Nuclear Development and the Shaping of an Independent Argentine Foreign Policy, 1950-1990

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Throughout the Cold War, there was one remarkable exception to the decline of scientific activity in Argentina, namely the nuclear sector. For decades, the Comisión Nacional de Energía Atómica (CNEA) and the two dozen private and semi-private companies that dominated the Argentine nuclear sector continued to be strong, both from the scientific and administrative point of view. According to Etel Solingen, this was a "paradigmatic example of a maverick agency taking advantage of macro-political chaos… to impose its own institutional agenda."[1] To be sure, nuclear science in Argentina was not immune to political and economic upheaval. But, protected and nurtured by CNEA, which in turn was relatively immune from political pressures, nuclear science thrived. Argentina became a leading training center for scientists and technologists from underdeveloped countries. Moreover, nuclear science was a driving force behind foreign policies throughout the Cold War era in some key areas that have not yet been addressed by current research dealing with the Argentine nuclear sector. Most investigators have tended to isolate nuclear questions from more general problems of international strategy; they have not assessed the major repercussions of nuclear issues for Argentine foreign policy during the Cold War period.

La generación nucleoeléctrica en Argentina by Manuel A. Mondino, Norberto R. Ciallella and Juan J. Castellano (1994)[2] is an example of an academic genre that ignores nuclear strategies in the larger context of Cold War foreign policies, while concentrating on relatively narrow technical aspects of nuclear growth. *Política nuclear argentina: ¿avance o retroceso?* by Carlos Castro

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Madero and Esteban A. Takacs (1991)[3], however, demonstrates a departure from this approach by emphasizing the crucial significance of the national nuclear program in defining Argentina's place in the non-aligned movement and in the country's Latin America relations after 1970. However, the authors, who played a major role as policy makers in Argentina during the Cold War era, tend to view international relations strictly from a perspective that emphasizes longstanding Argentine hostility toward the United States, Canada and other nations that refused to openly share nuclear technology with Argentina. Etel Solingen's *Industrial Policy, Technology, and International Bargaining: Designing Nuclear Industries in Argentina and Brazil* (1996)[4] is an excellent analysis which deals with Cold War foreign relations only as they relate to her hypotheses regarding industrial development and nation-building. Consequently, her book does not deal with the central issues discussed in the present article.[5]

Argentina's strategic approach to the Cold War conflict of the superpowers was significantly shaped by a domestic nuclear imperative. Argentine policy makers took heed of a 1977 Foreign Ministry report, which stated: "*La actividad nuclear argentina repercute en el mundo exterior en cuanto afecte los objetivos proclamados por los países líderes….*"[6] In the early 1970s, Argentine scientists, bureaucrats from the nuclear sector, diplomats and political leaders had designated a role for their nation as a purveyor of nuclear information and hardware to other countries besides Argentina that were considered by the United States to pose an arms proliferation threat. Argentina became a leading nuclear training center for technological personnel from underdeveloped countries. In addition, Argentina was granted billion-dollar international contracts for the development of experimental nuclear reactors, radioisotopes, nuclear medicine machinery and other nuclear products. Many of these contracts were awarded by countries whose leaders felt hampered by the restrictions placed on nuclear contracts entered into with wealthy nations concerned about arms proliferation. In the 1980s, as a result of the international ties that were formed in the wake of its nuclear development, Argentina emerged as a leader of the non-aligned movement.

Argentine foreign policy has undergone dramatic shifts in the past five decades, however the impact of the nuclear sector on foreign negotiation has remained remarkably consistent, and this corresponds with Solingen's assessment that only minor changes took place in industrial nuclear policies as well. The continuity of Argentine nuclear foreign policy points to a need to reassess the extent to which successive governments perpetuated the policy objectives of their predecessors. This is particularly apparent in the transition from military to civilian government between 1970 and 1983. While the administration of President Raúl Alfonsín denounced the foreign policy of the preceding military

regime regarding human rights and other areas, Alfonsin's nuclear policy was constructed on groundwork laid by the dictatorship.

After 1950, the Argentine leaders came increasingly to perceive the country's international affairs through a prism of nuclear development, and this remained relatively stable over time. Nuclear power was not the single most important factor in the manner in which Argentine leaders understood their international role at any given time. However, from the 1950s onwards, the issue of nuclear development was one of a small number of policy problems - including border conflict with Chile and control of the Malvinas - that continuously served as a reference point in determining policy. Successive Argentine policy makers identified domestic nuclear strength as a basic requirement for maintaining strong international negotiating positions and promoting independent economic development. After 1970, civilian and military rulers considered limiting nuclear materials and technology transfers to Argentina from wealthy nations as aggressive and counterproductive to Argentine development policies. This, in turn, helped prompt Argentina to assume a role of leadership in the non-aligned movement from 1980 onwards.

For the most part, scholars have dealt with nuclear development in isolation from larger questions of foreign policy and international strategy in Argentina. In studies not specifically dealing with atomic energy, authors have shown little interest in the Argentine nuclear sector in a broader international relations context. Key studies of Argentine international history have essentially made the case that nuclear policy has not been of primary significance in understanding Argentine foreign affairs by omitting any mention of the nuclear sector or by referring to it only in passing. For example, neither Jerónimo Remorino's compilation of early Cold War documents relevant to Argentine foreign relations nor Hipólito Paz's *Memorias* include any information regarding nuclear matters,.[7] In their discussion of foreign relations during the first presidencies of Juan D. Perón (1946-1955), Andrés Cisneros and Carlos Escudé[8] indicate that core policy making issues were *la tercera posición,* energy policy, relations with the United States and early Cold War tensions. Yet despite the fact that with regard to each of these problems Perón viewed the development of a strong nuclear sector as vital to a strong foreign policy, there is no mention of atomic power.

Why have nuclear problems been neglected in Argentine historical literature dealing with international relations while such matters have been at the heart of most analyses of the Cold War era in the United States, France and the Soviet Union?[9] In part, especially regarding works written by Americans (and by those Argentineans who were strongly influenced by the methodologies of American scholars), this underscores a contradiction in United States nuclear policy toward Argentina after 1970 – and the influence of that contradiction on scholars. Begin-

ning with Dwight D. Eisenhower's Atoms for Peace Program in late 1953, and throughout the mid-1960s, the US government addressed Cold War problems of conflict and development in the Third World by providing underdeveloped countries with nuclear hardware for peaceful purposes. The US changed its policies regarding Argentina between 1965 and 1974 when Washington substituted more restrictive policies on technology transfer. For the remainder of the Cold War era, Argentina and other underdeveloped nations with nuclear programs were viewed as a danger due not only to their weapons production potential but also to the risk that transferred technology might fall into Soviet hands.[10] As a result, Washington opposed strong nuclear programs in Argentina and other countries with the potential for nuclear weapons construction.

