

# British Pugwash Group

## Annual Report of the Executive Committee 2017

### Developments in 2017

A year ago our review of developments in 2016 closed with two questions: would the incoming US administration be ready to cooperate with other powers to maintain a rules-based global order and related WMD regimes? And would it want to honour US international non-proliferation and disarmament commitments?

So far President Trump's United States has continued to comply with most of its WMD-related commitments, the exceptions being the July 2015 nuclear non-proliferation agreement with Iran and, arguably, Article VI of the NPT. But his administration's National Security Strategy, published in December 2017, suggested scant interest in cooperating to maintain a rules-based order. On the contrary, it displayed an inclination towards "competitive diplomacy", backed by "lethal force", to maintain a balance of power, globally and regionally, that is favourable to the United States.

Meanwhile, relations between the United States and Russia remained at a low ebb; whether an extension of the 2010 New Start agreement would be negotiable continued to be in doubt; US allegations concerning Russian non-compliance with the 1987 INF agreement remained unresolved; Russia and China continued to develop hypersonic nuclear delivery systems as an antidote to US missile defence systems; and US ratification of the 1996 CTBT still seemed improbable.

All this led the current BPG Chairman to remark, at a ceremony to mark the unveiling of a plaque commemorating the life and work of Sir Joseph Rotblat: "I can't help sensing... that, were Sir Joseph still with us, he would be disappointed and worried by the world of 2017. Disappointed because the promise of the late 80s and early 90s has not been fulfilled... And worried because since 1991 the United States has become the most belligerent and bellicose of the major powers."

The picture was not all dark, of course. In July the UN General Assembly adopted a treaty "on the Prohibition of Nuclear Weapons". But this agreement does not bind those who decline to accede to it; and the nuclear possessor states as well as their nuclear clients

opposed its adoption. It has created a valuable norm but seems unlikely to satisfy a global hunger for nuclear disarmament.

The commemoration of Jo Rotblat's life and work was the high point of BPG's year. We owe a debt of gratitude to the Polish Heritage Society who secured assent to, and organised the placing of a plaque on the corner of Bury Street and Great Russell Street. Other significant events that day were a generous reception at the Polish Embassy and a talk by Lord Rees on threats to the biosphere. During the year BPG also organised two talks on the North Korean nuclear conundrum, of which one took place during the Hay Literary Festival; and Student/Young Pugwash (SYP) organised a well-attended annual conference at SOAS.

Several members of BPG contributed to the 62nd Pugwash Conference, which was held in Astana in late August, and which coincided with the appointment of Ambassador Sergio Duarte, a former UN Undersecretary for Disarmament, from Brazil, as President of the movement.

Funding constraints limited the extent of project activity in 2017. Nonetheless, BPG added value to work on WMD awareness, the ethics of modern robotics, the increasing vulnerability of submarine nuclear weapon systems, artificial intelligence and climate change; and BPG continued to support Student/Young Pugwash UK and PeaceJam UK.

### Changes at British Pugwash

During 2017, there were changes to the Executive Committee following the death of Professor Sir Robert Hinde and the decision of General Sir Hugh Beach, Kit Hill, John Simpson and Carol Naughton to step down. Their replacements were: Sebastian Brixey-Williams, Project Manager at BASIC; Professor David Caplan Emeritus Professor of Physics, Blackett Laboratory, Imperial College; and Kevin Miletic, a graduate student at SOAS who has also worked with SYP.

### General Sir Hugh Beach

Kit Hill has offered this appreciation:

It was one of Jo Rotblat's many talents to be able to attract, to contribute to Pugwash work, people experienced at the very top levels of defence. One such was Robert McNamara, who had been Kennedy's Secretary of Defense during the Cuba crisis. Another was General Sir Hugh Beach, who had worked at the top of the British defence establishment, and who brought to British Pugwash a deep knowledge of the people there and of their ways of thought, together with an ability to speak publicly, with authority, of his conviction that "nuclear weapons are completely useless as a deterrent" to current or future threats. Since many senior military figures turn out on retirement to have enlightened views on how to achieve a less war-obsessed world, Hugh also played a part in getting several of them to contribute to our work, as speakers or otherwise. Pugwash was just one of his retirement interests. He was for some years Director of the Council for Arms Control, and he is on the boards of a number of kindred organisations, including VERTIC and the King's College Centre for Defence Studies.

