THE "GOOD NEIGHBOR POLICY FOR YELLOW FEVER": Cold War, the *Aedes aegypti* Eradication Program of the United States and international cooperation in health in the Americas

A "Política da Boa Vizinhança para a febre amarela": Guerra Fria, o Programa de Erradicação do *Aedes aegypti* dos Estados Unidos e a cooperação internacional em saúde nas Américas

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ABSTRACT

This article analyzes the implementation and development of the United States *Aedes aegypti* Eradication Program from the mid-1950s, an event that marked the country's adhesion to the Continental Campaign for the Eradication of *Aedes aegypti*, launched by the Pan American Health Organization (PAHO) in 1947. This paper considers that the history of the Continental Campaign is a privileged moment for the understanding of U.S. foreign policy towards Latin America in the context of the Cold War.

Keywords: Continental Campaign; yellow fever; eradication; *Aedes aegypti;* Cold War; U.S. foreign policy.

RESUMO

O presente artigo analisa a implementação e o desenvolvimento do Programa de Erradicação de *Aedes aegypti* dos Estados Unidos a partir de meados dos anos 1950, evento que marcou a adesão do país à Campanha Continental para a Erradicação do *Aedes aegypti*, lançada pela Organização Pan-Americana da Saúde (Opas) em 1947. Este artigo considera que a história da Campanha Continental é um momento privilegiado para o entendimento da política externa norte-americana para a América Latina no contexto da Guerra Fria.

Palavras-chave: Campanha Continental; febre amarela; erradicação; *Aedes aegypti;* Guerra Fria; política externa dos Estados Unidos.

Since the close of the last century, some authors have examined U.S.-Latin America relations from the postcolonial perspective, which has led them to underscore the ambiguities of power and the multifaceted nature of this historical process. While these scholars have neither discarded traditional concerns about long-term historical context nor overlooked the asymmetrical nature of these relations and their associated political issues, they have explored "close encounters" between the United States and Latin America, viewing them as complex interactions between unequal social actors. They have approached U.S.-Latin American modes of cooperation, subjection, and resistance in new ways, within a historical framework of ongoing transformation (CUETO, 1994; LÖWY, 1997; JOSEPH; LE GRAND; SALVATORE, 1998; BIRN, 2006; PALMER, 2010).

Around the same time and influenced by these studies, a growing body of research in the United States began examining Latin America in the Cold War, based on a more complex understanding of the imperial phenomenon (JOSEPH; SPENSER, 2008; GRANDIN; JOSEPH, 2010). Using international relations between the United States and Latin American nations as their starting point, these new studies moved toward a transnational history of the Latin American Cold War (GRANDIN, 2004; BRANDS, 2010). But even while these scholars focused their attention on Latin America's role in the Cold War, imperial policy was still central to their concerns. Consequently, local dynamics remained relegated to the background or, at most, were addressed in terms of resistance to or collaboration with the United States.

Harmer (2011) proposed a solution to this problem by framing the Latin American Cold War within the notion of an "inter-American system." This approach enables us to contextualize not just bilateral but multilateral relations as well, comprehend the specificities of regional political dynamics, and consider how non-state actors may influence the system, thereby permitting a broader view of the role of the local within the global Cold War order. Opting to think in terms of an inter-American system does not imply any abandonment or denial of the imperial structural conditions upon which this system was built; rather, it means understanding that there are manifold transnational spaces lying between Empire and Nation-State, which effectively mediate, alter, and impact the behavior of actors, both local ones as well as those from the Empire.

The Pan American Health Organization (PAHO) constituted one of these transnational spaces during the Latin American Cold War; it was at one and the same time a producer of norms, a development apparatus, and an arena of clashes and encounters among experts. As a transnational space shaped within the inter-American system, PAHO sometimes transcended this system to mediate relations between the United States and other American republics. In this regard, the inter-American health agency offers a prime vantage point from which to contemplate major events in the Latin American Cold War, such as the international campaigns to eradicate the diseases and vectors that were then at the top of the agenda (CUETO, 2007b; STEPAN, 2011; MAGALHÃES, 2016; LÖWY, 2017).

The field of international health affords abundant opportunities for unveiling the links between Latin American countries that are pushed into the background when the emphasis is on the centrality of the United States in regional foreign policy. In the health field, dialogue between American nations dates to the early decades of the 20th century and was not guided by the United States (CUETO, 2015; CUETO; PALMER, 2016). Moving into the Cold War, Latin American nations continued to negotiate health issues among themselves that did not figure in U.S. priorities, such as the eradication of *Aedes aegypti* from the Americas. We thus believe that it is feasible to reconstruct inter-American relations by analyzing joint health programs and campaigns, like the aforementioned eradication campaigns.

The Continental Campaign for the Eradication of *Aedes aegypti* (hereafter called the Continental Campaign) was the earliest and most enduring eradication program ever implemented in the Americas. From 1947, when it was introduced by the Pan American Health Organization (PAHO), until the mid-1960s, nearly all American republics put some degree of effort into the program's goal of eradicating the yellow fever vector from the Americas. In 1958, during the 15th Pan American Sanitary Conference, held in San Juan, Puerto Rico, PAHO declared 11 countries and territories in the Americas officially free of the *Aedes aegypti* mosquito, an accomplishment that marked the height of the Continental Campaign (MAGALHÃES, 2016).

