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With strings attached: Gift-giving to the International Atomic Energy Agency and US foreign policy

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ABSTRACT

In 1958 the United States of America offered two mobile radioisotope laboratories to the International Atomic Energy Agency (IAEA) as gifts. For the USA, supplying the IAEA with gifts was not only the cost of "doing business" in the new nuclear international setting of the Cold War, but also indispensable in maintaining authority and keeping the upper hand within the IAEA and in the international regulation of nuclear energy. The transformation of a technoscientific artefact into a diplomatic gift with political strings attached for both giver and receiver, positions the lab qua gift as a critical key that simultaneously unlocks the overlapping histories of international affairs, Cold War diplomacy, and postwar nuclear science. Embracing *political* epistemology as my primary methodological framework and introducing the gift as a major analytic category, I emphasize the role of material objects in modeling scientific research and training in a way that is dictated by diplomatic negotiations, state power, and international legal arrangements.

Introduction

On August 15, 1958 the *New York Times* reported that "A mobile laboratory was loaded yesterday aboard ship for the international atoms-for-peace show to be held in Geneva in September" (Anonymous, 1958a). The short but informative article about "the first of its kind" mobile laboratory, came with an impressive picture of a more than ten meters long, bus-like vehicle hanging from a crane in front of the *American Archer*, a US container line ship built only four years earlier. The photo caption was telling: "This mobile training laboratory is one of two the US is giving to the International Atomic Energy Agency."

Strongly aligned with US political and diplomatic interests, the gift to the International Atomic Energy Agency (IAEA), a massive technoscientific artefact, was one of the country's technological miracles designed to instruct up-and-coming scientists and engineers across the globe in detecting and measuring radioactive materials. The aim was to familiarize science students in different countries with US-made instruments and techniques in handling radioisotopes in a number of vital economic sectors such as agriculture, medicine, and industry (Baker, Fuccillo, Gerrard, & Laffetry, 1967; Creager, 2013). The laboratory was divided in two separate areas: a chemical laboratory and a radiation counting room, with three work spaces that accommodated six people in pairs. It carried its own ten-kilowatt generator, had its own water supply and office space, and included cutting edge equipment for radiation measurements. Before reaching the IAEA, the laboratory's first mission was to impress visitors with the US advances in nuclear technologies at the Second United Nations International Conference on the Peaceful Uses of Atomic Energy (the "atoms-for-peace show") taking place in September that year in Geneva.[1]

The unit was designed by physicist Ralph Overman, chairman of the Special Training Division of the Oak Ridge Institute of Nuclear Studies (ORINS), a nonprofit educational corporation of thirty-seven colleges and universities. Primarily a pedagogical instrument, the mobile laboratory bore the material imprints of US politics of Cold War science education. As David Kaiser has pointed out "pedagogy is where the intellectual rubber meets the politico-cultural road" (Kaiser, 2005, p. 2). The crafting of scientific practices and the making of the next generation of scientists presupposes not only the acquisition of appropriate skills and hands-on training, but also the sharing of political and ideological values. Indeed, in the highly charged political climate of the early Cold War, the mobile laboratory proved to be a major innovation in training in the nuclear sciences. The US National Defense Education Act of 1958 (NDEA) had just recognized the existence

[1] "Draft report originally intended for the Board of Governors on mobile isotope laboratories," 26 November 1958, ARC 01–05-00 B1.11 Mobile Laboratory 1958–1961, Box 106, IAEA Archives (hereafter, Box 106, IAEA Archives).

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Fig. 1. In the late 1950s the US Atomic Energy Commission initiated an ambitious program of travelling exhibitions, known as the "Atoms for Peace" mobile campaign that toured the country. Shown here are members of the public visiting an Atoms for Peace travelling exhibit in Oak Ridge, Tennessee, in 1957. US Department of Energy (DOE) Photo 57-1239, taken by Ed Westcott.

of an "educational emergency" and called for the development "as rapidly as possible" of those skills essential to the national security (Douglass, 1999, p. 7). The US Congress took a stand in defining training programs for scientists and engineers and promoted the use of publicity through television and film as part of the educational campaign (Coombs, 1960).

The US Atomic Energy Commission (AEC) adopted similar propaganda and educational techniques to legitimize atomic energy on a national level and educate pupils and the public at large. In the late 1950s it initiated an ambitious program of travelling exhibitions, known as the "Atoms for Peace" mobile campaign that toured the country.[2] According to the US House of Representatives the program served as "a major instrument of public information" concerning peacetime developments of atomic energy (The Supplemental Appropriation Bill, 1959, p. 1095; Krige, 2010). ORINS staff undertook the design and preparation of the innovative mobile units that carried the exhibits: "Three units of a type requiring a display area of about 6000 square feet and five units of a walk-through exhibit self-contained in truck trailers" (Anonymous, 1956). Pictures of the exhibiting trucks reveal striking similarities with the mobile radioisotope laboratory that ORINS designed next for the IAEA (Fig. 1).

Extending its international presence and influence, the AEC designed next "a mobile laboratory," equipped with "radiation detection instruments" (United States Atomic Energy Commission (USAEC), 1956, p. 14). The unit was exhibited in 1955 during the First Geneva Conference on the Peaceful Use of Atomic Energy at the Palais des Nations, in the area of technical exhibits. It was installed in a truck semi-trailer and was designed for field tests of actual or potential radiation and other toxic hazards. Based on what seemed to be a rewarding experience, in 1958 the AEC commissioned the ORINS to design the two mobile radioisotope laboratories fit for travelling outside the country and donated them to the IAEA.