### Projects

#### Nuclear Weapons/Trident

##### Trident: Emerging Technologies

Sebastian Brixey-Williams reports: In late 2017 and into early 2018, British Pugwash has been developing the final products of the SSBN Stealth and Strategic Stability project. The project – initiated in 2015 to inform the 2016 Parliamentary vote to replace the ageing Vanguard-class ballistic missile submarine (SSBN or "boomer") fleet with the Successor / Dreadnought-class SSBN – sought to employ Pugwash's scientific and technical expertise to examine critically the long-standing assumption that submarines will remain invisible to undersea detection technologies into the 2080s and 2090s, when the next generations of SSBN are due to retire.

With funding from the Polden Puckham Charitable Trust the project was initially led by Senior Researcher, Carol Naughton, and in early 2016, British Pugwash went on to partner with BASIC (British American Security Information Council) to develop the project's political and strategic dimensions in research papers and technical discussions. Reliable SSBN detection would undermine the platform's capability to provide a secure second-strike, and could create dangerous instabilities in a crisis, when an SSBN captain may feel incentivised to fire first; this is particularly true for

nuclear-armed states with less mature submarine stealth technology, such as China, India, and Pakistan.

Over the course of the project, our research has been picked up well by the media, with quotations most recently providing the closing remarks in two pieces in *The Economist*. However, there have been some unforeseen delays in producing the final outcome documents, for which we are working hard to compensate. I have been invited to submit a paper to an academic journal examining the history of emerging technologies debates around anti-submarine warfare and their strategic implications, the draft of which will be presented at the British Pugwash AGM in April 2018. Anxieties about the survivability of SSBN forces are not new, and the paper tracks public studies into their survivability, starting with Pugwash literature in the early 1970s and into the mid-1980s, before going on to look at a host of trends in emerging technology that should give us pause for thought about the future of submarine stealth.

We find that there is insufficient evidence to state conclusively that Trident ballistic missile submarines are reliably detectable in the present day, but that rapid development and innovative fusion of technologies in the military sphere, and even more so in the civilian space, mean that assumptions about SSBNs can and should no longer be taken for granted. Where previously submarine detection was largely possible only with manned platforms, underwater, surface, and aerial drones are now becoming advanced and cheap, and can increasingly work in large swarms that could be purposed to detect and track individual boomers over large areas. Meanwhile, the range and sensitivity of several detection technologies is increasing, and big data is making it easier to distinguish small signals against background noise. Big changes can be expected in the next five to ten years. This work should be revisited by organisations like Pugwash; and national assessments should be made available to the think-tank community wherever possible.

##### Nuclear Weapons Policy Liaison Group

This group, which was instigated some years ago by British Pugwash, comprises expert members of the UK nuclear international security community acting in individual capacities to discuss and strategise how to engage and work with parliamentarians, the press and each other to inform debate on UK nuclear weapons policy. This informal network also serves an important role by facilitating the community's cohesion and effectiveness. British Pugwash has continued to participate in the group's discussions and work

throughout 2017.

### Science and Ethics

#### Ethics of Modern Robotics

Continuing to represent the President of Pugwash on the UNESCO World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), John Finney remained a member of the working group on the ethics of robotics which Pugwash had been instrumental in initiating. As part of the working group's activities, he gave a talk in March on The Ethical Implications of diluting Human Control at an International Colloquium on Robotics and Society at the Université Laval, Québec. The working group's activities were completed in September with the adoption by COMEST of its report on Robotics Ethics, which is available at: <http://unesdoc.unesco.org/images/0025/002539/253952E.pdf>

#### Artificial Intelligence

Representing British Pugwash, John Finney participated by invitation in the Artificial Intelligence for Good Global Summit organised by the International Telecommunication Union in Geneva in June. The Summit aimed to provide a neutral platform for government officials, UN agencies, NGOs, industry leaders, and AI experts to discuss the ethical, technical, societal and policy issues related to AI, to offer recommendations and guidance, and to promote international dialogue and cooperation in support of AI innovation.