Yellow fever nevertheless continued to represent a serious health threat in the Western hemisphere. The gravity of the situation helped fuel the wave of *Aedes aegypti* eradication programs enacted in the early 1960s in practically all American countries, with the exception of the United States. Although Washington had supported the launching of the Continental Campaign in 1947, the U.S. government failed to adopt any measures to advance the program within its territory until the mid-1950s. However, as the Cold War intensified in Latin America during this period, and as Latin America pushed for economic and social development, the United States responded by reshaping its foreign policy for the region, which included a renewal of Washington's interest in the yellow fever issue and the country's tardy engagement in the Continental Campaign (PACKARD, 2016; REINHARDT, 2015).

The fact that American republics decided to launch the Continental Campaign through PAHO, alongside the fact that the U.S. government delayed its involvement in program activities, reveal how initiatives and projects that were drafted within transnational spaces like PAHO slipped out of U.S. control and circumvented its imperial power. Grounded on this notion that relations between the American republics can be reconstructed by examining fields like health, this article aims to analyze the implementation and development of the *Aedes aegypti* Eradication Program of the United States (hereinafter called the U.S. Eradication Program). Introduced in the mid-1950s, the program signaled the effective participation of the United States in the Continental Campaign, ten years after its launching. The history of the Continental Campaign is a privileged moment for the understanding of U.S. foreign policy towards Latin America in the context of the Cold War.

U.S.–Latin American relations during the Cold War: from "benign neglect" to central concern

The latter half of the 1950s saw major transformations to the international context, marked by the Cold War. While the United States and Soviet Union were still disputing areas of influence, the conflict entered the phase known as "peaceful coexistence" (GADDIS, 2005; LEFFLER; WESTAD, 2010). Top among changes to the international system helping to mold this new scenario were the outbreak of national liberation movements in Africa and Asia and the emergence of new independent nations on these two continents, giving birth to the so-called Third World (ESCOBAR, 1995; LOVE, 1996).

The Third World was not at the center of U.S. worries in the immediate aftermath of World War II, as evident from both the Marshall and Colombo plans. Latin America was part of this emerging Third World, whose voice was to carry ever greater weight in the terrain of international relations. The chronic troubles besetting the region worsened on the heels of World War II. Against this backdrop, Latin American nations hoped the United States would provide funding and implement policies aimed at economic development on the continent. Yet Washington showed little concern for the region's problems. While Europe received $19 billion under the Marshall Plan, the Point Four Program, over the same period, allocated less than 2% of this amount to Latin America, that is, only $ 150 million (ESCOBAR, 1995).

During its early years, the Eisenhower administration (1953-1961) seemed fairly oblivious to Latin America's drive for health and development. The United States believed that Latin American underdevelopment was an internal issue that should be solved by enforcing austere economic policies and fostering a political and institutional environment favorable to private enterprise, national and foreign alike. Washington saw this as the formula by which Latin American nations could achieve economic development despite their shortage of funds. Consequently, although the continent fell within the U.S. sphere of influence during the Cold War, there was no lack of friction between the region's superpower and its hemispheric allies, above all in the economic realm (RIST, 2002).

In the 1950s, U.S. foreign policy toward Latin America was characterized by "benign neglect" (CHILD, 1980). At that time, the Cold War did not pose a real threat to the region but only a latent one, thus ranking it low on the U.S. foreign policy agenda. Washington would only broaden its activities in the Third World as a whole and in Latin America in particular in the late 1950s, when the Cold War intensified on the continent. The Cuban Revolution had a decisive impact in 1959, redefining inter-American relations and prompting the U.S. government to once again include the region among its strategic concerns. As Cuba gradually aligned itself more closely with the Soviet socialist model, the United States grew convinced that underdevelopment had a hand in continental instability and in advancing the spread of Communist ideas within the region. Accordingly, Washington policy makers began having second thoughts about the policy of benign neglect toward Latin America, a tendency that gathered strength after John F. Kennedy was elected president in 1961.

Latin America, far from constituting a mere peripheral region, thus had a central role in the superpower rivalry. The United States turned its attention to the region and revised its foreign policy to respond to Latin American demands, including those in the health field. One consequence was the U.S. government decision to effectively join the Continental Campaign by implementing a national program to eradicate the yellow fever vector within its borders.

The "Empire" under pressure from the "periphery"

Although the United States had supported the Continental Campaign when it was launched in 1947, by the mid-1950s it had failed to implement any measures to eradicate *Aedes aegypti* within its territory. The U.S. government believed that eradication of *Aedes aegypti* was an unnecessary, unattainable goal. No case of yellow fever had been diagnosed in the United States for decades and, unlike South America, the country's forestlands held no reservoirs for the virus. U.S. public health thus preferred to keep the disease under control by administering the 17D vaccine, given to millions of people since the 1940s. Furthermore, the United States required incoming travelers from countries that harbored the illness to present certificates of vaccination and also maintained a stock of vaccine for any emergency, such as an epidemic outbreak.

