



BETWEEN THE FALL AND THE SECOND COMING: RADIOLOGICAL WEAPONS & IRAN'S UN-CONSTRAINED MISSILE PROGRAM

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The well-respected Arms Control Association (ACA) recently claimed "the potential threat from Iranian ballistic missiles has been radically reduced" by the Joint Comprehensive Plan of Action (JCPOA) signed in Vienna on 14 July 2015 by the Islamic Republic of Iran and the E3/EU+3 (of which the United States is part).¹ This is a curious claim by the ACA's own reckoning. Accepting for the moment its predicate—the "negotiations were about nuclear warheads, not about missiles"—one of the ACA's principal conclusions—that UNSC Resolution 2231 "contains an eight-year restriction on Iranian (nuclear-capable) ballistic missile activities"—is misleading at best. That it is inaccurate is indisputable.

First, UNSC Resolution 2231 imposes no such restriction. Instead it terminates open-ended restrictions imposed by two earlier UNSC resolutions, 1737 (2006) and 1929 (2010), respectively. Second, the existing restriction on nuclear-capable missiles *may* last eight years, but not necessarily. UNSC Resolution 2231 reads as follows:

"Iran is called upon not to undertake any activity related to ballistic missiles designed to be capable of delivering nuclear weapons, including launches using such ballistic missile technology, until the date eight years after the JCPOA Adoption Day or until the date on which the IAEA [International Atomic Energy Agency] submits a report confirming the Broader Conclusion, *whichever is earlier*."² [Emphasis added]

It is evident from the plain language of the text that eight years³ is not *the* period. Rather, it is the *longest* one during which (in the ACA's phrase) Iranian nuclear-capable ballistic missile activities are subject to restriction under UNSC Resolution 2231.

The translation of all source material is by the author unless otherwise noted. The phrase "between the Fall and the Second Coming" is from an essay by Itty Abraham, an international relations scholar and director of the University of Texas South Asia Institute. The full quote is "ambiguity and opacity become threshold terms describing a liminal stage between intention and a yet-to-happen event, the long moment between the Fall and the Second Coming." See: Abraham (2006). "The Ambivalence of Nuclear Histories." *Osiris*. 21:1, 52. <http://www.jstor.org/stable/pdf/10.1086/507135.pdf?acceptTC=true&jpdConfirm=true>. Last accessed 30 July 2015.

¹ Arms Control Association (2015). "Addressing Iran's Ballistic Missiles in the JCPOA and UNSC Resolution" *Issues Briefs* [published online 27 July 2015]. 7:8. <http://www.armscontrol.org/Issue-Briefs/2015-07-27/Addressing-Irans-Ballistic-Missiles-in-the-JCPOA-and-UNSC-Resolution>. Last accessed 29 July 2015.

² See: Annex B: Statement, paragraph 3. United Nations Security Council Resolution 2231 (2015) adopted 20 July 2015. <http://www.un.org/en/sc/inc/pages/pdf/pow/RES2231E.pdf>. Last accessed 27 July 2015.

³ The eight-year period commences on the JCPOA Adoption Day, which occurs ninety days after the UN Security Council endorses the JCPOA, i.e., ninety days after 20 July 2015 or 18 October 2015.

The resolution's alternate condition for lifting the restriction on nuclear-capable missiles—the "Broader Conclusion," elaborated as the IAEA reaching "the Broader Conclusion that all nuclear material in Iran remains in peaceful activities"⁴—is the product of the IAEA concluding that there is "no indication of diversion of declared nuclear material and no indication of undeclared nuclear material and activities, for the State and for the year in question."⁵ If the IAEA reaches the Broader Conclusion prior to October 2023 (i.e., eight years after the JCPOA Adoption Day), the restrictions terminate immediately.

Iran can argue persuasively that some ballistic missile systems—for example, its short-range Zelzal-3 (200km range), which is capable of striking targets on the southern Persian Gulf coast—are clearly not "designed to be capable of delivering nuclear weapons" and therefore subject to no restriction. Regarding other countries transferring or selling conventional missiles or missile systems to Iran, UNSC Resolution 2231 provides:

"All States may participate in and permit, provided that the Security Council decides in advance on a case-by-case basis to approve: the supply, sale or transfer directly or indirectly [...] to Iran, or for the use in or benefit of Iran, of any [...] missiles or missile systems...This paragraph shall apply until the date five years after the JCPOA Adoption Day or until the date on which the IAEA submits a report confirming the Broader Conclusion, whichever is earlier."⁶

