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RESEARCH ARTICLE

# Showcasing the international atom: the *IAEA Bulletin* as a visual science diplomacy instrument, 1958–1962

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## Abstract

When the International Atomic Energy Agency (IAEA) began operations in 1958, one of its first routine tasks was to create and circulate a brief non-technical periodical. This article analyses the creation of the *IAEA Bulletin* and its circulation during its first years. It finds that diplomatic imperatives both in IAEA leadership circles and in the networks outside them shaped the form and appearance of the bulletin. In the hands of the IAEA's Division of Public Information, the bulletin became an instrument of science diplomacy, its imagery conveying the motivations for member states to strengthen ties with the IAEA, while simultaneously persuading them to accept the hierarchies and geopolitical logics implicit in those relations, as well as to endorse the central position of the IAEA as a clearing house and authority of globally circulating nuclear objects and information.

Today, the International Atomic Energy Agency (IAEA) has a widespread diplomatic presence. Nuclear safeguards monitoring, routine safety inspections, emergency security missions, technical cooperation, expert panels on any number of nuclear science and engineering issues – all of these activities extend the IAEA's diplomatic hand throughout the world, as do the IAEA's administrators and scientists. The IAEA's appearance in the last year in war-torn Ukraine in the wake of the Russian invasion comes as a now expected marker of the agency's and the international community's concern for the security of nuclear facilities.

However, when the IAEA launched its operations at the start of 1958, few of these activities were under way and the agency's extension as an international institution was uncertain. Its first leaders faced a vexing question: just how would the new organization establish and extend its influence and therefore announce itself as an important player in the nascent global circulation of nuclear technoscience and energy? And how and why should the IAEA be the global circuit and arbiter of the flow of nuclear knowledge and technology? These questions would be answered as the IAEA articulated its global presence in several ways. The agency sent experts to various locations around the globe to advise on peaceful uses of atomic energy. It organized scientific and consultancy panels. It carried out the safeguarding of sensitive nuclear materials. However, while all of these means ultimately came to pass, each of them required substantial time to transpire or reached only a very specific and limited institutional audience.

In other words, at the moment when the IAEA appeared in the constellation of national and international atomic and scientific institutions, it possessed almost no means of effecting or promoting its global mission. There was, however, one exception to this: its non-technical bulletin, printed in the thousands and delivered to embassies, national

atomic commissions, universities, libraries, businesses, news services and sometimes simply the curious. A brief, non-technical periodical might seem an unlikely instrument for pursuing the agency's goal of exercising global influence in nuclear science and atomic energy matters. This article argues that, in fact, it was a crucial visual diplomacy device, one that required the images inside to acquire new roles as mute diplomatic agents. The establishment of the *IAEA Bulletin* as a significant periodical for nuclear information and image dissemination realized the agency's global reach.

Recent scholarly work suggests why this mattered. The IAEA came to exert a significant global influence on nuclear technoscience, which in turn defined distinctive geopolitical relationships. The agency did not just exhibit an entrepreneurship of nuclear techniques that fused scientific novelty and diplomatic necessity, but, in Jacob Hamblin's view, promoted peaceful nuclear techniques to maintain a highly asymmetrical global order and, at times, further US geopolitical goals.[1] Meanwhile, Elisabeth Roehrlich observes that the IAEA's mission was seemingly paradoxical from the agency's inception, 'sharing nuclear materials, technology, and knowledge while aiming to deter nuclear weapons programs'.[2] The IAEA's ability to promote the circulation of nuclear techniques lessened the tension presented by this paradox, while simultaneously furthering a given nuclear global order and, as Roehrlich observes, forging the IAEA as a key, efficacious international organization. The agency deliberately cultivated an interest in given areas of nuclear science and technology in no small part to better position itself in the global atomic network.[3] At the same time, the IAEA statutes, the composition of its governing body and the influence of key diplomats within the agency defined geopolitical relationships and positioned given countries in the international nuclear complex.[4]

The *IAEA Bulletin* therefore showcased not only policies but also international relations and their meaning. For this, the visual was key, an observation significant for widening the study of nuclear imagery and rhetoric. Much attention has come to images of the nuclear in popular culture and their interpretation as harbingers of utopia or dystopia.[5] Less attention has fallen on nuclear texts and images as representing relations between countries and institutions, and the underlying means and reasons for those relations. However, we are now seeing how exhibitions of nuclear technologies and instruments acted to stimulate 'the education of desire'. John Krige observes that in the case of the US exhibition at the 1955 Geneva conference, US policy makers deliberately set out to stimulate a global desire to enter into the asymmetrical technopolitical arrangement they preferred.[6] The IAEA ('the most enduring institutional fruit' of the US Atoms for Peace initiative, according to Krige) also cultivated the education of desire for the peaceful

1 Jacob Darwin Hamblin, *The Wretched Atom: America's Global Gamble with Peaceful Nuclear Technology*, Oxford: Oxford University Press, 2021.

2 Elisabeth Roehrlich, *Inspectors for Peace: A History of the International Atomic Energy Agency*, Baltimore: Johns Hopkins University Press, 2022, p. 3.

3 Gisela Mateos and Edna Suárez-Díaz, 'Creating the need in Mexico: the IAEA's technical assistance programs for less developed countries (1958–68)', *History and Technology* (2021) 36(3–4), pp. 1–19; Matthew Adamson, 'Science diplomacy at the International Atomic Energy Agency: isotope hydrology, development, and the establishment of a technique', *Journal of Contemporary History* (2021) 56(3), pp. 522–42.

4 Gabrielle Hecht, 'Negotiating global nuclearities: apartheid, decolonization, and the Cold War in the making of the IAEA', *Osiris* (2006), 21(1), pp. 25–48.

5 For examples of this substantial literature see Spencer R. Weart, *The Rise of Nuclear Fear*, Cambridge, MA: Harvard University Press, 2012; Allan M. Winkler, *Life under a Cloud: American Anxiety about the Atom*, New York: Oxford University Press, 1993; Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age*, Chapel Hill: University of North Carolina Press, 1985.

6 John Krige, 'Techno-utopian dreams, techno-political realities: the education of desire for the peaceful atom', in Michael D. Gordin, Helen Tilley and Gyan Prakash (eds.) *Utopia/Dystopia: Conditions of Historical Possibility*, Princeton, NJ: Princeton University Press, 2010, pp. 151–75, 152.

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atom, in the form of mobile exhibitions as well as the survey and informational instruments of its preliminary assistance missions.[7] Yet the significance of the IAEA's public appearance and projection is still to be fully explored. Kenneth Osgood notes that the US Atoms for Peace publicity campaign was 'the largest and most concerted propaganda campaign' to materialize amidst the massive US 1950 propaganda effort, mobilizing films and travelling exhibitions. However, his work does not evaluate the IAEA or consider the meaning of IAEA-generated visual imagery.[8]

The present study aims to further and enlarge the above historical observations by considering the seemingly banal *IAEA Bulletin*. The bulletin's significance was rooted in its role in the circulation of nuclear technoscience and the messages about international relations and nuclear technoscience delivered by the bulletin's images. These messages, carefully selected by the IAEA administration, conveyed a propaedeutic message about the novel and complex relations that association with the IAEA entailed – relations involving dozens of member states, the UN and other international organizations, and numerous non-state actors. More to the point, the bulletin visually conveyed an argument about the legitimacy of the bipolar structure of these relations in the Cold War world.