Until the mid-1950s, while *Aedes aegypti* eradication efforts were progressing in Mexico and South and Central America, the United States had not even outlined a program to eradicate the yellow fever vector within its territory, along the lines of the campaigns conducted by many American republics since 1947. As Latin American nations approached their eradication goal, pressure mounted for the U.S. government to actively join the Continental Campaign.

In 1956, for example, when Mexico ran the risk of being reinfested by *Aedes aegypti*, the country's Secretary of Health, Ignacio Morones Prieto, proposed to the U.S. Surgeon General, Leonard A. Scheele (1948-1956), that the two countries organize simultaneous campaigns against the mosquito along their shared border and in Gulf of Mexico ports.

But Scheele skirted the issue. Prieto subsequently suspended the *Aedes aegypti* eradication program, which had been a joint Mexico-PAHO project since 1949, asserting that it would be virtually impossible to prevent mosquitoes in the United States from crossing the densely populated border between the two countries and invading Mexico (TORRES-MUÑOZ, 1963). Mexico only resumed its eradication program in 1958, with the appearance of new cases of yellow fever there (AMÉZQUITA, 1963).

Shortly after refusing to back Mexico's efforts to eradicate *Aedes aegypti*, Scheele stepped down as Surgeon General. His successor, Leroy Edgar Burney (1956-1961), was to initiate preparations for a mosquito eradication program in the United States. At a moment when the Cold War was resurging in Latin America and countries in the region were pushing harder for economic and social development programs, the fact that Latin America was ever more insistent that its northern neighbor engage in the continental fight against the yellow fever vector certainly weighed in Washington's decision to reconsider its original stance. In 1957, the U.S. Public Health Service (USPHS) organized a four-year pilot project to ascertain the feasibility of eradicating *Aedes aegypti* within the United States. Led by the Communicable Disease Center (CDC) – an agency linked to the Department of Health, Education, and Welfare, through the USPHS – the pilot project was centered in Pensacola, Florida (SCHLIESSMANN, 1964).

At the outset, the Pensacola project followed the same operational criteria that PAHO had put in place in Mexico and Central America. Activities consisted of local inspection and the application of insecticide in all containers suspected of harboring *Aedes aegypti* larval breeding sites. The plan first intended to cover the entire city, which was later divided into three zones: primary, secondary, and periphery. In 1960, the operational plan was radically modified to include power sprayers, which were used to apply insecticide in all potential breeding sites and on surfaces where mosquitoes were assumed to land in areas around dwelling units. Since few breeding sites were detected in 1958 and 1959, home inspection was halted.[1] Project leaders also did not concern themselves with identifying resting places for *Aedes aegypti* outside of residences or with capturing adult mosquitoes to determine levels of larval infestation. Nonetheless, when activities ended in 1961, the overall assessment was that the adopted method had successfully eradicated the mosquito in primary zones and in most secondary ones.[2]

While the Pensacola project was underway in Florida, the 11th plenary session of the PAHO Directing Council was held in Washington, D.C., in 1959. Delegates of the American republics reiterated the appeal made the previous year at the Sanitary Conference in Puerto Rico, urging countries still infested with *Aedes aegypti* to step up their anti-mosquito measures. The Council also approved Resolution XVIII (Status of *Aedes aegypti* eradication in the Americas), declaring Honduras and Guatemala free of the yellow fever vector.[3] The following year, at the 12th meeting of the Directing Council, held in Havana, the Council certified the eradication of *Aedes aegypti* in El Salvador.[4]

The 13th plenary session of the PAHO Directing Council, held once again in Washington, in October 1961, declared Chile and Costa Rica free of *Aedes aegypti* and set a deadline for eradicating the vector from the Americas. According to the decision then passed, those countries on the continent that were still infested with the mosquito should finalize their campaigns within five years, so that they could report their eradication of the species at the 17th Pan American Sanitary Conference, in Washington, D.C., in 1966.[5]

The decision by the PAHO Directing Council to complete the Continental Campaign as quickly as possible was consonant with the views of the agency's new director, Abraham Horwitz, a Chilean who had been elected in 1958 to replace Fred Soper, of the United

States. Soper, a major advocate of *Aedes aegypti* eradication, had served as head of the Continental Campaign during its first ten years. At the start of his term, which lasted until 1975, Horwitz devoted himself to ensuring the continuity of ongoing projects, thereby guaranteeing a climate of some tranquility while PAHO traversed a period of transition. This meant that the Continental Campaign remained in place. However, the new PAHO director supported an idea that was fast gaining traction in medical and sanitary circles on the continent: no vertical program could be efficacious or long-lasting if it failed to tie in with and strengthen health services as a whole. Horwitz in fact believed that there was a tight link between health and economics, a novel idea that he tried to place on PAHO's agenda. In his opinion, a nation's or region's public health situation depended on its level of development. Accordingly, medical and public health interventions could only curtail the incidence of given illnesses up to a certain point; beyond that, change would depend on improvements in social indicators, in turn requiring economic development. Horwitz felt that the Continental Campaign, based solely on *Aedes aegypti* eradication, was not in tune with this thinking, and so it would be best to finalize it as soon as possible (HORWITZ, 1959; CUETO, 2007a; PIRES-ALVES; MAIO, 2015).

