INTRODUCTION

The Pugwash Conferences on Science and World Affairs: Vision, Rhetoric, Realities

Alison Kraft and Carola Sachse

On 9 July 1955, in a moment of high drama in front of a packed audience at the Guildhall in London, Bertrand Russell read out a statement signed by eleven eminent scientists, including nine Nobel Prize winners, from different parts of the world, including Albert Einstein and Frédéric Joliot-Curie and one, Leopold Infeld, from the Eastern bloc (Poland). The scientists called for an end to the arms race and the cessation of nuclear weapons tests; their statement came in response to the development of the hydrogen bomb – a weapon that, in their view, placed the world in a new situation of "universal peril" and jeopardized the future of the human race. They emphasized too that the fallout created by on-going nuclear weapons tests was already putting the world at grave risk of radiological poisoning. This statement, which came to be known as the Russell-Einstein Manifesto, appealed to "governments of the world" to seek "peaceful means" for resolving their differences and to develop "a new way of thinking." It concluded with a rallying call for scientists to "assemble in conference" to discuss the "tragic situation which confronts humanity," and to try to help avert nuclear war.[1]

Between 1955 and 1957 Russell, working closely with Joliot-Curie and British-based physicists Eric H.S. Burhop, Cecil F. Powell and Joseph Rotblat, sought to realize the idea for a conference.[2] This took place two years later in July 1957 in Pugwash, Nova Scotia, and involved twenty-two scientists, including four from the Soviet Union, and was financed by the Canadian-American businessman Cyrus S. Eaton.[3] This meeting would become the inaugural Pugwash Conference on Science and World Affairs (PCSWA or Pugwash)

1 The Russell-Einstein Manifesto is widely available on the web, e.g. "Statement: The Russell-Einstein Manifesto." ⟨https://pugwash.org/1955/07/09/statement-manifesto⟩ Accessed 17 April 2019.

2 Alison Kraft, "Dissenting Scientists in Early Cold War Britain. The "Fallout" Controversy and the Origins of Pugwash, 1954–1957," *Journal of Cold War Studies* (JCWS) 20, no. 1 (Winter 2018): 58–100.

3 On Eaton, see the chapter by Carola Sachse in this volume. For a list of those present, see: Joseph Rotblat, *A History of the Conferences on Science and World Affairs* (Prague: Czechoslovak Academy of Sciences, 1967), which contains full listings of participants at the

which, henceforth, sought to bring together senior scientists from across the bloc divide, and from the non-aligned countries, to confront the dangers posed by nuclear weapons: their aim was to develop a new approach to disarmament and conflict moderation. In 1957, the means by which the scientists who met in Pugwash would pursue this aim remained unclear: an organization had to be built. This involved an organic and contingent process in which the leadership was constantly improvising in response to both external and internal developments. Powered by ideas about scientists' social responsibility, claiming political neutrality, brandishing technoscientific expertise relevant to the disarmament conversation, and emphasizing the "common language of science" as a means to transcend national and ideological allegiances, this small international group of elite scientists sought, as they put it, to make the Pugwash project a "strong force for peace."[4]

This volume sets out to look at how this vision was elaborated, examine what became of it in practice in different national settings, and to assess the significance of the Pugwash project during the early Cold War. How did the scientists of Pugwash go about creating the means to "assemble in conference," what held this project together and how did governments in the East and the West perceive their efforts? How did the specific character of the nation state – the political system, its position within the geopolitical landscape of the Cold War – shape engagement with Pugwash? In what ways did the changing dynamics of this conflict influence its development? How did the conferences become relevant to state actors? How were relations between the different parts of the Pugwash organization? For example, what were the relations of power between the leadership (the so-called Continuing Committee) and other constituencies within the network as it expanded and evolved?

Numerous accolades accorded to the Pugwash organization point to its importance, including the testimonies of several senior Cold War politicians who acknowledged the usefulness of its work, including Helmut Schmidt and Mikhail Gorbachev.[5] Its nomination twice, albeit unsuccessfully, for the Nobel

conferences up to 1966. Note: This volume was published in 1968 in London/New York by Humanities Press with the title: *Pugwash. The First Ten Years. History of the Conferences on Science and World Affairs*.

4 Joseph Rotblat, "Memo for First Meeting of the Continuing Committee," 15 December 1957. Papers of Sir Joseph Rotblat (RTBT): RTBT 5/2/1/1-15, The Churchill Archives Center, University of Cambridge, UK.

5 Helmut Schmidt, letter dated April 1984, RTBT 5/2/2/64 (1). See also: *The Strangest Dream* (2008). This film about Sir Joseph Rotblat, directed by Eric Bednarski, was made by the National Film Board of Canada and includes assessments of the Pugwash conferences and its work by various senior political figures and Cold Warriors, including Mikhail Gorbachev. A copy is held in the archives at: Thinkers Lodge Histories, Pugwash, Nova Scotia, Canada.

Peace Prize in the 1960s, strongly suggests that the Pugwash project enjoyed a degree of success during its first decade.[6] The actual award of this Prize thirty years later in 1995 – shared with Rotblat, its first and long-serving Secretary General – in recognition, as the Nobel Committee put it, of its "efforts to diminish the part played by nuclear arms in international politics and, in the longer run, to eliminate such arms," points to the long-term relevance of the Pugwash organization within the arms control realm.[7] Its identity was built around a narrative that emphasized techno-scientific expertise relevant to disarmament negotiations on-going since 1955, albeit in a faltering manner.[8]

The nuclear arms race gave material form to the ideological war between communism and its opponents in the west: the scientists of Pugwash were knowingly positioning themselves directly in the crossfire between the blocs, creating a new intersection between science and politics.[9] Our organizing theme of science, diplomacy and anti-/communism defines this highly politicized space in which they were operating, as they walked a tightrope between East and West. Looking eastwards, the scientists of Pugwash had always to remain vigilant to manipulation by Moscow; looking westwards, they had to contend with charges of naivety and of being communist 'stooges,' and sought to avoid anything that could be used to discredit it as a 'front' organization. Mindful of this, the leadership handled carefully any association with the idea of promoting 'peace,' acutely aware that in the west 'peace' was seen as a tool of Soviet propaganda and, as such, a deeply politicized slogan that rendered its use highly problematic.[10] Following from this, and somewhat predictably, the leadership emphasized the political neutrality of Pugwash – although this did little to assuage its critics in the west.[11] To this end, senior American and British Pugwashites also sought to ensure that western scientists at the conferences

6 Miscellaneous correspondence during 1966 in: RTBT 5/2/1/16 (32).

7 https://www.nobelprize.org/prizes/peace/1995/summary/ Accessed 22 April 2019.

8 For an analysis of this narrative, see: Jean-Jacques Salomon, "Scientists and International Relations: A European Perspective," *Technology in Society* 23 (2001): 291–315.

9 For a discussion of the arms race in this sense, see: David Holloway, "Nuclear Weapons and the Escalation of the Cold War," in *The Cambridge History of the Cold War*, eds. Melvyn P. Leffler and Odd A. Westad, Volume I (Cambridge: Cambridge University Press, 2010), 376–397. Richard H. Immerman and Petra Goedde, eds. *The Oxford Handbook of the Cold War* (Oxford: Oxford University Press, 2013).

10 William Styles, "The WFSW, a Case Study of a Soviet Front Organization: 1946–1964," *Intelligence and National Security* 33, no. 1 (2018): 116–129.

11 In his chapter, Geoffrey Roberts notes that E.H.S. Burhop stepped back from involvement in Pugwash because of his leftist commitments and profile, and his concerns that this could have negative implications for its reputation.

spanned the left-right political spectrum. Where possible, this included scientists with ties to the political 'establishment' which, in addition to strengthening claims of political neutrality, carried the advantage of creating, potentially, a means of building links within government circles.[12]

The conferences were the founding raison d'etre of the Pugwash organization and the cornerstone of its efforts to develop as a channel for East–West dialogue. It was here that Pugwash scientists came together to discuss, initially, the problems surrounding disarmament, and this was where the transnational character of the project was initially forged. Held once or twice a year from 1957 onwards, by the tenth conference in London in 1962, twenty-five countries had been represented at Pugwash gatherings, and by 1967 some 430 scientists had attended at least one conference; by 1971 there were thirty national groups, and in 1977, 223 participants from forty-seven countries celebrated its twentieth anniversary in Munich.[13] Attendance was on a strictly invitation-only basis, decided upon by the leadership (the Continuing Committee), and frequently based on personal recommendations by 'word of mouth' from within Pugwash circles. In 1961, Working Groups became a routine part of the conference program and later, during the 1960s, Study Groups and Symposia were added to the expanding portfolio of Pugwash activities. These developments were driven from within and, in themselves, reflect the combination of commitment and pragmatism on the part of its scientists that were important to the survival of the project and to its emerging, distinctive characteristics. All of these transnational fora were geared to fostering more detailed analysis of the complex issues gathered under the rubric of 'arms control' and undertaken with the aim – ideally – of relaying findings and ideas in a quiet, discreet way, via political contacts, to national governments.

To date, research into Pugwash has been undertaken by scholars from a range of academic disciplines. As a result, the literature is somewhat scattered and the historiography disparate.[14] This also reflects the way in which the organization has tended to fall between specialist areas of enquiry, notably Cold War Studies, International Relations, Diplomatic History, History of Science

12 For example, for the British case, see: Kraft, "Dissenting." Christoph Laucht, *Elemental Germans*: *Klaus Fuchs, Rudolf Peierls and the Making of British Nuclear Culture, 1939–1959* (Basingstoke: Palgrave Macmillan, 2012).

13 Joseph Rotblat, "Report of Secretary General," London, 1962, p. 4. RTBT 5/2/1/10 (3).

14 Alison Kraft, Holger Nehring and Carola Sachse, eds. "The Pugwash Conferences and the Global Cold War. Scientists, Transnational Networks, and the Complexity of Nuclear Histories," introduction to special issue of *JCWS* 20, no. 1 (2018): 4–20. Focused on the histories of Pugwash in a range of countries, the introduction to this Special Issue includes an extended historiography which may be of interest to some readers.

and scholarship employing transnational approaches. We see Pugwash as, potentially, a point of contact between scholars from different disciplines working on its history in different countries – which, to some extent, is reflected in this volume.