So in Iran's worst case—the Security Council approves no sales or transfers, and the IAEA never reaches the Broader Conclusion—the restriction on conventional missile transfers and sales expires regardless in October 2020. And this occurs immediately if the IAEA reaches the Broader Conclusion, as with nuclear-capable missiles. The language with respect to conventional missiles and missile systems is the clearest example of how the JCPOA opts for limited proliferation over nonproliferation. In the missile realm at least, it "gives but does not get," terminating the entire sanctions architecture in exchange for Iran doing what it was already required to do. Here, the status quo prohibitions answer with alacrity JCPOA defenders' frequent rejoinder, *if not this, what?*

It is fatuous to suggest the "negotiations were about nuclear warheads, not about missiles." After all, delivery systems are integral to actualizing a nuclear weapon program. Cannonballs without a cannon are not especially menacing. If, as the author has argued, Iran has for some time possessed a limited number of rudimentary, Soviet-era nuclear devices (or for that matter, even if it has not), it is Iran's threatened expansion and transformation of its nuclear program that disrupts the regional security dynamic. Nuclear-capable missiles are undeniably integral to this threat.

From Iran's perspective, the debate is conjectural: its leaders declare the nation has *no* nuclear-capable missiles. According to Deputy Foreign Minister for Legal and International Affairs Abbas Araghchi, "the missiles of the Islamic Republic have never been designed for carrying nuclear warheads; all of our ballistic missiles are outside the qualifications of the new UNSC resolution and therefore there are no concerns."⁷ In a statement issued just minutes after the United Nations Security Council adopted adoption Resolution 2231, the Iranian Foreign Ministry declared:

"Iran's military capabilities, including its ballistic missiles, are exclusively for legitimate defense; these equipment have not been designed for the capability to carry nuclear payloads and thus, fall outside the scope and the jurisdiction of the UNSC resolution and its annexes."⁸

Foreign Minister Mohammad Javad Zarif reiterated this position before the Iranian Parliament. An English language report by the FARS News Agency quoted Zarif as saying, "Using the ballistic missiles doesn't violate the Joint Comprehensive Plan of Action (JCPOA) and it is a violation of a paragraph in the annex of the [UN Security Council] Resolution [2231] which is non-binding,"⁹ FARS' report in Farsi characterized the relevant text of UNSC Resolution 2231 as "a non-binding request to refrain from activities in the field of ballistic missiles designed to carry nuclear weapons, which never has and never will be part of the

⁴ United Nations Security Council Resolution 2231 (2015) adopted 20 July 2015.

<http://www.un.org/en/sc/inc/pages/pdf/pow/RES2231E.pdf>. Last accessed 27 July 2015.

⁵ International Atomic Energy Agency (2007). *IAEA Safeguards: Staying Ahead of the Game*. (Vienna: IAEA), 18.

<https://www.iaea.org/sites/default/files/safeguards0707.pdf>. Last accessed 27 July 2015.

⁶ See: Annex B: Statement, paragraph 5. United Nations Security Council Resolution 2231 (2015), *op cit*.

⁷ "Araghchi: Testing missiles does not violate the Vienna agreement." *ISNA* [published online in Persian 27 July 2015]. Last accessed 29 July 2015.

⁸ "Iranian FM: Using Ballistic Missiles No Violation of N. Agreement." *FARS News Agency* [published online in English 21 July 2015]. <http://english.farsnews.com/newstext.aspx?nn=13940430000489>. Last accessed 30 July 2015.

⁹ *Ibid*.

Islamic Republic of Iran's missile program, and so will have no effect."¹⁰

While the ACA correctly notes that UNSC Resolution 2231 subjects the restrictions on nuclear-capable and conventional missiles "to re-imposition in the event of significant non-performance by Iran of JCPOA commitments,"¹¹ doing so is subject to a Security Council vote.¹² Further, the conditional re-imposition provision terminates finally in October 2025, ten years after the JCPOA Adoption Day.¹³

How all of this constitutes, as the ACA concludes, "a much lower threat from Iran's ballistic missiles", is puzzling. It terminates the now-open ended restriction on Iran developing nuclear-capable missiles in at most eight years; terminates the now-open ended restriction on transferring conventional missiles and missile systems to Iran in at most five years, with an allowance for immediate case-by-case exceptions; is ambiguous regarding Iran's obligation to disclose fully any missile-related possible military dimensions (PMD) of its nuclear program; and ignores completely the matter of CBR (chemical, biological and radiological) missile warheads.

One might add as well that the various timeframes—a maximum eight-year restriction on nuclear-capable missiles, a conditional one of five years on conventional ones—go unexplained. Except as the end product of haggling, they seem on their face inexplicable.