The bulletin's images became a mute diplomatic agent for 'influencing, shaping and transforming relations between actors and across publics'.[9] As M. Norton Wise notes, such visual tools, and especially the images in them, can be understood 'as arguments'.[10] These image–arguments have the capacity to 'mobilize new material realities'[11] – in the case of the imagery of the early *IAEA Bulletin*, a capacity to evoke modernity. This evocation of modernity was not the presentation of nuclear utopian fantasy but, rather, a representation of development, which, Nick Cullather notes, comprises 'a visual language of blueprints, charts, and allegories' – and, in this case, photographic images.[12] The *IAEA Bulletin*, in other words, suggested different ways in which nuclear technoscience could transform member states' material capacities and transform them into more modern societies. In this way, the bulletin's images were powerful signals for the sorts of relations these member states should have with the IAEA in the processes of those transformations.[13]

This article therefore explores how the *IAEA Bulletin*, through its images, became an instrument of science diplomacy. It looks first at how the IAEA leadership and

7 Maria Rentetzi 'With strings attached: gift-giving to the International Atomic Energy Agency and US foreign policy', *Endeavour* (2021) 45(1–2), 100754. Gisela Mateos and Edna Suárez-Díaz, 'Atomic ambassadors: the IAEA's first preliminary assistance mission (1958)', *History and Technology*, (2021) 37(1), 90–105.

8 Kenneth Osgood, *Total Cold War: Eisenhower's Secret Propaganda Battle at Home and Abroad*, Lawrence: University Press of Kansas, 2006, p. 10.

9 Costas M. Constantinou, 'Visual diplomacy: reflections on diplomatic spectacle and cinematic thinking', *The Hague Journal of Diplomacy* (2018) 13(4), pp. 387–409, 387.

10 M. Norton Wise, 'Making visible', *Isis* (2006) 97, pp. 75–82, 75.

11 James L. Hevia, *The Photography Complex: Exposing Boxer-Era China (1900–1901), Making Civilization*, Durham, NC: Duke University Press, 2014, p. 223.

12 Nick Cullather, 'Miracles of modernization: the Green Revolution and the apotheosis of technology', *Diplomatic History* (April 2004), 28(2), 227–54, 254.

13 For an introduction see Sheila Jasanoff and Sang-Hyun Kim, *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, Chicago: The University of Chicago Press, 2015. The most directly relevant source here is Jasanoff and Kim, 'Containing the atom: sociotechnical imaginaries and nuclear power in the United States and South Korea', *Minerva* (2009) 47(2), pp. 119–46. Notably, Jasanoff and Kim find that in the US and South Korea the state used different imaginaries of the same technoscientific phenomenon in an effort to effect the emplacement and expansion of a nuclear energy complex. In the United States, these imaginaries took the form of the presentation of the state as a regulator of a potentially dangerous technology. In South Korea, they took the form of the state as a motor for development. For imaginaries and their power in a different scientific and diplomatic realm see Sam Robinson, 'Scientific imaginaries and science diplomacy: the case of ocean exploitation', *Centaurus* (2021) 63(1), pp. 150–70.

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administration shaped the content and messaging of the bulletin. It next considers the scientific and diplomatic networks that conveyed the bulletin to various countries and readerships. It then turns to the bulletin itself and the images within it, how in its first two years the bulletin's content and images suggested given technopolitical arrangements and relations, and how the bulletin's managers, uncertain at first of the implications of the bulletin's messaging, came to carefully direct this content and responses to it. What this article finds is that non-technical periodicals such as the *IAEA Bulletin* – media of paper and ink, planned and implemented by technocratic bureaucracies, full of image signals – merit further historical study to determine their significance in the execution of international technoscientific diplomacy exercises and goals.

## The contested creation of a science diplomacy instrument

Although the creation of a bulletin was an expected responsibility for any UN agency, the shape of the *IAEA Bulletin* was highly contested. In fact, the lively debate in the IAEA leadership about the role of the agency and the public appeal of nuclear technoscience decisively formed what became the *IAEA Bulletin*. While at first sight this all could be understood as just a public-relations operation, it entailed more than that. The initial debate in the IAEA leadership about the bulletin and its nature concerned the future global nuclear order and demonstrated the need for images to convey messages that would persuade readers of the necessity to join the IAEA's techno-diplomatic network.

In the first half of 1957, the IAEA Preparatory Commission had first called for a bulletin to be made available. It was left to two IAEA bodies, the Secretariat (the IAEA administrative organ) and the Board of Governors (its executive council) to determine the bulletin's basic form and audience. Both would ultimately play a significant role in the development of the bulletin, but it was the head of the IAEA's Secretariat, deputy director general Paul Jolles, who initiated the process. Jolles, a diplomat who had worked on atomic energy in his native Switzerland and who had then been tapped to serve as executive secretary of the Preparatory Commission, took *The United Nations Review* as a comparable model and prepared the grounds for a discussion in the Board of Governors.[14] He speculated on possible characteristics of the bulletin: print runs of three thousand to five thousand in the IAEA's four working languages of the time (English, French, Russian, Spanish), eight pages, and content confined to articles concerning the activities of the IAEA or the peaceful uses of atomic energy in the member states, in a 'restrained style of presentation in keeping with the serious nature of the bulletin'. In Jolles's initial vision, the target audience would also be restricted: other UN bodies, member state governments, scientific institutions and 'interested non-governmental organisations'.[15]

Jolles provided a short memo for the Board of Governors to spell out the issues they should consider at their 19 December 1957 meeting: bulletin contents, distribution, frequency of publication, appearance, languages, print run quantity and staffing requirements.[16] In the event, the heart of the debate concerned readership. A majority of governors thought that the IAEA might miss an opportunity to broaden its audience and on two counts begged to differ with Jolles's restricted concept. The French governor, radiochemist Bertrand Goldschmidt, had opened the board's discussion with a declaration

14 P. Jolles to A. Galagan, 10 December 1957, Archives of the International Atomic Energy Commission (hereafter IAEA), S-281-1(2).

15 Jolles articulated these characteristics at the opening of the 19 December 1957 meeting of the Board of Governors. Summary record of the thirty-first meeting of the Board of Governors, 19 December 1957, IAEA, GOV/OR.31.

16 'Initial considerations of plans for the non-technical bulletin', 18 December 1957, IAEA, GOV/70.

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that the bulletin should serve 'as a publicity medium' given that many people knew nothing about the IAEA. Other governors – from Japan, India and Sweden – agreed with Goldschmidt's assertion, and the Soviet governor, metallurgist Vasilij Emelyanov, elaborated on this expansive notion of readership to single out peaceful applications:

> [The bulletin] would interest engineers, who were being called upon to use radioisotopes to an increasing extent; agricultural technicians, who were using radioactive methods for the improvement of fertilizers and provision of pest control and plant protection; and, in general, all atomic research and training institutions, as well as government organizations concerned with the use of atomic energy for peaceful purposes.

