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How Israel Built a Nuclear Program Right Under the Americans' Noses

Concerned that Israel might be trying to attain nuclear capability, the U.S., in the mid-1960s, insisted on regular visits to Dimona. The visiting experts came away reassured of Israel's intentions, but not everyone in the U.S. government was convinced.

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In a recent op-ed piece in this newspaper (HAARETZ), we revealed that Henry Kissinger, then a professor of government at Harvard University, at the conclusion of a private visit in Israel in January 1965, shared with U.S. diplomats in Tel Aviv his conviction "that Israel is already embarked on a nuclear weapons construction program."

<u>While the record of the discussion</u> does not tell us what impact that observation had on Kissinger's audience, much less how he had reached that conclusion, as contemporary historians, we know that the statement was in sharp contrast with the U.S. government's uncertain state of knowledge of the <u>Israeli nuclear program</u>. While suspicions abounded, during this period the U.S. government never had definitive evidence, let alone conclusive proof, that Israel was seeking a nuclear military capability.

Other declassified U.S. documents from the period reveal that senior U.S. officials were puzzled about the state and future direction of the Israeli nuclear complex at Dimona. Suspicions notwithstanding, the most recent prior U.S. inspection at Dimona, on January 30, 1965 – only two days prior to Kissinger's briefing at the embassy – reported that it found no "weapons-related activities" at the site, and also suggested that the Dimona complex was in a state of institutional slowdown and budget cuts, with morale among staff low.

To assess what the state of U.S. knowledge about Dimona was at the time, one must revisit the barely known U.S. visits to Dimona during the early- to mid-1960s. That requires drawing on a range of formerly classified documents, some of them made available only recently. Thus, it becomes possible to identify, in retrospect, the sources of the American errors in their assessment of the Dimona project. And err the Americans did.

When John F. Kennedy became president, in 1961, he made it a priority to have U.S. scientists visit the Dimona complex regularly to check suspicions that the Israelis aimed to develop nuclear weapons capabilities. <u>As we detailed in Haaretz last year</u>, such visits began in May 1961, but tensions over them began to grow in the spring and summer of 1963, when Kennedy engaged, first, Prime Minister David Ben-Gurion, and then his successor, Levi Eshkol, in a battle of letters intended to force them to accept visits of U.S. scientists to Dimona on a twice-yearly basis. By late summer 1963, Eshkol, who had become premier on June 26, agreed that U.S. scientists would have "periodic visits" to the Dimona plant.



U.S. President John F. Kennedy meeting with Israeli Prime Minister David Ben-Gurion at the Waldorf Hotel in New York City, May 30, 1961.Credit: ASSOCIATED PRESS

When the U.S. team visited Dimona in January 1964, construction of most of the complex was either complete or near completion. Indeed, the reactor had reached criticality, with its nuclear fuel sustaining controlled chain reactions. That made the visit important for constituting a baseline for future evaluations. The one-day visit lasted about 11 hours. Subsequently, the U.S. Atomic Energy Commission reported to the U.S. Intelligence Board that the "team believes that all significant facilities at this site were inspected."

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The team's overall assessment was consistent with the way their Israeli hosts characterized the site. Like its predecessors in 1961 and 1962, the 1964 team believed that the Dimona complex was designed to be an advanced national research and training center, civilian in nature, whose purpose – at least then – was to acquire expertise in all aspects of the nuclear fuel cycle. The rationale: Israel was preparing itself for the age of civilian-use nuclear power.

The U.S. team's readiness to accept the Israeli story was already manifest in the first American visit to Dimona in May 1961. It was then that Israel provided both the rationale and the narrative for Dimona as a peaceful project. Manes Pratt, the center's founder and director, presented it as an "interim stage" on Israel's path toward nuclear power. The presentation of Dimona's master plan as intended for peaceful use only was consistent with Ben-Gurion's pledges, including one he personally conveyed to Kennedy two weeks later, during their meeting in New York. Ever since, the U.S. teams had continued to view Dimona as essentially a civilian-scientific enterprise, believing that, as the first team reported, following the 1961 tour, "nothing had been concealed from them."