During the 13th plenary session of the PAHO Directing Council, Miguel Bustamante, Mexico's Under-Secretary of Health, once again put pressure on the U.S. government, charging that it was failing to live up to its obligations within the Continental Campaign. His outcry was spurred by the fact that his country was facing a serious threat of reinfestation along its borders with the United States, right when Mexico had recorded significant progress with its *Aedes aegypti* eradication program, revived in 1958 following a brief interruption. In response to these accusations, the U.S. delegate to the meeting assured Mexican representatives that his country would make an effort to inaugurate a program of its own.[6]

On December 21, 1961, in keeping with this pledge, Horwitz sent a letter to the new Surgeon General, Luther L. Terry (1961-1965) – appointed to the post by Kennedy in January – informing him that the 13th meeting of the PAHO Directing Council had defined 1966 as the deadline for eradicating *Aedes aegypti* from the Western hemisphere. Horwitz also advised that the American republics that had already eradicated the species were worried about the danger of a new infestation originating in the United States and its territories.[7]

The impact of the criticisms lodged by the Mexican delegation during the 13th plenary session, along with Horwitz's pressure on the United States, was immediate. In January 1962, Assistant Secretary of State Harlan Cleveland informed Surgeon General Terry that eradication of the yellow fever vector from the country should be taken with all seriousness "in the interest of good relations with the community of American States."[8]

The United States joins the Continental Campaign

Renewed U.S. State Department concern with Latin American demands and its interest in tightening cooperative ties with countries in the region were part of an overall reshaping of U.S. foreign policy toward Latin America, which commenced in the late 1950s under the Republican administration of Eisenhower and reached its peak under the government of John F. Kennedy (1961-1963), a Democrat. The new approach found expression in the Alliance for Progress, an economic and social development program for Latin America launched by President Kennedy in 1961 in response to fears that the Cuban Revolution would inspire similar movements in other countries of the Americas.

By mid-1962, PAHO had certified 15 countries of the Americas as *Aedes aegypti* free: Belize, Bolivia, Brazil, Costa Rica, Chile, Ecuador, El Salvador, Guatemala, French Guiana, Honduras, Nicaragua, Panama (including the Canal Zone), Paraguay, Peru, and Uruguay.

Furthermore, great strides had been made in eradicating the yellow fever vector in Mexico and Argentina, while similar work was progressing satisfactorily in Cuba and Venezuela. [9]

The problems then encountered by the Continental Campaign were concentrated on the Caribbean coast, where things had worsened over the previous five years. Jamaica, Haiti, the Dominican Republic, and Martinique had suspended their eradication programs, while other nations in the region, like Surinam and the Cayman Islands, had never even introduced any anti-mosquito initiatives. Furthermore, countries that had successfully eradicated *Aedes aegypti*, like French Guiana, were suffering reinfestation within their territories. Matters grew even more complicated in the Caribbean when it was discovered – first in Trinidad and later in Puerto Rico – that the new invaders appeared to be resistant to DDT, dieldrin, and other insecticides.[10]

The challenges encountered by *Aedes aegypti* eradication programs in the Caribbean put more pressure on the United States to join the Continental Campaign. In an official statement released in July 1962, PAHO declared that the mosquito's main breeding grounds on the continent were located in the southern U.S. and certain Caribbean countries. According to the agency, the persistent presence of these breeding grounds presented two dangers. First, countries still infested by the vector ran the risk of epidemic outbreaks of yellow fever if the virus were introduced into their populations. Second, neighboring countries that had eliminated *Aedes aegypti* ran the risk of reinfestation (PAHO, 1962a).

It was during this period of blatant criticism of the U.S. government that the 16th Pan American Sanitary Conference was held in Minneapolis, Minnesota, on August 21-September 3, 1962. At the plenary session, delegates from American republics approved a resolution urging the governments of countries from which the yellow fever vector had been eradicated to maintain active sanitary surveillance programs to avoid reinfestation. They also asked countries still infested by the mosquito to place utmost priority on allocating funds, personnel, and material for the conclusion of the eradication campaign. The resolution also urged the PAHO director to maximize his efforts to intensify and accelerate the Continental Campaign so that its goal could be met as swiftly as possible (OPAS, 1963).

Given this situation, and because the American republics were pushing ever harder for the United States to enter the Continental Campaign, Surgeon General Terry, who headed the U.S. delegation at the Minneapolis conference, recognized the progress achieved by Latin American and Caribbean countries in eradicating *Aedes aegypti* and declared the situation "encouraging." He also said that the U.S. government had "plans under way for the eradication of the urban vector of yellow fever in those areas of the United States where it exists and in Puerto Rico and the Virgin Islands." He went on to say: "The United States is proud to join with other countries of the Americas in pursuing with vigor these health goals." Another member of the U.S. delegation, physician and epidemiologist Charles L. Williams Jr., also with the USPHS (and who would be elected PAHO Deputy Director at the conference), stated that his country was committed to eradicating *Aedes aegypti* from the continental territory, as well as from Puerto Rico and the Virgin Islands. He said that "in the beginning the campaign would be organized in such a manner as to minimize the danger of reinfestation of areas that had already accomplished eradication" and that "the United States was determined to eradicate this mosquito from its territory" (OPAS, 1963, p. 246).