In Emelyanov's inspired view, the optimism started by the 1955 Geneva Convention on the Peaceful Uses of Atomic Energy was still present worldwide and the bulletin could be a platform for its representation.[17]

However, Michael Michaels, from the United Kingdom, and South African Donald Sole pushed back. Their circumscribed vision entailed the bulletin being sent only to member state governments and delegations, Michaels giving an exceedingly low estimate of 'of five, or at most, ten free copies' to each member state. Egyptian Ismail Fahmy came to the defence of a wider distribution by noting that the Preparatory Commission had explicitly called for it. Michaels snapped back that 'no one could seriously maintain that the man in the street, in any country in the world, was passionately interested in the Board's discussions and the offers of assistance made to the Agency', and doubted Fahmy's interpretation of the Preparatory Commission's use of the word 'public'. Fahmy responded that the French translation was indeed *le grand public* and nowhere in its decisions did the Preparatory Commission confound 'public' with 'member state'. In the end, no consensus emerged. Under these circumstances, Sole's suggestion that a 'a trial run' might help the agency better gauge the real extent of interest in the bulletin seemed perfectly sensible.[18]

Jolles thus set out to create a dummy issue. He imagined as readers '[g]overnment officials, civic and business leaders, officials of co-operating organizations, governmental and non-governmental', and therefore favoured a bulletin appealing to the educated layperson and avoiding 'officialese' and overly technical language. The periodical, now estimated at sixteen pages, would initially focus on the IAEA's chief leadership, its statutes and news from member states. Its working title was *World Atomics*.[19] Lars Lind, an administrator from Sweden, head of the IAEA Secretariat's Division of Public Information, 'seriously worried' that the dummy would not impress 'the rather critical Board'.[20]

Well that he should. The Secretariat's Division of Public Information had to prepare the dummy in a hurry, for the April 1958 gathering of the Board of Governors. The result was a proof of concept, and the rush showed. Governors who had argued with a passion for a wide circulation were especially unhappy. Indian governor Balachandra Rajan thought the dummy 'rather thin in substance' and 'somewhat garish'. Goldschmidt (France) and Markov (USSR, filling in for Emelyanov) worried that the bulletin would fail to impress the target readership of 'high-ranking national officials and members of Governments'

17 Summary record of the thirty-first meeting of the Board of Governors, 19 December 1957, IAEA, GOV/OR.31.

18 Summary record of the thirty-first meeting of the Board of Governors, 19 December 1957, IAEA, GOV/OR.31.

19 Paul R. Jolles, memo, 'dummy of the Non-Technical Bulletin', 5 February 1958, IAEA, S-281-1(2).

20 Lars Lind to Paul Fent, 17 February 1958, IAEA, S-281-1(2).

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and that it was imperative that a polished bulletin be ready by the September 1958 general conference. Indeed, the content was uninspired, involving bland diplomatic statements from director general Sterling Cole, a description of the IAEA statutes, brief biographies of a few key personalities and ordinary news items from member states. Most especially, the cover image failed to deliver. The picture of the futuristic cylinders and spheres of a Cockcroft–Walton generator (in this case, CERN's) was by then a cliché of the atomic age and did nothing to speak to the peculiar mission of the IAEA.[21]

At least the dummy succeeded as a trigger for constructive feedback. As unhappy as Markov might have appeared, he pressed ahead with the conception of the bulletin as an instrument of science diplomacy. As he put it, 'a vital part of the Agency's task lay in the field of public relations'. Markov bemoaned the lack of mention of the IAEA's fellowship programme (there were two hundred fellowships available), of the training of experts, and of the provision of consultants, though all this 'was likely to be the Agency's main achievement during the coming year'. The agency was already fashioning itself into a hub of technoscientific circulation and the dummy failed to reflect this. Markov recommended that future bulletins devote sections to the agency's contributions to economic and industrial development, to agricultural and scientific research, to the 'role of atomic energy in under-developed countries' and to the assistance these countries requested from the agency. Crucially, this had to come with a visual element, 'photographs illustrating the peaceful uses of atomic energy'. Even Michaels, putting aside his scepticism, contributed ideas for articles and urged the Secretariat to rid itself of 'World Atomics' and adopt a title 'consistent with the dignity of the Agency'.[22]

The Board of Governors' conversation had provided the chance for director general Cole to spring a trap: the IAEA's Public Information Division could indeed produce a better bulletin, if the board would stop rejecting his proposal to have the division expanded.[23] The Board of Governors gave way and concurred. That enlarged staff was now on the clock to produce an improved dummy by the September 1958 general conference. Lars Lind would coordinate the effort. His vision of the bulletin's purpose, distinct from Jolles's vague idea, had grown sharper. Monthly publication of the bulletin was clearly overambitious.[24] Lind argued for the production of a quarterly, which would resemble UNESCO's discontinued, bulletin-like *Chronicle* (as opposed to UNESCO's high-production-value *Courier*). Besides creating a product presentable to member state representatives, ease of reproducibility was what mattered, something that could be 'used as a clip-sheet by the periodical press'.[25]

A bulletin with more content about the agency greeted the IAEA general conference attendees in September, in line with Lind's production strategy. But, more importantly, the dummy's cover established an image argument for the promise of the IAEA to act as a platform for Cold War transnational harmony: standing in the control room of the Soviet nuclear power plant at Omnsk were American IAEA director general Sterling Cole, deputy director Jolles, Soviet governor Emelyanov, and A.K. Krasin, the power station's director. This image argument not only represented the bulletin as a public-relations instrument, but also produced an image of the agency as an organization promoting modernization and peaceful coexistence led by the countries rich in nuclear

21 Summary record of the 57th meeting of the Board of Governors, 25 April 1958, IAEA.

22 Summary record of the 57th meeting of the Board of Governors, 25 April 1958, IAEA.

23 Summary record of the 58th meeting of the Board of Governors, 25 April 1958, IAEA. The archival record of this meeting is distinct from the 57th meeting of the Board of Governors, but it continued the previous conversation after a lunchbreak.

24 Lars Lind to C.P. Spoeckaert, 13 May 1958, IAEA, S-281-1(2).

25 Lars Lind to Tor Gjesdal (director, Department of Mass Communication, UNESCO), 28 May 1958, IAEA, S-281-1(2).

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technology, such as the USSR and the USA. It also offered a general review of the agency's first year and an article detailing the IAEA's fellowship programme, just as the governors had hoped.

By the time of the January 1959 dummy, IAEA activities were numerous enough to fill an entire issue. In fact, by the 13 April 1959 Board of Governors meeting, the value of the bulletin was apparent to all. Presented with the April 1959 edition, US representative Harold Vedeler observed 'considerable improvement' overall and praised the staff's work. Michaels (United Kingdom) and Soebagio (Indonesia) associated themselves with Vedeler's assessment. The governors then acceded to the director general's request that the issue could serve as the first number.[26] However, the readership of the bulletin remained to be established, and the visual messaging, though hinted at, was indistinct. Only deliberation, reaction and iteration to determine this visual messaging – a historically contingent process belying the neat, tidy performative narratives most often presented by today's science diplomacy's advocates – could complete the bulletin's conversion into a science diplomacy instrument.

## Plugging into the network

Part of this process involved resolving who would receive the bulletin – essentially a diplomatic act prioritizing who should be exposed to the IAEA's message and declaration of mission. Sterling Cole projected the initial print run at 6,200 copies (3,500 in English, 1,200 in French, 1,000 in Spanish and 500 in Russian) at a cost of US$1,720. Distribution would proceed through governments and United Nations information centres, aiming to convey the bulletin to member state administrators and politicians, journalists, publicists, 'radio commentators [and] leaders of non-governmental organizations and educators'.[27] Cole's understanding that 'existing channels of communication' would work to facilitate the bulletin's distribution turned out to be correct, with further initiative taken by the IAEA administration: the Public Information Division attached to the first issue a request for lists of potential addressees. A second such circular from Lind went out at the end of April to reinforce the query.[28] In other words, prior diplomatic networks informed the IAEA administration and played an important role in the bulletin's ultimate circulation.