Earlier accounts by those involved, and biographies of key figures, have established a basic narrative of Pugwash history, presenting it as a remarkable initiative in which scientists were able to bridge the Cold War divides and highlighting what they see to be its successes.[15] It features too, albeit briefly, within the literature on anti-nuclear protest, most notably in Lawrence Wittner's trilogy on the World Nuclear Disarmament Movement.[16] It appears fleetingly in Paul Boyer's cultural history of the atomic bomb and in general history of science texts, for example, Jon Agar's *Science in the Twentieth Century and Beyond*.[17] As early as 1971, Lawrence Scheinman highlighted the role of Pugwash as a cross bloc communication channel, describing its conferences as a "channel for regularized informal exchanges between scientists from east and west."[18] Around this time, the transnational approach to history, in which emphasis was placed on non-state actors, on processes of cross-border flows and exchanges – of people, information, knowledge, ideas – and on the circulation of knowledge, was beginning to emerge.[19] It has been applied within

15 For example: Joseph Rotblat, *A History*, 1967; *Scientists and the Quest for Peace. A History of the Pugwash Conferences* (Cambridge, MA: Massachusetts Institute of Technology Press, 1972). Andrew Brown, *Keeper of the Nuclear Conscience: The Life and Work of Joseph Rotblat* (Oxford: Oxford University Press, 2012). Leonard E. Schwartz, "Perspective on Pugwash," *International Affairs* 43, no. 3 (1967): 498–515. Boris B. Kadomtsev, ed. *Reminiscences about Academician Lev Artsimovitch* (Moscow: Nauka, 1985). For assessments of Pugwash by Jerome Wiesner, see: Walter A. Rosenblith, *Jerry Wiesner: Scientist, Statesman, Humanist: Memories and Memoirs* (Cambridge, MA: Massachusetts Institute of Technology Press, 2003). Richard Maquire, "Scientists Dissent Amid the British Government's Nuclear Weapons Program," *History Workshop Journal* 63, no. 1 (2007): 113–135. Duane Thorin, *The Pugwash Movement and US Arms Policy* (New York: Monte Cristo Press, 1965).

16 Lawrence S. Wittner, *Resisting the Bomb. A History of the World Nuclear Disarmament Movement, 1954–1970* (Stanford, CA: Stanford University Press, 1997), 111–113, 278, 292–296, 354–358.

17 Paul Boyer, *By the Bomb's Early Light. American Thought and Culture at the Dawn of the Atomic Age* (New York: Pantheon Books, 1985). Jon Agar, *Science in the Twentieth Century and Beyond* (Cambridge: Polity Press 2012), 404–406.

18 Lawrence Scheinman, "Security and the International System: The Case of Nuclear Energy," *International Organization* 25, no. 3 (summer 1971): 626–649.

19 A key early work is that by Joseph S. Nye, Jr. and Robert O. Keohane, "Transnational Relations and World Politics: An Introduction," *International Organization* 25, no. 3 (1971): 329–349. A more recent key contribution has been: Akira Iriye, *Global community: The Role of International Organizations in the Making of the Contemporary World* (Berkeley,

scholarship on international policy making within the arms control realm in which Pugwash has sometimes featured. For example, in 1992, in his analysis of "transnational epistemic communities" – drawing on the new concept of the "epistemic community" being advanced by Peter Haas at this time – Emmanuel Adler described Pugwash as a kind of "switchboard" through which connections were "established and maintained."[20] The switchboard concept acknowledged that Pugwash was more than a communication channel, hinting at its wider role as a broker between Cold War adversaries – and between allies.

Transnational history brought forth perspectives that moved away from a focus on state actors. This emerges clearly within Matthew Evangelista's influential book, *Unarmed Forces*, published in 1999, which highlights the transnational character of Pugwash focusing on the Soviet case.[21] Evangelista explores and explains how Pugwash and also the International Physicians for the Prevention of Nuclear War (IPPNW) created opportunities for exerting influence on authoritarian communist political leaders.[22] Evangelista posed intriguing questions about its work and role(s), yet twenty years later, his landmark study remains the only in-depth, country-based book-length analysis of Pugwash. That said, a small number of articles have examined Pugwash in particular national settings, especially in West Germany, although these tend to focus primarily on questions and themes relating to the distinctive history

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CA: University of California Press, 2004). For an outline account of the growth of transnational history, see: Simone Turchetti, Néstor Herran and Soraya Boudia, "Introduction. Have We Ever Been Transnational? Towards a History of Science Across and Beyond Borders," *British Journal for the History of Science* 45, no. 3 (2012): 319–336. Turchetti and his colleagues also called for historians of science to take up the transnational perspective more strongly and there is a burgeoning literature within the history of science adopting this approach. Eg: Jeroen van Dongen, ed. with Friso Hoeneveld and Abel Streefland (associate eds.), *Cold War Science and the Transatlantic Circulation of Knowledge* (Leiden: Brill, 2015). Naomi Oreskes and John Krige eds. *Science in the Global Cold War* (Cambridge, MA: MIT Press, 2014).

20 Emmanuel Adler, "The Emergence of Cooperation: National Epistemic Communities and the International Evolution of the Idea of Nuclear Arms Control," *International Organization* 46, no. 1 (Winter 1992): 101–145. Adler acknowledges that in using the 'switchboard' metaphor, he is drawing on earlier work by Ruggie in 1978. Peter M. Haas, "Introduction: Epistemic Communities and International Policy Coordination," *International Organization* 46, no. 1 (Winter 1992): 1–35.

21 Matthew Evangelista, *Unarmed Forces. The Transnational Movement to End the Cold War* (Ithaca, New York: Cornell University Press, 1999).

22 For recent work on the IPPNW see: Claudia Kemper, *Medizin gegen den Kalten Krieg. Ärzte in der anti-Atomaren Friedensbewegung der 1980er Jahre* (Göttingen: Wallstein Verlag, 2016).

of this country in the twentieth century and how this shaped the relationship between science, scientists and the state.[23] A number of studies examine the work of Pugwash in relation to particular arms control treaties, most notably Bernd Kubbig's 1996 analysis of its role in the Anti-Ballistic Missile Treaty, and more recently, Paul Rubinson's study of the Limited Test Ban Treaty (LTBT).[24] For Kubbig, Pugwash scientists were "icebreakers" and the conferences "places for the exchange of scientific knowledge and information."[25] In 2006, Kai-Henrik Barth lauded the PCSWA as "the most important transnational effort of scientists in the Khrushchev/Brezhnev era" and its conferences as "an influential and open communication forum, especially during times of tension between the superpowers."[26] Barth emphasized too its importance as a site for the "generation of new ideas that have shaped foreign policy decisions," especially in the context of the 1963 LTBT and the 1968 Non-Proliferation Treaty (NPT). Whilst scholarship has established and reinforced a narrative of Pugwash as an important actor within the Cold War nuclear nexus and established its transnational significance, we nevertheless have only partial understanding of its transnational character and activities, know even less about its internal dynamics and development, and lack detailed accounts of its work around the world and during different phases of the Cold War.

The editors of this volume have taken up the challenge of gaining closer understanding of the history – or rather the histories – of the Pugwash organization and its conferences. This began in 2012 with a workshop at the University of Vienna, selected papers from which formed the basis for a recent Special Issue of the *Journal of Cold War Studies* organized around national case studies.[27] Taking our cue from this work and that of Matthew Evangelista, the

23 Götz Neuneck and Michael Schaaf, eds. *Zur Geschichte der Pugwash-Bewegung in Deutschland. Symposium der deutschen Pugwash-Gruppe im Harnack-Haus Berlin, 24. Februar 2006*, Max Planck Institute for the History of Science, Preprint 332, Berlin 2007. Carola Sachse, "Die Max-Planck-Gesellschaft und die Pugwash Conferences on Science and World Affairs (1955–1984)," Max Planck Institute for the History of Science, Preprint 479, Berlin 2016; "The Max Planck Society and Pugwash during the Cold War: An Uneasy Relationship," *JCWS* 20, no. 1 (2018): 170–209.

24 Paul Rubinson, "'Crucified on a Cross of Atoms'. Scientists, Politics and the Test Ban Treaty," *Diplomatic History* 35, no. 2 (April 2011): 283–319.

25 Bernd W. Kubbig, *Communicators in the Cold War: The Pugwash Conferences, The U.S.-Soviet Study Group and the ABM Treaty. Natural Scientists as Political Actors: Historical Successes and Lessons for the Future*, PRIF Reports No. 44 (Frankfurt am Main: PRIF, October 1996).

26 Kai-Henrik Barth, "Catalysts of Change: Scientists as Transnational Arms Control Advocates in the 1980s," *Osiris* 21, no. 1 (2006): 182–206.

27 Kraft, Nehring and Sachse, "Pugwash Conferences."

present volume also adopts a national 'case study' approach. On the one hand, this reflects the central place of the national groups in the Pugwash organization, and the practical implications flowing from this: relevant archival materials are typically organized along national lines. On the other hand, as the chapters in this volume make clear, the transnational character and capacities of Pugwash, and its conferences, were powerfully shaped by the 'national.'[28] In addition, national case studies can lay the ground for comparative analyses which, in illuminating differences, similarities and patterns, can enrich our understanding of Pugwash and also identify questions that can be a spur to and guide future research.

The essays in this volume examine Pugwash in Austria (Silke Fengler), China (Gordon Barrett), Czechoslovakia (Doubravka Olšáková), East and West Germany (Alison Kraft), the USA (Paul Rubinson and Carola Sachse), and the USSR (Fabian Lüscher). The chapter by Geoffrey Roberts analyzes the political context in which the Russell-Einstein Manifesto was forged and the key role of the French physicist and communist Frédéric Joliot-Curie in its conception and formulation, working together with the staunchly anti-communist philosopher, mathematician and Nobel laureate, Bertrand Russell. Drawing on hitherto untapped archival sources, this new work highlights aspects of the development and the distinctive character of Pugwash in each national setting, and affords fresh insights into how its scientists were able to operate transnationally, including across the blocs. In turn, this illuminates how the organization and its conferences was able to serve as a forum for the kinds of conversations and exchanges that came in this period to be called 'soft' or Track II diplomacy.[29] Overall, this collection contributes new understanding of how the PCSWA developed a reputation as a credible actor within the landscape of nuclear diplomacy in the Cold War world.