The 16th Pan American Sanitary Conference thus marked the U.S. government's formal commitment to join other American republics in their drive to eradicate *Aedes aegypti* from the continent. Finally, 15 years after inauguration of the Continental Campaign, the United States was to effectively engage in its activities.

Against the backdrop of the Alliance for Progress, Washington's decision to participate in the Continental Campaign at a time when the country itself was free of yellow fever had more to do with foreign policy than public health concerns. U.S. relations with Latin America had hit a rough patch, and countries in the region were questioning the good-neighbor policy, which had been under such careful construction since World War II. Further evidence of this was the Cuban Revolution, in 1959, a watershed that prompted Washington to hasten the redesign of its Latin American foreign policy, initiated some years earlier. By implementing an *Aedes aegypti* Eradication Program within its borders, the United States sought to please Latin American nations and respond to PAHO pressures, but the move also served the country's own interests, in the form of a veritable "good-neighbor policy for yellow fever."[11]

The Cold War context and the U.S. adoption of a Latin American foreign policy grounded in tighter cooperation with countries of the region therefore bore directly on Washington's decision. But as the United States moved to implement a national *Aedes aegypti* eradication program, the U.S. government found itself facing certain obstacles and challenges of an economic, political, and legal nature at home.

Discussions within the United States about an *Aedes aegypti* Eradication Program

By the time the United States decided to actually join the Continental Campaign, as announced during the Pan American Sanitary Conference held in Minneapolis in 1962, Congress had already wrapped up the federal budget for the following year. Consequently, the U.S. budget for 1963 did not allocate any federal funds for eradicating *Aedes aegypti* within the country. Implementation of any such national program would have to wait until 1964.[12]

At the same time, the idea of a national eradication program was consistent with the Kennedy administration's foreign policy, built on establishing closer ties with other American republics. In an effort to forge a consensus around the program, Kennedy invited lawmakers into the discussion. Addressing Congress on February 7, 1963, Kennedy spoke about the problem of yellow fever in the Americas and about the Continental Campaign. He said that the proposed 1964 federal budget would earmark funds to introduce efforts to eradicate the mosquito in the country. In his words:

> A problem of particular significance in the Western hemisphere is that of yellow fever. Many countries of the Americas have conducted campaigns to eradicate the mosquito which carries yellow fever but the problem of reinfestation has become a serious one, particularly in the Caribbean area. We have pledged our participation to eradicate this disease-carrying mosquito from the United States, and the 1964 budget provides funds to initiate such efforts. This will bring this country into conformity with the long-established policy of the Pan American Health Organization to eliminate the threat of yellow fever in this hemisphere.[13]

In the budget proposal for 1964, the Department of Health, Education, and Welfare asked Congress to provide the CDC with around $30,429,000,[14] of which $5,000,000 would be used to initiate the U.S. Eradication Program.[15] The agency also requested the creation of 763 new positions, 600 of which would be directly attached to the program.[16] Despite Kennedy's express recommendation, the House Appropriations Committee rejected both proposals.[17] Lawmakers felt that yellow fever did not then constitute an urgent U.S. public health issue. But the matter would also have to move through the Senate.

The Department of Health, Education, and Welfare questioned the decision and argued that it should be re-evaluated in light of the costly and nearly completed program to eradicate *Aedes aegypti* throughout the Western hemisphere.[18] In other words, the department asked members of Congress to consider the consequences of not approving funds for a national eradication program, the first of which would be the negative reactions of other American republics at a time when the U.S. government was working to contain the spread of socialist ideas on the continent. As a result, the House Appropriations Committee's report was not even put before a plenary session of the House but was sent to the counterpart Senate committee, along with the original budget proposal of the CDC, as a way of re-opening the discussion. The Senate represented the last hope for those who wanted to see an *Aedes aegypti* eradication program implemented in the United States in 1964. Should the upper house rule unfavorably on the funding allocation, it would delay the debate until the following year. A favorable ruling, on the other hand, would force the House to re-examine the matter.

During the impasse, in July 1963, Surgeon General Terry wrote directly to Vice President Lyndon Johnson, voicing his displeasure over the House's failure to approve the funding request lodged both by the Department of Health, Education, and Welfare and by Kennedy himself in his February 1963 message to Congress. In his letter, Terry stated that it would not be efficacious to adopt any palliative measures against the yellow fever vector along the border between Mexico and Texas, as suggested by certain experts, since "Mexico was only one of a growing list of countries which felt themselves threatened with reinfestation by *Aedes aegypti* from the United States." In his opinion, "while *Aedes aegypti* may fly across international frontiers...the only satisfactory solution for the problem is to face up to the necessity of eradicating the *Aedes aegypti* mosquito."[19]

These discordant views were apparent in September 1963, when Washington, D.C., was host to the 14th plenary session of the PAHO Directing Council. During the meeting, PAHO issued Mexico a certificate declaring the country free of *Aedes aegypti,* capping off a struggle against the mosquito that Mexican public health and political authorities had initiated in the 1920s and that had lasted for over 40 years.[20] Mexico's Secretary of Health, José Álvarez Amézquita, took the opportunity to present Surgeon General Terry with "'the last two *Aedes aegypti* mosquitoes in Mexico', neatly embedded in plastic" (ETHERIDGE, 1992, p. 122). The message was clear: after much effort, Mexico had successfully eradicated the vector from its territory and expected the United States to do the same as quickly as possible to prevent the reinfestation of its country.