The ORINS was established in 1946, right after the end of World War II, with the aim of administering educational, research, and training programs under direct contract with the AEC. Throughout the 1950s hundreds of millions of dollars had spent on science education both on national and international level. In 1951 the USA launched the Mutual Security Fund as a foreign aid program that replaced the Marshall Plan and worked as a major instrument of US foreign policy (Miller, 2006). By the 1960s the federal expenditure on nuclear pedagogy had more than doubled (Douglass, 1999; Kaiser, 2002). Both mobile radioisotope laboratories that cost $56,000 each, or more than half million in today's dollars, were funded through the Mutual Security Fund. The AEC considered those to be "relatively inexpensive means of bringing about extensive knowledge of radioisotope techniques throughout wide areas."[3] On December 22, 1959 the *New York Times* reported that the second unit was also ready to be presented to the IAEA, but this time it travelled directly to Latin America (Anonymous, 1959; Mateos & Suárez-Díaz, 2015, 2019).

Yet, in 1959 the USA donated to the IAEA not only the two mobile laboratories but also a half million dollars, radioactive materials, and equipment "to enable the Agency to assist atomic research and power programs in member countries without delay" (United States Atomic Energy Commission (USAEC), 1960, p. 101). The Agency was established in 1957 as a United Nations related organization that aimed to mitigate geopolitical tensions in the field of atomic energy. The UN made earlier efforts to do so, but in vain. In January 1946 the first session of the United Nations General Assembly approved the creation of an atomic energy commission (the UNAEC), which, unable to survive Cold War tensions, was officially abolished in 1952. Five years later, the IAEA was ratified by twenty-six UN member states and came into force on July 29, 1957 (Fischer, 1997; Rentetzi, 2017; Roehrlich, 2016). While the IAEA was gradually shifting focus from organizational to programmatic work, the USA sought to be present in each of the Agency's activities through generous gifts and nuclear expertise offered via its technical assistance programs such as the Mutual Security Fund.

In these proceedings, the gift emerged as an actor's category. The US State Department made this clear in a draft document for use by the US representative to the IAEA in presenting the mobile lab: "My government is ready to make these laboratories available as a gift."[4] But once we begin to examine the mobile lab as an actor's category, we must also study how this illuminates the practice and stakes of gift diplomacy during the Cold War. Owing to the dynamic expansion of international law in relation to nuclear issues, the gift also became a legal category. In the IAEA statute and subsequent rules adopted by the Agency's Board of Governors—both part of what is known as positive international law (Fitzmaurice, 2006; Mitchell, 2021)—gift-giving and gift-accepting are both conceived as legitimate acts within the new nuclear diplomatic order established by the IAEA. According to its statute, "The Director General may accept any gifts of services, equipment or facilities made available" by Members of the Agency, the United Nations or any specialized agency. The technoscientific gift is now termed as a "voluntary contribution in kind" (Szasz, 1970, p. 203)

> if in his [the Director's] opinion such services, equipment or facilities can readily be incorporated into a project, programme or activity which he has already been given authority to execute by the competent organ or organs of the Agency; provided that he shall not accept any gift which involves the Agency in expenditure for which funds are not available (International Atomic Energy Agency (IAEA, 1959, p. 2).

[2] The Atoms for Peace Program was announced by President Eisenhower in 1953. It entailed the peaceful uses of the atom through controlled distribution of nuclear technologies and materials to nations around the world (Krige, 2006).

[3] Comments on the use of the mobile laboratory training laboratories, Division of International Affairs, USAEC, July 31, 1958, Laboratories, Mobile Laboratory 1959–1960, Box 3, The U.S. National Archives and Records Administration (hereafter Box 3, NARA)

[4] Statement which could be used by the US representative to the IAEA in announcing the donation of two mobile radioisotope laboratories, Box 3, NARA.

New ways to legitimate diplomatic gifts were now accelerated by a new institution (the IAEA) against a backdrop of older diplomatic practices of gift-giving that had become routine. In the context of the IAEA during the Cold War, to begin to analyze the emerging multilateral and multinational nuclear diplomacy, one has to consider the technoscientific diplomatic gift as the major analytic category. Gift-giving becomes now an act, expected and encouraged by international law, motivated strictly by political and diplomatic interests. In this case, the US offer of the two mobile laboratories embodied the country's vision to model worldwide research institutions and experimental practices on those of the USA. Besides the promotion of US technological and scientific agenda within the IAEA and, through this, to the rest of its member states, gift-giving promoted political and diplomatic agendas as well. "Activities such as the laboratory visit [to countries]," the US Secretary of State suggested to the American Ambassador in Vienna, "should stimulate interest in the IAEA in Latin America and encourage those states which are still not members to join the Agency."[5] After all, technoscientific artefacts such as the mobile laboratory retained the country's privileged relation with the IAEA, allowing it to maintain its leadership in the regulation of nuclear energy. By bringing the mobile lab front and center, it becomes obvious that the transformation of a technoscientific artefact into a diplomatic gift of political importance for both giver and receiver, positions the lab qua gift as a critical key that simultaneously unlocks the overlapping histories of international affairs, Cold War diplomacy, and postwar nuclear science.

Overall, the potential of technoscientific artefacts as diplomatic gifts emerges when scholars start to systematically question the role of science and technology in international affairs, and historians turn their attention to the role of international organizations as institutions of global governance in shaping science and technology (Jasanoff, 2013; Krige & Barth, 2006). It is within this scholarly space that I approach the diplomatic gift as an analytic category that has the potential to expose processes within the "co-production" of science and diplomacy (Ito & Rentetzi, 2021). The idea of co-production has been central in Science and Technology Studies suggesting "the simultaneous processes through which modern societies form their epistemic and normative understandings of the world" (Jasanoff, 2021 and 2004; Latour, 1987 and 1993; Miller & Wyborn, 2018). My take on co-production is more material and focuses on the ways diplomacy becomes concretely embedded in the epistemic aspect of knowledge production. In this view, technoscientific diplomatic gifts become constitutive elements of international affairs.

The technoscientific diplomatic gift as an analytic category

Since Marcel Mauss's influential "Essai sur le don" of 1924, gifts and the exchange of gifts have had a central role in anthropology (Mauss, 1990). Simply put by Mary Douglas, 1990 English translation of Mauss's "profoundly original" work, "there are no free gifts" (p. xii). Gift exchanges create commitments and obligations on the part of the receiver, forming a system of reciprocity and social and economic hierarchies. Following Mauss, anthropologists and sociologists have extensively analyzed the role of gift-giving in establishing relationships among different social groups (Godelier, 1999; Gregory, 1982; Hyde, 1983).