In 1964, then, the team's bottom line was, just as it had been in 1961, that the site lacked the necessary facilities – for plutonium recovery and reprocessing – required for a weapons program. As the team put it, "Israel, without outside assistance, would not be able to produce its first nuclear device until two or three years after a decision to do so, that is, the time required to construct plutonium separation facilities and fabricate a device."

While the 1964 team determined that Dimona's mission was currently a peaceful one, it left with the impression "that the Dimona site and the equipment located there represented an ambitious project for a country with Israel's capabilities." The reference to "ambitious" reflected the Israelis' open desire to gain self-sufficiency in virtually all aspects of the nuclear fuel cycle.

Nine months later, in late September 1964, the U.S. chargé d'affaires in Tel Aviv was instructed to meet Prime Minister Levi Eshkol, for the purpose of setting a date for the next U.S. visit to Dimona, which the State Department hoped would occur sometime in October. Perhaps trying to avoid an inspection altogether, Eshkol did not respond to the American requests and then bypassed the embassy altogether by dispatching a personal message to President Johnson – via a U.S. go-between, presidential adviser Myer (Mike) Feldman – requesting to postpone the next Dimona visit until after Israel's upcoming planned election, in November 1965. Eshkol cited concerns that a leak of the visit would undermine his political standing. <u>Somewhat jokingly</u>, Eshkol told Feldman (or wrote to Johnson via Feldman) that "there is no possibility that the Dimona reactor could be converted to military purposes in so short a period of time."



A partial view of the Dimona nuclear power plant in Israel's Negev desert, September 2002. Credit: AFP/ Thomas Coax

Eshkol's request stirred suspicions in Washington. On October 23, National Security Advisor McGeorge Bundy directed the State Department, the CIA and the AEC to explore both the political and technical implications of the request. In a joint memorandum, those agencies did not accept Eshkol's reasoning. Indeed, State Department officials saw it as a "pretext."

A key question was whether the Israelis could use the two-year time lag – from January 1964 to January 1966 – to build the "missing link" that would be needed for production of weapons, i.e., a chemical separation plant for producing plutonium at the Dimona site. (Also called a reprocessing plant, such a facility is intended to take irradiated, or spent, uranium rods from a reactor and extract plutonium from them via a series of highly toxic chemical operations.) The technical analysts believed so, noting that the Israelis already had enough uranium on hand that if, during those two years, they operated the reactor at a "power level designed to maximize plutonium production, it could produce 6 to 12 KGs of plutonium." That would have been enough to produce material for up to "two test devices."

Shaping the U.S. technical assessment was the explicit – but erroneous – assumption that Israel lacked a chemical separation plant on-site. Creation of such a facility, so the assumption went, would require a new top-level political decision. Once such a decision had been taken, roughly another two years would be needed to build the plant. Thus, hypothetically, if Israel had started with such steps soon after the previous inspection, in January 1964, a plant could have been operational by about January 1966. The only way to determine whether the Israelis had taken any steps toward reprocessing plutonium would be through onsite inspection.

In 1961, President Kennedy learned directly from Ben-Gurion that Israel had plans to build "a pilot reprocessing plant" in three or four years to produce plutonium as a reactor fuel, but the Israeli leader had stressed that the Dimona complex was solely peaceful. At the time of the January 1964 visit, however, the Israelis told the U.S. team that they had delayed indefinitely the plans to construct the pilot plant, although they showed them the space at Dimona where it would have been built.

Given the concern that the Israelis could build a reprocessing plant in the absence of a U.S. inspection, the AEC-CIA-State memo led Undersecretary of State for Political Affairs Averell Harriman to conclude that an inspection should not be postponed. In a memo to Bundy, Harriman dismissed the credibility of Eshkol's political argument, noting that Ben-Gurion had accepted a U.S. visit in 1961 and that deputy defense minister Shimon Peres was on board with Eshkol's 1963 decision to allow visits. It is "our inability to fathom the argument for delay" that "heightens our security fears," wrote Harriman. In contrast to Eshkol, who denied that Israel could "convert Dimona to military purposes in such a short time," U.S. experts worried about exactly such a possibility. They considered a two-year period without inspections as "highly dangerous."