By mid-1963, another 16 countries and territories in the Americas, besides Mexico, had also eradicated the yellow fever vector and received PAHO certification: Bolivia, Brazil, Chile, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Uruguay, British Honduras, French Guiana, and the Panama Canal Zone.[21] Argentina soon joined their ranks, in 1965.[22] As mentioned earlier, problems were then concentrated along the Caribbean coast, where *Aedes aegypti* was displaying resistance to residual pesticides and thus presenting a serious challenge to the Continental Campaign; the attendant threat of reinfestation likewise jeopardized countries that had already eliminated the carrier.

Aedes aegypti resistance to insecticides in the Caribbean and the presence of the mosquito inside the U.S. territory alarmed Mexican political and public health officials, since these factors presented risks both to their own country and to the United States. Although Mexico had eradicated the vector, its forest areas continued to harbor virus reservoirs. The situation was the opposite in the United States, where the yellow fever virus was absent but *Aedes aegypti* was not. This meant mosquitoes from the U.S. territory could reinfest Mexico, possibly sparking a major epidemic there and then carry the virus back into the

United States, where it could in turn trigger outbreaks, with disastrous consequences for the entire region. The U.S. government found itself grappling not only with political issues in its quest to establish good relations with Latin American nations in the Cold War context but also with a virtual medical and public health threat.

This latent danger became a real one when, in September 1963, Mexico suffered a reinfestation of *Aedes aegypti* along its border with the United States, endangering the thoroughgoing control efforts by Mexican public health in these areas.[23] Domestic agencies, like the office of the Surgeon General, the USPHS, and the federal government itself, as well as countries abroad, that is, Mexico and other American republics, then put further political pressure on Congress to fund a U.S. eradication plan. The Senate Appropriations Committee subsequently ruled in favor of funding. The discussion then reverted to the lower house, where, in September 1963, its Appropriations Committee – which only six months earlier had rejected the request for $5,000,000 to fight the mosquito – ceded to mounting political pressure and approved $2,800,000 to commence the work of eradicating *Aedes aegypti* from the U.S. territory under a planned five-year program.[24] This fell short of the amount sought by program proponents, but at least there was money now to put things in motion.

The *Aedes aegypti* Eradication Program of the United States (1964-1969)

Once funding had been approved, the CDC leadership took up the challenge of eradicating the yellow fever vector from the U.S. territory within five years, despite the fact that most of its staff were against the initiative. An *Aedes aegypti* Eradication Branch was opened in 1963, and Donald Schliessmann, a sanitary engineer with the agency, was appointed its head (SCHLIESSMANN, 1964).

The CDC defined a five-year timetable of activities for the U.S. Eradication Program. The first year would be devoted to laying organizational foundations, recruiting and training personnel, and purchasing basic supplies, material, and equipment. In parallel, the CDC's *Aedes aegypti* Eradication Branch would undertake public health education and sanitation campaigns throughout the area of operation. Where the mosquito had a longer breeding period, more broad-sweeping inspection work would be conducted, followed by the spraying of infested areas and their surroundings. During the second and third years of the plan, two inspections would be conducted, followed by spraying. Only one inspection of infested areas would take place during the fourth year (covering about two-thirds of the territory) and less spraying would be done, given the narrower range of action. Year five would be devoted to inspecting and spraying regions where *Aedes aegypti* was still found. Rigorous surveillance would remain in effect during all five years of the program in order to avert reinfestation where the mosquito had been eradicated.[25]

In 1964, on the eve of program implementation, CDC staff carried out in-depth reconnaissance of the spatial distribution of the yellow fever vector in the United States. Their research confirmed infestation in only some locations in nine states in the southeast (from Texas to Florida, along with relatively small portions of North Carolina, Louisiana, Arkansas, and Tennessee), as well as the territories of Puerto Rico and the Virgin Islands (MORLAN; TINKER, 1965). Given this distribution, the U.S. government decided that eradication demanded specific planning and close supervision within each of the regions where the mosquito had been detected. The U.S. program would therefore be led by the CDC, in cooperation with state and local authorities in those states and territories that were home to the insect.[26] The overall plan called for anti-mosquito measures in 70 locations, which were believed to represent the main sources of infestation. Once these areas had been

cleaned up, work would expand into small peripheral communities. Under the plan, by February 1965 at the latest, eradication initiatives would be extended into other infected states, with the exception of Arkansas and Tennessee (SCHLIESSMANN; MAGENNIS, 1964).

