

A CONSCIENCE IN ACTION

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Reiner Braun, Robert Hinde, David Krieger, Harold Kroto, and Sally Milne, eds. *Joseph Rotblat: Visionary for Peace*. Weinheim, Germany: Wiley-VCH Verlag GmbH & Co. KGaA, 2007. Pp. xiv, 355. ISBN 978-3-527-40690-6 (hb). US\$60.

People who detest barbarism start to act in a barbaric way. This is the insanity of war.
(Joseph Rotblat, p. 168)

Bertrand Russell's famous 1954 BBC broadcast "Man's Peril" concerned humanity's fate in an era of nuclear weaponry. Soon after this event, it occurred to Russell that a further course of action would be to persuade prominent scientists from both sides of the Iron Curtain to sign a statement emphasizing the importance of joint action in addressing the spectre of a world in which there was availability of and even will to use nuclear armaments. He sent a draft of his petition to Albert Einstein for approval. Shortly thereafter, on a flight from Rome to Paris, Russell heard the pilot's announcement that Einstein had

died. Upon arriving at his Paris hotel, Russell found a letter from Einstein agreeing to sign Russell's statement. In his autobiography, Russell reports: "This was one of the last acts of his [Einstein's] public life."

Joseph Rotblat (1908–2005)¹ met Russell in 1954 at a dinner-discussion given by the BBC on the results of the Bikini test and the future of nuclear weapons. Rotblat went on to become an adviser to Russell on the details of nuclear weapon science and was subsequently recruited by the latter to sign the same document Einstein had. Rotblat chaired the press conference on 9 July 1955 at Caxton Hall in London, presenting the world with what became known as the Russell–Einstein Manifesto. Rotblat was the Manifesto's youngest and, until his death in 2005, the last surviving signatory.

Although Rotblat was not a Nobel Laureate, Russell predicted, correctly, that he would eventually become one. In reference to Rotblat and his activities, Russell remarked:

He can have few rivals in the courage and integrity and complete self-abnegation with which he has given up his own career (in which, however, he still remains eminent) to devote himself to combatting the nuclear peril as well as other, allied evils. If ever these evils are eradicated and international affairs are straightened out, his name should stand very high indeed among the heroes. (Auto. 3: 77–8)

Joseph Rotblat: Visionary for Peace is a compilation of tributes to the late Joseph Rotblat published by Wiley-vch. It features no less than 45 contributors. The volume is a celebration of one of the truly great activists for nuclear disarmament. It also features as an 84-page appendix eight of his most historic writings. There is also a new photograph of Russell (p. 89). As justly famous as Rotblat is for his efforts to prevent nuclear war, though, his distinction in this arena tends to eclipse his other impressive achievements, most notably those in nuclear and medical physics. *Joseph Rotblat: Visionary for Peace* is valuable for the attention it draws to both the more and less famous aspects of his legacy.

In the present reviewer's opinion, the book's reminiscences have some unnecessary overlap and the editors could perhaps have more strongly encouraged each contributor to further develop instead the *distinctive* things they had to say about Rotblat. Somewhat less forgivable, considering the rich details of Rotblat's life, is the book's lack of an index.

A Polish Jew, Rotblat earned his doctorate in physics from the University of Warsaw. Among the first to conclude in the late 1930s that the huge energy released by fission together with neutron multiplication led to the possibility of a chain reaction, Rotblat realized vividly the potential for a bomb of immense

¹ Rotblat was the recipient of the 1983 Bertrand Russell Society Award (McCoy, *Visionary for Peace*, p. 205, and Rotblat's c.v., *ibid.*, p. 346).

destructive powers.

In 1939, Rotblat obtained a grant to study abroad and he took on a research fellowship at the University of Liverpool to work under James Chadwick, the man who discovered the neutron. He accompanied Chadwick to Los Alamos National Laboratory as a member of the British team² assigned to the Manhattan Project in 1944. Although it certainly was not his later view, he saw deterrence, at this stage, as a valid option.