In introducing our work in the present volume we would like to make two clarifications. First, we highlight the problem of talking about "Pugwash." This was an organization that encompassed simultaneously a set of confer-

28 The meaning of 'transnational' varies and remains contested. See: Thomas Risse-Kappen, "Bringing Transnational Relations Back In: Non-state Actors, Domestic Structures, and International Institutions," in *Bringing Transnational Relations Back In*, ed. Thomas Risse-Kappen (Cambridge: Cambridge University Press, 1995). On the contested meaning of "transnational" see, for example: Patricia Clavin, "Defining Transnationalism," *Central European History* 14, no. 4 (2005): 421–439. Akira Iriye and Pierre-Yves Saunier, eds. *Palgrave Dictionary of Transnational History* (London: Palgrave Macmillan, 2016).

29 Peter L. Jones, *Track II Diplomacy in Theory and Practice* (Stanford, CA: Stanford University Press, 2015).

ences and a collection of national groups that comprised, indeed relied fundamentally upon, individual scientists: these elements, together with a steadfast adherence to informal modes of working, combined to create an unusual network-like structure that was simultaneously international and national. However, and as we discuss below, for all its claims to informality, there existed within the Pugwash organization a hierarchy, with decision making largely concentrated in the hands of what was called the Continuing Committee which, from the outset, functioned as the *de facto* leadership. The activities of individual scientists was an important element in its work, likewise the national Pugwash Groups (sometimes called Committees, especially in the Eastern bloc) and later various Study Groups. It is therefore important to guard against conceiving and talking about Pugwash in terms only of the conferences and/or as a unitary entity, which it was not – although it could speak and act collectively. Meanwhile, its informal *modus operandi* meant that it was not possible to be a 'member' of Pugwash in any formalized sense. The term Pugwashite was coined partly in response to this: becoming a "Pugwashite" was a matter of having attended at least one conference – although an invitation one year was no guarantee of receiving invitations in the future. Although during the 1950s and 1960s, those involved in Pugwash sometimes described it as a 'movement,' it cannot be considered as such in the sense developed within 'social movement' scholarship.[30] Pugwash was avowedly elitist, grounded in claims to technical and scientific expertise, and with a mode of working that was premised on and prioritized elite-to-elite conversations and connections. In light of these conceptual and linguistic difficulties, when referring to Pugwash as a collective enterprise we use the terms organization, network and project interchangeably and when talking about individuals we use the terms Pugwashites and/or scientists.

Second, most of the work in this volume focuses on the decade 1955 to 1965, a period which in the wider geopolitical context stretched from the post-Stalin 'thaw' to the onset of superpower and European détente. The question as to when efforts to reduce tensions – détente – began to have discernible effects in terms, for example, of dialogue and policy-making, is a question of interpretation. The onset/dynamics of détente differed between countries, and the distinction between superpower and European détente is an important one. For Arne Westad, attempts at stabilizing the Cold War through a lasting détente

30 See the chapters in this volume by Fabian Lüscher and Doubravka Olšáková regarding the meaning and uses of the term "movement" in relation to Pugwash in the context of the Eastern bloc.

began in Europe in the early 1960s.[31] Others date the beginning of détente to the late 1960s and specifically link it with Willy Brandt's *Ostpolitik*, the seeds of which were sown earlier in that decade. For Jussi Hanhimäki, the relaxation of East–West tensions in Europe was the result of a European challenge to the excesses of bipolarity – a response to being pawns on the superpower chessboard of global geopolitics.[32] That European détente was already gaining momentum by the middle of the 1960s was apparent, for example, in de Gaulle's calls in 1966 for "détente, entente and cooperation" and in Brandt's emphasis in the 1965 election campaign in the Federal Republic on bridge-building with Eastern Europe, ideas which had been mooted since the early 1960s. Whether or not the LTBT was a "missed opportunity" for détente, the ensuing five years of negotiations leading up to the NPT of July 1968, suggests strongly that détente was in the air.[33] Certainly, both treaties have been regarded as defining moments on the path towards superpower and European détente. In a sense, different interpretations in the literature about détente reflect the complicated and shifting periodization of the Cold War, brought increasingly to light by a historiographical shift that has emphasized the shifting temporalities and global dynamics of the conflict.[34] The relationship between détente – however defined – and Pugwash undoubtedly poses intriguing questions. For example, whilst Pugwash welcomed arms control treaties such as the LTBT and the NPT, the extent to which it was impacted – and perhaps weakened – by them remains unclear. Research into this potential paradox, and the response of Pugwash to the changing dynamics of the nuclear threat, during periods of détente but also in intervening periods of volatility and crisis, constitute a priority for future research. The present volume makes clear that Pugwash was attuned to and powerfully shaped by the changing contours of the Cold War.

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31 Odd Arne Westad, *The Cold War. A World History* (London: Penguin, 2017), 382.

32 Jussi M. Hanhimäki, "Détente in Europe, 1962–1975," in *Cambridge History*, Leffler and Westad, Volume II, 198–218.

33 Vojtech Mastny, "The 1963 Test Ban Treaty: A Missed Opportunity for Détente?" *JCWS* 10, no. 1 (Winter 2008): 3–25.

34 See, for example: Matthew Connelly, "Taking Off the Cold War Lens: Visions of North-South Conflict During the Algerian War for Independence," *The American Historical Review* 105, no. 3 (June 2000): 739–769. Michael Geyer and Charles Bright, "World History in a Global Age," *The American Historical Review* 100, no. 4 (October 1995): 1034–1060. Robert J. McMahon, ed. *The Cold War in the Third World* (Oxford: Oxford University Press, 2013). Jadwiga E. Pieper-Mooney and Fabio Lanza, eds. *De-Centering Cold War History: Local and Global Change* (London and New York: Routledge, 2013). Tony Smith, "New Bottles for New Wine: A Pericentric Framework for the Study of the Cold War," *Diplomatic History* 24, no. 4 (Fall 2000): 567–591. Odd Arne Westad, *The Global Cold War. Third World Interventions and the Making of Our Times* (Cambridge: Cambridge University Press, 2007).

In the remainder of this introduction we set out an historical and historiographical context for Pugwash, and provide an analytical and conceptual framework in which to situate this new body of work. Organized into three parts, this begins with an examination of the Pugwash 'vision' and its narrative about the special attributes of the scientist which was important in enabling them to develop and to play a special role in confronting the dangers posed by nuclear weapons in the context of a deepening Cold War. The second part then considers the development of Pugwash in practice, organizationally and in terms of its mode(s) of working. Here, we highlight the way in which trust between scientists was a vital resource for the Pugwash project. The third part discusses the transnational character of Pugwash and its emerging role as a 'back channel' for political dialogue, fashioning an alternative mode of cross bloc diplomacy. Along the way, we identify some of the factors that helped or hindered its scientists as they sought to work across the Cold War divides. Notwithstanding the contested meaning of transnational, borrowing from Andrew Tompkins, we see Pugwash scientists in this period as in the vanguard of thinking, acting and being transnational – a mindset and attitude crucial for the emerging role of Pugwash as a forum for Track II diplomacy.[35] We conclude with some reflections on the challenges involved in writing Pugwash histories, including the thorny question of its influence within government circles and in the policy-making process, and identify some areas for future research.

1 The Pugwash Vision: Science as a Means to Transcend the East–West Divide

For some physicists, the use of the atomic bomb against Japan in 1945 and the ensuing arms race engendered an especially strong dilemma of conscience that became bound up with ideas about scientists having a particular and fundamental responsibility to wider society.[36] This provided the context for the

35 Andrew Tompkins, "Grass Roots Transnationalism(s): Franco-German Opposition to Nuclear Energy in the 1970s," *Central European History* 25, no. 1 (2016): 117–142.

36 Greta Jones, "British Scientists, Lysenko and the Cold War," *Economy and Society* 8, no. 1 (1979): 26–58; "The Mushroom-Shaped Cloud: British Scientists' Opposition to Nuclear Weapons Policy, 1945–1957," *Annals of Science* 43, no. 1 (1986): 1–26. Laucht, *Elemental Germans*. On 'concerned' scientists in the US, see: Alice Kimball Smith, *A Peril and a Hope. The Scientists' Movement in America* (Cambridge, MA: MIT Press, 1965). Martin Kuznick, "The Birth of Scientific Activism," *Bulletin of the Atomic Scientists* (*BAS*) 44 (1988): 39–43. Donald A. Strickland, *Scientists in Politics: the Atomic Scientists' Movement, 1945–1946*

formation by scientists, in the mid-late 1940s, in the west, of a raft of new organizations, typically national in character, which sought to protest the development of nuclear weapons and the arms race, most prominently, the Federation of Atomic Sciences (FAS) in the US and the British Atomic Scientists Association (ASA). International initiatives also sprang up, notably, the formation in 1946 of the World Federation of Scientific Workers (WFSW) – the significance of which for the Russell-Einstein Manifesto is analyzed in this volume by Geoffrey Roberts.[37] The hydrogen bomb, a weapon first tested by the Americans in 1952, marked a sea change in the scale of nuclear destruction: growing recognition of its dangers across the winter of 1954 and spring of 1955 sparked a new wave of opposition amongst those scientists long dissenting from the Cold War orthodoxy and the arms race.[38] In 1956, US biophysicist Eugene Rabinowitch, soon to become a leading figure in Pugwash, captured the concerns of like-minded colleagues when he warned that science was in danger of becoming "the gravedigger of mankind."[39] Some of those who played a leading role in creating Pugwash had a track record in challenging government policy regarding nuclear weapons through initiatives such as the FAS and the British ASA. For example, Eric H.S. Burhop, Cecil F. Powell, and Joseph Rotblat were all veterans of the British ASA. The Pugwash project differed in important respects from earlier scientist-led initiatives, most obviously in being centered around conferences, but also in its avowedly selective and elitist character. Premised on fostering contact and links between scientific and political/policy-making elites, within and across the bloc divide, its primary strategy centered on gaining access to government circles. With this vision, the founders of Pugwash were taking the idea of scientists' social responsibility in new directions.