The CDC's initial idea was to attack the mosquito in all infested states at once. However, because it was necessary to sign agreements with state and local governments and also owing to a shortfall in funds, initial program work, begun in February 1964, was restricted to regions where *Aedes aegypti* infestation was heaviest, that is, the Virgin Islands, Puerto Rico, southern Florida, and Texas. Concomitantly, surveys were carried out to more accurately pinpoint areas of infestation. As the program moved ahead and additional funds became available, activities would be extended to other areas receptive to yellow fever (SCHLIESSMANN; MAGENNIS, 1964).

Based on the Pensacola pilot project (1957-1961), the activities of the national eradication program were to include: the routine use of DDT in *Aedes aegypti*-positive areas and their vicinity, via truck-mounted power sprayers; inspections around private residences during mosquito season, carried out by sanitary inspectors armed with hand sprayers and trained to identify breeding grounds; ongoing research into *Aedes aegypti* susceptibility to DDT and alternative control procedures; the enactment of regulations to prevent the insect from spreading indiscriminately through interstate or international travel or during use for research purposes; and public information and awareness campaigns to encourage local governments and home and land owners to cooperate with these efforts to wipe out breeding grounds.[27]

In year two of the program (1965), activities were extended to Hawaii, Alabama, Georgia, Mississippi, and South Carolina. Special mobile units were concomitantly sent to states with lower infestation rates, like Arkansas, North Carolina, and Louisiana. By then, the program was covering nearly one-quarter of the country, with around 40,000,000 people and 19,000,000 homes subject to inspection and treatment (PAHO, 1962b). At its height, the program had 300 federal staff members, most of whom worked at the CDC headquarters in Atlanta, Georgia. Thousands of other public health agents were employed at the state level under temporary contracts to the federal government. Most of them, however, did not believe the program would attain its goals, much less that mosquitoes transported from the United States to neighboring countries were causing the epidemic outbreaks of yellow fever once again being reported in various regions of the Americas.[28]

The U.S. Eradication Program differed in two ways from the programs that had been underway in other American republics since 1947 within the framework of PAHO's Continental Campaign. First, the U.S. program did nothing to identify or eliminate mosquito breeding grounds inside of private residences. Contrary to initiatives in Latin American and Caribbean nations, the U.S. program called for systematic application of DDT only in *Aedes aegypti* breeding grounds outside of housing units, a restriction that had to do with the culture's sharp distinction between public and private space, which is a very important matter and one of the pillars of U.S. society. Citizens there, unlike their peers in other countries of the Americas, would not open their homes to health agents. In other words, there was a barrier of a moral, ideological, almost religious nature, a U.S. ethos that limited the scope of the program and hindered its full development.

The second difference was the absence of detailed information on eradication activities. The periodical bulletins on program development that the CDC sent PAHO presented only minimal annual data by county, rather than quarterly data by town or city, as had been standard from the outset of the Continental Campaign. The U.S. information was limited to

an enumeration of investigated counties, that is, those infested by *Aedes aegypti* and those where treatment was underway. The PAHO leadership pressed the U.S. government for more accurate information, since the absence of greater details on program development hampered assessment of both progress and problems (SCHLIESSMANN, 1966, 1967).

PAHO was eager to receive more in-depth information on the U.S. program because the 17th Pan American Sanitary Conference was approaching, and the agency hoped to announce the eradication of *Aedes aegypti* from the Americas and thus the end of the Continental Campaign. Yet neither announcement was possible. When the conference took place in Washington, D.C., on September 26-October 7, 1966, the United States was still working to eradicate the carrier in various spots within its territory. U.S. delegates in fact apologized to PAHO leadership and to the representatives of the American republics there in attendance for their country's failure to meet the program deadline. But the troubles of the Continental Campaign were not limited to the United States right then. Things were also not going well in various other parts of the Western hemisphere. Cuba, the Dominican Republic, Haiti, Trinidad and Tobago, Jamaica, and Venezuela, for example, had not yet managed to eradicate *Aedes aegypti* from their territories.[29]

While PAHO was disappointed that it could not announce the eradication of *Aedes aegypti* from the Americas at the Pan American Sanitary Conference in 1966, the agency had an even more serious headache to confront. Since the mid-1960s, the number of countries certified as free of the carrier but now reporting reinfestation to PAHO had been trending upward. This was the case, for example, with French and British Guiana, El Salvador (OPAS, 1967) and Colombia.[30] Combining the countries that had yet to eradicate *Aedes aegypti* with those that were reporting reinfestation, it is apparent that the campaign's challenges were geographically concentrated in northern South America, the Caribbean, El Salvador, and the United States. The carrier's presence in these regions presented a serious threat to the 14 countries where the insect had been eradicated, that is, Argentina, Bolivia, Brazil, Chile, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay.[31]

Threat turned into reality in 1967, when Brazil informed PAHO that its territory had been reinfested by *Aedes aegypti*, eradicated in 1958. The mosquito had been found in Belém, capital of the state of Pará, in far northern Brazil (FRANCO, 1969), where it had triggered an epidemic outbreak that was to spread to other regions in the following years.[32] Brazil was considered strategic to the Continental Campaign, not only for geographical reasons – since it shares borders with ten other South American countries – but also because it had been a pioneer in the continental fight against yellow fever, had proposed the Continental Campaign in 1947, and had sent the greatest number of technicians and specialists to help organize and implement eradication programs elsewhere on the continent.

