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Review by Eliza Gheorghe, Bilkent University

Our planet is approaching an environmental cliff edge. Deforestation, increasing greenhouse gas emissions, and climate change put our future at risk. Nuclear power, once envisaged as a source of energy that would become ‘too cheap to meter,’ is now regarded by some as a ‘green’ alternative to fossil fuels.¹ For advocates of nuclear power, developments in recent years have brought reasons for optimism. Approximately 30 countries are contemplating, negotiating, or already setting up nuclear power programs. Eighty percent of them are developing economies, which, given the financial repercussions of the ongoing COVID-19 pandemic, need access to affordable and clean energy in order to reduce the devastating effects of this economic tsunami. Among the countries aspiring to introduce nuclear power into their energy mix is Israel, whose government hopes that building nuclear power plants (NPPs) would help it reduce greenhouse gas emissions by 25% by 2030.²

Israel stands out among the members of the nuclear club as one of two nuclear-weapon states (NWS), alongside North Korea, that does not possess a nuclear power reactor. As Or Rabinowitz shows in her insightful article “When Pigs Fly’: Britain, Canada and Nuclear Exports to Israel, 1958-1974”, it was not for lack of trying. Building a nuclear power reactor has long been on the minds of Israeli decisionmakers. But, much to their chagrin, efforts to secure a nuclear reactor for desalination or power production reached a dead-end time and again. Rabinowitz expertly weaves in documents from a variety of international archives to produce a captivating story about the failure of the Israeli government to purchase a nuclear power reactor from the United Kingdom and Canada, an episode in Israel’s nuclear history that has heretofore been ignored. To elucidate the causes of this failure, she tests several hypotheses from the

¹ Joshua S. Goldstein, Staffan A. Qvist, and Steven Pinker, “Opinion | Nuclear Power Can Save the World,” *The New York Times*, 6 April 2019.

² Hedy Cohen, “Israel’s Energy Ministry mulls nuclear power plant,” *Globes*, 26 November 2015, <https://en.globes.co.il/en/article-energy-ministry-considering-nuclear-power-plant-1001084087>; Lior Gutman, “Israel’s Nuclear Power Plant Is Back on the Table,” *CTECH*, 29 April 2019, <https://www.calcalistech.com/ctech/articles/0.7340.L-3761168.00.html>.

supply-side literature on the nuclear market, which deal with the strategic, political, commercial rationales that account for why nuclear exporters sell their technology to interested buyers.³

Rabinowitz finds that the United Kingdom and Canada passed up the opportunity to export nuclear power plants to Israel “because of concern that they would upset their relations with Arab states” (708). This reluctance is surprising, since neither the British nor the Canadians ended up pursuing lucrative deals with any other countries in the Middle East. They were also not opposed to selling nuclear power plants to countries that fought recent wars with each other, as evidenced by Canada’s reactor sales to both India and Pakistan. Moreover, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which Israel has not signed, was invoked by the London and Ottawa as a reason to refrain from selling the NPPs in question, even if, as the article shows, doing so was “in opposition to regulations created by the treaty itself” (720). Israel’s failed negotiations with the UK and Canada allow Rabinowitz to engage with four prominent arguments about supplier motivations.

For starters, she confirms that economic profit does not motivate suppliers unless commercial interests align with strategic ones.⁴ Rabinowitz shows that although the British and the Canadians stood to benefit financially from sealing a deal with Israel, they preferred to pull out of the negotiations for strategic reasons. She then challenges arguments about the role of alliance membership and democracy promotion in spurring suppliers to provide nuclear assistance⁵ by showing how considerations regarding regime type and ally status did not suffice to “tilt the balance in favour of nuclear commerce by both exporters” (721). Finally, Rabinowitz examines whether suppliers provide nuclear transfers because they try to bolster the capabilities of countries with whom they share an adversary.⁶ As she notes in the article’s conclusion, Israel did not represent ‘the enemy of the enemy’ so, unsurprisingly, the article finds that this particular strategic logic does not apply.

Nevertheless, the argument Rabinowitz makes about the UK and Canada not wanting to antagonize the Arab states is an interesting one and has important ramifications for the field of security studies. Her analysis draws attention to the need to understand nuclear technology transfers by looking at both supply and demand. Examining how several suppliers interact with a buyer helps us better understand how the nuclear market works. Following a broader trend in the international relations literature, Rabinowitz’s article sheds light on the limits of state-level attributes – like level of democracy or economic resources – for understanding why states secure nuclear technology, while at the same time shifting the focus to relations between buyers and suppliers.⁷ Her work confirms recent insights that suppliers’ decisions are informed not only by concerns about absolute gains, but relative gains as well.⁸ As Rabinowitz notes, the UK and Canada were not only paying attention to the profits they would make from selling nuclear reactors to Israel but also

³ Matthew Kroenig, *Exporting the Bomb: Technology Transfer and the Spread of Nuclear Weapons* (Ithaca: Cornell University Press, 2010); Matthew Fuhrmann, *Atomic Assistance: How “Atoms for Peace” Programs Cause Nuclear Insecurity* (Ithaca: Cornell University Press, 2012).

