

Nuclear experts and nuclear expertise in a global context after 1945

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Nuclear experts and nuclear expertise were at the center of a workshop hosted by Gabriele Metzler (Berlin) and Carola Sachse (Vienna) at Humboldt University Berlin on 6 and 7 October 2014. The participants, mostly historians and political scientists from various continents, aimed at researching these experts and their knowledge in a global context after 1945. The conference thus sought to shed light on a phenomenon that can be seen as crucial for our understanding of the last century.

It is impossible to think of the international and social history of the second half of the 20th century without considering the role experts played in this „nuclear age.“ To put it briefly, there would have been no „Cold War“, as we are accustomed to labeling this period, if there had not been physicists who developed the weapon of that age. In general, atomic power was the product of a long-term research process, and scientific experts were the decisive protagonists in the detection and utilization of nuclear fission. Their expertise enabled the leaders of states, the military and the economy to put nuclear knowledge to strategic use. They thereby helped transform the post-war world order. At the same time, so-called „counter-experts“ questioned the potential and the consequences of the military and civil use of nuclear power, giving scientific credence to social protest movements.

Expertise became more and more important during the 19th and 20th century, as the knowledge society developed dynamically. Lutz Raphael referred to this process as „scientification of the social,“ a concept that has gained lasting influence in historiography. Experts with scientific knowledge became increasingly present in bureaucracies, political parties, parliaments and the economy. Soon

they played a vital role in social processes because they possessed the authority to produce knowledge and define problems.

What did experts have to do in order to be regarded as such? Most importantly, they had to follow a particular verbal and non-verbal strategy. They referred to the concepts of „truth“ and „objectivity;“ additionally, they displayed their expertise by using elaborate rhetorical and performative strategies, creating legitimacy through trust. Experts behaved in a way that lent credence to what they were saying, and they used specific rhetorical and visual strategies to make their audience believe what they maintained.

In her introduction, CAROLA SACHSE delineated six questions that served as guidelines for the discussion. These were: 1. How can we understand knowledge about nuclear energy after 1945? 2. Who was an expert and how did they justify their status as such? What role did trust as an immaterial resource play in that context? 3. How did they organize? How did experts from countries further from the center of the Cold War participate? 4. Did this „community of knowledge“ develop a transnational identity? Did it contribute to the delegitimizing of the nation-state and of national statehood? 5. How did governments, the public and protest movements perceive these experts? 6. What part did experts play with regard to (non-) proliferation of nuclear weapons?

Subsequent contributions approached the issue from different angles, touching upon different fields. Some of them studied particular individuals who, as experts, played vital roles in establishing and promoting the field of nuclear expertise. In his talk, SEBASTIAN VEHLKEN (Lüneburg) for example focused on scientist Wolf Häfele. He situated Häfele's work in an „age of hypotheticality,“ stressing the importance of computer simulations for the development of nuclear theory. WAQAR ZAIDI (Lahore) concentrated on James T. Shotwell's attempts to popularize his proposals for the international control of atomic energy in the United States. By doing so, Zaidi sought to alter our understanding of early postwar atomic internationalism, and the role scientists and non-scientists played within the construction of the expertise on nu-

clear energy.

Other contributions focused on institutions and institutionalized expertise. SYBILLE MARTI (Zurich) reviewed the Swiss Federal Commission for Radioactivity Surveillance, which was appointed in 1956 in order to respond to the emerging public concern about radiation hazards. Its task was to monitor the radioactivity of food products, complemented by measurements of the radionuclide content in the human body. ANNA WEICHSELBRAUN (Chicago) presented her project on the International Atomic Energy Agency, in which she focuses on safety inspectors as nuclear experts.