Although the meeting covered the use of AI over a wide range of areas (for example in work, education, health, prosperity, hunger, disaster relief, security and economics), several common themes emerged, including:

- Cooperation: AI and humans together work better than either on their own;
- Governance issues: including ensuring privacy of personal data and transparency of AI processes, and appropriate assignment of responsibility for misuse;
- Inclusiveness: AI developments should be user-centric and inclusive, benefitting all – not just the rich;
- Democratisation of AI: data, codes and research should be open and freely available.

Of particular interest was the need for a code of ethics for both AI developers and users. AI covers a whole range of disciplines (engineering, computer science, physics and medicine to name but a few) so an effective code needs

to be relevant to a wide range of professions.

### Energy policy and Climate Change

Christopher Watson reports: British Pugwash was motivated to take a renewed interest in energy policy matters by a public statement made in 2011 by Professor David MacKay, then Chief Scientific Advisor at DECC, in which he urged the British public to engage in "grown-up conversations" about UK energy policy. A British Pugwash working party produced a report in 2013 which mapped out three "possible" British policies, using energy technologies which either existed or could be developed and deployed on the required scale by 2050, and which complied with the UK's international and parliamentary commitments on Greenhouse Gas Emissions. All three policies were constructed with the help of DECC's computer tool "2050 Pathways Analysis", which embodied what was then known about the achievements and costs of the available technologies. This can be found online here: <http://britishpugwash.org/wp/wp-content/uploads/2013/02/British-Pugwash-Pathways-to-2050-small.pdf>

A further challenge was to devise a global energy policy which would ensure that a potentially disastrous world-wide climate change did not occur. To address this problem, DECC gathered a team of 150 international experts to create a new public domain computer tool, the "Global Calculator", which enabled the user to devise a global energy policy, using the best available scientific and technical data.

This initiative fed into the surge in global public concern that preceded the December 2015 Paris Conference on Climate Change, and the adoption by consensus of the United Nations COP21 Climate Change Agreement. This embodies a pledge to take the necessary steps to ensure that the global mean surface temperature will be less than 2 0C above pre-industrial levels in 2100.

British Pugwash subsequently joined members of the European Physical Society Energy Group to assess the credibility of the various global pathways being proposed at that time in connection with that pledge. We found that only four out of the 26 published pathways met the Paris target. Over half exceeded 2.3 0C and 10 exceeded 2.5 0C. Using the DECC Global Calculator we devised further pathways which did meet the target, and had adequate economic, social and technological credibility. On 24 November 2016 we reported finding six pathways with a temperature rise of below 2 0C, three of which were close to 1.5 0C. All of these were subject to caveats about the DECC's methodology, and most depended on major changes in world-wide agricultural practices and

in dietary habits. Online here: <http://britishpugwash.org/global-energy-strategies-with-low-temperature-rises/>

By the end of 2017, the difficulty of persuading all COP21 signatories to commit to their declared contributions to the required reduction in CO2 emissions had become clear. One major country (the US) is still threatening to withdraw altogether from the Climate Change Convention. The good news is that the contribution of renewables is growing faster than many predicted even two years ago. However a still larger contribution will depend on the development of as-yet-undefined, and cost-effective industrial-scale energy storage systems, to cope with the intermittency of most renewable supplies. The contributions of nuclear power and Carbon Capture & Storage depend on economic and political decisions which currently hang in the balance.

The UK's intentions are sadly less clear than they seemed three years ago. The untimely death of David MacKay, and the advent of a government which immediately merged DECC into BEIS, and cancelled several DECC-funded programmes, has meant that the UK government is no longer playing a leading role in this area, while the private sector, NGOs and universities are struggling to maintain continuity.