The response the agency received from its queries suggests that its leadership had underestimated global interest in the publication. South Korea requested fifty copies, as did Yugoslavia. El Salvador's government asked for ten, Thailand's twenty-nine. Monaco wanted twenty copies for its foreign office alone, neutral Sweden fifteen for its. Poland requested fifty copies. The Atomic Energy Centre of Burma (an early sponsor of non-alignment) asked for a hundred copies for 'appropriate institutions and persons', as well as copies sent to the two leading English-language newspapers. The Canadian government requested three hundred issues in English and one hundred in French. Even the Vatican, a state typically reluctant to engage in such earthly matters, asked for copies: six in English, five in French and four in Spanish.[29] Most often, government offices and national atomic energy organizations generated these lists. Important also were local UN information centres, such as in Tokyo, where the director made sure to provide Lind with a list of 'atomic energy organizations, firms active in the field and individual

26 Official Record of the One Hundred and Twenty-Eighth Meeting of the Board of Governors, 13 April 1959, IAEA.

27 The concept of the bulletin and questions of its distribution and cost, note by the Director General, 11 March 1959, GOV/274, IAEA, S-281-1(2).

28 Director general's note accompanying April 1959 *IAEA Bulletin*, 28 April 1959, IAEA, S-281-1(2).

29 Numerous letters in IAEA, S-281-1(2). For the quoted request from Burma see Hla Nyunt, director, Burma Atomic Energy Centre, to the director general, IAEA, 2, June 1959.

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scientists'. Similarly, the UN information centre in Rome, trawling for readers in Italy, found hundreds more addresses to add to the lists at IAEA headquarters in Vienna.[30] Additionally, once the bulletin started its global circulation, a host of institutions – university libraries, national atomic energy commissions, NGOs, trade associations, private firms – made the IAEA's task easier by actively reaching out to request regular delivery of the bulletin.

Through the distribution of the bulletin, the IAEA was plugging itself into the overlapping technoscientific and diplomatic networks that comprised the nuclear world. Some of the most important of these had state nuclear authorities at their centre. For example, when the IAEA reached out to Brazil's CNEN (Commisão Nacional de Energia Nuclear), the CNEN's chair offered his organization's help in distributing the bulletin to the relevant people and institutions in Brazil (which meant they needed fifty more copies).[31] Similarly, the Indian Atomic Energy Commission requested one hundred additional copies of the November 1959 *IAEA Bulletin* (which carefully recorded the discussion on 'the Future of Nuclear Energy' at the September 1959 IAEA general conference) for rapid distribution around India.[32]

Equally significant were networks of private enterprises and trade associations comprising the technological backbone of the growing nuclear industry – another set of crucial actors in international nuclear relations. In the US, General Electric and Goodyear were among the companies insisting on delivery of the bulletin.[33] In France, the publisher of *Electronique*, a French trade journal with a regular section entitled 'Energie nucléaire' proposed to distribute the *IAEA Bulletin* to French private industry.[34] Similarly, at the international level, the World Power Conference (WPC) volunteered to aid the IAEA in the bulletin's distribution, inviting the agency to use its address book for the purpose.[35] Drawing in the WPC meant multiplying the channels with which the agency could reach potential readers. The WPC came to have a consultative status with the IAEA and its leadership was upset when the bulletin neglected to acknowledge the nuclear energy section of its June 1960 World Power Conference in Madrid. Lars Lind used the bulletin itself as a means of reconciliation, inviting the WPC to contribute an article concerning a future WPC.[36]

The diplomatic care that Lind took with the WPC illustrated how the bulletin's impact depended in part on diplomatic positioning at the nodes of overlapping networks. By such placement, the IAEA invested itself in numerous areas of nuclear technoscience and engaged in international nuclear networks, and its bulletin became a clearing house for relevant information. However, for the bulletin to function as an instrument of the agency's diplomacy, it needed not simply to be an index of events or organizations; it had to have a distinct, visible, easily read message chiming with its mission. Part of that message might be rather simple, as illustrated by an image from the October 1959 bulletin, in a review of the IAEA's first year of operation. Accompanying the text

30 V.J.G. Stavridi, director, UN Information Centre, Tokyo, to Lars Lind, 5 June 1959; Lars Lind to Martin Arostegui, director, UN Information Centre, Rome, 11 January 1960, IAEA, S-281-1(2).

31 Octacilio Cunha, CNEN (Brazil), to Sterling Cole, 8 June 1959, IAEA, S-281-1(2).

32 Shri N.T. Gulrajani, public-relations officer, IAEC, to the director general, IAEA, Vienna, 22 September 1959, IAEA, S-281-1(2).

33 See note, 3 June 1960, and F.E. Croxton, superintendent of information and records, Goodyear Atomic Cooperation, to Ray Schlueter, librarian, IAEA, 27 September 1960, IAEA, S-281-1(2).

34 Maurice Lorach, Editions laboratoires d'études et de publications scientifiques, Paris, to Lars Lind, 22 May 1959; Lars Lind to Maurice Lorach, 2 June 1959, IAEA, S-281-1(2).

35 C.H. Gray, WPC secretary, to Lars Lind, 29 May 1959.

36 C.H. Gray to Lars Lind, 6 February 1961; Lind to Gray, 22 February 1961, IAEA, S-281-1(2). For the article see 'World power conference and atomic energy', *IAEA Bulletin* (January 1962) 4(1), pp. 29–31.

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**Figure 1.** *IAEA Bulletin* (October 1959) 1(3), p. 2.

describing the preliminary assistance missions (PAMs) sent to countries in Asia, South America, North Africa and Southern Europe was a photograph of a welcome banner festooned across the top of a city gateway in Seoul, South Korea (Figure 1). Here was a signal of diplomatic salutation, even honour, an image argument that the IAEA was already an established and significant diplomatic entity.[37] It also implicitly signalled how the modern atom was welcome in more traditional settings, suggesting a harmonious relationship between new and old, future and past.

PAMs were one way for the IAEA to increase its visibility. Another, also reported by the bulletin, was through the journeys of a US-donated mobile radioisotope demonstration lab. The latter has been persuasively analysed as a diplomatic gift, and its diplomatic significance was not lost on the bulletin's editors at the time. The July 1959 bulletin included an account of its travels through Yugoslavia. The image within (Figure 2), of a massive truck rumbling slowly over a frail wooden bridge, told a compelling story, of the cutting-edge agency, conveying modernity, venturing into isolated hollows of the Balkans to spread knowledge of the peaceful atom. The accompanying text consisted of the driver's account of the trials of the trip.[38]

37 'A year of expansion. IAEA extends its operational activity', *IAEA Bulletin* (October 1959) 1(3), pp. 2–6. Descriptions of PAMs would appear in the bulletin for years to come, meaning that mention of new member states appeared in the bulletin as well as the implied order in which they entered the scene, i.e. as recipients of assistance. For more on this crucial early IAEA practice see Mateos and Suárez-Díaz, op. cit. (7). See also Donna Mehos and Suzanne Moon, 'The uses of portability: circulating experts in the technopolitics of Cold War and decolonization', in Gabrielle Hecht (ed.), *Entangled Geographies: Empire and Technopolitics in the Global Cold War*, Cambridge, MA: MIT Press, 2011, pp. 43–74.

38 'With the isotope unit to Athens', *IAEA Bulletin* (July 1959) 1(2), p. 10.

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**Figure 2.** *IAEA Bulletin* (July 1959) 1(2), p. 10. Image Credit: IAEA Archives/E0033-006, 1959.