Rather than reject Eshkol's proposal outright, however, Harriman supported Ambassador Barbour's proposed three-point compromise: 1) to have a U.S. visit in the next month or two, 2) "a waiver on the Israeli commitment [that the U.S. had assumed] of subsequent six-monthly visits until after the 1965 elections," and 3) "an offer not to communicate the results of the visit to Nasser until after the November 1965 elections."

On November 25, 1964, a presidential "oral message" based on Barbour's compromise proposal was transmitted to the Tel Aviv Embassy. While politely acknowledging Eshkol's domestic problem, LBJ reiterated the importance of "semi-annual visits," alleging (incorrectly) that they had been agreed to by Eshkol. He suggested having the upcoming visit very soon – "in late November or early December" – but agreed to waive the date of the visit to follow that until after the November 1965 Israeli election. On or around December 6, Eshkol informed Barbour that he had set the weekend of January 30, 1965, for the date of the next visit. By way of explanation, Eshkol invoked his domestic political difficulties – his growing rift with Ben-Gurion – as a reason for the delay, adding, as if to reassure Washington that "We cannot build a nuclear weapon in two months."



Israel's nuclear research center at Soreq, May 2010.Credit: AP

The State Department instructed Barbour to press for a well-defined protocol for the January visit. Besides a minimum of two days onsite, the U.S. team should have "full access" to the reactor and other facilities as well as their operating records. In addition, the team had to be able to "make independent measurements as may be

necessary to verify production of reactor since previous visit." Finally, the team should be able to "verify location and use [of] any plutonium or other fissionable material produced in reactor." Such ground rules would have put the U.S. team in a far better position to learn what exactly was going on at Dimona.

But when Barbour presented the terms to Eshkol, the latter rejected them outright, arguing that they would put the visit on a new basis, making it look like an "inspection" and raise issues "of prejudice to Israeli sovereignty." Refusing to agree to a full two days onsite, the Ambassador reported that Eshkol emphasized that the "visit must be fundamentally on same basis as previous ones, that is, team must be invited guests of Israel and not 'inspectors." While this tied the hands of the U.S. inspectors, Washington did not push back.

The U.S. 1965 inspecting team comprised three senior government nuclear experts from the AEC and the Arms Control and Disarmament Agency: Ulysses M. Staebler, Floyd L. Culler and Charles McClelland. They received a briefing at the State Department on January 15, where they were told that their mission had both intelligence and diplomatic ramifications. With the apprehension about a prospective Arab-Israeli arms race, evidence that Dimona was for peaceful purposes could be used to reassure Egyptian president Nasser. The inspection could also put in perspective the varied reports about suspicious developments concerning the Israeli nuclear program, including that the complex had been "secretly expanded" since the 1964 inspection, Israel's purchase of uranium oxide (yellowcake) from Argentina, and the departure of French technicians from the site, all of which U.S. intelligence took as facts.

The visit to Dimona took place on Saturday, January 30, 1965, a little more than a year after the preceding one. The scientific host of the team was the nuclear physicist Igal Talmi, who escorted the team during its entire three-day stay in Israel. According to the U.S. documents, the team also visited the Weizmann Institute, the small reactor at Soreq and the Negev Institute for Arid Zone Research. During the 10 hours that the team spent at the Dimona complex, they were joined by the director, Manes Pratt, as well. The visit was conducted under significant restrictions, even more severe than those of a year earlier. Not only was the time at Dimona cut to just one day, but unlike in the previous year, the inspectors could not continue the visit into Saturday evening. The Israelis cut short the visit in the late afternoon, preventing the inspectors from seeing the inside of all the buildings onsite.

Within five days, on February 5, 1965, the State Department sent National Security Adviser Bundy a preliminary draft of the team's report, along with the Department's

take on the findings. According to the report, the team agreed by consensus that, despite the restrictions, "the visit provided a satisfactory basis for determining the state of activity at the Dimona Site."

The fundamental findings were twofold and unanimous. First, the Dimona Nuclear Center was in a state of slowdown and uncertainty, if not in a real institutional crisis, as the Israeli government had recently suspended its earlier nuclear energy masterplan, pending certain decisions.