### Student/Young Pugwash UK

Andrew Gibson reports: 2017 was another busy and productive year for Student/Young Pugwash (SYP) UK. In March, SYP UK organised its second Annual Conference, titled "Uncharted Territory: Arms control and disarmament in the New Nuclear Age", which was held at SOAS, London. Students and young researchers presented papers about the current state of play on nuclear weapons, looking at technical, legal and political aspects. SYP was also delighted to host a number of expert speakers, including Dr Frank Boulton (Medact), Dr Rasmus Nilsson (UCL) and Dr Kate Hudson (CND).

In August, members of SYP UK met their international peers at the 10th International Student/Young Pugwash (ISYP) Conference in Astana, Kazakhstan. Participants included young researchers and practitioners from USA, Russia, Japan, Israel, China, Pakistan, Saudi Arabia and Iran. SYP UK members also participated in the senior International Pugwash conference held directly afterwards.

In November, Leeds SYP held the first ever SYP UK conference in the North of England. It considered a range of Pugwash-relevant issues, including the risks of "killer robots", how experts should respond to "fake news" and what President Trump's Nuclear Posture Review would

mean for Europe. The year was also punctuated by occasional seminars held by our campus-based groups on issues such as North Korea's nuclear capabilities (Warwick), the history of the NPT (Nottingham) and the financing of climate change policies (SOAS).

SYP UK was funded in 2017 by a grant from Network for Social Change. SYP UK has been successful in securing a further grant for activity in 2018, which will support and create opportunities for its growing membership, including increased opportunities to publish original SYP UK research.

### Partnered Projects WMD Awareness (WMDA)

John Finney reports: In 2017 the project followed three strands of work. First, we helped increase WMDA Ambassadors' capacity to raise engagement with, and awareness of, nuclear weapons, running a podcast production training workshop, an output of which was a podcast concerning nuclear weapons. Second, we built on the relationship Carol Naughton (the long-time coordinator of the project) had established with Smriti Keshari and Eric Schlosser – the makers of "the bomb", an immersive film and music experience that draws attention to the threat that nuclear weapons pose today (see: <https://tribecafilm.com/stories/tribeca-film-festival-the-bomb-smriti-keshari-eric-schlosser-the-acid-nuclear-weapons>).

Through regular interaction with the production team of "the bomb", we shared information and techniques of raising awareness, and discussed with artists and "the bomb" team how innovative art can raise awareness of nuclear weapons issues. This work culminated at the Glastonbury Festival where we used performances to reach people who had not been engaged in issues around nuclear weapons previously. We interviewed audience members during and after screenings for use in a podcast, as well as instigating conversations during day time hours with specially printed and informative t-shirts and wristbands. The insights gained are now being used to further inform future public awareness-raising work.

Funding for the WMD Awareness project finally ended in 2017. However, as we don't want to lose the insights we have gained into how to get messages across effectively to different communities, we have worked with other concerned organisations, in particular Student/Young Pugwash and BASIC, to try to ensure that the methodologies the project has developed can be used in the future work of those organisations.

### Rotblat Lecture 2017: North Korea: the search

### for a peaceful solution”

The 13th annual Joseph Rotblat Memorial Lecture at the Hay Festival, “North Korea: the search for a peaceful solution”, was given by Sverre Lodgaard, a former director of the Norwegian Institute of International Affairs. He addressed the North Korean nuclear threat and reviewed options for a peaceful solution. The lecture was presented by the Hay Festival in partnership with the WMD Awareness project.

### PeaceJam UK

Sally Milne reports: PeaceJam is an international peace education programme, unique in that it works directly with Nobel Peace Laureates, who contribute to the curriculum and also in person by coming to the youth conferences and working directly with the young people and their teachers and youth workers. We have been awarded two grants from the Home Office under their Building a Better Britain Together programme – one for working with schools in Hampshire and the second for working with schools in Leeds. We were also successful in our bid under the Erasmus scheme to work over the next three years in Europe with schools in Greece, Belgium, Romania and The Netherlands. As well as introducing our curriculum to schools in these countries, it will be very exciting to enable our students to network more with young people from Europe.