It is likely the timeframes have some meaning to Iranian leaders. They have knowledge, rather than inference, regarding the development status of Iran's nuclear-capable missiles and nuclear warheads (and claim Iran has no such weapons and therefore that the prohibition has no effect). They have knowledge, rather than inference, regarding Iran's non-nuclear (more aptly descriptive than the misnomer *conventional*) missiles. And they have succeeded in constructing as stable a strategic landscape for the next five to ten years as they judged possible, retaining their ability in the meantime to shape its contours over the horizon.

Radiological weapons are a useful instrument for doing so, existing as they do outside the JCPOA, untouched by its restrictions on conventional missiles and missile systems. If those Iranian leaders opposed to IAEA inspections of military sites prevail—only days ago, Ali-Akbar Velayati, head of the Center for Strategic Research¹⁴ stated categorically that there would be no military base inspections by IAEA or any other institutions¹⁵—any such programs may go undiscovered and most certainly undocumented.¹⁶ Days later, Velayati declared the sections of UNSC Resolution 2231 on "Iran's defensive capacities, especially missiles...[are], from the point of view of Iran, unacceptable." He continued, "A resolution which was approved under the influence of Western expansionist countries...weakens Iran's defensive power in order to be able to impose their demands on Iran. This is an issue to which the Islamic Republic of Iran has not acceded and will not accede."¹⁷

The estimable Anthony Cordesman wrote recently:

"Designing chemical and radiological warheads that can achieve anything like the potential lethality of the agents they carry under operational conditions is extremely difficult. Under many real world conditions, they would have more of an area denial, psychological, or panic impact than actual lethality. Chemical weapons and all but the most advanced radiological weapons have lethalties several orders of magnitude less lethal than nuclear weapons and the most lethal biological weapons. [...]"

¹⁰ <http://www.farsnews.com/newstext.php?nn=13940430000051>. Last accessed 29 July 2015. Other commentators have question whether the language of UNSC Resolution 2231—"Iran is called upon not to undertake any activity related to ballistic missiles designed to be capable of delivering nuclear weapons"—creates a binding obligation on Iran, or alternately, is a non-binding "request" as argued by Foreign Minister Zarif and others.

¹¹ The language is from JCPOA Annex V- Implementation Plan, paragraph 18.1. JCPOA Annex V is made part of UNSC Resolution 2231 as a formal attachment.

¹² See: United Nations Security Council Resolution 2231 (2015), *op cit.*, paragraph 11.

¹³ See: United Nations Security Council Resolution 2231 (2015), *op cit.*, paragraph 8.

¹⁴ Velayati is the Supreme Leader's Senior Foreign Policy Advisor and Head of the Center for Strategic Research. The Center, a think tank known to be close to President Rouhani, is the research arm of Iran's Expediency Discernment Council.

¹⁵ "No military sites inspections: Velayati." *MEHR News Agency* [published online in English 25 July 2015]. <http://en.mehrnews.com/news/108760/No-military-sites-inspections-Velayati>. Last accessed 29 July 2015.

¹⁶ This process is governed by the "Road-map for the Clarification of Past and Present Outstanding Issues Regarding Iran's Nuclear Programme" published by the IAEA on 14 July 2015. <https://www.iaea.org/press/?p=5058>. Last accessed 29 July 2015.

¹⁷ "Leader's Aide: UNSC Resolution on Iran's Defensive Capabilities Unacceptable." *FARS News Agency* [published online in English 29 July 2015]. <http://english.farsnews.com/newstext.aspx?nn=13940507000936>. Last accessed 29 July 2015.

That being said, Cordesman continues.

"Nevertheless, chemical, biological, or radiological (CBR) warheads would provide a much more effective deterrent to attack and provide Tehran with the ability to strike at major population centers. [...] These capabilities, in combination with the deterrent and the psychological impact they would produce, would have a profound impact on the strategic balance between Iran and the US and its Arab Gulf allies."¹⁸

The JCPOA leaves Iran wholly un-contained with respect to radiological weapons, which the Soviet Union used in the early 1950s as a bridge to fission weapons. Missiles reify the threat of radiological weapons, transforming them from the realm of improvised weapons of terror to instruments of power projection, both as political weapons and sources of intimidation. While radiological materials retain their place in the arsenal of improvised terror weapons, the combination of radiological payloads and Iran's seemingly unconstrained missile program has serious implications. They extend to both irregular warfare, where Iran seeks to project power indirectly¹⁹—whether or not Iranian proxies actually come into possession of and use short-range artillery rockets with radiological payloads, it is nonetheless a contingency against which Israel and others must craft a layered defense²⁰—and to theatre warfare, where Iran seeks to menace regional adversaries directly and/or to threaten targets across the Persian Gulf. The much-assessed limits of Iranian missiles' accuracy and lethality notwithstanding, Iran's purposeful cultivation of ambiguity and opacity in this realm describes, in Itty Abraham's colorful phrase, "a liminal stage between intention and a yet-to-happen event, the long moment between the Fall and the Second Coming."²¹