In the 1990s and against the anthropological tradition, Jacques Derrida centered his work on the impossibility of the gift, arguing that a "true" gift, the unconditional gift that presupposes an absence of reciprocation, is an impossibility (Derrida, 1992). In the Derridean tradition, as philosopher Aristides Baltas puts it, "the gift by its nature is not reciprocal and, equally by nature, it obliges." The obligation is constituted in a unique kind of debt that cannot be redeemed because otherwise it could cancel the very meaning of the gift (Baltas, 2018, p. 565–66; see also Champetier, 2001).

As a topic of lively discussion in both anthropological and philosophical circles (for new anthropological insights see Liebersohn, 2010; Mallard, 2019), the concept of a gift drew also the attention of historians and sociologists of science. From Warren Hagstrom (1982) work on the academic publishing system as a gift-giving enterprise between individual scientists and the scientific community, to Paula Findlen (1991) exceptional study of the economy of scientific exchange in early modern Italy, in which she recognized gifts as "the most tangible expression of the role of patronage in late Renaissance culture" (p. 6), to Mario Biagioli (1993) account of Galileo's network of gifts to the courts of the Medicis and the Vatican, and, indeed, to Anne Secord (1994) analysis of nineteenth-century British gentlemanly practices of regarding botanical objects of exchange (like specimens) as gifts that convey scientific disinterestedness, such conceptualizations of the gift—adapted from economic anthropology—figured strongly in sociological approaches to the history of science (Anderson, 2000).

Placing the analysis of scientific gift exchange in the context of the interwar period, historian of science Angela Creager points out that the language of gifts was already used in the international sharing of radioisotopes from cyclotrons in the 1930s. In the interwar economy of scientific exchange, Ernst O. Lawrence's generosity to send cyclotron-generated radioisotopes to his colleagues overseas, kept recipient scientists and physicians "most obliged" to him (Creager, 2013, p. 46). Focusing on Marie Curie and the one gram of radium she received as a gift from the American Women mobilized by journalist Missy Brown Meloney in early 1920s, Eva Hemmungs (2015), p. 82) goes one step further to argue that this gift was "materialized as a very special kind of commodity" given that both ladies openly discussed the exchange value of the radioactive material and agreed on its conditions. Cases such as these highlight the importance of scientific networks of patronage, which sought to maintain independence of state regulation.

More recently historians have focused on diplomacy's social and cultural dimensions, elevating the exchange of artefacts to the status of a major instrument of foreign policy. From early modern to current times, from China, Japan, and the Ottoman Empire to the West, gift-giving proved to be an effective strategy for resolving diplomatic crises, ensuring trade relations, developing economic ties, or forging military alliances (Rudolph, 2016). Objects can ease diplomatic negotiations and work as what art historian Anthony Colantuono (2000) calls a "mute diplomat," referring to the salient role of art in the delicate negotiations of European diplomatic relations in the sixteenth and seventeenth centuries (p. 51). Carrie Anderson (2016) has shown that textiles could be seen as "diplomatic mediators" in inter- and intra-cultural diplomatic negotiations during the early modern period. Zoltan Biedermann et al. (2018) showed us how diplomatic gifts worked or failed to work in the context of early modern diplomatic exchanges across cultural boundaries. And although diplomatic historians have started to recognize the power of material exchanges in the making of early modern states and empires, new material approaches to diplomacy have not been so forthcoming in the history of post-war and Cold War diplomacy.

In my attempt to develop what I call the Diplomatic Studies of Science (Rentetzi, 2019), an integrative field of research at the intersection of history of science and diplomatic history, I introduce the technoscientific diplomatic gift as an analytic category, as a way of talking about and materializing the interplay

[5] Secretary of State to American Embassy Vienna, August 21, 1959, Box 3, NARA.

of technoscientific knowledge and international affairs. What makes the gift a constitutive element of international relations is its transactional value. At the same time, it is the primary way of binding political institutions and diplomatic-cum-scientific international organizations in a power relation. My emphasis here is not on the historical analysis of scientific objects in a gift-giving culture. Instead, I seek to advance our historiography beyond historical epistemology, that is beyond the "history of the categories that structure our thought, pattern our arguments and proofs, and certify our standards of explanation" (Daston, 1994, p. 282). Here, I embrace *political* epistemology as the primary methodological framework that makes possible a particular historiographical approach by placing technoscientific diplomacy at the center. Therefore, the emphasis is put on the role of material objects in modeling scientific research and training in a way that is dictated by diplomatic negotiations, state power, and international legal arrangements as they are embodied in generous gift-giving gestures.

The diplomatic gifts discussed here are technoscientific artefacts whose exchange presupposes and initiates political reciprocity: they are indispensable constituents of global diplomacy; purposefully offered to create obligations; come with strings attached; decisive to the outcome of diplomatic negotiations; shape international law; and represent the uneven and often messy process of producing nuclear order on an international level. Although they take advantage of existing scientific networks of patronage, they are directly regulated by the state or international diplomatic-cum-scientific organizations. In the context of nuclear diplomacy, diplomatic gifts are often costly, indispensable scientific and technological radioactive artefacts for nuclear programs and thus create expectations and dependencies. They help to establish a standardized, shared nuclear culture and form a transnational system of power relations. By tracing the exchanges of diplomatic gifts, one could identify asymmetries of power and of nuclear futures imposed by those with the power advantage.