The policy contradiction lay in the distinction between nuclear weapons manufacture and the potential for such production. While US policy makers saw Argentina as a nuclear danger, they also viewed the Argentineans as inconsequential players in the nuclear game precisely because they had no weapons. American scholarly literature on Argentina reflects such an approach to international nuclear problems by ignoring the nuclear component as a significant factor in Argentine policy making, except for sporadic periods when Washington considered Argentina to be a potential arms risk. Argentine attention to international arms reduction remains weakly documented. Argentine and non-Argentine scholars have adopted the position that due to not being a nuclear power, Argentina played an inconsequential role in the UN and other international arms reduction forums. Yet, apart from the red herring of Argentina's nuclear weapons production potential, the problem of disarmament lies at the heart of Argentine foreign policy. From the 1960s onwards, the Argentine foreign ministry devoted enormous attention to nuclear weapons reduction. During the military regime of Juan Carlos Onganía, for example, a strong retrenchment of Argentine support for international weapons reduction formed part of a new policy to advance the strength of non-democratic governments within the Organization of American States (OAS).

The neglect of the nuclear question in Argentine scholarly literature dealing with international history underscores a second, more important, methodological problem. The significance of nuclear power in foreign policy formulation flies in the face of a number of crucial methodological assumptions in current international relations literature. Scholars have tended to cast Argentina as an underdeveloped nation compared to the United States and other wealthy nations. But the advancement of Argentina's nuclear sector suggests that the developed-versus-underdeveloped dichotomy is inadequate for understanding Argentine foreign relations. While scholars have focused on important Argentine foreign policy initiatives, these have tended to be interpreted by others, particularly Amer-

ican leaders, differently than was intended by Argentine leaders. For example, scholars have devoted considerable attention to Perón's, which was perceived in Washington as a challenge to its position of authority in South America. At the same time, very little has been written about Argentina's nuclear hardware and technology transfers to Third World countries as part of a policy meant to establish Argentine leadership in the non-aligned movement. Although Argentine nuclear foreign policy after 1970 was much more subdued than Perón's "third position," and despite the greater attention to the latter in academic research, the nuclear transfer policy of the 1970s and 1980s had a far greater and more lasting international impact than *la tercera posición*.

Like bureaucrats, political leaders and scientists in other countries with nascent nuclear programs during the 1950s, Argentine leaders firmly placed their early nuclear sector in a Cold War context. Etel Solingen argues that, unlike Brazil, the Argentine nuclear sector reflected its Cold War industrial policy of fostering both public and private corporations.[11] Nuclear strength meant strategic power where notions of progress, modernization and strategic superiority went hand in hand with nuclear development, as was also true of both Chile and Brazil. The Americans were preoccupied with Argentina's nuclear intentions. Immediately after the Second World War, Americans identified Argentina, along with Brazil, as strategically important production sites for monazite, a radioactive compound that could be used to fuel nuclear reactions, and beryllium ore (beryl), a metal with unique applications in the nuclear sector. The US continued to be concerned that these reserves might fall into enemy hands.[12]

The Argentine nuclear program was partially based on a military emphasis on industrial development as essential to economic independence, economic independence as vital to national security, and nuclear power as a cornerstone of industrial growth.[13] From 1950 onwards, Argentina positioned itself as a Cold War ally of the United States in some aspects of it nuclear policies. At international disarmament meetings, Argentine diplomats increasingly leveled criticism against the Soviet Union.[14] In 1958, Argentina made the first of many technology transfer sales abroad. CNEA sold know-how regarding the manufacture of reactor combustibles to the German firm of Degussa-Leybold AG, which was the result of work done by Argentineans on their Argonaut experimental reactor developed in the Argonne National Laboratory in the United States. Provided under the auspices of "Atoms for Peace," the American design served as the model for the construction of the first reactor in Argentina, the RA-1, which was inaugurated in 1958. The development of nuclear fuels technologies in Argentina constituted a key success for the nuclear sector, while another category of Argentine research and technology transfer included overseas radioisotopes and radio-pharmaceutical products. Two initial CNEA plants were built in Mendoza and Salta for

processing domestic uranium. The Servicio de Asistencia a la Industria (SATI) was created by CNEA in order to advise industry how best to prepare for and implement Argentina's nuclear progress. In 1962, CNEA began routinely selling isotopes to Paraguay, Chile and Holland, as well as many other countries. Cobalt-60 for cancer treatment was another Argentine area of developing research expertise, and represented a key field of nuclear exports for three decades. In the same year, Argentina signed its first nuclear cooperation agreement with the United States (amended in 1964 and renewed in 1969). Under this agreement, the US promised to supply Argentine reactors with enriched uranium. According to Carlos Castro Madero and Esteban A. Takacs, the agreement was devised by Washington in part as an attempt to sell US-made reactors. In 1963, based on the accord's provisions for US uranium supply, CNEA built its first radioisotope production reactor at the Centro Atómico Ezeiza near Buenos Aires.[15]

In wake of the 1966 *coup d'état* that ushered in Juan Carlos Onganía's regime, CNEA, together with Argentine military leaders, began consolidating matters involving science, development, disarmament and other policy issues into a national nuclear strategy. Argentine support for US nuclear stands *vis-à-vis* the Soviets toughened in conjunction with the geopolitics of Onganía's anti-Communism. But Argentina also took a tougher stand against Washington's initiatives to impose international arms controls on underdeveloped nations' access to nuclear materials and development of nuclear weapons. While opposing nuclear armament in Latin America, the US backed the anti-Communist militarism of dictatorial regimes. Argentine military leaders identified this as an inconsistency in American policy, as they perceived a close and inevitable link between National Security Doctrine anti-Communism, the internal repression of dissent, conventional weapons strength and the right to develop an independent nuclear program. For Washington, all but the latter of these facets of Argentine policy were defensible.[16]