Henry Kissinger, who became President Richard Nixon's national security adviser in 1969.Credit: AFP

The context of the institutional slowdown, as explained to the American team, seemed to make sense. During Eshkol's state visit in June 1964, President Johnson had invoked the idea that Israel join a "Water for Peace" project, a new joint venture through which the U.S. would provide Israel with a new type of low-enriched uranium reactor that could produce electrical power to be used for desalinization. It appeared that this could get Israel both a nuclear power reactor and a desalinization plant at half price. Putting that new plan into effect would

require the suspension of the original Israeli nuclear power masterplan, which was based on natural uranium fueled reactors. Recall, Dimona was presented to the American teams as an interim step toward that nuclear vision. Thus, when in early 1965, the "Water for Peace" project was being studied, Israel had ostensibly slowed down or in some cases even suspended some of the anticipated research activity at Dimona.

The U.S. team was told (and shown) that several key components ("institutes") of the Dimona complex were either still under construction, or had been, or would soon be, placed in a standby mode. The report cited Dimona director Pratt telling the team that "there is no approval of a research and development program or of a budget for the fiscal year starting in April 1965." In effect, the very original rationale for the creation of Dimona as presented to the U.S. may have become obsolete due to the new interest in the "Water for Peace" desalination project. If Israel took that new path, Dimona would have to reinvent its raison d'être.

While the slowdown was real enough, its purpose was meant to enhance the basic Israeli cover narrative, namely, that Dimona was a civilian research center intended to support a broader and new nuclear power program. At the end, the "Water for Peace" project did not go anywhere, to a large degree because Israel could not reconcile Dimona with a large nuclear energy project and because Israel's commitment to Dimona as a security project was much stronger than its interest in nuclear energy.

The second element of the U.S. team's conclusions from the visit was that "nothing [at the Dimona site] suggests an early development of weapons program." Like all its predecessors, the 1965 team determined that the Dimona complex lacked key technical components that would be required for a weapons program, most notably a reprocessing plant. Hence, the team's judgment was that there was "no near-term possibility of a weapons development program at the Dimona Site." Among the technical findings was that Israel did not have the facilities to process more than three tons annually of uranium and had "no capability to produce and recover [plutonium]."

Despite this, the AEC team urged continued vigilance. Notwithstanding the slowdown, the team remained impressed by the site's potential, believing that it had "excellent development and production capability and potential that warrants continued surveillance at intervals not to exceed one year."

The draft summary (the full report remains to be declassified) did not even hint at the possibility that the Israelis may have been concealing anything during the visit. Notably, the available documents show that this possibility – deception and concealment – had been raised in the interagency technical meeting in Washington

that preceded that visit. Nonetheless, in retrospect, it appears that that is exactly what was going on during this inspection and the others. According to American journalist Seymour Hersh, in his 1991 book "The Samson Option," prior to the Dimona visits, Israel implemented a large-scale deception operation that amounted to concealing the reprocessing plant under construction and continual misrepresentation of the reactor's purposes.

In any event, the apparently encouraging findings of the inspection helped the State Department decide that the U.S. could accede to Eshkol's request to postpone "the next agreed six-monthly inspection until after the parliamentary election in November this year." While this phrasing was inaccurate, as Israel had never formally agreed to biannual U.S. inspections, it clearly reflected a certain sense of relief about Dimona. Nevertheless, the next paragraph indicates that a sense of uncertainty about Israeli intention lingered. It stated that "we [Department of State] remain concerned that Israel may have succeeded in concealing a decision to develop nuclear weapons."

While the AEC inspectors appeared reasonably confident in their findings, they took it for granted that continued inspections were necessary. President Johnson, like President Kennedy before him, insisted on the AEC inspections as an essential tool for verifying Israeli leaders' pledges that the Dimona complex was meant for peaceful purposes only.

Shaping the drive for inspections were lingering doubts about Israel's ultimate intentions. As noted earlier, key officials pointed to warning signs, such as the yellowcake purchases, that the Israelis were up to something. Deputy Assistant Secretary of State for Near East and South Asian Affairs Rodger Davies, and science attaché physicist Dr. Robert Webber at the U.S. embassy in Tel Aviv, among others, suspected that Dimona was intended for military security, not scientific research, and that Israel may have secretly decided to develop a weapons capability. They had abundant circumstantial evidence to support those suspicions, but none of them seemed to have a clue about the missing link to weapons, the hidden chemical separation plant, although Webber raised the possibility that the Israelis had undertaken some such activity, somewhere. And he insisted that the AEC inspectors were greatly mistaken to discount Dimona's potential as a military project. Whether either Webber or Davies was aware of Kissinger's embassy briefing remains unknown, but knowledge of it would have doubtless increased their doubts.