Director of National Intelligence James Clapper advised in 2012, "Tehran views its conventionally armed missiles as an integral part of its strategy to deter—and if necessary retaliate against—forces in the region, including US forces. Its ballistic missiles are inherently capable of delivering WMD, and, if so armed, would fit into this strategy."²² He repeated the following year that "Iran's ballistic missiles are capable of delivering WMD."²³

This threat is compounded by the absence of any organized legal framework at the international level to counter radiological weapons. It is true that the IAEA has established a network of arrangements to protect radioactive materials and guard against their acquisition for malicious use. So, too, a 2005 international convention requires signatory states—Iran is not one—to criminalize nuclear terrorism, defined to include the malicious use of radiological materials.²⁴ But overall, there are no

¹⁸ Anthony H. Cordesman (2015). *Iran's Rocket and Missile Forces and Strategic Options*. (Washington, DC: Center for Strategic & International Studies), 141. He includes the following conditions in the original text: "Given such payloads, even a small number of missiles armed with CBRN warheads that bypassed US and Arab Gulf defenses and countermeasures could potentially cause serious to massive casualties. But much would still depend on the ability to design truly effective chemical and radiological submunitions, solving the problem of dispersing effective biological weapons, or having truly reliable nuclear warheads. Under worst-case conditions, such weapons could still do considerable damage to the militaries, economies, and critical infrastructure of regional countries."

¹⁹ Cordesman (2015) writes, "Iran has shown that even short-range artillery rockets can have a strategic impact and be used in irregular warfare and as an indirect form of power projection." See: Cordesman (2015), *op cit.*, iii.
http://csis.org/files/publication/141007_Iran_Rocket_Missile_forces.pdf. Last accessed 27 July 2015.

²⁰ On this, Cordesman (2014) writes, "Israel has responded with defensive systems like Iron Dome and is developing systems to deal with larger and longer-range rockets like David's Sling and improved versions of the Arrow. It has also steadily improved its IS&R capability and tactics and training to use air strikes and land raids to attack launch sites and missile storage facilities. Israel, however, was not able to suppress the threat from Gaza in 2014. In spite of a massive air campaign and a land invasion, the IDF estimated that the Palestinians had fired some 3,000 out of 10,000 rockets they held before the fighting started, the IDF had destroyed a total of roughly 3,000- 4,000 rockets in combat, and 3,000-4,000 remained." See: Cordesman (2014), *Iran's Rocket and Missile Forces and Strategic Options*. (Washington, DC: Center for Strategic & International Studies), iii.

²¹ Itty Abraham (2006). "The Ambivalence of Nuclear Histories." *Osiris*. 21:1, 52.

<http://www.jstor.org/stable/pdf/10.1086/507135.pdf?acceptTC=true&ipdConfirm=true>. Last accessed 30 July 2015.

²² Unclassified Statement for the Record on the Worldwide Threat Assessment of the US Intelligence Community for the Senate Select Committee on Intelligence, James R. Clapper, Director of National Intelligence (31 January 2012), 6.
<https://www.hsdl.org/?view&did=699575>. Last accessed 29 July 2015.

²³ Unclassified Statement for the Record on the Worldwide Threat Assessment of the US Intelligence Community for the Senate Select Committee on Intelligence, James R. Clapper, Director of National Intelligence (12 March 2013), 7.
<http://www.dni.gov/files/documents/Intelligence%20Reports/2013%20ATA%20SFR%20for%20SSCI%2012%20Mar%202013.pdf>. Last accessed 29 July 2015.

²⁴ The International Convention for the Suppression of Acts of Nuclear Terrorism opened for signature in April 2005. It requires signatory states to criminalize and penalize *nuclear terrorism*, defined as the use of nuclear or radiological materials with toxic, explosive or other dangerous properties for the purpose of killing or injuring persons; damaging property or the environment; or for coercion of state or international organizations. [Harald Müller & Daniel Müller, eds. *WMD Arms Control in the Middle East*. (Burlington, VT: Ashgate Publishing Company), 133.] Iran is not a signatory state.

restrictions on radiological weapons comparable to those imposed under international agreements on *all* other WMD categories—chemical, biological and nuclear.