Despite the fact that nuclear explosions for peaceful ends had been indirectly limited by earlier international agreements, such restrictions were not made explicit until the Tratado para la Proscripción de las Armas Nucleares en América Latina (or Tratado de Tlatelolco, Mexico 1967) and the separately negotiated Nuclear Nonproliferation Agreement (Geneva 1968). Argentina had earlier been a key promoter of Article V of the earlier Antarctic Treaty that prohibited nuclear testing there. In August 1963, Argentina was among the first to sign the Treaty of Moscow for the Partial Prohibition of Nuclear Testing (though it remained the only nuclear power that did not ratify the agreement, and this held true for an additional twenty years). The Treaty blocked nuclear arms testing under a wide range of conditions.[17] Whereas Mexico joined the United States in pressing hard for Tlatelolco, the two most advanced nuclear powers in the region,

namely Brazil and Argentina, opposed the accord as a serious impediment to the maintenance of their active nuclear programs. Treaty negotiations lasted three years and did not succeed in reconciling the Brazilian and Argentine nuclear policies (determined as they were by military regimes that linked nuclear power to industrial growth and anti-Communism) with the Mexican-led Latin American consensus against nuclear explosions of any sort. During negotiations, most nations argued that "peaceful explosions" must not be distinguished from nuclear testing for military purposes. Even though they had never detonated a nuclear device, Argentine officials insisted on making a clear distinction between the two types of explosions, rejecting Tlatelolco for its perceived threat to the Argentine nuclear program. In fact, Argentina's position on Tlatelolco remained unchanged throughout the political turmoil of the 1970s and 1980s.[18]

Argentina concluded negotiations for its first nuclear power plant, Atucha I, in 1968. While the decision to build the plant hinged on treaty-based supplies of American enriched uranium, CNEA chose the German firm Siemens – rather than the American competitors Westinghouse and General Electric – to build the facility, thus introducing new tensions into Argentina's nuclear ties with the US.[19] One crucial project undertaken by CNEA in conjunction with the military regimes that preceded the election of President Héctor Cámpora was absolute Argentine control of the production of nuclear fuel sources. Throughout the early 1970s, it was CNEA's responsibility to explore for and evaluate uranium reserves. Nuclear Mendoza, owned jointly by CNEA and the province of Mendoza, was formed in 1977 to mine uranium in San Rafael. Furthermore, CNEA became involved in the design, construction and management of uranium processing and purification plants. Under Cámpora, Argentina joined the non-aligned movement for reasons that apparently had no connection with nuclear policy.[20] But shortly afterwards, political leaders, diplomats and CNEA officials saw this shift as an important opportunity for the country to develop its international leadership in the nuclear sector by cultivating ties with new allies in the developing world. Nuclear tensions with wealthy nations were exacerbated in 1974, after India tested its first atomic device.

As a result of this nuclear test, the United States and Canada clamped down on cooperative nuclear exchanges with Argentina and other countries they considered likely to follow India's example. The Canadian reaction was particularly significant. Early in the Cold War, in a bid to break from US control of uranium enrichment plants, the Canadian government had decided to develop its CANDU reactor, which relied on heavy water, non-enriched uranium technology. In April, 1974, one month prior to the Indian explosion, Argentina signed an agreement with an Italimpianti-Atomic Energy of Canada (AECL) consortium to build Argentina's second commercial nuclear generator, Embalse.

Etel Solingen argues that CNEA embraced heavy water technology to foster domestic entrepreneurship.[21] This may be partially true, but more important was a strategy similar to that embraced by Canada in selecting a heavy water program a generation before – to avoid US influence and achieve greater nuclear independence. The Canadians were to provide CNEA with full design plans for a CANDU reactor and full rights to construct other such plants.[22] However, in the aftermath of the Indian nuclear test, Canada reneged on the technology transfer components of the Embalse agreement.

The United States adopted a similar line, and this was perceived by Argentina as a threat to its nuclear independence. The Gerald Ford administration took measures to prevent Argentina and other underdeveloped countries with nuclear programs from producing reactor grade fuels. Stung by Canada's backtracking and Washington's tough line, Argentina countered with a new program designed to increase its capability of producing reactor grade fuel. Buenos Aires also stepped up its efforts to convince others nations that the American and Canadian policies was misguided regarding nuclear nonproliferation, the best way to control arms proliferation being to foster the sharing of information and technology, but exclusively through arrangements monitored by the IAEO. Argentine leaders also expressed concern about Brazilian nuclear strength. Responding to reports of a Brazilian-German nuclear cooperation agreement, US Secretary of State Henry Kissinger told the Argentine ambassador in Washington, Alejandro Orfila, that the US shared Argentina's concern. Kissinger was apprehensive that the agreement with Germany might lead to the ability of Brazil (or any Latin American country) to manufacture and develop all aspects of nuclear production and power generation. Westinghouse had also competed for the contract with Brazil and had won a 1970 tender for the construction of a nuclear plant in Sao Paulo. The American company leaked information to the effect that the contract awarded to the German firms provided for the construction of six to eight nuclear power plants. At Westinghouse, they expressed the belief that the Brazilian technicians actually preferred their company to the German firms, as it was technologically more advanced. However, the Brazilians had stipulated that any contract with Westinghouse must include assistance in the production of enriched uranium. The US, like Canada, now prohibited this kind of arrangement.[23]

Faced with the prospect of growing international isolation in the nuclear sector, Argentine leaders developed a new nuclear policy. Top CNEA officials embarked on a secret program to develop an enriched uranium system. At the same time, CNEA secured government support to accelerate a program encouraging Argentine firms to manufacture reactors and other nuclear industrial components. This program offered various types of incentives, including tax reductions and CNEA's implementing strong-arm policies towards partner

companies at home and abroad. For example, when negotiating the contract for Atucha I with Siemens, CNEA demanded that a high percentage of the reactor components be manufactured in Argentina, and this at a time when two-thirds of imported machinery was exempt from tariffs.[24]