The making of a technoscientific artefact

Lyncoach and Truck Corporation reported on December 22, 1959: "Two Mobile Atomic Laboratories—nuclear classrooms-on-wheels—built in Oneonta by Lyncoach for the Oak Ridge Institute of Nuclear Studies (ORINS), were turned over to the International Atomic Energy Agency to enable universities in NATO and South American countries to give instruction courses similar to those conducted in Oak Ridge, Tenn." (Coachbuilt.com, 2014). Established in 1954, Lyncoach and Truck Corp. was the successor company of Linn Coach and Truck, subsidiary of the Greater American Industries that closed down when military contracts for mobile units sharply decreased after the end of the war. The idea of mobile units for military purposes originates to the experience of Americans in France during World War I. It was Marie Curie who invented the "Little Curie," a mobile X-ray unit that brought X-rays to the battlefield (Jorgensen, 2017).[6] The Americans used also mobile surgical units at the front, a practice that was further developed during World War II. An example was the use of the US Mobile Army Surgical Hospital in the battle lines (Woodard, 2003). After the demand for mobile units diminished, and Lyncoach took over, its owner and director, James Friery, brought a different corporate philosophy. Instead of continuing his business on a big scale, Friery chose to take on highly specialized jobs and used new

Fig. 2. On April 29, 1958, Robert McKinney (right), the US representative in Vienna, presented the small-scale model of the Mobile Radioisotope Laboratory to the International Atomic Energy Agency's Director General Sterling Cole during a session of the Board of Governors and before the press. IAEA Archives/C0190-002. 1958. Credit: IAEA.

business instruments, such as circular questionnaires, on specific groups of potential customers to define market demands. Addressing veterinarians and physicians, Friery realized that a mobile unit could meet many of their professional needs. By 1956 Lyncoach was making custom-made coaches not only for US customers but for international markets in Latin America. That year the company constructed six medical units for Brazil on a $200,000 contract, as part of US and World Health Organization technical assistance programs in the area (Anonymous, 1957).[7] Throughout the 1950s and 1960s the company was indeed considered the principal supplier, manufacturer, and designer of mobile medical clinics for the US federal and state governments, the United Nations, and private customers. It was no surprise that the AEC reached Friery's company when they decided to donate two custom-made mobile radioisotope units to the newly established IAEA.

The AEC commissioned ORINS, the utmost expert in radioisotope research, to design the IAEA mobile units. As ORINS stated, "The laboratories are designed to provide basic training in radioisotope-handling techniques, similar to the regular courses that the ORINS Special Training Division has been providing to scientists from the United States and 48 foreign nations since 1948″ (Anonymous, 1958b). Indeed, ORINS was the principal contractor of the AEC in providing isotope training since 1948. Their basic course prepared scientists trained in a variety of fields to begin applying radioisotope technique in their research. By the end of the course, the universities were expected to take over the training of personnel for the rest of the country. In the summer of 1948, thirty-eight university staff from all over the country joined the course. By 1959, 2500 scientists have been trained, of which one third had medical degrees. In 1955 the training program was extended and as part of Atoms for Peace, ORINS offered the first special basic radioisotope course for foreign nationals (Anonymous, 1960b, 87–88; Overman, 1977).

The promotion of radioisotopes and their uses on national and international level went well beyond a simple scientific decision. They embodied US efforts to build public support for its Atomic

[6] One can see a captivating portrayal of Curie's mobile unit in the film Radioactive (Satrapi, 2019); for the trailer see https://www.youtube.com/watch?v=mU0oOU-To5zo (accessed January 31, 2021). I would like to thank Donald Opitz for bringing this to my attention.

[7] During the Juscelino Kubitschek administration (1956–1961), Brazil established a national program to control endemic rural diseases, part of the country's development program. Health became part of Brazil's international relations. It was supported by the World Health Organization and received financial resources from the US International Cooperation Association (Hochman, 2019).

Energy Commission and to penetrate the global nuclear market; they legitimized the costly construction of nuclear reactors and weapons to the public; and they articulated research agendas and impacted experimental practices (Boudia, 2009; Creager & Santesmases, 2006; Creager, 2013; Herran & Grevsmühl, 2017; Rheinberger, 2004). As the AEC commissioners knew very well, radioisotopes "had a very good effect on our foreign relations" (Creager, 2013, p. 7). Thus, the US decision to construct and donate a mobile radioisotope laboratory to the international organization, which was tasked with regulating the uses of nuclear energy, was undoubtedly of political and diplomatic significance. On April 23, 1958 Robert McKinney, the US representative in Vienna, was finally authorized by the AEC to make the announcement of the donation. Six days later McKinney presented the laboratory's small-scale model to IAEA's Director General Sterling Cole during a session of the Board of Governors and before the press (Fig. 2). The model remained on display at the Agency's headquarters and the local press reported extensively on the event. "These laboratories will enable the Agency to provide training comparable to that now being given at the Oak Ridge Institute of Nuclear Studies in the United States" emphasized McKinney in his speech. Further, the USA hoped that the donation "will further the objectives of the Agency."[8]

In the meantime, Lyncoach was feverishly preparing the full-size units. Ralph Overman, the chairman of the ORINS Special Training Division, took charge of the design of the model and worked out its details. Overmann was the one who got the radioisotope training courses off the ground at Oak Ridge and served as the AEC's internationally acclaimed primary lecturer in nuclear medicine. Two technicians from his division, Harry Kimball and Harry Williams, were moved to the headquarters of Lyncoach for two weeks to oversee the construction of the first full size mobile laboratories (Anonymous, 1958b). The design was exceptionally demanding. It needed to cover the multiple and diverse needs of trainees in member states and to accommodate training in a wide range of experiments. Therefore, it included a chemical laboratory for the instruction of the most modern techniques in the separation and purification of radioactive substances. The fixed installations had to ensure maximum radiation safety for both the instructors and the trainees. There was also a radiation counting room allowing future trainees to perform experiments in biology and chemistry and to learn how to use radioisotopes in medicine, agriculture, and industry. The unit included radiation monitors for contamination and equipment for the detection of radioactive materials.