But this time the bulletin's staff miscalculated. What they thought was a superlative contrast between modernity and tradition left the Yugoslavian authorities in a fury. Undersecretary of state and nuclear diplomat Slobodan Nakićenović protested that the article described the IAEA's mobile radioisotope lab as 'a great exploit, as a journey through the most backward areas in the world'. The Yugoslavs were especially offended by a passage implying that the locals were ready to steal the doors of the mobile lab if the latter were not properly guarded at night. Yugoslavia's representatives were taken aback by exactly the contrast that had seized the imagination of the bulletin's staff. The IAEA – attempting to broadcast the striking modernity of its techniques – cast these techniques in the context of the supposed backwardness of places where IAEA assistance arrived. Claiming no deliberate offense, Sterling Cole responded personally to Nakićenović to deny any deliberate insult.[39]

If anything, the miscalculation demonstrated the diplomatic necessity of more carefully calibrating the bulletin's imagery. The creaky bridge, contrasting harshly with the cutting-edge scientific techniques of the mobile laboratory crossing it, had the effect of distancing the Yugoslavians from the agency, not drawing them in. It represented a misstep that underlined the need for the bulletin's editors to recalculate their visual presentation of the IAEA's outreach. Despite this, distribution of the bulletin was going well. The official distributor of UN literature in the United States welcomed it, praised it as 'impressive, attractive and informative', and gained permission to distribute its contents in the

39 Slobodan Nakicenovic to Sterling Cole, 16 September 1959; Sterling Cole to Slobodan Nakicenovic, 22 September 1959, IAEA, S-281-1(2).

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form of press releases disseminated nationally.[40] The UN Office of Information counted on the bulletin to be the main source for promoting the proceedings of the 1958 Geneva conference.[41] Elsewhere, UN information centres requested more copies.[42] This suggested that the bulletin had clear potential as an instrument of science diplomacy – if the IAEA Public Information Division could better manage the images inside the bulletin and hone them into a coherent message for the agency's outreach to its member states.

## The images and politics of a science diplomacy instrument

Early feedback sent to IAEA headquarters suggested how important images would be in transforming the bulletin from a novel bureaucratic communiqué to a compelling visual realization of a major international organization. Joseph Handler, director of the WHO's Public Information Division – someone familiar with the generation of materials distributed to a mass public – praised Lars Lind and the Public Information Division for 'a good job with this first [April 1959] issue' and then got to the point: 'In all frankness, there was only one reservation, which came from my photo editor ... She thought that the issue could have been more imaginative in view of the fact (as she puts it) that your field lends itself admirably to striking photography.'[43] Part of Lind's dilemma, then, was accessing 'striking photography'. Gradually the bulletin's creators arrived at a number of sources. National atomic programmes sent photographs; other arms of the UN supplied images; and over time the IAEA itself hired photographers for images of its own facilities, personnel and missions.

Therefore, rather than lack of photographic images, the issue was the setting and context of those photographs. Lawrence Scheinman once observed that unlike other international forums such as UNESCO, the IAEA had kept remarkably free of geopolitical rancour and division.[44] Scheinman's observation was more of appearance than reality, but this makes it all the more significant in the context of the bulletin: the bulletin's making demonstrates the degree to which this appearance of geopolitical order, of transcending the divisions of the Cold War, and a sense of opportunity and inclusion in the march towards global nuclear modernity had to be deliberately cultivated in text and images.

Politics was evidently present, as the lively and sometimes acerbic arguments over the bulletin in the Board of Governors had shown. From the first of the dummies, the selection of images in the bulletin illustrated the sensitivity of the IAEA to both global and local political concerns. Not only the September 1958 dummy cover, with its image of Cold War accord, but other issues in the dummy series came with equal deliberation. For the April 1958 dummy, the bulletin's editors chose as subjects for sketches and images key IAEA personalities as well as former Austrian foreign minister Karl Gruber. Describing him as 'special advisor to the director general', the bulletin was tipping its hat to Gruber and the other Austrian authorities who had eased the IAEA into its Vienna surroundings as well as shining a light on the agency's presence in a neutral country serving as a meeting point for the reduction of Cold War divisions.[45]

40 George Wendt to Lars Lind, 18 June 1959; Lars Lind to George Wendt, 24 June 1959, IAEA, S-281-1(2).

41 Basil Larthe, Office of Public Information, UN, New York, to J.A. Cummins, IAEA, Vienna, 24 June 1959, IAEA, S-281-1(2).

42 Lars Lind to V.J.G. Stravridi, director, UN Information Centre, Tokyo, 15 June 1959, IAEA, S-281-1(2). Kenji Ito has analysed this diplomatically momentous episode. See Kenji Ito, 'Three tons of uranium from the International Atomic Energy Agency: diplomacy over nuclear fuel for the Japan Research Reactor-3 at the Board of Governors' meetings, 1958–1959 ', *History and Technology* (2021) 37(1), pp. 67–89.

43 Joseph Handler to Lars Lind, 5 June 1959, IAEA, S-281-1(2).

44 Lawrence Scheinman, *The International Atomic Energy Agency and the World Nuclear Order*, London: Routledge, 1989, p. 33.

45 *IAEA Bulletin* (April 1958) Vol 0-0, IAEA, S-281-1(2). David Fischer, *History of the International Atomic Energy Agency: The First Forty Years*, Vienna: IAEA, 1997, 72.

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In point of fact, the IAEA's diplomatic position was delicate. The Public Information Division quickly learned to carefully edit descriptions of general conference debates in the bulletin after the account of the 1958 debate exposed too much discord and posturing – a makeover stressing 'peaceful co-existence'.[46] The bulletin also could help with the management of the IAEA's relations with other partially overlapping UN agencies.[47] The IAEA Public Information Division deployed the bulletin as a platform for other UN agencies to describe their own areas of atomic activity and therefore make public the scope of their cooperation with the IAEA. In serial fashion appeared articles on UNESCO, the World Meteorological Organisation (WMO), the Food and Agriculture Organisation (FAO) and the International Labour Organisation (ILO). Similarly, the bulletin provided space for other regional organizations invested in atomic energy, such as the OEEC's European Nuclear Energy Agency (ENEA) as well as the Inter-American Nuclear Energy Agency (INEA).[48]

Another pressing diplomatic imperative involved the IAEA's relation to its member states. Here is where the bulletin came into its own as an instrument of science diplomacy. Many member states were newly independent countries and therefore just then making their diplomatic presence felt, and few possessed a nuclear technoscientific infrastructure. The agency had a challenge to persuade them that there was a techno-diplomatic logic to their membership in an international atomic organization. The IAEA's answer was at least partly to be found in its statute, which authorized the IAEA to provide the peaceful applications of atomic energy 'with due consideration for the needs of the under-developed areas of the world'.[49] What this meant, however, was not obvious. The most spectacular nuclear technology falling – admittedly, ambiguously – into the category of 'peaceful' was the generation of electric power by nuclear reactor. However, the optimism about nuclear energy that had erupted with the 1955 Geneva conference was spent. Large-scale nuclear power plants, such as were under development in countries like the US, the UK, France, Canada and the Soviet Union, were capital-intensive and required proficiency with exotic materials and techniques. Smaller-scale power-generating reactors, a subject appearing frequently in early issues of the *IAEA Bulletin*, were technically almost as difficult to build and maintain and appeared years from being available to developing countries. Little wonder that the IAEA's Division of Economic and Technical Assistance was reluctant for the bulletin to publish too many items on nuclear power.[50]

However, from its earliest operations, the IAEA had started to organize technical assistance of a different sort, based in large part on use of radioisotopes in agriculture, medicine and industry. In its first years of operation, the IAEA sent dozens of technical-assistance missions to various countries to demonstrate such techniques and, where possible, to help establish their use, often in coordination with the UN Expanded Program of Technical Assistance.[51] These missions served to define a mode

46 Lars Lind to Paul Jolles, 4 November 1959, IAEA, S-281-1(2).

47 Lars Lind to Andrey Galaghan, 27 April 1959, IAEA, S-281-1(2).

48 See 'FAO and atomic energy', *IAEA Bulletin* (July 1960) 2(3), pp. 25–7; 'WMO and atomic energy', *IAEA Bulletin* (September 1960) 2(4), pp. 20–1; 'ILO and atomic energy', *IAEA Bulletin* (January 1961) 3(1), pp. 23–5; 'Co-operation with ENEA and INEA', *IAEA Bulletin* (April 1961) 3(2), pp. 25–6; as well as 'The OEEC European Nuclear Agency', *IAEA Bulletin* (July 1961) 3(3), pp. 23–6. For more on IAEA relations with other UN agencies see Hamblin, op. cit. (1).