⁴ Matthew Kroenig, “Exporting the Bomb: Why States Provide Sensitive Nuclear Assistance,” *American Political Science Review* 103:1 (February 2009): 113–133, <https://doi.org/10.1017/S0003055409090017>.

⁵ Fuhrmann, *Atomic Assistance*.

⁶ Kroenig, *Exporting the Bomb*, 2010.

⁷ Marina G. Duque, “Recognizing International Status: A Relational Approach,” *International Studies Quarterly* 62:3 (September 2018): 577–592, <https://doi.org/10.1093/isq/sqy001>.

⁸ Eliza Gheorghie, “Proliferation and the Logic of the Nuclear Market,” *International Security* 43:4 (April 2019): 88–127, https://doi.org/10.1162/isec_a_00344.

how their actions would benefit other suppliers. For instance, the British worried that if they adopted tougher safeguards on Israel, then that would lead the Israelis “to buy French technology yet again” (715). But these fears were misplaced since the French themselves were reluctant to sell nuclear power plants to Israel, for reasons similar to those of Canada and Britain.

‘Relative gains’ logic also dominated Washington’s thinking about nuclear exports to Israel, as Rabinowitz discusses in earlier articles.⁹ The Nixon Administration worried that “if we [the Americans] hadn’t done it, both Canada and Europe would sell the reactors under probably weaker safeguards.”¹⁰ This logic held sway in Washington even after Ottawa and London had become lukewarm toward the prospect of exporting nuclear power reactors to Israel. The argument that “It is better for us to do it, with safeguards, than for someone else” won the day, and in 1974, President Richard Nixon offered to sell Israel (and Egypt) nuclear power reactors.¹¹ The deal, however, never materialized, because Israeli leaders rejected the conditions the incoming Carter administration attached to the deal: joining the NPT and accepting full-scope safeguards.¹²

Research into nuclear negotiations that never resulted in an agreement might seem to some to be of little consequence because we are dealing with non-events. But understanding why certain countries managed to obtain nuclear transfers while others tried and failed is crucial for having a clear picture of market dynamics, and ultimately, of nuclear proliferation. Therefore, Rabinowitz’s scholarship holds important implications for future scholarship on the nuclear market and nonproliferation policy. Her research helps scholars better address the ‘mice-in-the-walls’ problem – when we see a single mouse come out of a wall, it is likely there are many more mice behind the wall – which stems from the multiplicity of suppliers that have populated the nuclear market since its inception.¹³ Because of the variety of nuclear suppliers, for every successful transfer of nuclear technology from one supplier to a buyer, there is likely to have been additional negotiations between that buyer and other suppliers that did not result in a sale.

Israel is not the only NWS that failed to secure nuclear power plants. North Korea fits in the same category. It was supposed to receive nuclear power reactors as part of the 1994 Agreed Framework. That did not happen, however, as proliferation concerns added to the nuclear suppliers’ qualms about providing nuclear technology transfers to these two countries.¹⁴ Other buyers were also unsuccessful in their efforts to acquire nuclear power plants from the same exporters that Rabinowitz discusses in her article. Czechoslovakia, for instance, was in advanced negotiations with the British and the Canadians for an NPP in the late 1960s. The crushing of the Prague Spring in August 1968 had “a serious inhibiting effect” on Canada’s relations with Czechoslovakia, leading to the abandonment of negotiations on nuclear

⁹ Or Rabinowitz and Jayita Sarkar, “‘It Isn’t over until the Fuel Cell Sings’: A Reassessment of the US and French Pledges of Nuclear Assistance in the 1970s,” *Journal of Strategic Studies* 41:1–2 (February 2018): 275–300, <https://doi.org/10.1080/01402390.2017.1328355>; Or Rabinowitz, “Signed, Sealed but Never Delivered: Why Israel Did Not Receive Nixon’s Promised Nuclear Power Plants,” *The International History Review* 40:5 (October 20, 2018): 1014–1033, <https://doi.org/10.1080/07075332.2018.1436581>.