This year we ran two youth conferences. The first was in March at the University of Winchester, which has also generously agreed to be the host university and to fund our laureates for the next three years. This year we were delighted to welcome Nobel Peace Laureate Leymah Gbowee who won the Peace Prize in 2011 for her work leading a women’s peace movement that brought an end to the Second Liberian Civil War, followed by the election of Africa’s first female Head of State. She gave a most interesting talk to the university on the Friday evening and worked with the students and their teachers over the weekend.

Our second conference was at Leeds Trinity University with Peace Laureate Mairead Corrigan Maguire who, with Betty Williams, co-founded Peace People committed to building a just and peaceful society in Northern Ireland. Together they were awarded the Peace Prize in 1976. She is also a co-founder of the Nobel Women’s Peace Initiative working for women and children’s rights around the world. She has a particularly infectious brand of optimism which lit up students, teachers and youth workers over the whole weekend.

Our work would not be so effective were it not for

The Burns Price Foundation, which promotes good citizenship amongst young people in the UK and which has supported our work again this year by providing scholarships to enable young people from disadvantaged schools to attend the youth conferences. We are very appreciative of their support, which will carry forward to 2018.

## Discussion meetings and events

### What underlines North Korea’s drive to acquire nuclear weapons?

At a British Pugwash discussion meeting on 25 April 2017 at University College London, John Everard, a former British ambassador to North Korea, discussed the DPRK’s nuclear programme against the background of recent events, considering the North Koreans’ objectives and what is known of their nuclear doctrine.

### “Peering into the Future - The Bumpy Road Ahead”

Lord Martin Rees, Astronomer Royal and Fellow of Trinity College Cambridge, gave a lecture on 5 November at the School of Oriental and African Studies entitled “Peering into the Future: The Bumpy Road Ahead”. The meeting was co-hosted by the Centre for International Studies and Diplomacy (CISD) and British Pugwash. Lord Rees argued that “our Earth is 45 million centuries old, but this century is the first when one species – ours – can determine the biosphere’s fate.” There are threats to climate and biodiversity from the collective “footprint” of 9-11 billion people seeking food, resources and energy. In addition, our globally-linked society is vulnerable to the unintended consequences of powerful new technologies – not only nuclear, but (even more) biotech, cyber, advanced A.I., and so forth. We need international guidelines to promote maximum benefits of new technologies, while minimizing catastrophic risks.

### Sir Joseph Rotblat honoured by Polish Heritage Society plaque

Members of British Pugwash were delighted to participate in a ceremony on 6 November, in which a plaque honouring Sir Joseph Rotblat was unveiled on the corner of Bury Place and Great Russell Street, London WC1B 3BJ. The event was organised by Polish Heritage Society UK, to commemorate Sir Joseph’s life and his important contributions in the areas of science and politics. The ceremony was attended by the Polish Ambassador to London, Arkady Rzegocki, Sir Joseph’s niece Frances, Astronomer Royal Lord Rees of Ludlow, and Camden Mayor Richard Cotton.

## International Pugwash

### 62nd International Pugwash conference

The 62nd International Pugwash conference, Confronting New Nuclear Dangers, was held in Astana, Kazakhstan from 25-29 August 2017. The record of the proceedings is at: <https://pugwash.org/2017/08/25/62nd-pugwash-conference-astana/>

### Pugwash Photo Archive

The Pugwash photo archive, based at British Pugwash, aims to organise, index and digitise the collection and eventually make it available to Pugwash members and the public through a searchable database. The first stage of the project – to enter all relevant photographs onto the database – is almost complete. Some of the Pugwash conference participants pictured over some 50 years have been identified and the main task now is to gather more detailed information on the people in each photograph. We continue to upload photos to our blog, asking members of Pugwash and others to help us with further information on the many Pugwashites who appear in the photographs over more than five decades.

### British Pugwash Trust Trustees 2017

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