This was the first mobile laboratory of such scale that the ORINS group engaged in building. Above all else, the AEC sought to promote the worldwide use of radioisotopes and globally increase the number of technicians and specialists trained to use radioisotopes in highly diverse sites and for highly diverse purposes: from hospitals to industry and from chemical laboratories to agricultural settings. For this purpose, what mattered most in the design of the labs was not cutting-edge equipment but their flexibility and mobility. "Mobility of the laboratory will enable it to be taken quickly from one city to another and thus enable scientists, who otherwise would not have access to it, to avail themselves of the training courses" as it was stated in a pamphlet prepared for the press and potential buyers.[9] On top of the demanding design, the ORINS group was "making every effort" to complete the unit's construction in time for its presentation at the UN International Conference on the Peaceful Uses of Atomic Energy to be held in Geneva in September 1958.[10]

On August 14, 1958 the first mobile laboratory embarked on its transatlantic voyage to Geneva (Anonymous, 1958c). Fixed on the side of this superstructure was a bronze plaque stating that the mobile unit was "a gift of the United States to the I.A.E.A. for the use of research work."[11] Between September 1 and 13, the laboratory became part of the US commercial exhibit that ran parallel to the conference in which more than 50 American firms exhibited their latest nuclear technologies. Although this particular lab was donated to the IAEA, it served as an exemplar that could create commercial interest and attract sales. During the exhibit the US government planned to "keep the laboratory open for as complete an examination as possible by interested persons."[12] By the end of September and during the second IAEA General Conference, the mobile unit reached the IAEA headquarters in Vienna and was ceremonially presented as a diplomatic gift, becoming the most prominent artefact of IAEA's early technical assistance program.

Turning a technoscientific artefact into a diplomatic gift

The acceptance of the mobile laboratories by the IAEA—the international organization that struggled to generate cooperation as opposed to conflict in the nuclear world—required delicate diplomatic negotiations on Cole's part. Throughout several meetings of the IAEA Board of Governors from April to May 1958, Cole repeatedly stressed the significance of the gift. Several Governors and members of the Secretariat were reluctant to accept the mobile laboratory and "revealed a lack of understanding of the purpose of these laboratories." In the end, "in accordance with instructions and the text of the US offer," the US mission was able to push forward the idea that mobile laboratories should be primarily used "for training programs in less developed countries."[13] At Cole's request the ORINS group prepared an extensive report describing the use of the mobile laboratory and the training programs that could be handled in its premises. Richard Wheeler, the AEC's Executive Officer, kindly advised Cole to incorporate this information in a "descriptive brochure for dissemination to Member States."[14] Indeed, a brochure advertising the laboratory was distributed to the press and the Board of Governors on the day of its ceremonial presentation to the Agency.[15] The USA succeeded in dictating to the IAEA the ways that these mobile units were to be used.

"It is my privilege, on behalf of the Government and the people of the United States, to transfer to the International Atomic Energy Agency this—the first of the two mobile laboratories," remarked John McCone, AEC chairman, upon his presentation of the unit to the IAEA in the presence of an enthusiastic crowd that included Cole and Tjondronegoro Sudjarwo, the Indonesian president of the second IAEA General Conference, at Heldenplatz, in front of Vienna's Hofburg Palace (Fig. 3). Meticulous arrangements had been made in accordance with traditional diplomatic protocol—the

[8] US offer of mobile radioisotope laboratories, May 7, 1958; Statement which could be used by the US representative to the IAEA in announcing the donation of two mobile radioisotope laboratories; and Robert McKinney to Sterling Cole, April 25, 1958; both in Box 3, NARA.

[9] "Draft report originally intended for the Board of Governors on mobile isotope laboratories," 26 November 1958, Box 106, IAEA Archives.

[10] Robert McKinney to Sterling Cole, draft 1958, Box 3, NARA.

[11] Tiroler Tageszeitung, Atom Omnibus Makes its Maiden Voyage to Innsbruck, informal translation, Box 3, NARA.

[12] See also R. Wheeler to Sterling Cole, July 21, 1958, Box 106, IAEA Archives.

[13] Classified, Foreign Office of the USA, no. 7369, April 23, 1958; Letter from the Director General of the IAEA concerning the US offer of mobile radioisotope laboratories, May 19, 1958; and Sterling Cole to Robert McKinney, May 12, 1958; all in: Box 3, NARA.

[14] Richard Wheeler to Sterling Cole, August 28, 1958, Box 3, NARA.

[15] Mobile Laboratory for Training Atomic Scientists (bilingual English and German), Box 106, IAEA Archives.

Fig. 3. John A. McCone, Chairman of the US Atomic Energy Commission and chief US delegate to the International Atomic Energy Agency's conference held in Geneva, presents the Mobile Isotope Laboratory to the IAEA in a ceremony at the Hofburg Palace in Vienna on September 24, 1958. IAEA/Image 01210005. 1958. Credit: IAEA.

presentation of a diplomatic gift on behalf of one state to another—applied to this new form of exchange with novel diplomatic actors. The USA, a UN Member State, was presenting a precious, custom-made artefact to a promising and, what expected to be, powerful international organization. In fact, the ceremonial act of gift-giving turned the IAEA into a new diplomatic actor right in the heart of Vienna, where the IAEA General Conference was taking place.

An IAEA interoffice memorandum reveals the proceedings under the heading "presentation ceremony." Cole and the Members of the IAEA Secretariat were instructed to assemble in front of the laboratory. The US delegation was expected to assemble in the entrance of the hall of the Neue Hofburg: "Chef de Protocol will lead US Delegation to the laboratory."[16] Cole and McCone were instructed to shake hands, and McCone was instructed to address the participants and hand the laboratory key and the vehicle titles to Cole. Then, McCone was to escort Cole into the laboratory where Overman awaited to explain how it all worked.