Toward the end of 1944, the impossibility of Germany developing an atomic bomb became clear. Contingency plans were developed for using the bomb as a means to help contain the Soviet Union, an erstwhile World War II ally. After learning of this, Rotblat resigned from the Manhattan Project—the only scientist who opted to leave the project for reasons of conscience. After his departure from the Manhattan Project, American security agents suspected Rotblat of being a spy. Federal agents shadowed and followed him. They also confiscated all his research papers.

Upon his return to England in 1945, Rotblat left defence work for medicine. Chadwick initially protested that, were Rotblat to make such a change in careers, it would result in both a profound loss to nuclear physics and Rotblat's forfeiture of an opportunity for a Royal Society fellowship (Finney, *Visionary*, pp. 15, 28). Fortunately, Rotblat's departure from defence work eventuated in neither development. (His place in the formal history of nuclear physics is secure—he was elected to the UK's Royal Society in 1995.)

In his capacity as a physics professor and a medical physicist (1950–76) at University of London's St. Bartholomew's Hospital Medical College (Bart's), Rotblat directed attention toward the biological hazards of nuclear radiation and the severity of fallout from atmospheric testing of nuclear weapons. Several contributors to *Joseph Rotblat: Visionary for Peace* make evident the range of Rotblat's medical achievements. For example, environmental scientist and political consultant John P. Holdren describes Rotblat as “pioneering the use of linear accelerators for radiation therapy and becoming one of the world's leading authorities on fallout and the effects of ionizing radiation on humans” (p. 156). Chemist Harry Kroto informs us “He [Rotblat] had carried out some of the first body scanning experiments—and developed what he called the poor man's scanner. Apparently he had been visited at one time by Peter Mansfield who later won the Nobel Prize for his part in the development of the nuclear magnetic resonance for body scanning” (p. 193). And physicist John Finney credits Rotblat with making “the first major step in nuclear medicine in the UK with the use in 1948 of radio iodine in the location of a thoracic goiter. The distribution of lead in an organism was studied using the photographic emulsion technique

² Rotblat did not become a British citizen, however, until after the war.

he was instrumental in optimizing. One of the earliest papers he authored from St. Bartholomew's Medical School [concerned] ... the use of nuclear emulsions to locate a radioactive atom by tracing the origin of the tracks emanating from it" (p. 27). Over the final decade of his professorship at Bart's, Rotblat evolved into one of the leading figures in British medical physics.

His acumen in the realms of both nuclear and medical physics enabled Rotblat to assess and predict the fallout from nuclear tests. The Castle Bravo test conducted by the USA at Bikini Atoll on 1 March 1954 scattered radioactive dust throughout the restricted and surrounding area. As a result of his war-time experience, Rotblat was successful at solving one of the fundamental puzzles of the H-bomb's structure. In 1955, he produced a paper proving there was a further fission phase at the end of the Bikini Atoll test explosion, increasing the amount of the radioactivity 1,000-fold. The media publicized his research, and the ensuing controversy ultimately resulted in the Partial Test Ban Treaty and an end to atmospheric testing.

Rotblat urged scientists to take a Hippocratic oath assuming individual responsibility for how they deploy their talents and training. Well aware of the scientific community's revulsion at any suggestion that there ought to be some limits on a scientist's freedom, he contended that all scientists are first and foremost *citizens*. As a consequence of petitioning scientists to refrain from this "deadly research", he was placed on the blacklist of Senator McCarthy. A self-described disciple of Niels Bohr's "open society" vision, Rotblat championed whistleblowers like the Israeli nuclear technician Mordechai Vanunu on grounds of the global population's right to know of threats to the whole planet's well being (Rotblat, *Visionary*, pp. 323–8). (Rotblat nominated Vanunu many times as a candidate for the Nobel Peace Prize [Braun, p. 108]).