Simultaneously with Argentina's joining the non-aligned movement in the early 1970s, the Argentine Foreign Ministry created a Nuclear Division to supervise international negotiations on technology sales, disarmament negotiations and the use of outer space, among other issues. This led to dual nuclear foreign policy bureaucracies, since CNEA also maintained an international relations division, however, no major policy conflicts arose between CNEA and the Foreign Ministry. In effect, important policy decisions were often made by the President, in consultation with the head of CNEA and key diplomats. This was the case, for example, in 1978 when the *de facto* president Jorge Rafael Videla, following the advice of the Argentine Ambassador to Canada, Esteban Takacs, personally rejected a Canadian bid to build the Atucha II commercial reactor in favor of the German firm Siemens.[25] There was close cooperation between the Foreign Ministry and CNEA on all nuclear-related issues; for example, both dealt with and sent representatives to the International Atomic Energy Organization. The country's disarmament negotiations were the responsibility of the Foreign Ministry. Ambassador Julio César Carasales, as the Argentine representative to the United Nations, leader of the Geneva Disarmament Conference delegation and Vice-President of the UN Disarmament and Security Commission, among other responsibilities, became the chief ministerial opponent to the Nonproliferation Treaty, with its potential to restrict Argentina's capability to develop independent nuclear programs. During the Alfonsín administration, Ambassador Mario Cámpora directed Argentina's efforts to play a larger role in the non-aligned movement in order to pressure the super powers into weapons reductions. Whereas the Foreign Ministry worked with CNEA in negotiating contracts for Argentine nuclear hardware and products, the actual content of those contracts was determined by CNEA.[26] From 1979 to 1995, CNEA's international relations section was run by Captain Roberto Ornstein, during which time he was also an alternating governor on the managing board of the IAEO. Much of CNEA's international work focused on contract negotiations, conducted among others by chemists Jorge A. Coll and Renato Radicella, who also worked on the implementation of sales agreements overseas.[27]

Like Brazil, Argentina became committed to a massive nuclear energy buildup, and this gained momentum after the *coup d'état* of March 1976. In September, speaking before the Twentieth General Conference of the IAEO, Captain Carlos Castro Madero, President of CNEA, announced that Argentina would need to devote roughly $30 billion to building a series of commercial

reactors by 2000. He also spoke of a new era in the nuclear sector that had begun with the *proceso* in March 1976. The period of military rule that followed was characterized by planning for a series of mega-projects in the nuclear sector. The regime sought an "Argentinization" of all stages of nuclear production and manufacture, meaning an end to foreign control over and involvement with different aspects of Argentine nuclear productivity. Castro Madero indicated that the contract with Atomic Energy of Canada for the construction of the Embalse reactor in Córdoba guaranteed 50% Argentine participation in the project. But Embalse was just the beginning: he envisioned an even stronger national nuclear sector with Argentine engineers playing a much more dominant role.[28] In addition, from 1979 onwards, the Argentine government ceased to accept technical assistance from IAEO. In 1977 and 1978, partly as a result of the Indian nuclear blast, IAEO cut back on areas of assistance which it considered sensitive. Argentina decided to reject future IAEO help, partially because what was left on offer was no longer needed.

Under the military *junta*, Argentine leaders began to think more explicitly about what a 1977 Foreign Ministry memorandum called the "*influencia del exterior sobre el plan nuclear y vice versa*." According to the military regime, nuclear policies could no longer be considered in isolation from other aspects of foreign policy. Initially, Argentine leaders began to focus more specifically on the manner in which wealthy nations kept Argentina on the nuclear sidelines: the concept of nonproliferation had been formulated and implemented by leading nuclear powers with the purpose of maintaining a monopoly on so-called "sensitive" nuclear technology. After 1976, Argentine leaders were more strongly convinced than ever that nonproliferation amounted to a conspiracy among the strongest nuclear powers to withhold technology and knowledge from Argentina and other poor countries striving for nuclear parity with wealthy nations. As a result, they also posited that Argentina posed a threat to developed nations:

> Por ejemplo si la Argentina pudiera iniciar el reprocesamiento del uranio, ella afectaría negativamente la política estadounidense en la materia. Como consecuencia, resulta obvio señalar la repercusión de las distintas aristas comentadas en las relaciones bilaterales.[29]

In 1976, as the result of a hastily organized national nuclear project, the Peruvian government invited CNEA to take charge of the development of its nuclear program. The new Peruvian nuclear plan outlined an aggressive list of objectives. Between 1977 and 1983, the nation would produce a core of physicists, technologists and other professionals. Uranium mines would be exploited and electricity production assessed. By 2015, Peruvians expected nuclear technologies to have

boosted food production, improved public health and fostered industrial growth. The 1977 Argentine-Peruvian accord to implement these and other goals had three primary components. First, the two governments would cooperate in utilizing nuclear power for peaceful purposes. Second, the newly established Centro Nuclear de Investigaciones del Perú (CNIP) would be financed in part by a loan from the Banco Nacional de Desarrollo de la República Argentina (BANADE). Third, CNEA would oversee the construction of a Peruvian experimental reactor. The Argentine-built reactor began to function in 1979 and Argentine physicists immediately embarked on a training program for their Peruvian counterparts. After decades of Argentine government efforts to find political, economic and strategic means of exerting influence in neighboring countries, the nuclear agreement with Peru probably constituted the most immediate and far-reaching instance of this in the Cold War period.[30]

Regarding the connection between nuclear policy and foreign policy, there was remarkably little change throughout the late 1970s and the 1980s, an era during which INVAP secured its most lucrative contracts, including those for the building of experimental reactors in Algeria and Egypt. Despite upheavals during Isabel Perón's shaky government - the March 1976 coup, the violent dictatorship that followed and the return to democracy after 1983 - Argentina's foreign nuclear politics remained fundamentally unchanged. After the coup, a number of military officials were inclined to follow the Chilean example at the UN by refusing to participate further in the non-aligned movement. To some, the non-aligned movement seemed a bastion of Communism disguised as left-wing nationalism. But others, including the diplomat Nicanor Costa Mendez, adopted a pragmatic stand regarding the non-aligned movement that was partially shaped by the country's nuclear strategy, convincing the first *junta* not to abandon the non-aligned movement. As Foreign Minister, and in conjunction with CNEA, he implemented nuclear diplomacy to cement Argentina's relations with non-aligned movement members Yugoslavia, Cuba, India and Algeria. At the same time, the regime's stand regarding the Soviet Union and the United States on several other issues was in keeping with the positions of other non-aligned movement members. The dictatorship's ambivalent relationship towards the two superpowers was especially blatant regarding nuclear matters. While balancing a vision of the Jimmy Carter administration as a dupe of international Communism with an ideological justification for the Dirty War that drew on pro-American geopolitics, the Argentine military distanced itself from earlier, stronger pro-US positions on *détente* and nuclear weaponry. The military increasingly staked out a position favoring disarmament, regardless of which of the nuclear powers held the weapons.[31]