Whereas the majority of the workshop participants presented papers on experts and expertise in the context of the civil or military use of nuclear energy, ANGELA N. CRAEGER (Princeton) pointed out the ways in which the question of waste and environmental expertise was linked to the workshop topic. She traced the history of the U.S. Atomic Energy Commission (AEC) by focusing on the emergence of expertise in radioecology at three AEC installations: Hanford, Oak Ridge, and Savannah River. In these sites, she emphasized, research on radioactive waste generated new knowledge about the biological concentration of contaminants within aquatic and terrestrial ecosystems.

A third group of presenters concentrated on specific nuclear programs or dealt with country studies. MARA DROGAN (Loudonville) analyzed President Dwight D. Eisenhower's Atoms for Peace program. She worked out how the program became the vehicle for the transfer of nuclear technology and fissionable material around the globe. This is why, she argued, the program had a long-lasting historical impact. IBRAHIM AL-MARASHI (San Marcos) dealt with Iraq's atomic energy program. He monitored the interplay between experts and the government and underlined that the program reflected the evolution of the representation of the Iraqi state. The thematic scope of this conference even extended to the role nuclear experts played in Australia and in Japan, as LACHLAN CLOHESY (Melbourne) and TAKA DAITOKU (Evanston) revealed in their talks.

Beyond the personal, institutional and na-

tional level, a fourth group of contributors presented findings on expert networks, which were important for the identity and self-construction of experts. It became clear that these experts cannot be separated from other professional branches. MAURO ELLI (Padua) showed in his talk with regard to the industry how experts built bridges and transferred their knowledge into the economy. CHRISTIAN MARX (Trier) produced intriguing results in terms of nuclear experts and economic interests. He outlined the discussion between state authorities and experts concerning the application by the German chemical company BASF to construct its own nuclear power plant in Ludwigshafen in 1969.

In his talk about the arms control network in the United States, BENJAMIN WILSON (Stanford) depicted experts as boundary-crossers. Stating that the relationship between the state and its experts was more complicated and fluid than is typically acknowledged, he termed experts as „insiders“ and „outsiders“ at the same time. They were natural and social scientists, expert servants of the state and expert critics, government representatives and supporters of grassroots opposition to government policies. ANNE I. HARRINGTON (Washington, DC) and MATTHIAS ENGLERT (Darmstadt) noted that scientific experts delimited the boundaries of the techno-strategic framework of safeguards and verification.

These experts can neither be separated from other professional branches nor conceived without reference to what else was going on in Western societies at the time. Alongside others, two presenters exposed this nexus in their talks very clearly. ALISON KRAFT (Sheffield) on the one hand explored the early Pugwash movement in Britain as a site for knowledge production and counter-expertise. She traced this transnational network as an epistemic community. CHRISTOPH LAUCHT (Swansea) on the other hand researched the Professions for World Disarmament and Development (PWDD). While historians and social scientists have commonly analyzed anti-nuclear-weapons activism in Britain and elsewhere as part of the peace movement or transnational relations, his paper offered a fresh approach to these protests by

viewing them as a form of professional activism.

A recurring question of this workshop was whether nuclear experts, in their transnational networks, tried to overcome the Cold War system and envisioned a new, post-binary world order. One of the most fascinating and stimulating contributions in this context came from KARIN ZACHMANN (Munich), who asked how experts tried to rethink the Cold War. Researching the European Society for Nuclear Methods in Agriculture (ESNA), she exposed that this non-governmental organization aimed at opening new channels of cross-bloc communication and knowledge flow against the backdrop of American domination.

How can we connect all these different stories about experts and their knowledge? And, starting from here, wherein lies the specificity of the history of nuclear expertise? In a final round of discussion, GABRIELE METZLER and HOLGER NEHRING (Stirling) gave some preliminary answers. Metzler identified five fields of research: the nuclear history itself; the ways in which trust was constructed; representations of nuclear expertise; tensions between the national, transnational and international; the deconstruction of boundaries by experts and expertise; and finally the rescaling of temporality and time regimes by experts.