The gift was purposefully exhibited publicly and the press was notified several times to ensure its presence. "Press got advanced notification at IAEA Press conference;" "IAEA will issue a reminder to all information media;" "Press representatives will be shown into laboratory jointly by USIS and IAEA information staff." Beyond the IAEA Secretariat and the US delegation, the invitees included members of the Austrian government, high-ranking Austrian officials, and prominent professors and physicians such as Karl Fellinger, director of Vienna Medical Clinic and well-known public figure. To facilitate the laboratory's openness while on public display, the US delegation decided not to equip it with radio-isotopes "as it is considered more useful to keep the laboratory open for as complete an examination as possible by interested people."[17]

A highly valued scientific object in the emerging nuclear market, the mobile laboratory was ceremonially being offered from the US diplomat to the IAEA director. "Among the foremost blessings of the atomic age are radioisotopes" was McCone's first sentence in his speech that day. What McCone was handing to the IAEA and through this to the "people of all nations," was not just a travelling laboratory but an imagined nuclear future. "It's our hope" McCone concluded, "that these units will be of great service in assisting the Agency to train men and women in many parts of the world in the necessary techniques so that the benefits of the atom may, in fact, increasingly extend to all mankind." [18]

Overman arrived in Vienna on September 14 with the mobile unit transported from Geneva. His task was to ensure that the IAEA would use the mobile laboratory according to the AEC's technical reports and political ambitions. "I had about 30 min with Mr. Cole on Oct. 1," he reported to McKinney. Overman pointed out to IAEA's General Director that time was precious and Cole should start planning "an overall training program in the near future if the maximum utilization of the laboratories was to be gained." He even gave Cole a list of 30 potential trainees who had already completed similar training at the Oak Ridge facilities under his supervision and could be available as IAEA experts to different member states. Overman made clear that the mobile laboratory ought to be part of a more ambitious plan of shaping national programs on training and education in relation to radioisotopes. At the end, he was persuaded that his visit shaped the "Agency's thinking on these problems and potentialities." He and his ORINS staff felt that the "Agency [IAEA] is a good start in the right direction for our international interests in connection with the Atoms for Peace program." [19]

Clearly, the gift was expected to establish and cement alliances, create demand for similar training laboratories across the globe, promote US material culture in the field of radioisotopes, generate nuclear trade, serve international interests and, most of all, evangelize the "blessings" of atomic energy. By February 1959 Cole was ready to circulate a letter that offered information to all member states on how to request the use of the mobile unit. He and his IAEA colleagues had managed to make the training on the use of radioisotope part of the Agency's technical assistance program. On February 27, 1959 the Technical Assistance Division informed "informally" the US representative to the IAEA that the Agency was preparing an agreement between the Member States and the IAEA on the use of the mobile lab and that the US was going to be notified.[20] Overall, from 1959 to 1965 the two IAEA mobile laboratories—the second one was only ready at the end of 1959 and sent directly to Latin America— visited 16 countries in Europe, Asia, Latin America, and Africa (Mateos & Suárez-Díaz, 2019).

The laboratory was not the only US gift to the IAEA. In early January 1958 the US made three offers of assistance to the IAEA in order to speed up the work and ensure the future supply of nuclear scientists available to the Agency and its members. McKinney announced the offer of 20–30 expert consultants on a cost-free basis, 120 fellowships over the next two years for training in nuclear sciences in the US, and $125,000 to the Agency's fellowship fund to support training in member states around the world. The offers were made with a special preference for countries that were less advanced in nuclear development. In addition, the USA offered the IAEA 5000 kg of contained uranium-235 and $600,000 "as a gift towards the cost of constructing and equipping" the Agency's new laboratory at Seibersdorf, outside of Vienna (United States Atomic Energy Commission (USAEC), 1960, pp. 206, 242–43).[21]

Generous technoscientific diplomatic gifts poured into the newly created agency for political and economic purposes as the

[16] Interoffice memorandum from Public Information, September 19, 1958, Box 106, IAEA Archives.
[17] ibid.
[18] Remarks by Mr. McCone, September 24, 1958, Box 106, IAEA Archives.
[19] Ralph Overman to Robert McKinney, October 2, 1958, Box 3, NARA.
[20] Sterling Cole, February 24, 1959, SC/216 [Circular letter], Box 106, IAEA Archives; Technical Assistance to the US Representative in the IAEA, February 27, 1959, Box 3, NARA.
[21] IAEA, First annual report of the Board of Governors to the General Conference covering the period from October 23, 1957 to June 30, 1958, GC (II)39, IAEA Archives; IAEA, Annual report of the Board of Governors to the General Conference covering the period from July 1, 1958 to June 30, 1959, GC (III)73, IAEA Archives, p. 49.

USA set itself up politically and commercially as the major producer of nuclear technologies on a global level. Indeed, the mobile laboratory became especially popular during the 1960s. Those bus-type labs were distributed by the AEC to a number of small undergraduate colleges for training purposes within the country. In 1967 an Oak Ridge Institute Radioisotope Laboratory trailer was sent to the Winston-Salem State University for training students. A year later the *St. Petersburg Independent* announced that the Florida Presbyterian College was going to host a mobile training radioisotope laboratory in order for faculty and students to learn how to use it (Anonymous, 1966; see also Digital Forsyth, 2021). As the USA was now producing mobile units on a larger scale, the mobile laboratory, offered initially as a gift, was expected to stimulate an appetite for commercial orders among the IAEA members. Already in 1960 Pau l Foster, former general manager of the AEC and at the time US representative to the IAEA, indicated to Cole that more mobile units were for sale if the IAEA needed them: "I have been advised that you may be interested in considering the purchase of an additional mobile laboratory."[22]

Gifts also came with political strings attached and were offered with a specific transactional interest in mind. McKinney was clear that the US offers indicated a "further confirmation of the US desire to see the Agency play a major role in the world-wide development of atomic energy for peaceful purposes" (Anonymous, 1958b). Without doubt, the offer of the mobile unit was in keeping with political interests. While it was presented alongside the new nuclear commodities in the commercial sector of the Geneva conference, in front of the Hofburg the mobile laboratory was ceremoniously turned into a gift through an ostentatious public act.