On its part, the US government continued to pressure Argentina into ac-

cepting international agreements against nuclear proliferation. In April, 1977, shortly after he became president, Jimmy Carter launched a new set of measures to control proliferation. The most important of these were new restrictions on the sale of nuclear technologies to countries, including Argentina, who were unwilling to relinquish their right to nuclear testing for peaceful purposes. When Carter's Secretary of State, Cyrus Vance, visited Argentina in November, 1977, he brought along Joseph Nye, the originator of the Carter Administration's nonproliferation policies. Vance again pressured the Argentineans to sign the Nuclear Nonproliferation Treaty and the Tlatelolco agreement and to cease nuclear fuel processing development. The Argentineans refused, but at Washington's insistence, the two countries signed a vague joint declaration ratifying some provisions of Tlatelolco. The 1978 American Nonproliferation Act placed further limitations on technology transfer to Argentina, thus further convincing Argentine military authorities that the United States was intent on undermining Argentina's nuclear program. In October of that year, to the consternation of US policy makers, Castro Madero made it clear that Argentina would go forward with plans for the construction of a uranium enrichment plant. The Carter Administration specifically requested the *junta* to restrict the expansion of the Argentine nuclear program unless new safeguards were implemented according to the stipulations of the Nonproliferation Treaty.[32]

March, 1980, marked a high point in the international campaign against Argentine human rights abuses considered by the Argentine authorities to be the result of an international Communist conspiracy led by the Soviet Union. At the same time, in the aftermath of the Soviet invasion of Afghanistan and the US embargo on grain sales to the Soviets, Argentine leaders seized agricultural markets in the Soviet republics. In addition, Jorge A. Coll, Director of the Secretariat General of CNEA, and Roberto Ornstein, Chief of the International Relations Department of CNEA, traveled to the Soviet Union to initiate negotiations on nuclear cooperation. Coll and Ornstein reported that they had been extremely well treated by their Soviet counterparts. The Argentines were primarily interested in purchasing from the Soviets the highly enriched uranium needed for the production of radioisotopes, as an alternative to American suppliers. But, to add a further irony to the several that characterized the relationship between Argentina and its ideological nemesis, the Soviets made it clear that stronger bilateral nuclear ties were dependent on precisely what Washington was demanding, Argentine adherence to the Nonproliferation Agreement. As a result, enriched uranium would not subsequently find its way from the Soviet Union to Argentina. In June, Coll and Castro Madero visited Yugoslavia to augment and intensify bilateral nuclear ties between the two non-aligned countries.[33]

As had been true of the period of the Onganía dictatorship, the *proceso* marked

a golden age of nuclear expansion, particularly in regard to government funding for research and development and the impetus towards foreign contracts. In 1977, at the height of internal state violence, CNEA launched a graduate program in nuclear engineering. That same year, as a result of Canada's cautious retreat from technology transfer to Argentina, CNEA assumed control of the construction of Embalse. As a result of the conflict with Canada, Argentine technological expansion was further stimulated by CNEA by means of creating new engineering consortia to develop components for the Embalse project. With the end of the dictatorship in 1983, plans were in the offing for seven commercial reactors. Despite the significant political shift from dictatorship to democracy in 1983, the key components of Argentine nuclear foreign policy remained constant. At first, suspicious of the tight links between the military and CNEA, the elected radical government cut spending on research and development in the nuclear sector, prompting a crisis from which, according to some in CNEA, the nuclear sector never fully recovered. Although Argentina's position in the non-aligned movement remained unchanged, less interest was expressed in contacts with authoritarian regimes and more emphasis was placed on the "developmentalist" component of the group of nations. A new "Sur-Sur" policy – according to which Argentina would return to a more consistent "third position" outside both the Soviet and the American spheres -- was championed by Foreign Minister Dante Caputo. Within the non-aligned movement, Argentina became a strong critic of procrastination in United States-Soviet disarmament efforts. Above all, the administration of President Raúl Alfonsín used Sur-Sur as a departure point from which to spearhead nuclear sales to underdeveloped nations and these soared into the billions of dollars. While Caputo outlined and implemented every aspect of his foreign policy towards poorer nations as a notable departure from military politics, each of the directions noted above had their origins in the former dictatorship.[34]

In the UN, Alfonsín adopted a more aggressive stand than that previously held by the dictatorship against the stockpiling and deployment of nuclear weapons. But here as elsewhere Alfonsín built on the groundwork of CNEA, the Foreign Ministry and other branches of the *proceso*. In 1982 and 1983, responding to a perceived threat of British nuclear submarines and British nuclear warheads in the South Atlantic, the military dictatorship became especially vociferous in opposing the deployment of nuclear weapons. According to Decree 1339 of November, 1982, the government created a Special Mission for Disarmament that began representing Argentina at international conferences, particularly those of the UN Disarmament Committee. Much of the Mission's activity focused on leveling criticism against the United Kingdom for its supposed deployment of nuclear weapons in the South Atlantic, its use of nuclear- powered submarines

and its militarization of the Malvinas archipelago. In September 1983 at a UN Disarmament Committee meeting, the Argentines expanded their concern regarding the nuclear militarization of the oceans and to the poor verification mechanisms of the UN and other bodies charged with regulating the spread of nuclear weapons. This level of concern regarding nuclear weapons deployments was unprecedented for Argentina and came as a result of losing the Malvinas War and a lingering sense of injustice among Argentine leaders that the world had remained silent while the British employed nuclear technology in warfare. Argentina's new sense of alarm over nuclear weapons deployment clearly came about as a result of the war. As such, it was something of a coincidence that throughout the period of transition, Argentina's disarmament policy began to dovetail with that of India, Yugoslavia, Indonesia and some other non-aligned nations who were also beginning to speak out more strongly regarding arms control. It is worthy of note that Cuba, Yugoslavia and other non-aligned nations were among the first states to denounce Great Britain during the war.[35]

Under Alfonsín, CNEA continued to pursue contracts with those nations that had proved reliable nuclear partners during the military regime. In 1982, for example, Yugoslavia and Argentina concluded negotiations on a bilateral agreement regulating nuclear cooperation in various fields; both parties signed the accord in September. For CNEA, the dramatic political upheaval that came with the collapse of military rule had little, if any, bearing on how it conducted its relations with nuclear commissions in other countries. CNEA used the 1982 cooperation agreement as a starting point for ongoing contacts with Yugoslavian officials regarding opportunities for contracts in the nuclear sector. By 1985, CNEA was working with the private Argentine corporation ENACE S.A. to secure a contract to build Yugoslavia's second nuclear power plant. The Argentineans offered a package that included supplying nuclear fuel and training nuclear technicians.[36]

Although Argentine companies did not win the Yugoslavian power plant contract, a less politically cautious approach to nuclear relations with some countries was defined in the Alfonsín period. While Argentina refused to deal with countries that could not guarantee the peaceful use of whatever nuclear products or technology transferred by Argentina, the Alfonsín government was less concerned than earlier administrations with the attitudes of third parties. In 1985, for example, Foreign Relations Minister Jorge Sábato, Foreign Ministry Director General of the Nuclear Issues and Disarmament Adolfo Saracho, CNEA Director of Planning Abel González and CNEA Director of International Relations Roberto Ornstein all agreed that Pakistan represented a huge potential market for Argentine nuclear sales. All were aware that stronger nuclear ties with Pakistan might well affect Argentina's relations with Canada, the United

States and some other countries. There was particular concern over what India – a strong non-aligned partner -- might think. Even so, relations with Pakistan led to an exchange of scientific delegations and contracts for Argentine radio-isotope sales.