Averell Harriman in conversation with David Ben-Gurion in Tel Aviv.Credit: Hans Pinn/GPO

Suspicions about how Israel would use the yellowcake persisted, not least because during the inspection Israeli officials treated questions about "procurement of uranium from abroad 'outside the scope of the visit.'" Another source of concern was the discovery by U.S. intelligence that Israel had secretly contracted with a French aviation company, Marcel Dassault, for development and production of a two-stage, nuclear-capable, short-range ballistic missile.

The uncertain knowledge of the mid-1960s sharply contrasts with the more certain situation of the 1970s, by which time U.S. intelligence had concluded that Israel had nuclear weapons. That suggested that the AEC assessments of Dimona in the 1960s were incorrect, indeed altogether misleading. That became manifestly true in 1986 when the real secrets became publicly known through the revelations of whistleblower Mordechai Vanunu, which were confirmed by French sources and published in the London's Sunday Times.

A key revelation in 1986 came from Francis Perrin, the French high commissioner for atomic energy from 1951 to 1970, who acknowledged to the Sunday Times that the Dimona nuclear complex had been conceived from the start as a complete and dedicated nuclear weapons infrastructure. It included a plutonium-producing reactor and a large underground chemical reprocessing plant for extracting weapons-grade plutonium from the reactor's irradiated rods. According to French journalist Pierre Pean, in his book "Les Deux Bombes" (Paris, 1982), the construction of the chemical reprocessing plant was completed, with some delays, as the final stage of the Dimona complex, around 1965. According to Pean, Israel started plutonium production in late 1965 or 1966. The reprocessing plant was the crown jewel of the entire Dimona project. We also know, from a document published last year by the authors of this article as part of an academic paper, that Prime Minister Eshkol shared with his senior cabinet colleagues in September 1963 how fearful he was that the reprocessing plant, then under construction, might be discovered by visiting American scientists. That did not happen. None of the nine AEC teams that visited the Dimona site between 1961 and 1969 was ever aware of the super-secret six-story underground facility.

From today's perspective, more than half a century later, the question of why the United States failed to discover the secret plant right under its nose remains intriguing. We suggest that the prime reasons for that American failure were varied. First and foremost, U.S. intelligence failed to discover what exactly France – both its government and its industry – had agreed to supply to Israel. To be fair, it is not that the U.S. did not try, but the French would share only partial and misleading information with the Americans. French authorities supplied the Dimona package that they had made available to Israel, supported by ample technical assistance. Few in the French government, and no Americans, knew that the government-to-government deal, as published by Pean, tacitly allowed a reprocessing plant, supplied directly by the French firm Saint-Gobain, which specialized in chemical and nuclear-related products. While the CIA was familiar with Saint-Gobain's work for the French nuclear program, whether it learned of its secret assistance to Israel prior to 1986 remains unknown.

In the absence of accurate and complete intelligence on the French role, the United States had to rely on the information that it could collect in Israel, whether openly or covertly. Here lies the second source of the U.S. failure: the political inability or unwillingness to ensure that the inspections were comprehensive enough to detect suspicious activities.

The policy and intelligence failures were intertwined. Washington viewed physical access to Dimona as essential both for verifying Israeli pledges about the plant's civilian mission and for ensuring others that Israel did not change its declared course and go nuclear. In retrospect, however, this approach was too trusting, perhaps even naive. Unless the inspection visits were grounded in a firm protocol, Washington could not deter or prevent a determined state like Israel from going nuclear.