(Lafayette, IN: Purdue University Studies, 1968). More recently: Kelly Moore, *Disrupting Science: Social Movements, US Scientists and the Politics of the Military, 1945–1975* (Princeton, NJ: Princeton University Press, 2008). Sarah Bridger, *Scientists at War. The Ethics of Cold War Weapons Research* (Cambridge, MA: Harvard University Press, 2016). Paul Rubinson, *Redefining Science: Scientists, the National Security State and Nuclear Weapons in Cold War America* (Amherst/Boston: University of Massachusetts Press, 2016). Audra J. Wolfe, *Freedom's Laboratory. The Cold War Struggle for the Soul of Science* (Baltimore, MD: Johns Hopkins University Press, 2018).

37 For a recent perspective on the WFSW from the point of view of the British security services, see: Styles, "The WFSW."

38 The *Castle Bravo* hydrogen bomb test in March 1954 has generally been taken as marking a turning point for opposition to thermonuclear weapons and the arms race generally. On the Bravo accident, see for example, the contributions in Toshihiro Higuchi and Masakatsu Yamazaki eds. Special Issue of *Historia Scientiarum* 25, no. 1 (2015); Kraft, "Dissenting."

39 Eugene Rabinowitch, "The Role of the Scientist in Society," 1956. RTBT 114.

What made the Pugwash project conceivable and possible, in practice, were, firstly, claims that scientists – and especially physicists – had techno-scientific expertise relevant to the disarmament conversation. Secondly, and we would argue, equally important were ideas about the special status of science as a field of enquiry and about the distinctive attributes of the scientist supposedly derived from the training, methods and intellectual culture particular to the profession.[40] For the Pugwash leadership, these ideas became valuable resources for mobilizing scientists and building the organization. To this end, these ideas featured prominently in their own narratives about what Pugwash was and their visions of its work and aims.[41] For the founding cohort of Pugwash, including Powell, Rabinowitch and Rotblat, the significance of their identity as scientists was central to the project they were embarked upon. But their narrative also rested on a broadening interpretation of what it meant to be a scientist; for them, this included an awareness of the mutually reciprocal relationship between science and society, which underpinned a keenly felt sense of social responsibility and a commitment to putting this into practice.[42]

This was clear at the third Pugwash conference held in Kitzbühel/Vienna in Austria in 1958 (the first held outside North America) when the leadership set out in detail its ideas for overcoming political antagonisms in a six-page statement known as the Vienna Declaration.[43] This set out the principal spheres of action of Pugwash which encompassed (1) the necessity to end wars, (2) requirements for ending the arms race, (3) what world war would mean, (4) the hazards of bomb tests, before turning to specific considerations of the relevance of science and the scientist to these issues in the final three sections, entitled: (5) science and international cooperation; (6) technology in the service of peace; and (7) the responsibilities of scientists. The Declaration set out the vision of Pugwash and delineated its agenda. It reveals much about how in 1958 senior Pugwash scientists conceived the Cold War confrontation, how they perceived the contributions that they could make to reducing East–

40 These notions resonate with the idealized 'norms' of science proposed by Robert Merton.

41 Eugene Rabinowitch, "About Pugwash," *BAS* 21, 4 (April 1965): 9–15.

42 Rabinowitch was chief editor of the *BAS* throughout this period, and Pugwash activities featured regularly in its pages. On Rabinowitch, see: Patrick D. Slaney, "Eugene Rabinowitch, the *BAS*, and the Nature of Scientific Internationalism in the Early Cold War," *Historical Studies in the Natural Sciences* 42, no. 2 (2012): 114–142.

43 Rabinowitch and Rotblat were closely involved in formulating the Declaration, which was the outcome of a painstaking process involving several drafts. The Vienna Declaration was widely published, for example, in the *BAS* (November 1958): 341–344.

West tensions, and their understanding of the close, entangled relationship between science, politics and wider society.

The Pugwash vision drew centrally upon the internationalist tradition of science and notions of a global scientific community. Writing in 1965, Rabinowitch proposed that scientists had:

> a large common background of knowledge, beliefs, and attitudes – not to speak of mutual acquaintance, appreciation and respect. They do form a vague but real worldwide community [...].[44]

The Pugwash leadership sought to channel and harness this kind of sentiment. For example, we would highlight in particular two claims advanced within the Pugwash narrative: that scientists shared a common language of science, and that, as scientists, they were able to suspend, at least temporarily, for the sake of discussion, national and political allegiances. The leadership was not naïve: they knew these claims for the most part to be unattainable ideals within the constraints of the bloc system.[45] But they saw in them a potentially powerful resource for mobilizing scientists, for asserting a (mostly fraternal) relationship, a rationale for coming together, and a starting point for building trust between them, all of which would be important in terms of creating a sense of community across national loyalties and the bloc divide. In effect, these claims functioned as myths that were indispensable to the Pugwash project.

The Pugwash leadership emphasized that the shared 'common language of science' was rooted in the education and training of scientists. The natural sciences employed particular methods that were understood to function within a framework of conventions or "norms." The standards and principles of the scientific method, associated closely with rationality, impartiality, objectivity, imbued the scientist with a special capacity for weighing evidence and balanced reasoning. Here was the basis for a 'shared language' that could reach across and transcend national loyalties and political differences. In ways not yet fully understood, this was bound up with notions of mutual understanding and respect, and about the existence of a scientific community: as a Pugwash brochure of 1960 put it, science was a "collective way of life perhaps more

44 Rabinowitch, "About Pugwash," 15.

45 This did not preclude the reality that at some moments some scientists perhaps felt there to be some substance to these claims. That some scientists conceived an international community is apparent in Rabinowitch's 1965 article.

than any other intellectual pursuit."[46] A second Pugwash claim emphasized that scientists as scientists were able to suspend national, political and ideological allegiances – at least temporarily – and that this afforded a means to transcend the ideological and political divides. This kind of thinking was apparent in Rotblat's assertion that scientists came to conferences as individuals, independent of the nation state, "representing nobody but ourselves."[47] This attitude of mind resonated with an idealized view of the scientist that undoubtedly appealed to the self-perception of some within the profession, especially perhaps those who were both senior and successful.

The myths perhaps helped to create for Pugwash scientists a sense of autonomy and of agency amid the constraints otherwise operating forcefully upon them within the Cold War nation state. Their identity as scientists was paramount to both their self-perception and their conception of Pugwash: this helped to engender amongst them a sense of mutual respect, and a set of values about behaving honorably and with integrity. That is to say they were bound together by a shared understanding of what it meant to be a scientist. Together, in and through Pugwash, they would – so the rhetoric went – create a new kind of space in which it was possible to analyze and discuss sensitive problems relating to arms control, for example, that of verification, objectively and rationally, using the scientific method, and setting aside political and national differences.

Some sense of how these kinds of ideas were integrated into the Pugwash vision is apparent in the fifth section of the Vienna Declaration, given to the theme of "Science and international cooperation," which asserted the existence of a distinctive bond between scientists, whilst emphasizing too their special position of responsibility in society:

> We believe that, as scientists, we have an important contribution to make toward establishing trust and cooperation amongst nations. Science is, by long tradition, an international undertaking. Scientists with different national allegiances easily find a common basis of understanding; [...] despite differences in philosophical, economic or political views. The rapidly growing importance of science on the affairs of mankind increases the importance of the community of understanding. [...] This

46 For an example of this kind of thinking, see: George B. Kistiakowski, "Science and Foreign Affairs," *BAS* 16 (1960): 114–116. *Pugwash: Its History and Aims* (London, 1960). Pugwash brochure, copy held in: Bestand 456 (Vereinigung Deutscher Wissenschaftler), File 492, Bundesarchiv, Koblenz.

47 Joseph Rotblat, "Report of Secretary General," London, 1962, 3. RTBT 5/2/1/10 (3), Rotblat, *A History*, 141.

> understanding is an excellent instrument for bridging the gap between nations and for uniting them around common aims.[48]

Of course, the reality was somewhat different. Around the Pugwash table, national allegiances and ideological affinities proved impossible to relinquish; posturing along national and bloc lines was a constant feature of its meetings – especially at moments of Cold War crisis. Indeed, perhaps, that was the point. Pugwash could only realize its aim of reducing international tensions exactly by confronting the hostilities that underpinned and drove the arms race. Here, we see the myths coming centrally into play. In encouraging scientists to look to each other across the bloc divide, they helped to foster a sense of community and of loyalty to something other than the nation state – even if this was contingent, ephemeral and unstable. This perhaps helped to maintain levels of goodwill between scientists that could keep alive their commitment to the Pugwash project during periods of rancor and hostility.[49] That is to say, the myths not only helped to bring scientists to Pugwash – they helped also to keep them there. In reality, Pugwash was always both a bridge and a battleground between east and west. In practice, its scientists never could escape the divides they sought to transcend. But the claim that they could was simultaneously a rationale for taking action, a means to create a shared sense of purpose and collective identity, and a key component of the vision on which the Pugwash project was built.

At the same time, the myths resonated beyond Pugwash, informing external perceptions of it. For state actors, politicians and policy makers, and the wider public, the Pugwash rhetoric about suspending allegiances and a shared language of science conformed with lay perceptions of science as a special domain of knowledge, and of scientists as rational, objective and trustworthy actors, and about the authority and power of both. That is to say, idealized models of the scientific enterprise and of the ethically attuned scientist were key elements in the strategy for presenting Pugwash externally, especially to state actors, but also amongst fellow scientists and with the public.