49 The IAEA statute can be found online at www.iaea.org/sites/default/files/statute.pdf.

50 S.K. Dhar to Perry D. Teitelbaum (Division of Economic and Technical Assistance), 15 February 1960, IAEA, S-281-1(2). For a glimpse into observations about nuclear power in the bulletin see 'Nuclear power prospects', *IAEA Bulletin* (September 1960) 2(4), pp. 3–7.

51 These missions and their immediate goals did not always jibe with the recipient member state's own notions of development and therefore did not always succeed in the ways the agency or the member states hoped. Mateos and Suárez-Díaz, op. cit. (3).

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**Figure 3.** *IAEA Bulletin* (September 1961) 3(4), p. 4.

of relations between recipient member states and the IAEA and featured in virtually every issue of the bulletin. Most significantly here, their visual representation honed the bulletin as an instrument of science diplomacy.

The September 1961 issue provides two articles that illustrate the bulletin's approach to depicting technical assistance. The first, 'Radioisotopes and rice', described a set of techniques revolving around the cultivation of rice. Contracting with the IAEA, institutions in Japan, Taiwan and Burma sought various ways to use isotopic tracers to study the metabolism of rice, the uptake of fertilizers into its root system, and the possibility of absorption of radioactive waste products into the plant. The narrative was one of modernity, of how countries receiving agency assistance transcended the limits of traditional knowledge, orthodox science and local growing techniques to improve yields and cultivate in marginal lands. Three images matched the narrative. The first showed a traditional submerged rice plot in Indonesia, while the second was a snapshot of the arrival of the IAEA – several agency experts meeting with local researchers on the grounds of Burma's Agricultural Research Institute in Gyogon. The third of the images completed the storyline: a youthful Burmese scientist in a laboratory, standing next to the fruit of technical assistance, in this case audioradiographs illustrating rice's uptake of various radioisotopes injected into the soil (Figure 3). Here, in sum, was not just an image argument but a narrative argument that IAEA assistance had modernized rice cultivation and taken it from the paddy to the laboratory. It was a performance of modernity for other countries to see.

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In fact, these images, these performances of modernity, became, in Sheila Jasanoff's words, sociotechnical imaginaries, 'collectively held, institutionally stabilized, and publicly performed visions of desirable futures'. With them, there is a gulf between the September 1961 issue and the very first numbered issue of April 1959. In April 1959, there is no image that could remotely be interpreted as a sociotechnical imaginary, as prescriptive for the future. Two years later, every issue of the bulletin featured snapshots speaking the visual language of modernity.[52] In the case examined by Cullather, the display of modernity as represented by modified rice strains became a tool for maintaining US hegemony; here, the visual display of modernity as represented by nuclear technoscience became a means of stabilizing the IAEA's diplomatic position and appealing to all of the agency's member states in the peaceful-coexistence regime that the agency contributed to strengthening in practice.

The inclusion of the IAEA experts in these snapshots not only filled out the storyboard but also suggested the sort of techno-diplomatic relationship the IAEA might have with recipients of technical aid. IAEA expertise was the active agent in stirring change and placed the agency in a position of superiority vis-à-vis the member state. Especially since, in many instances, the local researchers photographed were young, early-career scientists, the connection proposed was that of a teacher (the agency) and a student (the local scientist). Even when there was no visible age difference, the image of the IAEA visitor was that of expert (the very title suggests this interpretation) lecturing before an audience, such as was the case recorded in 'Isotope scanning for tumor localization'. Here, a photograph shows Dr Merrill A. Bender of the Roswell Park Memorial Institute of Buffalo, NY, standing before a group of Egyptian doctors and scientists giving a 'lecture demonstration' (Figure 4). While the image suggests that expertise moved unidirectionally, we learn in the article that in fact the construction of the new scanning unit was a highly collaborative process involving Bender and equipment shipped from several centres in the US, as well as electronic equipment collected in Egypt or constructed on site by Egyptian scientists and engineers. The design of the entire assembly was collective. What the image alone does not reveal is that the IAEA expert (Bender) held forth before a distinctly hybrid instrument.[53]

Tellingly, with 'Isotope scanning for tumor localization', the bulletin had to take care not only with the technical details of the article but also with its implicit politics. US policy towards the UAR (United Arab Republic) had, since the Eisenhower administration, been one highly suspicious of Gamel Abdel Nasser and the Arab nationalism he advocated.[54] The Roswell Park Memorial Institute's material contribution to the scanning equipment came in the form of a donation – something mentioned in an early draft of the article. Concerned about the standing of his institute in the US, Bender intervened. He wrote back to the IAEA Division of Public Information to request 'one favor', 'that you delete the two references to the "donation" of equipment ... The statements are of course true, but the widespread distribution of this information might be embarrassing to the Institute'.[55] The division obliged.

For the bulletin, such potential geopolitical provocation would do nothing to help fulfil the purpose of 'Radioisotopes and rice' or 'Isotope scanning for tumor localization'. Both aimed to illustrate the agency's technoscientific capacity and its meaning for developing

52 Cullather, op. cit. (12).

53 For this notion of technological hybridity see John Krige, 'Hybrid knowledge: the transnational co-production of the gas centrifuge for uranium enrichment in the 1960s', *BJHS* (2012) 45(3), pp. 337–57.

54 Salim Yaqub, *Containing Arab Nationalism: The Eisenhower Doctrine and the Middle East*, Chapel Hill: University of North Carolina Press, 2004.