Israeli Prime Minister Levi Eshkol, left, U.S. President Lyndon B. Johnson and their wives at a reception in Washington, June 1964.Credit: Moshe Frieden/GPO

A related problem was that U.S. inspectors accepted too uncritically the Israeli claim that Dimona was a step in a plan to introduce nuclear power to Israel. After all, did an "interim stage" civilian nuclear project like Dimona really make sense, technologically and/or financially, for a small and resource-limited country like Israel? Was it sensible for a country that had recently inaugurated its first nuclear reactor (in Soreq) to initiate a larger nuclear project, described as an interim step, when it had not yet approved a comprehensive plan for nuclear power? The AEC scientists should have given that story a far more skeptical analysis.

Based on the declassified material available to date, one can summarize the American conventional wisdom in the mid-1960s as follows: If Israel decided to change course and to embark on nuclear-weapons production, it would need to build a chemical plant for the extraction of plutonium, and that would require a political decision. The U.S. was reasonably confident that it could detect such a decision, even if it was made in secrecy. This overconfident and somewhat naive working assumption was fundamental to U.S. thinking at the time.

Missing from the American intelligence analysis of the period were not only basic facts about the French role, but also a lack of understanding – and appreciation – of how far the Israelis would go in concealing their progress. It is worth recalling that Hersh, in "The Samson Option," cited anonymous Israeli sources who told him

that the visitors to the Dimona reactor were shown a fake control room that reflected misleadingly the reactor's operations at the time. Even if the inspectors were not as trusting as they appeared to be, the available evidence does not suggest that they had any understanding that Israel was willing to undertake a sophisticated large-scale effort to conceal what it was doing.

The U.S. might have had a fighting chance to see through the concealment activities and ascertain Israel's true intentions if it had been willing to wage a forceful political battle for a thorough inspection. A more accurate state of knowledge on the U.S. side might have been possible if the Israelis had been forced to accept the ground rules that President Kennedy had envisioned in his spring-summer 1963 series of letters to Ben-Gurion and Eshkol, and which were subsequently reiterated and expanded by the State Department in late 1964. The measures they called for included two days of full access to the Dimona facility, the opportunity to gather samples, and the ability to verify the use and location of any plutonium produced by the reactor. Such an extensive survey would have been similar to the International Atomic Energy Agency (IAEA) reactor inspection system that, beginning in the 1970s, became part of the Agency's standard inspection protocol for enforcing the NPT and could have helped identify any suspect activities.

The Israelis rejected outright the possibility of thorough and rigid inspections. As noted earlier, Eshkol objected to the proposed ground rules as an intrusion on Israeli sovereignty. Indeed, Israel refused to consent to any fixed protocol – insisting that the arrangement was about "scientific visits" by friends, not "inspections" – and thus was willing to rely only on non-written past practice. Taking no for an answer, and effectively allowing its hands to be tied behind its back, the Johnson administration was unwilling to use its political leverage, which could have been considerable, and refrained from a battle royal with Eshkol and the Government of Israel. Whether President Johnson ever considered such a decision remains unknown. As important as nonproliferation was to Johnson and his advisers, in practice they often found it necessary, as they did in this instance, to balance it against other, no-less-important political, diplomatic, and security considerations.

Upon reflection, the U.S. failure to discover Dimona's underlying secrets – that it was, as the authors of this artice have argued in the past, a military project and that there was a secret plutonium plant – was practically unavoidable. U.S. intelligence had not detected the scope of the French-Israeli deal. Policymakers avoided going to the mat for the sake of a comprehensive inspection. Moreover, Washington failed to understand Israel's national security culture. That is, the U.S. government

did not comprehend that Israel was so committed to the nuclear project that it was willing to wage a complex operation to see it through.

What Henry Kissinger told U.S. diplomats in 1965 – that Israel had a "nuclear weapons production program" – amounted to a prediction. In 1967, during the Six-Day War, with the U.S. still in the dark, Israel secretly assembled two nuclear explosive devices, just in case, an event reported <u>five decades later</u> by The New York Times.

It was in the following years that Washington began concluding that Israel had the bomb. President Nixon's meeting with Prime Minister Golda Meir in September 1969 made the United States complicit in Israel's policy of nuclear opacity. Thus, when Henry Kissinger became Nixon's national security adviser, in January 1969, he was already aware of Israel's alleged weapons program, which has remained as much an official secret in Washington as in Tel Aviv, although it remains the "worst kept secret."

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