One specificity of the history of nuclear knowledge that Nehring pointed out was the connection between nuclear knowledge and nationhood/statehood. In order to be „modern“, a state had to have nuclear knowledge, he argued. In this way, expertise in the field of nuclear power was essential for the self-image of the state and for the construction of modernity. In addition, Nehring posed the question of what happened to nuclear knowledge after it entered the bureaucracy: Was it simplified the higher it climbed the government hierarchy? How was it passed around?

Questions such as these deserve further analysis and require careful explanation. This conference went a long way to stimulating that discussion and providing some tentative answers. Future research, however, should look more closely at the materiality of nuclear expertise (as Nehring rightly claimed), at the

technology and the techniques, at the mechanisms as well as at the practices of the creation of knowledge.

Conference overview:

Carola Sachse, University of Vienna, Austria
Introduction

Panel 1: Nuclear Experts and Counter Expertise

Ibrahim Al-Marashi, California State University, San Marcos, CA, USA
Achieving Nuclear Ambitions: Scientists, Politicians, and Proliferation

Mauro Elli, University of Padua, Italy
Nuclear Experts and the Industry: Overlapping Trajectories of Politics, Economics and Knowledge

Benjamin Wilson, Stanford University, CA, USA
Nuclear Arms Control: Expertise, Ideas, and the State, 1957-1977

Waqar Zaidi, Lahore University of Management Sciences, Pakistan
James T. Shotwell and the Struggle for Atomic Expertise, 1945-1947

Panel 2: Nuclear Knowledge

Mara Drogan, Siena College, Loudonville, NY, USA

„Delicate Matters Requiring Expert Consideration“: Political Goals versus Technological Realities in Eisenhower’s Atoms for Peace Program

Sebastian Vehlken, Leuphana University Lüneburg, Germany
The Age of Hypotheticality: Wolf Häfele and the „German Manhattan Project“

Taka Daitoku, Northwestern University, Evanston, IL, USA

„It’s what you don’t see that matters the most“: Shigaki Minro, the Cabinet Research Staff, and the Reshaping of the Community of Nuclear Knowledge in Japan, 1964-70

Panel 3: Transnational Networks

Alison Kraft, University of Sheffield, UK
Nuclear „Fallout“: A Case Study of Scientific Dissent in Early Cold War Britain and the Origins of the Pugwash Movement, c. 1954-

1957

Christoph Laucht, Swansea University, UK
British Professionals, Nuclear Expertise and
the Prevention of Nuclear War in the 1980s

Sibylle Marti, University of Zürich, Switzer-
land

A Network for Radiation Safety: Swiss Radia-
tion Protection Experts in the „Glocal“ Cold
War

Panel 4: Expert vs Government and Others

Anna Weichselbraun, University of Chicago,
IL, USA

Nuclear Experts at the IAEA: Safeguards In-
spectors and the Verification of the NPT

Christian Marx, University of Trier, Germany
Nuclear Experts and Economic Interests in
West Germany at the End of the Boom

Karin Zachmann, Technical University Mu-
nich, Germany

Ambassadors of the New Ostpolitik? How
the European Society for Nuclear Methods in
Agriculture (ESNA) Shaped and Challenged
the Cold War Order

Panel 5: Effects of Expertise

Angela N. Creager, Princeton University, NJ,
USA/MPI for the History of Sciences, Berlin,
Germany

Nuclear Waste and Environment Expertise at
the U.S. Atomic Energy Commission

Lachlan Clohesy, Victoria University, Mel-
bourne, Australia

Nuclear Experts and an Atomic Australia

Linda Richards, Oregon State University, Cor-
vallis, OR, USA

Health Physics: Uncertainty and the Taint In-
side

Matthias Englert/ Anne I. Harrington, Techni-
cal University Darmstadt, Germany

Disembodying the Power of Nuclear Wea-
pons: Experts and the Materiality and Gover-
nance of Nuclear Technologies

Final Round: Where do we go from here?

Gabriele Metzler, Humboldt University, Ber-
lin

Holger Nehring, University of Stirling, UK

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