55 Merrill A. Bender to Amalendu Das Gupta, 27 July 1961, IAEA, S-281-1(2).

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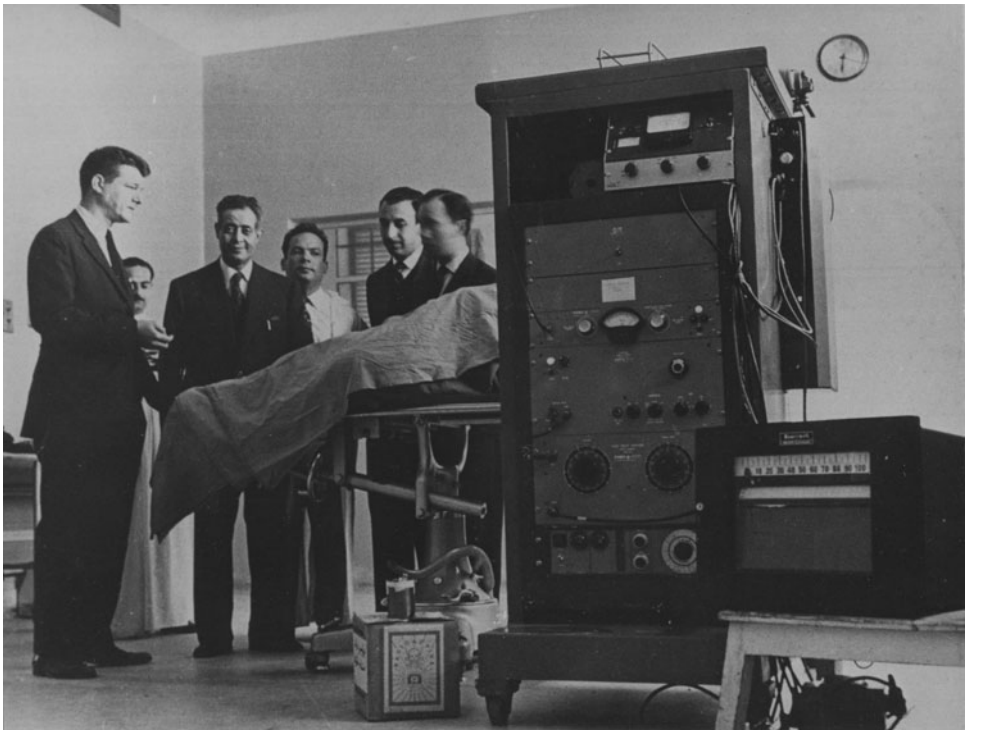

**Figure 4.** *IAEA Bulletin* (September 1961) 3(4), p. 8.

IAEA member states. Photographs recognizably illustrating the fruits of agriculture, medical diagnostics and treatment, hydrological surveying, and industrial processes were image arguments that IAEA member state status and active seeking out of technical assistance could lift developing countries economically and technologically. But only gradually: for many newly independent countries, their first representation in the pages of the bulletin was as recipients of technical assistance. The geopolitical hierarchy suggested was not the East–West geopolitical rivalry most often associated with the Cold War, but a bifurcation between (again, in the language of the time) 'developing' and 'developed' countries.

IAEA technical assistance boosted the IAEA's status as the central node in the circulation of nuclear technoscience, but alone could not assure it. The agency had to demonstrate command of nuclear technologies and likewise dispel concerns about the safety of the techniques which it was advocating. Again, the bulletin was a tool in the IAEA's hand. Articles concerning disposal of radioactive waste, the safe use of radioisotopes and radioactivity in nature appeared on a regular basis, including descriptions of the agency's own safety manuals.[56] Images of safe practices mattered not only as illustrations of safety but as depictions of agency expertise. For example, a review of waste disposal practices appearing in the July 1961 bulletin summarized IAEA recommendations and attempted to present radioactivity as offering hope rather than harm. An image at the

56 For instance, having thus alerted its readers to the IAEA manual on radioisotope safety measures, the agency received requests for the publication, thus reinforcing the IAEA effort to position itself as the central international node for radioisotope safety standards. See J.C.B. Thus to the IAEA, Vienna, requesting a copy of 'Safe handling of radioisotopes', (Safety Series no. 1), 24 June 1959, IAEA, S-281-1(2).

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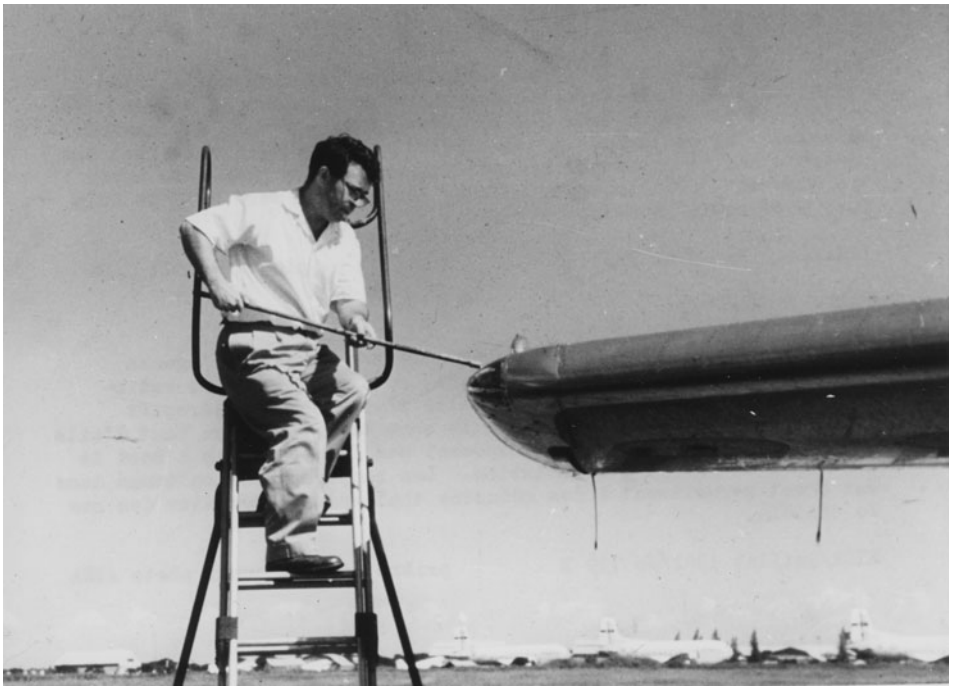

**Figure 5.** *IAEA Bulletin* (July 1961) 3(3), p. 6.

close of the article illustrated IAEA proficiency and caution: the removal of beneficial but radioactive isotopes after air transport – not from the body of an aircraft, but from its wingtip (Figure 5). In the photograph, an IAEA staff member, described as an 'IAEA Technical Assistance expert', is on the scene in Bangkok to carefully collect the irradiated sodium and potassium, destined for cholera diagnostics. The attention to safety could not have been lost on countries looking to employ radioisotope methods.

Such images were performative. They evoked the application and results of techniques, the translation of expertise, the imperative of attention to safety, and the linkage of countries just developing an atomic infrastructure into the global complex of atomic technology. Collectively, these photographs represented an image argument that an international atomic network of expertise had formed, based on the pathways opened by a UN agency. Elaborating the image argument, the new IAEA member states had much to gain from embracing the modernity depicted and accessing the technologies and techno-diplomatic networks that the IAEA fostered.

Additional images cemented the IAEA's central position in the global nuclear complex. This central positioning required more than just shepherding experts to new member states or gathering panels of scientists to seek standards for new techniques or safety measures. It required proof of the IAEA's own technical capacity to carry out analysis of nuclear materials, measurements of radionuclides for standardization, preparation of reference sources, and measurements of trace amounts of radioactive materials. In September 1958, after overcoming resistance from the USSR as well as reluctance from some Western European countries, the general conference authorized the construction of a site for doing just that, an IAEA laboratory.[57] The first units of the laboratory (located

57 Fischer, op. cit. (45).

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**Figure 6.** *IAEA Bulletin* (January 1962) 4(1), p. 14.

in Seibersdorf, thirty kilometers south of Vienna) began operation in 1961. The laboratory's capacity to control for the quality of nuclear materials, calibrate measuring equipment, and prepare standardized samples and sources made the IAEA the essential point of passage for an increasing variety of circulating nuclear materials and techniques.