In the minds of Dante Caputo and other Argentine leaders, nuclear power had always had bearing on the problem of Argentine economic development. Under Alfonsín, in keeping with Argentina's bid for a leadership role in the non-aligned movement, government rhetoric and policy became stronger and more sharply defined in two areas. First, Argentina identified itself as never before with other underdeveloped countries. Second, it formulated a clear policy on international debt levels, human rights and nuclear development, among other issues, in accordance with its diplomatic and strategic position as a "poor" nation. In an internal document explaining Argentina's stand on nuclear testing for peaceful ends, the Alfonsín administration, more than any previous Argentine government, explicitly linked nuclear development to "economic-social" development. But the language of this document reflected a more somber vision of Argentina's present and immediate future and expressed positions that Costa Méndez would have eschewed as leftist-nationalist within the non-aligned movement. The dramatic poverty in many nations including Argentina was described thus:

> …lejos de mejorar, se presenta cada vez más ominosa, por imperio de una serie de circunstancias cuya responsabilidad principal no cabe imputar a los países en desarrollo, como las trabas que dificultan progresivamente la transferencia de alta tecnología, las barreras proteccionistas al comercio internacional, la permanente sangría de recursos infligida al mundo por la carrera armamentista o el error de cálculo de los banqueros internacionales, que pretendieron extrapolar a las lábiles economías de la periferia una estrategia comercial concebida para el mundo de los poderosos.[37]

Argentine nuclear policy under Alfonsín expressed an alarmed sense that the developmental crisis in poor nations was hitting "intermediate" countries particularly hard; assumed the position that by assisting other nations in their nuclear development Argentina was advancing its own developmental prospects; and held to the conviction that in Argentina as well as other poor countries, national governments must strive for nuclear independence from the wealthy nations.

The 1980s saw the coming to fruition of technological and scientific projects that had been initiated decades before, as a clear indication that there had indeed been continuity between military and democratic regimes on nuclear policies. While there were some modifications, it is difficult to detect any sort

of significant change in Argentine nuclear policy in the transition from military rule to democracy. For example, in 1981, following the creation of INVAP, Combustibles Nucleares Argentinos (CONUAR S.A.) was created as part of a long-term CNEA project to control the Argentine nuclear sector and encourage high-level participation of the private sector in order to achieve self-sufficient nuclear production. A joint private-public venture, CONUAR, was located in CNEA's Centro Atómico Ezeiza and made responsible for the manufacture of nuclear fuel, combining zirconium alloy tubes with Argentine-produced uranium oxide. Five years later, as part of the same nationalist project, Fábrica de Aleaciones Especiales was created. FAE S.A., like CONUAR, was semi-private and based at Ezeiza. Its principal task was to produce locally the previously imported zirconium tubes used by CONUAR. In each of the above instances, CNEA was the minority shareholder, while in effect the industrial giant Pérez Companc controlled both firms.[38] In 1965, CNEA opened a conventional uranium processing plant, whereas a German firm processed the yellowcake precursor into uranium dioxide until 1983, when an Argentine unit carried out this process for the first time. In the mid-1950s, CNEA had begun research and development of fuel element production, and in 1982, the Commission finally inaugurated a production plant for commercial fuel element. Until 1983, enriched uranium was imported from the United States, but in that year, Argentine authorities revealed that a domestic uranium enrichment process had been developed in the country, the end result of Castro Madero's angry response almost a decade earlier to Canadian and American curtailments of technology transfers.[39] Results were startling: between 1952 and 1964, Argentina produced 38,389 tons of uranium, in 1977 alone that figure reached 435,845 and by 1987 it had risen to 1,838,717 tons.

At the same time, Argentina maintained its longstanding policy of training foreign scientists and technicians in the nuclear sector. By offering short courses and upgrade programs and sponsoring scientific conferences and on-the-job programs, Argentina provided educational facilities and resources for nuclear professionals in 22 Latin American and Caribbean countries, 12 European countries (mainly in Eastern Europe), 7 African nations and 14 Asian countries (including Iraq, Iran and Pakistan). Between 1980 and 1997, Argentine authorities organized 58 IAEO-sponsored courses, which were attended by more than 750 foreign scientists from 52 countries. Course topics included the application of radioisotopes and radiation in agriculture and biology, security in nuclear energy production and the development of a national nuclear sector.[40]

During the Alfonsín administration, Argentina emerged as a leader in the non-aligned movement, largely due to contacts with poorer nations in its role as a purveyor of nuclear technology. In 1987, Adolfo Saracho differentiated

Argentina's non-aligned stand and that of what he called "developed countries that were aligned with a military alliance confronting the socialist countries." The developed nations sought to occupy so-called realistic positions that emphasized conventional stability and the prevention of war while doing nothing to alleviate poverty and related problems in developing countries and at the same time hindering technological and economic advances in the poor Southern Hemisphere.[41] Argentine leaders distanced themselves even further from the United States on the problem of Soviet-American disarmament. With the possible exception of India, Argentina became the strongest voice among the developing nations excoriating both the Soviets and the Americans for their failure to significantly reduce the threat of nuclear war. Immediately upon assuming office, Alfonsín reaffirmed Argentina's intention of developing a peaceful nuclear program, while also promising to intervene in any way he could in order to prevent nuclear conflict. In May 1984, six months after assuming office, Alfonsín joined heads of states from Greece, India, Mexico, Sweden and Tanzania in a stern reprimand against the superpowers. The "Declaration of the Four Continents," signed by each leader, demanded a commitment from all five nuclear powers commit to bring an immediate end to nuclear testing; to cease all production and deployment of nuclear weapons and missile systems; and to substantially reduce their nuclear arsenals. The declaration formed the basis for a resolution in favor of disarmament presented by Argentina, India, Mexico and Sweden before the United Nations General Assembly. Once the resolution was approved, Argentina continued to pressure the international community to demand the disarmament of the five nuclear powers. In January 1985, Alfonsín met again with other non-aligned heads of state to seek for ways to pressure the Americans and the Soviets to disarm and in 1986, the Argentine government sought to convince the United Nations to recognize the nuclear arms race as a human rights violation. Argentina's position on disarmament became inseparable from its more general non-aligned movement policies.[42]