¹⁰ Rabinowitz, “Signed, Sealed but Never Delivered,” 1018.

¹¹ Rabinowitz, 1018.

¹² Rabinowitz, 1024.

¹³ This phrase belongs to Alex Wellerstein.

¹⁴ Christopher Lawrence, “A Theory of Engagement with North Korea” (Cambridge: Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard Kennedy School, May 2019), 5.

power reactors.¹⁵ Similarly, in the second half of the 1970s, Libya entered nuclear negotiations with Canada and the UK (among others), but failed to obtain the technology it needed to develop a nuclear power program.¹⁶

Identifying failed negotiations is often a difficult task, as such dealings frequently happen behind closed doors and receive little media or scholarly attention. This information, however, is important, because without it we risk lumping together countries that never had an interest in developing a nuclear program with countries that wanted to build a nuclear program but were unable to acquire the necessary technology and materials. In other words, we end up comparing apples to oranges. Political scientists should take a cue from Rabinowitz's article as well as from recent scholarship on international agreements and alliances to remember the 'mice-in-the-wall' problem and pay serious attention to non-events as well as actual events.¹⁷ Rabinowitz's article also illuminates critical issues for policymakers, who would better understand proliferation risks if they had more information about the mice behind the wall.

"When Pigs Fly" also sheds light on the demand side of nuclear proliferation. In her conclusion, Rabinowitz notes that "Israel was indeed interested in developing its own nuclear power plants for electricity production," using its signature of a formal contract with the United States in 1976 as evidence of Israel's commitment to include nuclear power in its energy mix. At the same time, however, the author points out that "from 1958 to 1974, Israel prioritised above all other nuclear related considerations, its ability to maintain the Dimona reactor as an unsafeguarded reactor" (721). This statement makes clear that Israel's interest in nuclear power reactors came second to its goal of making sure that its military nuclear program was unencumbered by ties with additional suppliers.

To add to Israel's problems in the nuclear market, the United States became more concerned with nonproliferation after India's Peaceful Nuclear Explosion in 1974, and worked with the Soviet Union and some of its allies to create the Nuclear Suppliers Group,¹⁸ which aimed to impose "stringent safeguards mechanisms" on all nuclear transfers.¹⁹ Unsurprisingly, Israeli leaders lost interest in the nuclear power reactor deal that had been signed in 1974. Hence, Israel's failure to secure nuclear power plants is not only due to the unwillingness of Canada, Britain, and the United States to give the green light to a deal, but also to Israel's reluctance to open Dimona up for inspection. While Israeli leaders clearly thought of NPPs as an attractive source of energy, the security of their military nuclear program trumped all other considerations. Rabinowitz's clever title of her article subtly captures not only the unwillingness of Canada and the UK to provide Israel with nuclear power reactors but also the unwillingness of Israel to disclose information about the nature and status of its nuclear program.

In conclusion, Rabinowitz expertly documents the difficult negotiations between Israel and two prominent nuclear suppliers – the United Kingdom and Canada – and puts forward a compelling explanation for why the Israeli leadership failed to secure nuclear power reactor transfers. Skillfully using primary sources from a variety of archives, she puts

¹⁵ "Memorandum to Canadian Ministers, November 7, 1968," RG 20, Vol. 1644, 20-68-Ra Pt. 2, Library and Archives of Canada.

¹⁶ Målfrid Braut-Hegghammer, *Unclear Physics: Why Iraq and Libya Failed to Build Nuclear Weapons*, Cornell Studies in Security Affairs (Ithaca: Cornell University Press, 2016), 255.

¹⁷ Paul Poast, "Does Issue Linkage Work? Evidence from European Alliance Negotiations, 1860 to 1945," *International Organization* 66:2 (April 2012): 277–310, <https://doi.org/10.1017/S0020818312000069>; Paul Poast, *Arguing about Alliances: The Art of Agreement in Military-Pact Negotiations* (Ithaca: Cornell University Press, 2019).

¹⁸ William Burr, "A Scheme of 'Control': The United States and the Origins of the Nuclear Suppliers' Group, 1974–1976," *The International History Review* 36:2 (March 2014): 252–276, <https://doi.org/10.1080/07075332.2013.864690>.

¹⁹ Rabinowitz, "Signed, Sealed but Never Delivered," 1017.

forward a multifaceted approach to nuclear trade, one that considers the preferences from both the supply and the demand side and how they interact to affect outcomes in the nuclear market. This article is an important contribution to the field of security studies, as it highlights how a deep understanding of history can help develop new conceptual tools for understanding the dynamics of the nuclear market, which matters greatly for strengthening nonproliferation policy.

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