Often, through conventional diplomatic gifts, countries offer each other representative or traditional artefacts or products. It is in the same vein that the USA, a major nuclear power, offered the mobile laboratory—a technoscientific diplomatic gift—as a reminder of the existing asymmetries of power in the nuclear world. "While the USA offered a custom-made, expensive artefact and was also prepared to donate a research reactor, a number of other countries such as Bulgaria, Canada, France, Italy, Japan, Mexico, and the United Kingdom made modest contributions in the literature to set up the IAEA's first library at its headquarters.[23]

McCone made US's technological prominence clear in his inaugural speech: "The techniques, equipment, and materials developed at the Institute [Oak Ridge Institute of Nuclear Studies] have made it possible to design the travelling laboratories such as you see here today."[24] While travelling across continents and encountering new audiences mostly in the developing world, the mobile laboratory would remind them in the most tangible and material way who it is who possesses nuclear knowledge and who needs to be trained. It reflected not only the technical resources and advanced nuclear science available in the USA, but also the particular skills of the nation's scientists. It was no accident that Overman, the foremost expert in radioisotope training at the ORINS, was "offered" free to the Agency for its initial two months.

Later on, it was always the US mission to the IAEA who sought to recruit qualified candidates for IAEA's foreign assignments with the mobile laboratory.[25] When, for example, the mobile unit visited South Korea, another "American expert" from the Rensselaer Polytechnique Institute in New York was asked by the IAEA to join the mission. The presence of the mobile lab in the country "was timely" because South Korea was in the process of establishing a research reactor, which was expected to produce radioisotopes in a short time. Thus "the students trained in the IAEA mobile laboratory will form a core of technicians ready to take over the new tasks as they arise."[26]

Certainly, the gift reflected the status and prestige of the giver but also the US attempt to diplomatically maneuver the shifting and ambiguous power relations within the Agency. As a donation and not a transaction, the use of the mobile laboratory did not raise any political concerns or objections from other member states. In contrast, when in 1962 the US mission to the IAEA considered the sale of another mobile unit to the Agency—this time a mobile radiation measurement laboratory—the AEC suggested informal discussions with the IAEA staff. The worry was that " . . . without having established clearly the value and use of unit in Agency program, Board discussion would serve only to provoke reaction from Soviets and possibly others . . . "[27] Avoiding any diplomatic conflicts and formal objections from rivalry countries, mainly the Soviet Union, the USA suggested instead unofficial contacts with the IAEA. For the USA, plying the IAEA with gifts was not only the cost of "doing business" in the new nuclear international setting of the Cold War but also indispensable in maintaining authority, a way of keeping the upper hand within the IAEA and in the international regulation of nuclear energy.

This gift-giving, however, allowed also the receiver, the IAEA, to use the gifts for its own political and diplomatic ends by making available the mobile laboratory to specific nations and with specific interests in mind (Creager & Rentetzi, 2021). The binding agreement between the IAEA and each member state—the Letter of Agreement—was a four-page malleable document with several blanks under paragraphs indicating method, period and place of operation but, most interest of all, financial provisions. What remained intact in each agreement was Article 7 on Privileges and Immunities. "The Government shall apply to the Agency, its property, funds and assets, to its officials, including technical assistance experts, and to its employees and agents mutatis mutandis the provisions of the Agency's Agreement on the Privileges and Immunities of the United Nations."[28] In the absence of additional laws, the IAEA was following the international legal provisions of the UN.

On the first annual report to the Agency's General Conference, the Board of Governors made direct reference to the use of mobile laboratories for training. For its part, the Agency was making parallel plans to assist member states "to install laboratories and to procure equipment."[29] In his circular letter Cole specifically argued that the mobile lab offered "the most economic means" for fast-track training professional technicians and students in radioisotope techniques.[30] Money and time definitely mattered. And although Cole argued that it was financially rewarding to use the mobile laboratory, the recipients of what became the IAEA mobile

[22] Foster, P. to Sterling Cole, January 27, 1960, Box 106, IAEA Archives.
[23] IAEA, First annual report of the Board of Governors to the General Conference covering the period from October 23, 1957 to June 30, 1958, GC (II)39, IAEA Archives.
[24] Sterling Cole, February 24, 1959, SC/216 [Circular letter], Box 106, IAEA Archives; Embassy Airgram A117, folder 10.18 Mobile laboratory, Box 140, NARA; Mobile Laboratory for Training Atomic Scientists, [Bilingual (German-English) advertising pamphlet], Box 106, IAEA Archives. Mobility and accessibility were also stressed by John McCone, chairman of the US Atomic Energy Commission, in his speech during the presentation of the mobile lab to the IAEA. Remarks by Mr. McCone, Wednesday 12:45 September 24, 1958, Box 106, IAEA Archives.
[25] Airgram US Mission to IAEA, October 18, 1960; and Airgram US Mission to IAEA, October 6, 1960; both in: Box 140, NARA.
[26] Untitled report on the mobile laboratory's visit to [South] Korea, Box 106, IAEA Archives.
[27] Telegram, Emb. Airgram A-177 and Memorandum for Philip Farley, Department of State, January 24, 1962, Box 140, NARA.
[28] Letter of Agreement, GOV/286, Annex 1, Mobile Labs, General, Technical Supplies, 1958–1961, Box 106, IAEA Archives
[29] IAEA, First annual report of the Board of Governors to the General Conference covering the period from October 23, 1957 to June 30, 1958, GC (II)39, IAEA Archives.
[30] Sterling Cole, circular letter, February 24, 1959, SC/216. Box 106, IAEA Archives.

unit thought otherwise: "We could bring all the students interested in a course in radioisotopes to Buenos Aires by plane, lodge them in the Plaza Hotel, feed them at the best restaurants, and transport them to and from the Commission daily by taxi during the period of the course for less than the mobile laboratory is costing us."[31] This was how the director of the Argentine National Atomic Energy Commission, Admiral Oscar Armando Quihillalt, complained about the financial aspects of IAEA training in 1960. His criticism was then forwarded to the US mission in Vienna. And he was not the only one. As the IAEA reported later, many states found it difficult to bear the cost of receiving the laboratory. Thus, the Agency had to change provisions first in 1960 and then again in 1964.[32]