CNEA's 1987 and 1988 negotiations with Algeria and Iran were an important product of Alfonsín era policies linking domestic nuclear development, leadership in the non-aligned movement and the sale of nuclear technology to poorer nations who were considered by the international community to be potentially dangerous nuclear partners. For example, Argentina competed successfully with China for a contract to develop radioisotope production in Algeria.[43] Early in the Alfonsín administration, the Algerian government contracted with Argentina to build a research reactor and supply nuclear fuel for its operation. In addition, throughout the 1980s, the Atomic Energy Organization of Iran (AEOI) pinned its hopes for a strong bilateral nuclear partnership on Argentina. In September 1987, Iranian officials offered $100 million to be paid over five years for Argentine as-

sistance in several areas. Iran sought Argentine guidance in exploiting domestic uranium reserves, setting up a reactor fuel plant, producing radioisotopes and building a new CAREM-type experimental reactor in Iran.[44] By early 1988, the Iranians had become impatient with what they believed were politically based delays in negotiations with Buenos Aires. In fact, Argentine leaders felt bound by international pressures. Adolfo Saracho expressed the hesitancy of the Foreign Ministry in developing strong bilateral nuclear ties. Iran would likely face a United Nations embargo in the near future; as a member of the UN Security Council, Argentina would undoubtedly have to take a stand on this issue, which would be complicated by the establishment of close nuclear ties. Moreover, in light of Argentina's having sold an experimental reactor to Teheran a decade before, the international media now exaggerated the close relations between the two countries. Saracho was of the opinion that the British media were deliberately falsifying information regarding Argentine nuclear cooperation with Iran. On the one hand, Iran wanted negotiations and potential accords to fall outside the parameters of IAEO supervision. On the other hand, Saracho, supported by CNEA, demanded that nuclear ties with Iran be established only on condition that Iran adhere to IAEO provisions for nuclear safeguards and promise to use any Argentine assistance and exports for peaceful ends only. Argentine authorities refused Iran's request for shipments of heavy water. As Iran possessed no operational heavy water technology commercial reactor, the Argentineans were concerned that other nations might view Argentine cooperation on heavy water production in Iran as supporting military goals. At a January 1988, meeting between Argentine and Iranian negotiators, Saracho expressed precisely this position to his Iranian counterparts, while CNEA officials confessed that they had no clear sense of what Iran's nuclear ambitions were.[45]

Whereas Argentina was willing to work with Iran, other nuclear powers were not. But their reluctance regarding provision of heavy water technology was indicative of Argentine negotiators' attitudes towards the dangers of dealing with a pariah state. In January, 1988, Saracho informed senior Iranian nuclear sector negotiators that his government's caution had to do with Argentina's holding much of its $50 million in foreign debt obligations with American banks. The Argentine government could simply not afford to alarm Washington. Furthermore, closer relations with Iran could endanger Argentina's extensive commercial ties with the Iraqi government. The Iraqis had recently bought 20 Pucará military aircraft from Argentina at a cost of $34 million for use against the Kurds. With news of Argentina's nuclear contacts with Iran, Iraq threatened to terminate military ties with Argentina and to exert whatever influence it had in the non-aligned movement against Buenos Aires. In the end, despite their concerns, the Argentineans contracted with Iran to assist in the production of

reactor fuels and uranium enrichment.[46]

In accordance with declining Cold War tensions after 1986 and Argentina's modest rapprochement with Chile over boundary disputes, the Argentineans did a *volte face* on nuclear weapons policy and relations with Brazil. Overnight, Argentina reversed its twenty-year rejection of the idea of Latin America as a nuclear weapons free zone. Traditionally, Argentine diplomats had argued that there was no way of reasonably controlling nuclear weapons in the Americas without at the same time limiting the countries' access to nuclear technology for peaceful purposes. Now, they suddenly abandoned this position. Writing in 1997, Ambassador Julio César Carasales, a key architect of Argentina's nuclear positions in the 1970s, was at a loss to explain these policies. There was no easy explanation, he argued long after the fact, for Argentina's refusal to ratify the Moscow Treaty (1963) twenty years previously, when Argentine officials signed the accord:

> Quizá tuvo que ver de alguna manera con la actitud renuente y crítica que durante varias décadas mantuvo la Argentina contra variadas maneras de regulación internacional de la actividad nuclear. Quizá tambien pudo haber influido la inestabilidad que caracterizó en general a sucesivos gobiernos argentinos, cuyas preocupaciones estaban absorbidas por otros problemas. Al mismo tiempo, hay que reconocer que en el caso de gobiernos militares el Tratado de Moscú podía haber sido ratificado por un Decreto-Ley, como ocurrió con otras convenciones sin pasar por un Parlamento inexistente.[47]

Without providing any explanation for this radical shift, the Alfonsín administration sent a message to the US Congress on January 24, 1986, requesting to ratify the Moscow Treaty. The report of the Senate Foreign Relations Committee on the matter was terse and debate was virtually nonexistent. The only concern raised was if ratification would have repercussions on the current negotiations with Great Britain over the Malvinas Islands.[48]

In addition, and at the prompting of the United States, Argentina strengthened ties with Brazil's nuclear sector and promoted positive relations between the two countries by signing cooperative agreements and resolving bilateral tensions.[49] This marked the end of Argentina's independent nuclear policy, which for years had been at odds with United States policy. In December, 1991, the governments of Argentina and Brazil, the Agencia Brasileño-Argentino de Contabilidad y Control de Materiales Nucleares and the IAEO reached an unprecedented nuclear safeguards accord. The agreement provided verification that nuclear materials in

the hands of both states would not be used for nuclear detonations of any sort. As part of President Carlos Menem's dramatic foreign policy reversal in favor of close ties with the United States, putting an end to Argentine participation in the non-aligned movement,[50] Argentina simply eliminated the decades-old distinction between peaceful and non-peaceful nuclear testing. The Acuerdo para el Uso Exclusivamente Pacífico de la Energía Nuclear, signed by Menem and Brazilian President Fernando Collor de Mello on 18 July 1991 (and quickly ratified by both countries), contained this stunning passage:

> Teniendo en cuenta que no existe, actualmente, distinción técnica posible entre dispositivos nucleares explosivos para fines pacíficos y los destinados a fines bélicos, las Partes se comprometen, además, a prohibir e impedir en sus respectivos territorios, y a abstenerse de realizar, fomentar o autorizar, directa o indirectamente, o a participar de cualquier manera en el ensayo, uso, fabricación, producción o adquisición por cualquier medio de cualquier dispositivo nuclear explosivo, mientras persista la referida limitación técnica.[51]

In 1994, following two decades of harsh denunciations of the Nuclear Nonproliferation Agreement, the Argentine government ratified the treaty.[52]

For many who were involved in the nuclear sector, the Menem era in Argentina and the end of the Cold War marked a low point in Argentine nuclear politics. With the availability of relatively inexpensive fossil fuels, and parallel to the inactivity in reactor construction in many countries with nuclear power capacity, none of the seven nuclear reactors planned by the military in the late 1970s and early 1980s was ever built. CNEA members complained that cooperation with Brazil had not amounted to very much. In 1991 and 1992, Argentina made a number of concessions to longstanding North American pressures. From May 29, 1991, Argentina adhered to the Missile Technology Control Regime. There was a flurry of agreements with the United States, including the Agreement for Nuclear Cooperation.[53]

Throughout the 1980s, Washington had pressed Argentina to dismantle much of its nuclear program. On at least two occasions, the Reagan administration had sent former President Jimmy Carter on private missions to Buenos Aires to try to convince the Argentineans to abandon their nuclear program. A nuclear engineer and former naval officer, Carter had friendly ties with Alfonsín due to his pro-human rights positions during the *proceso*. In 1984, the ex-president had talks with Juan Carlos Pugliese, president of the Congress, Radical Party senator Adolfo Gass and a number of other legislators in an attempt to gain support for Washington's efforts to convince Argentina to sign the Nonproliferation Treaty.

Carter met with no success,[54] but in the spirit of cooperation with the United States, Menem slashed nuclear spending dramatically, conceding to much of what Carter had requested a decade earlier.

Would the course of Argentine foreign policy been different had its nuclear sector not developed as it did? In all likelihood, the major course of Cold War foreign policy would not have been significantly different. Nevertheless, the strength of CNEA, the importance of nuclear power during the Cold War and Argentina's scientific and commercial successes in this area did play an important role in decision making.

Ironically, Ronald Richter's fiery statements in 1951 regarding weapons potential and his dramatic failure to generate nuclear fission probably contributed to CNEA's subsequent scientific and bureaucratic strength. Perón recognized what Argentine physicists argued in Richter's wake, namely that a strong nuclear program would require a sector free from the type of ongoing political influence that aversely affected other government bureaucracies. And without CNEA's organizational and scientific strength, Argentina would simply not have been able to develop a nuclear sector. Furthermore, it is difficult to imagine such a determined Argentine stance against Cold War nuclear nonproliferation agreements had the country's own nuclear development not been at stake. It is a final irony that while some in the international community speculated on the possibility of a Brazil-Argentina atomic weapons race, nuclear development presumably resulted in stronger mutual Cold War interests than would otherwise have been the case. Starting in the 1960s, military authorities in the two countries began to see the benefits of a combined strategy to protect each country's right to develop nuclear power in the face of international nonproliferation pressures.[55]

The two areas where nuclear development was most influential in shaping Argentine foreign relations were the country's ongoing adherence to the non-aligned movement and Sur-Sur policy in the 1980s. There is a striking contrast between Chile, which left the non-aligned movement after the 1973 *coup d'état*, and Argentina, whose *junta* reaffirmed membership after 1976. There is no evidence that Argentine military leaders opted to remain within the non-aligned movement as part of a policy to advance nuclear sales abroad. However, such sales to Algeria, Cuba, Yugoslavia, Algeria and other countries were clearly a fortunate by-product of Argentina's support of non-aligned positions on industrialization, nuclear power and development. The nuclear question represents an anomalous point of contact and shared policy between the dictatorship and the Alfonsín government. Nuclear sales and the training of foreign technologists were far from the only basis for Alfonsín era foreign policy toward the developing world. Even without the nuclear question as a factor, policy would probably not have varied substantially. But the fact that a developmentalist pro-

Third World policy could be combined with profitable business ventures in the nuclear sector enhanced the influence of developmentalist policy makers in the Alfonsín administration, most notably Dante Caputo.

NOTES

The author is grateful to Dr. Beatriz Figallo for her many important insights and to the Social Sciences and Humanities Research Council of Canada for financial support for this project.

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3. Buenos Aires: Librería `El Ateneo' Editorial, 1991.
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46. "Reseña de la entrevista mantenida entre la presidente de la Comisión Nacional de Energía Atómica de la República Argentina, Dra. Emma Pérez Ferreira, y el presidente de la Atomic Energy Organization of Iran, Dr. Reza Amrollahi," 20 September 1988, 122, AGD. In April, 1992, despite Argentina's abrupt policy shift under Carlos Menem to a pro-United States position international affairs, Washington protested against Argentine shipments of nuclear fuels to Iran. Although the Americans recognized that the shipments were being made under the supervision of the IAEO and were targeted explicitly for use in Iran's experimental reactor, they continued to oppose the shipments.
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53. See Carlos Escudé, *Realismo periférico: fundamentos para la nueva política exterior argentina* (Buenos Aires: Planeta, 1992); Roberto Russell, *La política exterior argentina en el nuevo orden mundial* (Buenos Aires: FLACSO, 1992); David H. Martin and David Argue, *Nuclear Sunset: The Economic Costs of the Canadian Nuclear Industry* (Ottawa: Campaign for Nuclear Phaseout, 1996).
54. Cisneros and Escudé, *Historia*, vol. 14, 469; Roberto Russell, "La posición argentina frente al desarme, la no proliferación y el uso *pacífico* de la energía nuclear," in Wolf von Baudissin, Mario Cámpora, et al., *Desarme y desarrollo* (Buenos Aires: Fundación Arturo Illia, 1989), 58-64.
55. See Luiz Pinguelli Rosa, *A política nuclear e o caminho das armas atómicas* (Rio de Janeiro: Jorge Zahar Editor, 1985) and Luiz Pinguelli Rosa, Fernando de Souza Barros, and Suzana Ribeiro Barreiros, *A política nuclear no Brasil* (São Paulo: Greenpeace, 1991).