The bulletin's editors illustrated this in their January 1962 issue in an article entitled 'Work begins at Seibersdorf Laboratory'. Photographs took up more space than text. Images of gamma–gamma coincidence and anti-coincidence counters, of tracer experiments, of electronics repair and of radiochemical separation served to position the agency in the middle of a complex circuit of reference samples, environmental specimens and calibrated counters and electronics, all flowing between member states into and out of the Seibersdorf Laboratory. A photograph of the chemical separation of the radioactive environmental contaminant Strontium-90 suggested the degree to which the IAEA had become a global nuclear surveyor (Figure 6). Carrying out the separation was German (FRG) lab scientist Annedore Meeves, and the other laboratory personnel and administrators mentioned were also European – the bulletin's signal that the IAEA's nuclear expertise derived from and remained in the global North.

## Conclusion: a record of note in the atomic world

In December 1962, the bulletin commemorated the twentieth anniversary of the first nuclear reactor with its premier special issue. The Public Information Division spent many months collecting articles from the discoverers of fission, the builders of the first reactor, and other atomic pioneers from multiple countries. It was documentation

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of one of the formative events of the atomic age and a media performance suggesting the IAEA's status as the international repository of nuclear history. It was demonstration of the weight of the agency and its bulletin. That significance was evident even when the Public Information Division made a minor gaffe. When, in an April 1962 article on technical assistance missions in Latin America, the bulletin neglected to accord top status among Buenos Aires nuclear-medicine institutions to Rawson Hospital's Centre for Nuclear Medicine, Roberto Soto, director of the hospital's department of endocrinology and radioisotopes, wrote to register a complaint. The IAEA's Radioisotopes Department apologized, but the real point was that the IAEA's evaluation of institutions as expressed in the bulletin was now regarded as authoritative.[58]

The importance of the bulletin came in part from its wide distribution. By autumn 1962, the total of all copies printed (meaning the sum of all four languages) was approximately nine thousand. By way of comparison, the circulation of the World Meteorological Organisation's bulletin (English and French) totalled 3,200 copies.[59] Unlike the WMO and the WMO's bulletin, the IAEA chose not to charge anything for its bulletin (about eight hundred of the WMO's bulletin were distributed by subscription) and not to advertise in it. The latter was for diplomacy's sake: the IAEA leadership did not want to be seen as endorsing any advertised instruments or processes, nor did it wish to receive advertisements 'only from a very small number of countries, thus giving the bulletin a one-sided look'.[60] A decade later, the latter practice would change.

The *IAEA Bulletin*'s reach extended through a variety of institutions and many languages besides the four working languages of the agency. Translations of individual articles took many forms, sometimes for reprinting in trade journals and press services, or for repeating by radio services.[61] This translation and repetition meant that, at least in pieces, the bulletin's spread was greater than its raw circulation numbers suggested. The significance of this should not be lost. Technical-assistance missions and IAEA scientific panels visited different continents and countries, but no single IAEA medium exhibited the same global reach as its bulletin. No other IAEA science diplomacy device featured such carefully crafted image arguments for embracing modernity and joining the agency's techno-diplomatic network, nor did another channel distribute those image arguments so widely.

The bulletin was not predestined for such an extensive global spread. As seen above, the breadth of its circulation was a result of debate in the IAEA leadership about the bulletin's appropriate readership. It was a result also of the effort of the IAEA Division of Public Information to tap into international diplomatic and nuclear networks to gauge demand. The bulletin's content was also marked by contingency, as the bulletin's editors responded to the need to highlight given techniques, illuminate certain member states, satisfy pressing diplomatic requirements, and present the technical prowess of the young agency. Its imagery proposed a techno-diplomatic imperative. Entry into nuclear modernity was consubstantial with acceptance of and entry into a geopolitical framework of bipolarity and peaceful coexistence, one with an asymmetry that favoured the 'developed' countries. This meant as well that technologically ambiguous non-alignment – in terms of either geopolitics or non-proliferation – brought with it loss of access to nuclear

58 'Another survey in Latin America', *IAEA Bulletin* (April 1962) 4(2), pp. 15–19. Roberto Soto, director of the Department of Endocrinology and Radioisotopes of the Rawson Hospital, Buenos Aires, to Montague Cohen, Radioisotopes Department, IAEA, 24 May 1962; Cohen to Soto, 5 July 1962, IAEA, S-281-1(2).

59 Lars Lind, memo, 'Advertising in *IAEA Bulletin*', 10 October 1962. WMO numbers from R.L. Muneanu, WHO External Relations Officer, to Lind, 24 August 1962, IAEA, S-281-1(2).

60 Lind, op. cit. (59).

61 Examples of requests for translation into other languages are found many times in the IAEA archives. For a unique one involving translation into Hungarian for Radio France's Hungarian section see Ladislas Bolgár to the IAEA, 21 January 1960, IAEA, S-281-1(2).

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science and energy. The messiness and power dynamics involved controvert the benign, affirmative picture of science diplomacy presented by science diplomacy's advocates.[62]

The IAEA differed dramatically from major national atomic agencies such as the US Atomic Energy Commission, the United Kingdom's Atomic Energy Authority, or France's Commissariat á l'energie atomique. These latter institutions concentrated political power via a direct link to the head of state or government and boasted industrial-scale technological achievements made possible by their intimate cooperation with their countries' most significant private enterprises. The IAEA was different. Any power it manifested was a result of delicate compromise between the superpowers, as well as among other countries interested in its competences and operations. The agency built no reactors, and its largest physical facility – the Seibersdorf Laboratory – was vastly outsized by the largest research laboratories of national atomic programmes. In essence, the IAEA was a diffuse network of diplomatic and technoscientific connections reinforcing a non-proliferating, bipolar international order. The IAEA's agency came not from concentration of power, but precisely from its diffusion and extension, in order to assume oversight and governance of the circulation of nuclear objects and information. The *IAEA Bulletin* bespoke this condition, its images of technical-assistance missions, international scientific panels, and various member state achievements globally cast. The selection of these images was contingent on the diplomatic needs of the IAEA and crucial in shaping the bulletin into an instrument of science diplomacy.

One upshot of this is that, historically, it appears that science diplomacy requires not only instruments and physical means for carrying out scientific work and not only transnational links and conduits for establishing diplomatic connections. It needs visual tools of representation and extension. This is more than simply public diplomacy. It is the visual translation of the scientific into the geopolitical and vice versa for the diffuse technoscientific and diplomatic webs that science diplomacy initiatives are meant to utilize and shape. It is the visual manifestation of the co-production of science and diplomacy, the scientific and the diplomatic not merely influencing one another but codependent and therefore merged into a single, distinctive act of power.[63] In the history of nuclear imagery, what appeared in the pages of the *IAEA Bulletin* might seem banal, the product of routine and technocracy. But the example of other UN organization publications, as well as the *IAEA Bulletin*'s own intricate history, shows this not to be the case. If measured in its science diplomacy dimensions, the *IAEA Bulletin* was a deeply important and interesting instrument made complete by the images within it.

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62 Simone Turchetti, Matthew Adamson, Giulia Rispoli, Doubravka Olšáková and Sam Robinson, 'Introduction: just Needham to Nixon? On writing the history of "Science Diplomacy",' *Historical Studies in the Natural Sciences* (2020) 50(4), pp. 323–39.

63 Kenji Ito and Maria Rentetzi, 'The co-production of nuclear science and diplomacy: towards a trans-national understanding of nuclear things', *History and Technology* (2021) 37(1), pp. 1–17; Matthew Adamson and Roberto Lalli, 'Global perspectives on science diplomacy: exploring the diplomacy–knowledge nexus in contemporary histories of science', *Centaurus* (2021), 63(1), pp. 1–16.

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