All of this was important in helping to create a framework for the trust-building process within Pugwash. The papers in this volume by Barrett, Kraft

48 The Vienna Declaration, *BAS* (November 1958): 341–344.

49 Testimony to such dynamics include Joseph Rotblat's later recollections of some conferences – often those held at times of Cold War crisis, such as at the Baden conference in 1959, and at the eighth meeting held in Stowe, Vermont, USA, in September 1961, when the recent resumption of weapons testing by the Soviets "cast a deep shadow over the gathering." Rotblat, *A History*, 23, 31.

and Lüscher illuminate in different ways how scientists felt able to reach out to each other to try to build bridges across the divides of the Cold War world. These instances of trust 'in action,' so to speak, manifest the culture of discretion and confidentiality that developed within Pugwash and which served to distinguish it from other organizations concerned with arms control/conflict moderation that by the early 1960s were springing up around it. Trust was a vital resource that made the East–West character of Pugwash possible and sustainable, and enabled it to accommodate the difficulties inherent in its cross-bloc character. This human element made both its unconventional network-like infrastructure and its distinctive informal *modus operandi* conceivable and practicable.

2 Building Pugwash: Leadership, Infrastructure, *Modus Operandi*

The project envisaged by the founding cohort of Pugwash scientists was ambitious and bold. They were moving in new territory and had constantly to innovate and improvise, calling on the resources – intellectual, political, cultural – available to them as elite scientists. In a process that was, paradoxically, at once both pragmatic and strategic, they created a unique network-like structure and informal modes of working.

A decisive first step was the creation in December 1957 of a five-member Continuing Committee (or Committee) that, in addition to Russell, included Powell, Rotblat, Rabinowitch, and the Soviet physicist Dmitrii Skobel'tsyn.[50] This set a pattern for the first five years whereby the Committee was dominated by scientists, especially physicists, from the US, Soviet Union and the UK, that is to say, the nuclear powers. Meeting for the first time in December 1957, and thereafter two or three times a year, the Continuing Committee assumed responsibility for guiding the early development of Pugwash, directing and coordinating its activities, formulating practices and protocols – including the Vienna Declaration, deciding upon the venue and, importantly, the invitation list and the program for the conferences.[51]

Wherever we look in this early period, we see the controlling influence of the Continuing Committee. Power and decision-making came rapidly to be concentrated in its hands – and, significantly, also in the office of the Secretary General, a post first held by Rotblat between 1959 and 1973. Membership

50 Rotblat, *Quest*, 88–90.

51 Joseph Rotblat, "Memo on Future Activities and Organization," c. 1962. RTBT 5/3/1/2.

of the Committee was placed on a rotating basis, and beginning in 1962, it included scientists from eastern and western Europe, and India.[52] In 1967, it was renamed the Executive Committee, by which time its membership had been increased to twelve. Those serving on it in the early 1960s included the Americans Bentley Glass and Harrison Brown, the Soviet physicist Aleksandr Topchiev, and the British/German émigré Rudolf Peierls, together with some of the early/leading members of the European national groups, notably Leopold Infeld (Poland), Ivan Málek (Czechoslovakia), Herbert Markovich (France) and Edoardo Amaldi (Italy).[53] Currently our understanding of relations within this Committee remains limited: the minutes of its meetings are typically cursory, comprising a list of agenda points, and perhaps a brief statement of actions in relation to them. That said, archival sources make clear that the Committee was a closely-knit circle with its own circuitry of communication – letters, phone calls, postcards, quiet words at scientific meetings, on planes and trains – passing messages to each other, soliciting views on prospective Pugwashites, and discussing plans for conferences.[54] As time went by, these exchanges routinely encompassed discussion of political developments and problems of the day. In effect, the Committee stood at the apex of the Pugwash hierarchy; it constituted an 'inner circle,' a kind of transnational fraternity – women were few and far between during the 1950s and 1960s – in which successive Secretary Generals, Joseph Rotblat, Bernard T. Feld and Martin Kaplan, wielded particular power.[55] That said, as Alison Kraft's chapter shows, the Committee was not the only axis of power within Pugwash. In 1959, Europeans formed their own hub, the European Pugwash Group which, although lacking executive powers, began from around 1962 onwards to formulate its own priorities and to press issues of concern to them onto the Pugwash agenda.

52 In 1958, membership of the Continuing Committee was increased to nine, comprising three scientists each from the UK, US and USSR. In 1962, the composition was changed: henceforth, the UK, US and USSR now had two members, with one member each from Eastern Europe, Western Europe and from either India or Japan. RTBT 5/3/1/12 (1). The first Indian member of the Committee was Vikram Sarabhai, who served on it from 1962 until his sudden death in 1971.

53 For a genealogy of membership of the Committee until 1971, see: Rotblat, *Quest*, 88–89. On Amaldi and Pugwash in Italy, see: Lodovica Clavarino, *Scienza e politica nell'era nucleare. La scelta pacifista di Edoardo Amaldi* (Rome: Carocci, 2014).

54 For example, testimony to this can be found in the collection of Sir Joseph Rotblat, (RTBT).

55 In 1973 Bernard T. Feld succeeded Rotblat as Secretary General and was, in turn, succeeded in 1976 by Martin Kaplan. The Secretary General automatically held a seat on the Continuing Committee.

Scientists from east and west were very differently situated in relation to political power within the nation state: the Committee carried this asymmetry within it and was profoundly shaped by it. Western members, for example, Rotblat and Rabinowitch, were political outsiders in the UK and US respectively and, as Paul Rubinson shows for the US case, were viewed with suspicion within government.[56] As such, they faced challenges in building relations within government circles, often relying for this on colleagues who, by virtue of their careers, had become closer to/part of the political establishment.[57] In striking contrast, Soviet members of the Continuing Committee, for example, Academicians Aleksandr Topchiev and Dmitrii Skobel'tsyn, were a part of the Soviet scientific and political elite and had direct links to the Kremlin – explored further in the chapters by Fabian Lüscher and Geoffrey Roberts.

The cross-bloc character of the Continuing Committee provided a vital first test of the Pugwash vision of itself as an East–West forum. The test was seemingly passed. The Committee proved able to accommodate or reconcile the differences embedded within it: these scientists were attuned to each other's position 'domestically,' including their relation to political power, and of the ways in which this actively shaped the encounters between them. Indeed, these American, British and Soviet scientists got to know each other well, and sometimes even formed friendships across national borders and the blocs, for example, that between Rotblat and Rabinowitch, both of whom were close to Topchiev. These relationships in a sense constituted a valuable resource that could, potentially, help in times of heightened tensions, within international relations and within the Pugwash network. The Committee was where the vision of the Pugwash project as a cross bloc initiative was initially realized and where the groundwork for its transnational character was laid.

The forging of personal ties and the trust-building process were facilitated by the similarities pertaining between the founding cohort of Pugwash scientists – those on the Committee, but also leading figures in the national groups in East and West. Many were roughly the same age, engendering perhaps a shared a sense of generational belonging: many had forged their careers –

56 Rotblat and Rabinowitch worked in the rapidly expanding research fields of radiation biology and biophysics respectively – branches of physics far removed from military applications. On Rabinowitch, see: Slaney, "Eugene." On Rotblat, see: Brown, *Keeper;* Kraft, "Dissenting."

57 For insights into the US case, see: Rubinson, "Crucified." Jessica Wang, "Scientists and the Problem of the Public in Cold War America, 1945–1960," *Osiris* 17 (2002): 323–347; *Science in an Age of Anxiety: Scientists, Anticommunism, and the Cold War* (Chapel Hill, NC: University of North Carolina Press, 1999). On the British case, see: Wittner, *Resisting*; Kraft, "Dissenting."

predominantly in physics – during the 1930s, indeed, some knew each other during the interwar period; all had experienced and survived the Second World War, and were witnesses to the changing world that followed in its wake. All were middle-class, cosmopolitan, and routinely moved in elite social and scientific circles. As senior scientists they were also accustomed to the cut and thrust of institutional and professional politics within science; they were also used to having authority and deploying it strategically to realize particular goals. Seemingly sharing a way of reading the Cold War world, they were adept at moving within it as they each navigated the widely differing political conditions in which they lived and worked within the nation state. This like-mindedness perhaps helped to create a sense of familiarity amongst scientists conducive to the building of trust between them.[58] Theories about trust in international relations scholarship acknowledge the importance of familiarity to the trust-building process, a point convincingly argued by Susan Schattenberg in her analysis of the dynamics between Brezhnev and the Politburo.[59] The early narratives about "scientific community" and about the shared and special attributes of the profession likewise helped to foster a sense of familiarity amongst Pugwashites. Padraic Kenney's conception of the "short distance" pertaining between people who share common interests and skills is perhaps also useful in theorizing familiarity and trust-building within Pugwash.[60] A range of elements came together to enable the scientists of Pugwash to develop in its first few years a distinctive kind of transnational capacity for acting across the blocs.

In overseeing the careful expansion of Pugwash activities, the Continuing Committee put in place an innovative network-like organizational structure. In 1958, its call for the creation of national 'sponsoring bodies' was seen as one means by which to gain a foothold around the world. This met with a positive response: by 1962 ten national Pugwash groups existed and by 1972 there were over thirty, each having a dual aspect, being active within the national setting

58 On concepts of trust within international relations see: Jan Ruzicka and Vincent C. Keating, "Going Global: Trust Research and International Relations," *Journal of Trust Research* 5, no. 1 (2015): 8–26. On trust more broadly within society, see: Barbara Misztal, *Trust in Modern Societies. The Search for the Bases of Social Order* (Oxford: Blackwell/Polity Press, 1996).

59 Susanne Schattenberg, "Trust, Care and Familiarity in the Politburo: Brezhnev's Scenario of Power," *Kritika* 16, no. 4 (Fall, 2015): 835–858.

60 Padraic Kenney, "Electromagnetic Forces and Radio Waves or Does Transnational History Actually Happen?" in *Entangled Protest: Dissent and the Transnational History of the 1970s and 1980s*, ed. Robert Brier (Osnabrück: Fiber Verlag, 2015).

as well as on the international stage, at the conferences. Each group had its own character and all enjoyed a degree of autonomy – albeit within bounds: national groups were required to file annual reports to the Committee which made clear that their independence was contingent on their acting in ways that were "consistent with the chief criteria of Pugwash."[61] Each group had also to send annually an agreed sum of money to the Committee as a financial contribution to the Pugwash project.

