butyl-methylfluorphosphoric acid ester" (= 2-butylmethylphosphonofluoridate), which Petras mentioned as an example of the test of newly developed and hitherto unknown organic phosphorus compounds, had been synthesized at the private suggestion of one of the scientists working at the IAe, who acted on his own and stood in direct contact to the German Ministry of Defence.

Rumours about the far-reaching plans by the Ministry of Defence to extend the IAe's scope of tasks produced such considerable concern among the employees of the IAe that they had to be calmed by the Ministry. A statement to the press released by the information and press centre of the Ministry of Defence on 24 November 1968 pointed out that the employees of the IAe had taken notice of and accepted by their signature a directive according to which no B and C agents would be developed or produced even in smallest amounts. However, this press release did not correspond to the Ministry's original plans to produce at the IAe small amounts of biological and chemical agents for research purposes including synthesizing of new substances. Not surprisingly, the addition "even in smallest amounts" is missing in the original declaration that the members of the IAe had signed in March 1968.

Regarding the case of the scientist acting in an unauthorized manner we have seen from the reactions by the head of the chemical department and by the director of the IAe that this incident was considered highly problematic.

Therefore we suppose that, if somebody considered more worthy of trust than the East German spy Petras had brought these facts to light, they would have stirred much more interest in the West.