There is some reason to fear a convergence of Iran's post-JCPOA missile program—one Iran maintains is resolutely non-nuclear and therefore unconstrained by either the JCPOA or the non-binding "request" (as argued by Foreign Minister Zarif) under UNSC Resolution 2231—and radiological weapons, which have a certain defined utility for nuclear-threshold states. We turn again to Anthony Cordesman for context:

"Iran's current missile already becoming [sic] somewhat more lethal as they are equipped with cluster munitions and better fusing—although their lethality will still be limited by their range-payload limits, and a lack of accuracy if this was the only area of improvement. Even substantial volleys of missiles and rockets with better conventional warheads against area targets would still be limited in real world lethality, and would be more terror strikes than strikes capable of quickly hitting and destroying key point targets."²⁵

Cluster munitions, volleys against key area targets, and terror strikes all fit the calculus of radiological weapons, which along with Iran's missile program, sit outside the bounds of the JCPOA. Of paramount concern is the risk of proliferation to well-known Iranian proxies like Hezbollah. The successful deployment of radiological weapons by violent non-state actors requires greater technical competence in the field than just the acquisition of radioactive material.²⁶ Iran, however, has already shown that short-range artillery rockets can have a strategic impact and be used in irregular warfare and as an indirect form of power projection.²⁷

Virtually all sources agree that the Hezbollah has significant holdings of rockets and missiles, and there are also reports that Iran has transferred longer-range versions like the Zelzal-2. Uzi Rubin, a key developer of Israel's missile defense program warned "The Iranians took the Zelzal-2 and turned it into a guided rocket. The third generation of it contains a homing sensor and a GPS."²⁸ Former Israeli Defense Minister Ehud Barak echoed this concern, warning in March 2014:

"We will continue to see many more missiles, a lot more accuracy, and within five years the missile will reach a maximum level of accuracy that will allow them to choose which building in Israel to hit. These means will proliferate, and will be cheaper for terror organizations like Hezbollah and Hamas in Gaza."

Barak continued, "In the future we will see terrorism backed by science and technology...Somewhere in a small lab, hostile elements sit planning the future weapon of mass destruction. This is an unprecedented terrorism potential. We can't wait until the threat is realized, as the gap will be difficult to close."²⁹

The JCPOA's failure to constrain Iranian missiles and missile systems—what limits are imposed under UNSC Resolution 2231 are so porous that Iranian leaders have already declared them not applicable to anything Iran is doing today or plans to do in future—is a highly consequential flaw. It does no good to deny that such flaws exist anymore than it does to cavil about terms Iran should somehow have been compelled to accept. The point is, the flaws exist, and Iran did not accede to such terms. We must deal with the situation as it is, not as we wish it to be.

That being said, Iranian missiles and missile systems are clearly a basis for future contention, starting with Iran's declaration that UNSC Resolution 2231's "request" for Iranian self-constraint is hereby denied. Like its interest in missiles, Iran's interest in radiological weapons is not new: Ayatollah Rafsanjani declared nearly three decades ago "We should fully equip ourselves in the defensive and offensive use of [chemical, bacteriological & radiological] weapons."³⁰ The highly disruptive threat of short-range missiles paired with radiological materials in the hands of Iranian proxies should be of immediate concern. The longer-

²⁵ Cordesman (2014), *op cit.*, vii.

²⁶ Harald Müller & Daniel Müller, eds. *WMD Arms Control in the Middle East*. (Burlington, VT: Ashgate Publishing Company), 131.

²⁷ Cordesman (2014), *op cit.*, iii.

²⁸ *Ibid.*, vii.

²⁹ Yakkov Lappin (2014). "Barak: Enemies will be able to choose which building to hit within 5 years." *Jerusalem Post* [published online in English 26 March 2014]. 18:38, <http://www.jpost.com/Defense/Barak-Enemies-will-be-able-to-choose-which-building-to-hit-within-5-years-346569>. Quoted in Cordesman (), *op cit.*, iii.

³⁰ Akbar Hashemi Rafsanjani, speaking in October 1988. Quoted in Anthony Cordesman (1998). *Weapons of Mass Destruction in the Middle East*. (London: Brassey's, 1991), 93.

term threat of radiological weapons and theatre missiles, too, should attract prompt attention.

As the extended quote from which the essay's title is taken notes, we are at the liminal stage between intention and a yet-to-happen event. It is incumbent on us to address the matter forthrightly and to understand the limits of what we have negotiated, in the interest of ensuring that that event—an Iranian radiological warhead atop a missile—never happens.

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