From the outset, the Committee placed great emphasis on the need for confidentiality, which it saw as essential to establishing and sustaining an informal *modus operandi*. (From time to time, it considered the question as to whether to place Pugwash on a more formal basis, such as registering it as a Non-Governmental Organization (NGO), but was consistently rejected).[62] The Committee also advanced notions about a Pugwash 'ethos' or 'spirit' which emphasized 'scientific integrity,' mutual respect and tolerance of opposing viewpoints.[63] Confidentiality was simultaneously a cherished principle, a routine practice and a strategy for realizing the Pugwash vision.[64] Of course, trust and mistrust were simultaneously operating within Pugwash and at its conferences – it could hardly be otherwise – but this did not preclude these scientists from attempting to find ways of building trust. These elements combined to function internally as an informal but nevertheless stringent code of conduct and disciplining technique amongst the 'foot soldiers' of Pugwash.[65] Moreover, as Carola Sachse's chapter shows for the case of Cyrus Eaton, the Committee devised ways and means of distancing itself from those deemed to be contravening internal codes of behavior.[66] The much-vaunted informal character of Pugwash was, in fact, the outcome of a carefully engineered process

61 Rotblat, "Memo on Future," c. 1962.

62 Powerful voices within Pugwash argued that NGO status would erode its cherished independence, interfere with its informal ways of working and impede its ability to respond both quickly and as it saw fit to political events and/or moments of Cold War crisis. It was not until 1991 that the organization registered with the UN as an International NGO. See: Elisabeth Röhrlich, "An Attitude of Caution: The IAEA, the UN, and the 1958 Conference in Austria," *JCWS* 20, no. 1 (2018): 31–57.

63 Martin M. Kaplan, "Report of Secretary General," Mühlhausen, 1976. RTBT 5/2/1/26.

64 Of course, in their dealings with policy-makers and government figures within the nation state, Pugwash scientists moved in circles where confidentiality and truth operated very differently.

65 Julian P. Perry Robinson, "The Impact of Pugwash on Debates over Chemical and Biological Weapons," *Annals of the New York Academy of Sciences* 866, no. 1 (1998): 224–252.

66 In the early 1960s, for different reasons, Bertrand Russell, Linus Pauling and Leo Szilard all came to be perceived as troublesome by the Continuing Committee: strained relationships were accompanied by the lessening involvement of each in Pugwash.

tightly controlled by the leadership, and strikingly apparent in the staging of the annual conferences.

Held annually from 1959 onwards, the conferences were the flagship event in the Pugwash calendar: this was where the handpicked elite of Pugwash scientists came together. These events were carefully choreographed. Planned long in advance and held in good hotels in different cities around the world, in east and west, and in the non-aligned countries, the conferences lasted typically between three and five days: the core program comprised pre-circulated papers by delegates. The format and ambience resembled that of an academic conference: plenary sessions included time for questions and discussion, facilitating the cut and thrust of argument around the table. To encourage open and frank exchanges, the Continuing Committee placed great emphasis on Chatham House rules, that is to say, discussions took place on the basis of non-attribution i.e. with the assurance of anonymity beyond the room. This was seen as essential for realizing the Committee's vision of Pugwash and its conferences as a place for discreet quiet diplomacy away from the spotlight – which could not have worked without the operation of a degree of trust between those involved/present.

The imposition of Chatham House rules was a principal mechanism by which the Committee imbued amongst its scientists a culture that routinized, prioritized and protected the principle of confidentiality. Confidentiality became a habit, a way of working, and a form of self-discipline. This was an important element in creating a culture in which delegates felt at ease, and helped to foster collegiality and the perception of the conferences as a place where politically sensitive conversations could be conducted 'off-the-record.' To this end, the Committee also carefully managed the physical spaces of conference venues, for example, setting aside small private rooms for impromptu meetings on an *ad hoc* basis. A busy social program, including a conference banquet, cocktail parties, barbeques and picnics, as well as cultural activities such as visits to theatres, museums, and classical concerts, and walks in gardens or on beaches, enhanced further the scope for informal conversations.

All of this was an attempt to ameliorate the effects of the Cold War and to create a milieu conducive to a particular style of communication that was informed and informal. In this way, the Pugwash conferences provided for a re-imagining of political communication in the Cold War made possible by situating the East–West encounter in a convivial and informal setting. Unprecedented at the time, this constituted a new kind of transnational, cross bloc scientific diplomacy involving – and made possible by – elite scientists. But the aim was always to move beyond an exclusive focus on conversations between scientists: as noted, the goals of the Pugwash project emphasized

contact with political and policy making elites. Gradually, its gatherings came to provide a context for the kinds of encounters and exchanges that came in this period to be called 'soft' or Track II diplomacy. Decisive in moving in this direction – towards a form of what has been called "science diplomacy" – was a shift wherein state actors, especially in the west, and especially in Washington and London, began to perceive the Pugwash conferences to be relevant to their interests.[67] The Moscow Conference of 1960 was highly significant in this respect.[68] Whilst suspicions of it remained, in the early 1960s Pugwash was being recast as a potential resource by state actors who began to dispatch their representatives to its conferences – typically drawn from amongst the rapidly professionalizing ranks of scientific advisors, policy advisors and/or defense intellectuals.

3 Pugwash: Transnational Actor, Forum for Soft Diplomacy

A key issue for research on the Pugwash Conferences concerns how its scientists were able to establish these events as an important transnational forum accepted/used by governments in West and East as an alternative channel of communication between the Cold War blocs. In exploring this theme, it is important to ask both what it was about the Pugwash initiative that favored its attempts to position itself in this way, and what it was about the wider geopolitical situation and international diplomatic climate of the time that enabled

67 "Science diplomacy" can generally be considered as encompassing miscellaneous initiatives and activities on the part of scientists through which, individually, collectively and/or through institutions, they sought to make political and/or policy relevant contributions and interventions, and which often involved interactions with state actors or their representatives. Its links with 'soft power' and its connections with themes and concepts developed in the historical literature on scientific advisers and organizations such as the PCSWA during the Cold War remain poorly understood. For a sense of the current, different interpretations of this term, and its contemporary uses, see for example: The Royal Society, *New Frontiers in Science Diplomacy: Navigating the Changing Balance of Power* (January 2010). Vaughan C. Turekian and Norman P. Neureiter, "Science and Diplomacy: The Past as Prologue," *Science and Diplomacy* 1, no. 1 (March 2012): 1–5. For a sense of historical scholarship on scientists' roles in the policy-making realm during the Cold War see, for example: Ronald E. Doel and Kristine C. Harper "Prometheus Unleashed: Science as a Diplomatic Weapon in the Lyndon B. Johnson Administration," *Osiris* 21, no. 1 (2006): 66–85; Julia MacDonald, Eisenhower's Scientists: Policy Entrepreneurs and the Test-Ban Debate 1954–1958," *Foreign Policy Analysis* 11 (2015): 1–21. Rubinson, "Crucified"; *Redefining*.

68 Wittner, *Resisting*. Eugene Rabinowitch, "Thoughts on the Moscow Meeting," January 1961. RTBT 5/2/1/6 (39).

its scientists in the first instance to mobilize and then to develop into an unorthodox cross-bloc forum.

Establishing at least some credibility with Western and Communist governments as a transnational forum was assisted by the distinctive character of the Pugwash organization as a collection of national groups and by the different relationships to political power of its scientists in the west and in the Communist bloc. In the west, where Pugwashites were often viewed with suspicion within government circles and perceived as politically unreliable, the operation of democratic principles accorded opportunities to express dissenting views and to challenge the policies of their national governments. This made for uneasy relations with political circles in Washington and London in particular. In the countries of the Soviet bloc and in China, by contrast, Pugwashites were chosen by the state because they were deemed to be politically reliable. As the contributions by Barrett (China), Lüscher (USSR) and Olšáková (Czechoslovakia) show, scientists here were strictly controlled, being briefed and debriefed before and after conferences. This constellation had intriguing consequences. In what Evangelista has called the "paradox of state strength," scientists operating within the centralized political systems of the communist dictatorship of the Soviet bloc could more readily access the centers of political power than was the case in the west, even as here their counterparts enjoyed more options for expressing views critical of/dissenting from government.[69] Meanwhile, the proximity of scientists in Communist bloc countries to their respective governments created affinities and dependencies that worked in more than one direction: as Fabian Lüscher shows, and as Matthew Evangelista has noted, the nature of the political regime in the USSR and the political reliability of Soviet Pugwashites kept Moscow close to Pugwash. The western Pugwash leadership understood and sought to manage this reality: they recognized too that this was an asset – one that afforded a window onto the Kremlin and, potentially, an alternative route for contact with it.

The unique East–West configuration of Pugwash always endowed it with a fundamental asymmetry in the sense that its scientists were very differently placed in terms of gaining access to government circles and having scope to express criticism of their respective governments. This asymmetry created a faultline within the Pugwash initiative seeding within it contradictions and ambiguities: yet, at the same time, this was also decisive to its ability to act

69 Matthew Evangelista, "The Paradox of State Strength: Transnational Relations, Domestic Structures, and Security Policy in Russia and the Soviet Union," *International Organization* 49, no. 1 (1995): 1–38.

across the blocs and as an informal 'back channel' between Cold War adversaries. There was no naivety about this dynamic within Pugwash: on the contrary, the entire project rested on accommodating this asymmetry. The tensions and contradictions that flowed from this accommodation were the price of working across the blocs. For the Continuing Committee, it meant that presentation mattered inordinately: the leadership had to avoid perceptions that Pugwash was pandering to the east or the west and constantly reiterated its political neutrality. But Pugwashites were politically attuned both to the realities of bloc and national hostilities and to each other's position within the nation state. These sensibilities enabled the Pugwash leadership to navigate between east and west as it sought to work both with and against governments to challenge their entrenched stance on the necessity of nuclear weapons and the logic of the arms race.

Moscow undoubtedly saw Pugwash – which they referred to as a movement – as a resource for advancing its interests. Cognizant of this, the (western) Pugwash leadership sought always to guard against such manipulation. Of course, all those involved were aware that some associated the organization and its meetings with espionage, surveillance and intelligence gathering.[70] These difficulties came with the territory in which they were operating but western members of the Continuing Committee were acutely mindful of the need also to retain the goodwill of their Soviet counterparts. All those involved knew the East–West connection to be the most valuable asset of the project. If the cross-bloc character of Pugwash engendered wariness towards it in the west, at the same time this was precisely what came to make it relevant to western governments as they sought new means to communicate with the Communist world.