The physicist and mathematician Freeman Dyson notes the parallel between the challenges posed to physicists by fission and those posed to biologists by recombinant DNA technology. He notes that the biologists agreed to regulations of the new advances in their field while the physicists failed to do so (p. 132). He provides a rivetting account of a meeting of physicists he held in January 1939 at George Washington University in Washington, DC. It was attended by the scientific luminaries Niels Bohr and Enrico Fermi. Dyson recalls the petty rivalries between Bohr and Fermi about respective scientific credit: "No brave spirits emerged from the community of physicists at the meeting... Neither Bohr nor Fermi was able to rise above their parochial concerns. Neither of them felt any urgent need to deal with the larger issues that fission had raised" (pp. 132–3). Dyson depicts the occasion as "the last chance for physicists to establish an ethical tradition against nuclear weapons, similar to the Hippocratic tradition that stopped biologists from promoting biological weapons" (p. 131). "Why did they not at least try to achieve a consensus of physicists against nuclear weapons before it was too late? Perhaps they would have acted, *if Joseph Rotblat had been there*

to urge them on” (pp. 131–2; emphasis added).

Rotblat served as founding secretary-general and later as president of the Pugwash Conferences on Science and World Affairs, which began in 1957, and at which key scientists and other people from different countries could confer about the peril facing the world of nuclear weapons. Writer and consultant Sandra Ionno Butcher mentions both Rotblat’s and Russell’s tenacity in urging that such conferences consist of individuals free to discuss the issues as they pleased, instead of governmental representatives necessarily restricted in what they felt free to acknowledge or discuss (p. 72). Butcher’s account implies that this conviction was one of the fixed stars in the constellations of both Russell and Rotblat’s political understanding. However, physicist Francesco Calogero would have us understand Rotblat’s belief that there was a need for Pugwash to “go public” and thereby “try and reach public opinions at large” as having come to him later on—an intellectual trajectory “quite analogous to that which his mentor, Bertrand Russell, had gone through much earlier” (p. 61).

In 1995, Joseph Rotblat and the Pugwash Conferences were jointly awarded the Nobel Prize for Peace. Diplomat Mohamed ElBaradei aptly characterizes Rotblat as having combined “the best qualities of a scientist with those of a socially conscious statesman. He was inquisitive, reflective, incisive in his logic, and direct in expressing his convictions” (p. 137). As journalist Reiner Braun says, “He [Rotblat] has given us a baton. It is our task now to continue his commitment to a peaceful and fair world” (p. 109).

Indeed, accolades for Rotblat from the more politically eminent contributors also abound in *Joseph Rotblat: Visionary for Peace*. Mikhail Gorbachev states in his contribution: “In the discussions of nuclear disarmament issues at meetings of Nobel Peace Prize winners, ... he [Rotblat] was the best qualified and perhaps the most passionate participant” (p. 146). Former South Korean president and Nobel peace laureate Kim Dae Jung speaks of Rotblat as a “conscience in action”: “Sir Joseph³ provided invaluable support in the efforts to resolve the North Korean nuclear issue and to maintain peace on the Korean Peninsula” (p. 125). And South Korean political scientist Mark Byung-Moon Suh reflects on how “Thanks to his [Rotblat’s] good example, the Pugwash Conferences on Science and World Affairs is respected in Korea as the conscience of scientists” (p. 250).

In his contribution to *Visionary of Peace*, physicist Paolo Cotta-Ramusino reminds us that “Utopia” is Greek for “something that exists nowhere.” With this understanding, “the real ‘utopia’ ... is to believe that humankind can continue forever in allowing some states to have nuclear weapons and others not, that nuclear weapons can be accumulated in various arsenals and never be used,

³ Rotblat was knighted in 1998.

that non-nuclear-weapon states when pressured by nuclear states will not try to acquire nuclear weapons, that dangerous fissile materials are well-enough protected so as to never fall into potential terrorists' hands" (p. 124).

"Realism" for Rotblat, by contrast, involved the quest for an international order in which nuclear weapons are banned.

Although Rotblat was dismissed by many during his time as a woolly idealist, the 21st century has seen the day when Robert McNamara, architect of the Vietnam war, has denounced current US nuclear weapons policy as "immoral, illegal, militarily unnecessary, and dreadfully dangerous". Even the *Wall Street Journal's* editorial page featured, on 4 January 2007, a column by Henry Kissinger, George Schultz, William Perry, and Sam Nunn calling for an end to nuclear weapons. Thus Rotblat was not only a conscience in action but a conscience ahead of its time.