An indispensable ingredient of IAEA's international affairs and development plan, the mobile unit became central in creating global connections and networks; establishing a shared material culture among global centers of interests; unfolding political and diplomatic practices; and standardizing societal and scientific culture. For example, discussing the case of Ghana, Abena Dove Osseo-Asare points out the fact that Ghanaian scientists became increasingly dependent on IAEA's demands, and although they hoped to receive a multi-channel pulse-height analyzer in order to develop nuclear medicine in the country using radioisotopes, they were offered the mobile radioisotope unit instead. The unit arrived in the country in 1965 where it spent four months touring major cities (Osseo-Asare, 2019). The second mobile unit toured principal cities in Mexico in 1958, giving "a powerful impetus to atomic training and research" (Anonymous, 1960a). According to Gisela Mateos and Edna Suárez-Díaz, the mobile unit crossed six different Lain American countries defining local expertise, changing local practices, and illustrating the many difficulties in reproducing knowledge outside "its curated and hygienic original conditions" (Mateos & Suárez-Díaz, 2019). When the mobile laboratory was sent to Greece, the purpose was not merely to train the country's first experts on the use of radioisotopes. As Loukas Freris and I have argued, the mobile laboratory became an example of how the IAEA tried to gain control, both epistemic and material, over the process of standardizing laboratory procedures, research techniques, and even experimental spaces in the country (Rentetzi & Freris, 2021). By ignoring the ways technoscientific artefacts and more specifically nuclear things become diplomatic gifts, we miss a significant chance to both enrich and challenge traditional historical narratives of the second half of the twentieth century.

Conclusion

Among the numerous clay documents in the collections of the British Museum exists a royal seal of the Assyrian king Assurbanipal (668–631 BC). Discovered in 1873 by George Smith, a pioneer British Assyriologist, the seal impressed Smith's contemporaries. Usually, clay tablets recounted the day-to-day business of Babylonian accountants and administrators or recorded the triumphs of the king and its army. This one was somewhat different as it gave a glimpse to the dynasty's diplomatic practices. A description in the *Journal of American Numismatics* revealed that these ancient documents were "lumps of clay, which have evidently been moulded on a string attached to a linen roll, and the under side of the lumps still bears the impression of the texture of the material" (Anonymous, 1874, p. 61). The pieces of clay, which Smith meticulously cleaned and assembled in a backroom of the British Museum, were stamped with the impression of a circular seal shown the king slaying a lion. The assumption was that these clay documents were attached "to treaties or other diplomatic documents, by a cord tied around the roll, and passing through the clay." Literally *with strings attached*, diplomatic documents embodied the king's power while the cord that tied them shut remined the conditions of the contracted diplomatic relation. These origins of the idiom "with strings attached," embedded in early Babylonian diplomacy, begs for an analogy to the twentieth-century technoscientific diplomatic gift. Indeed, it affords greater explanatory power to the technoscientific diplomatic gift as an analytic category.

In the context of Cold War diplomacy, the mobile radioisotope laboratory was not simply a gift aligned with US interests to build allegiances and promote shared strategies; in short, the lab was a gift that came with strings attached. Emphasizing its materiality, one could argue that it was itself *the string* attached to the diplomatic relationship built between the IAEA, a novel institution of global governance, and the USA, which wished to remain in control of the uses of atomic power—peaceful or not—and the technologies that came with it, while opening, at the same time, new markets for their promotion. By offering technoscientific gifts to the IAEA, in the form of mobile laboratories, radioactive materials, research reactors and literature, the USA had specific future benefits in mind, both political and economic. The aim was to promote the Atoms for Peace agenda, maintain the upper hand in the global market of radioisotopes, craft the next generation of scientists worldwide according to its pedagogical standards, and model scientific practices and institutions on those in the USA. Thus, the notion of gift-giving becomes central in understanding the intellectual and political underpinnings of the evolving international regulations of nuclear energy. In the IAEA's statute, granting the Agency its existence by placing it in a web of international legal arrangements, the gift is also constructed as a legal category. Indeed, new ways of conceiving gift-giving and gift-accepting were accelerated by new international institutions.

The historical focus on the mobile laboratory is pivotal in comprehending as a cohesive whole an otherwise complex global network of scientific communities, nuclear institutions and laboratories, international organizations, and national interests. Considering the mobile lab as a technoscientific diplomatic gift enriches our understanding of the legal, political, and institutional aspects of traditional diplomacy, and it illuminates the importance of the material aspects of diplomatic practices. Furthermore, the two labs tied together IAEA's member states in a dense web of contractual obligations through the letter of agreement each country had to sign in order to receive the mobile unit. As a symbol of the Agency's determination to promote, control, and regulate the use of radioactive isotopes on a world-wide basis, the mobile labs became the mediators between the use of atomic energy and the achievement of economic and social progress. They travelled across cultural and political boundaries, reached diverse laboratory cultures, and deeply transformed them, as scholars have already shown for the cases of Mexico, Ghana, and Greece (Mateos & Suárez-Díaz, 2019; Osseo-Asare, 2019; Rentetzi and Freris, working paper). In this process, mobile laboratories were exchanged and transported far and wide, as key players in the new transnational diplomatic practices they helped to shape. For our historical analyses, they also constitute a critical analytic category, within a political epistemological framework, that enables cross-disciplinary understanding of the co-production of nuclear science and diplomacy.

[31] Memorandum for Robert Winfree, Department of State, from B. Menke, Assistant Director for Program Development and Liaison Division of International Affairs, airgram IAEA-Vienna, July 11, 1960, RG 59 General Records of the Department of State, ARC ID 2517138, General records relating to atomic energy matters, 1948–1962, Box 140, NARA.

[32] "The Use of the Agency's Two Mobile Radioisotope Laboratories During the Period 1958–1965" Memorandum by the Director General, INFCIRC/81, June 7, 1966, IAEA Archives.

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