In positioning itself from the late 1950s onwards as an unorthodox channel of communication between the blocs, the Pugwash intervention was well-timed. The 'thaw' following Stalin's death in March 1953 provided, as Matthew Evangelista has put it, the "political preconditions for a transnational dialogue of scientists."[71] Mobilization amongst scientists included moves by the International Council of Scientific Unions (ICSU) to again cooperate with colleagues behind the Iron Curtain in preparing the International Geophysical

70 International scientific gatherings generally were liable to such perceptions. See, for example: John Krige, "Atoms for Peace, Scientific Internationalism, and Scientific Intelligence," *Osiris* 21, no. 1 (2006): 161–181. On this theme see various contributions in Van Dongen, 2015.

71 Matthew Evangelista, "Transnational Organizations and the Cold War," in *Cambridge History*, eds. Leffler and Westad, Volume III, 400–421, here 403.

Year (IGY) scheduled for 1957/58.[72] In 1955, the first conference on "Peaceful Uses of Atomic Energy" took place in Geneva: arising from Eisenhower's 'Atoms for Peace' initiative, this brought together scientists from east and west.[73] Meanwhile, the onset of disarmament talks under the auspices of the United Nations seemed also to signal a positive shift in superpower relations, although the path proved slow and faltering. Disarmament negotiations themselves illustrated an emerging political pattern, namely, the global scope of the Cold War and the decentralization of the negotiation process in the form of multipolar engagement.[74] But the difficulties that pervaded these talks highlighted a larger problem with state-state communication in this period.

This connects to another significant aspect in the timing of the Pugwash initiative. Its early years coincided with growing reservations in some quarters about the suitability of conventional diplomacy as the sole means for handling East–West relations amid the unprecedented mistrust and novel political sensitivities of the deepening Cold War. Some intellectuals close to governments in east and west perceived limitations in the formal and hierarchical style of official diplomatic channels, and also about the limits of approaches to statecraft that were heavily reliant on summitry. Existing modes of communication between state actors seemed increasingly ill-suited to the problems of disarmament and arms control, especially given the personalities of those in power and the relationships between them. The tit-for-tat escalation of nuclear weapons testing even as diplomatic efforts were underway to establish a moratorium on such tests provided a case in point in the mid-late 1950s. In his treatise on nuclear weapons and US foreign policy in 1957, Henry Kissinger, at this time both associate director of Harvard's Center for International Affairs and consultant to the US government, called for a rethinking of the "art of communication" and for new approaches to political engagement that were more attuned to the nuances of superpower relations and the

72 On the history of the IGY, see: Rip Bulkeley "The Sputniks and the IGY," in *Reconsidering Sputnik. Forty Years Since the Soviet Satellite*, eds. Roger D. Launius, John M. Logsdon and Robert W. Smith (Amsterdam: Harwood Academic Press, 2000), 125–160. Elena Aronova "Geophysical Datascapes of the Cold War: Politics and Practices of the World Data Centers in the 1950s and 1960s," *Osiris* 32, no. 1 (2017): 307–327.

73 On Atoms for Peace, see: Krige, "Atoms." Ira Chernus, *Eisenhower's Atoms for Peace* (College Station: Texas A&M University Press, 2002). Martin Medhurst, "Atoms for Peace and Nuclear Hegemony: The Rhetorical Structure of a Cold War Campaign," *Armed Forces and Society* 23, no. 4 (1997): 571–593. Ulrike Wunderle, "Atome für Krieg und Frieden. Kernphysiker in Großbritannien und den USA im Kalten Krieg," in Neuneck and Schaaf, *Zur Geschichte*, 17–29.

74 Dimitris Bourantonis, "The Negotiation of the Non-Proliferation Treaty, 1965–1968. A Note," *The International History Review* 19, no. 2 (1997): 347–357.

arms control problem.[75] Looking back on this period, senior Soviet physicist and Pugwashite Lev Artsimovitch – from 1963, a long-serving member of the Continuing Committee – recalled his perception that official diplomacy had become an "outdated chariot."[76]

This provided the context for the development of an alternative mode of engagement, that of Track II diplomacy. Science in particular came to be seen by state actors as an instrument of diplomacy and a locus for exercising 'soft power' with scientists having some role to play in this.[77] Defined as "unofficial, non-structured interaction," soft power operated in parallel to official diplomacy and added another dimension to the repertoire of diplomatic channels. It drew on concepts formulated by Harvard social psychologist Herbert C. Kalman arising from his research into the psychological aspects of political negotiations and conflict moderation.[78] The new attention to communication that foregrounded the human element – the emotions/psychology of fear, of trust and mistrust and so forth – formed one part of a broader shift taking place at this time in which the human sciences became an integral part of the Cold War battleground.[79] Allen Pietrobon's recent analysis of Norman Cousins' role as an unofficial courier between Kennedy and Khrushchev from October 1962 to August 1963 highlights one form of 'soft' diplomacy and underlines the importance of alternative approaches to political communication and dialogue.[80] Seen in this light, the informal, discreet *modus operandi* fashioned by Pugwash scientists seems prescient. Work in this volume, and perhaps especially that by Barrett, Kraft and Lüscher, provide insights into how individual Pugwash scientists were able to work across the blocs, by means of informal contacts mobilized to bring about dialogue and exchanges that, in ways not yet fully understood, are linked to the development of Pugwash and its conferences as a forum for Track II diplomacy involving state actors.

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75 Henry Kissinger, *Nuclear Weapons and Foreign Policy* (New York: Harper, 1957), 203; *Diplomacy* (New York: Simon and Schuster, 1995); *Years of Renewal* (New York: Simon and Schuster, 1999).

76 Cited in Kadomtsev, *Reminiscences*, 155. See also: Rubinson, "Crucified," 291.

77 See for example: Doel and Harper "Prometheus Unleashed;" MacDonald, "Eisenhower's." Kraft, Nehring and Sachse, "Pugwash Conferences." Rubinson, *Redefining Science*.

78 William D. Davidson and Joseph V. Montville, "Foreign Policy According to Freud," *Foreign Policy* 45 (Winter, 1981–1982): 144–157. Allen Pietrobon, "The Role of Norman Cousins and Track II Diplomacy in the Breakthrough to the 1963 LTBT," *JCWS* 18, no. 1 (Winter 2016): 60–79.

79 See for example: Joel Isaac, "The Human Sciences in Cold War America," *The Historical Journal* 50, no. 3 (September, 2007): 725–746. Jamie Cohen-Cole, *The Open Mind: Cold War Politics and the Sciences of Human Nature* (Chicago: University of Chicago Press, 2014).

80 Pietrobon, "Role." Jones, *Track II*.

The transnational character of the Pugwash network provided the basis for its leading figures to fashion a role for its conferences as occasions for Track II diplomacy. The reputation of the conferences as presenting opportunities for confidential off-the-record exchanges began to register with state actors – especially in the west. The Pugwash conferences began to take on new relevance with governments that began to perceive in them a means to advance their interests. Paradoxically, whilst suspicions of it remained, Pugwash was being recast within western government circles as a resource in the realm of nuclear diplomacy. Whilst much remains to be investigated in relation to this shift, for the moment, it is clear that for all the difficulties resulting from the asymmetry woven into Pugwash because of its East–West character, this was a unique and powerful asset that began to attract the attention of Washington and London. If the emphasis remained with communication – the composition of those doing the communicating changed, as the conferences began to feature senior members of policy and scientific elites close to western governments, for example, the Americans Henry Kissinger, Walter Rostow and Jerome Wiesner, and Britons Solly Zuckerman and nuclear supremo, John Cockcroft. Untangling, clarifying and characterizing these encounters and exchanges constitutes a priority for future research into Pugwash – its scientists, the conferences and its on-going work 'behind the scenes' on what Solly Zuckerman later called the "nuclear plateau."[81]

4 Writing Pugwash Histories

4.1 *Overview of the Volume*

The chapters collected together in this volume underline how each scientist arrived at the Pugwash table via a pathway profoundly shaped by the particularities of the nation state, most prominently the character of its political system and its position within the wider geopolitical landscape, within and beyond the blocs. Time and again we see the influence of the nation state in shaping the possibilities for and the nature of the transnational encounters and exchanges that took place under the umbrella of the Pugwash Conferences. We see too how governments were sufficiently interested in these gatherings to learn what happened there – and, sometimes, to try to influence what took place. The chapters point to how the development of Pugwash – its con-

81 Solly Zuckerman, "Science Advisers and Scientific Advisers," *Proceedings of the American Philosophical Society* 124, no. 4 (1980): 241–255, 251. By this term Zuckerman referred to the "vista from which political leaders view foreign policy and nuclear/defence strategy."

ferences, workshops and study groups – mirrored the twists and turns of Cold War geopolitics, for example, the Sino-Soviet split (Barrett), the Berlin crisis (Kraft) and the Prague Spring (Olšáková). The chapters by Barrett, Lüscher and Olšáková afford a strong sense of the power exercised over Pugwash scientists by the communist regimes in China, the Soviet Union and Czechoslovakia respectively. For the Soviet case, Lüscher illuminates how its scientists negotiated their dual loyalties towards the Party/State and towards the Pugwash project which, as he shows, coexisted in a reciprocal and sometimes uneasy dynamic. Barrett and Olšáková illuminate the way in which relations with the USSR powerfully shaped Chinese and Czechoslovakian participation. As Paul Rubinson's study makes quite clear, western Pugwashites had also to contend with constraints imposed by the watchful state and the virulent anti-communism that marked the US political system long after McCarthyism had passed its zenith. As he shows, in this setting, suspicions about leftist sympathies translated into financial difficulties, as funders wary of association with Pugwash channeled their largesse to causes deemed to be less politically contentious. Ironically, as Carola Sachse's chapter shows, American Pugwashites found themselves refusing financial support from the billionaire businessman, Cyrus Eaton, whose friendship with Premier Khrushchev and public pronouncements advocating cooperation with the Soviet Union turned what in the beginning had been a useful association into a political liability. Accordingly, they severed ties to the colorful Eaton to preserve the integrity of the US Group 'at home' and to protect the narrative of 'political neutrality' that was so important to the organization more generally. In a second contribution focused on an important early Pugwash figure, Geoff Roberts' study of the openly communist Frédéric Joliot-Curie details his relationship with the staunchly anti-communist Bertrand Russell as, after Einstein's death, they sought to realize the idea set out in the Russell-Einstein Manifesto for scientists to "assemble in conference." As he shows, the two men had links to prominent Soviet scientists – that would prove important in bringing them to the meeting in Pugwash, Nova Scotia in July 1957. Joliot-Curie's early death in 1958 makes for interesting speculation as to what might have been had he lived longer. The third section of the book encompasses the experiences of some of the smaller states in the Central European region.[82] The chapters by Fengler, Olšáková and Kraft cast new light on Pugwash in Austria, in Czechoslovakia, and in East and West Germany respectively. These studies show the different ways in which the communist/anti-communist theme powerfully shaped Pug-

82 For an example of analyses from the 'smaller state' perspective see: Matthias Heymann and Janet Martin-Nielsen, eds. "Perspectives on Cold War Science in Small European States," special issue of *Centaurus* 55 (2013).

wash groups in all three countries, underlining too the way in which Pugwash histories cannot be written in isolation from both the 'domestic' political context and the position of the nation state within the Cold War geopolitical landscape. For example, Fengler highlights and explains the unusual dynamics of the Austrian case, where Pugwash scientists aligned strongly with the Austrian government, because of shared anti-communist and pro-nuclear technology (especially energy) positions.

Overall, the chapters reveal the signal importance of often just two or three scientists in the early development of the PCSWA in the different national settings, revealing how each grappled with the specificities of this context, not least their relation to political power, as each negotiated a particular set of opportunities and constraints to contribute to the Pugwash project.

4.2 *Challenges for the Future*

Tackling the Pugwash enterprise presents serious challenges for the historian. Its unconventional structure and innovative *modus operandi*, the complexities arising from its rootedness in national groups, which meant that it operated simultaneously within the nation state and on the international stage, the articulation between its national and international components, its widening repertoire of activities beyond the annual conferences, and its work at the intersection between science and politics, whilst intriguing, create a set of methodological and conceptual challenges.

The longevity of the PCSWA – which continues up to the present – and its global reach presents serious practical challenges. Tackling this history requires a demanding range of contextualization, in terms of engaging with different national settings and the shifting geopolitical contours of the Cold War and the post-Cold War world. As several chapters in this volume show, there is also a need to situate Pugwash in relation to other 'peace' and disarmament organizations, not least, for example, the World Peace Council (WPC), the WFSW, the Soviet-American Disarmament Study Group (SADS) and Stockholm Institute for Peace Research (SIPRI), and explore further the work and roles of those scientists, advisers and so forth, who had overlapping involvement in these different initiatives. The Pugwash Conferences became associated with a distinctive style of working transnationally at the intersection between science and politics in the Cold War – engaging with this also raises the challenges of interdisciplinarity. As such, the Pugwash project is a rich site in which to respond to calls by historians of science for stronger engagement with the transnational dimensions inherent in this field.[83] As a priority,

83 On calls for historians of science to make greater use of this approach, see: Turchetti, Herran and Boudia, "Introduction," and Krige, "Conclusion."

we need to know much more about the relationships between the Continuing Committee and the national groups, and about the national groups themselves, and how both changed amid the shifting temporalities of the Cold War. In connection to the latter point, we would in particular highlight the pressing need for research into Pugwash in the countries of the Global South and its work across the North–South divide.

A second set of challenges relate to primary sources, including the silences of the archive. The preference for working informally and discreetly, together with an awareness amongst the leadership about the need to protect confidentiality, and that its meetings could provide opportunities for espionage and intelligence gathering, instilled a tendency to conduct business verbally (in person and by 'phone), and a wariness towards committing anything deemed sensitive to paper. Further complications arise from its operating in the clandestine, secret realms of national nuclear policy-making and therefore in sensitive areas of the national security state during the Cold War. In effect, the Pugwash project operated centrally within what Ronald Doel, in his work on the US case, has called "science in black," which he defined as the:

> large, unexplored continent of interconnections, maintained in secrecy, between scientists and public officials mutually interested in adopting science to serve (American) interests and the national security state.[84]

This historical terrain varies from state to state and, moreover, as Peter Galison has emphasized, nuclear history is beset with particular difficulties in terms of gaining access to relevant primary sources which often remain classified.[85]

A third issue concerns the thorny question of influence. This is always hard to gauge and archival sources that can shed unambiguous light on this can often be hard to come by – and especially so for Pugwash, for the reasons outlined above. Jan Voorhees has proposed two ways of assessing the impact of transnational organizations on government policy, "by examining either the direct influence by such communities on state policy or their indirect influ-

84 Ronald E. Doel, "Scientists as Policy Makers, Advisors and Intelligence Agents: Linking Contemporary Diplomatic History with the History of Contemporary Science," in *Historiography of Contemporary Science and Technology*, ed. Thomas Soderqvist (Amsterdam: Harwood Academic Press, 1997), 215–244.

85 Peter Galison has drawn attention to the extent in the United States of the practice of classifying nuclear-related data using the categories of confidential/secret/top secret. Peter Galison, "Removing Knowledge: The Logic of Modern Censorship," in *Agnatology: The Making and Unmaking of Ignorance*, eds. Robert Proctor and Londa Schiebinger (Stanford, CA: Stanford University Press, 2008), 37–54.

ence, that is, their ability to influence the climate of opinion in which policy is made."[86] In the case of Pugwash, both are difficult to evidence and assess although one might imagine, given its *modus operandi*, that it was more likely to exercise influence 'indirectly.' But what does influence mean and how does one measure it? For example, can making contacts and friendships at meetings – for example, a Pugwash conference – be counted as 'influence?' Can an 'off the record,' perhaps impromptu, conversation that was then relayed to a third party that subsequently featured in other conversations in senior policy-making circles about a particular topic or problem be considered as 'influence?' The elusive, abstract and ambiguous nature of 'influence,' and the particular difficulties of tracking it within the realm of (nuclear) "science in black" and the clandestine Cold War world of 'back channels' seem, at the present time, to suggest a need to reframe the analysis. To be sure, when the sources allow, 'influence' remains important. Perry Robinson and Martin Kaplan have suggested that Pugwash was influential in moves to prohibit Chemical and Biological Weapons; and the respected SADS had its roots in Pugwash.[87] However, one can look to other markers of significance, for example, one could argue that the durability of Pugwash, its longevity, provides an important barometer of its usefulness within the political and policy nexus surrounding nuclear weapons. Following Claudia Kemper's thoughts on the 'influence' problem in her recent book on the IPPNW, we wish to move away from the preoccupation with influence narrowly defined and to develop a broader analytical framework.[88] Rather, we would emphasize that Pugwash is intrinsically of interest, exactly because of its meaning for those involved and as a site where science met politics during the Cold War. It stands as an important chapter in the lineage of scientists' social responsibility in the twentieth century. It brought scientists into the political realm and registered science and its practitioners in new ways with state actors. As such, Pugwash stands as a novel example of "science diplomacy" and affords a means to enrich our understanding of the diverse and sometimes uneasy relationships at the intersection between science and politics during the Cold War.

A fourth challenge is that of how to categorize and compare the PCSWA with other Cold War actors and how to situate it within the heterogeneous

86 Jan Voorhees, *Dialogue Sustained: The Multilevel Peace Process and the Dartmouth Conference* (Washington DC, 2002), 25.

87 Martin M. Kaplan, "The Efforts of WHO and Pugwash to Eliminate Chemical and Biological Weapons," *Bulletin of the World Health Organization* 77, no. 2 (1999): 149–155. Perry Robinson, "Impact." On SADS, see: Kubbig, *Communicators*.

88 Kemper, *Medizin*.

landscape of organizations within the arms control and conflict moderation spheres. Unsurprisingly perhaps, the PCSWA defies ready categorization. As noted, its innovative network-like organization and distinctive informal *modus operandi* were the outcome of highly contingent processes. Its chimeric form and roles were shaped by the Cold War conditions in which it was forged and in which it operated. If Pugwash began as a novel expression of the principle of scientists' social responsibility it evolved to become simultaneously and/or variously a pool of techno-scientific expertise, a communication channel, a transnational network (comprising individuals and groups around the world), an intellectual project, a broker of political dialogue and exchange, and a forum for soft diplomacy. Its hybridity, its East–West character and the implications of this within the Cold War context complicates the application to it of models of organizational theory and theories of protest movements. Certainly, the Pugwash organization resonates with the concept of the epistemic community as proposed in 1992 by Peter Haas which, simply stated, have been defined as "professional networks with authoritative and policy-relevant expertise."[89] But it does not straightforwardly 'fit' with this concept. It also shares some features of the "transnational advocacy network" put forward in 1998 by Keck and Siddink – although again, not always or completely fitting with this concept.[90] As the work in this volume shows, Pugwash had a network-like structure that, when called upon, could mobilize to function as a network – evident in particular in the chapters by Barrett, Kraft and Lüscher. We understand Pugwash partly as an epistemic community in the broader sense recently proposed by Davis Cross which can take greater account of both its transnational and Track II roles.[91]

The collection of papers in this volume make clear that Pugwash was about much more than its conferences – indeed, this is something we wish to emphasize. This new body of work points to the diverse range of activities carried out by the scientists of Pugwash, reveals the complexities of their experiences in different national settings, and further illuminates the transnational character of the organization and its conferences. In further demonstrating the significance of the PCSWA as a Cold War actor – within and beyond the nation state – we hope this volume can serve as a spur to further investigation of its histories.

89 Haas, "Epistemic communities."

90 Margaret E. Keck and Kathryn Sikkink, *Activists Beyond Borders. Advocacy Networks in International Politics* (Ithaca, New York: Cornell University Press, 1998).

91 Mia'a K. Davis Cross, "Rethinking Epistemic Communities Twenty Years Later," *Review of International Studies* 39, no. 1 (2013): 137–160.

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