Brazil's reinfestation was a sign that the Continental Campaign was going through a critical phase. More importantly, it offered evidence that *Aedes aegypti* was moving southward, first reinfesting Mexico, then some Caribbean countries, next reaching Colombia, and, finally, striking northern Brazil. This fact reinforced the arguments of those who blamed the U.S. government for the cases of reinfestation observed in a number of American republics. The United States was accused of entering the Continental Campaign late, failing to eradicate the yellow fever vector from its territory, and not providing enough information on its eradication program, which could have aided neighboring countries in preventing reinfestation within their own borders. All this considered, the U.S. government had to respond to other American republics.

The abandonment of the U.S. Eradication Program and the reinfestation of the Americas by *Aedes aegypti*

In an attempt to placate both the other American republics and the leadership of PAHO, in 1967 the U.S. government asked the agency to appoint a work group to assess the eradication program then underway within its borders. The group was comprised of two Brazilians, Paulo Cesar Antunes (PAHO deputy director from 1947 to 1951) and Octavio Pinto Severo (Continental Campaign advisor), plus an Uruguayan, Sólon Veríssimo, likewise a PAHO staff member, all of whom had vast experience in fighting *Aedes aegypti* on the continent. All three were in the United States from April 1 through May 11, 1968.[33]

They first attended the Conference on *Aedes aegypti* Eradication in the Americas, organized by PAHO and held on April 3-5, 1967, in Washington, D.C. Resolution XIX of the 17th Pan American Sanitary Conference had tasked the agency's director with taking all measures necessary to hasten the eradication of *Aedes aegypti* from the Americas and ensure that the Continental Campaign was implemented simultaneously and in a coordinated fashion throughout all areas infested by the mosquito, and the conference was part of this effort. With a view to ensuring coordinated action, the resolution recommended frequent, regular meetings of the national public health officials responsible for PAHO's continental program.[34] The Conference on *Aedes aegypti* Eradication in the Americas was the first such event.[35]

After the conference, Antunes, Severo, and Veríssimo assessed the progress of the U.S. program. They were accompanied by Abraham Horwitz, PAHO director, and Surgeon General William H. Stewart (1965-1969), who had replaced Luther L. Terry two years earlier. They began by visiting the *Aedes aegypti* Eradication Branch at the CDC, in Atlanta, where they obtained information on operational planning before proceeding with field inspections. In addition to their stops in Atlanta and Savannah, Georgia, the group also visited Jacksonville, Florida; Austin, Texas; Columbia, South Carolina; San Juan, Puerto Rico; and the Virgin Islands. At each stop, they met with the top CDC staff in charge of the program to exchange experiences and information.[36]

The committee's unpublished report presented a series of criticisms of the program, the harshest of which cited the absence of concrete indications that *Aedes aegypti* had been eradicated in any major sector. In the opinion of Antunes, Severo, and Veríssimo, this was primarily because the U.S. program had adopted an inadequate strategy, based on new methods and techniques of unproven efficacy, and because it lacked uniformity and flexibility in both administrative and operational terms. They also emphasized that the program had failed to achieve complete, efficacious coverage of targeted communities, "due to special conditions in the United States such as opposition to inside-the-house inspection and the great number of disposable artificial containers suitable for *Aedes aegypti* breeding." Based on its observations, the committee recommended the adoption of strategies tailored to the precise nature and extent of the problem, grounded in PAHO-recommended methods and techniques with a proven track record in mosquito eradication in most countries in the hemisphere. They also suggested that the program be organized so that its operations would be uniform while still affording the requisite administrative flexibility. Antunes, Severo, and Veríssimo believed that if these changes were effectuated, it would be possible to cover the entire infested area in a short span of time and eradicate *Aedes aegypti* from the U.S. territory.[37]

The program suffered another hit in 1969, when David J. Sencer, then director of the CDC (1966-1977) – renamed the Centers for Disease Control and Prevention – called for a general review of the project and proposed a new approach to the *Aedes aegypti* problem

in the United States. In an article published in the *American Journal of Tropical Medicine and Hygiene*, he argued that unless the U.S. program were global in nature, it would be nothing but a waste of time and money. Sencer, like most of the CDC staff, was convinced that, given prevailing conditions in the United States, the *Aedes aegypti* mosquito could not be eradicated at a reasonable cost. He also disagreed with the notion that wiping out yellow fever depended on eradicating the mosquito from the Western hemisphere. So instead of attempting to eradicate *Aedes aegypti* – a Herculean if not impossible task, in the director's opinion – they should prioritize basic and operational research on yellow fever and dengue (an illness that shared the *Aedes aegypti* vector and that was starting to ignite devastating epidemics in the Caribbean), along with surveillance work and immediate epidemic assistance. Sencer also stated that much was yet to be learned about the natural history of the dengue virus and whether the disease could be controlled with or without eradicating its vector (SENCER, 1969).

The U.S. Eradication Program was abolished in 1968. A total of $54,000,000 had been spent since its inauguration four years earlier, making it one of the most expensive insect eradication campaigns ever undertaken by the USPHS. Richard Nixon's new Republican administration (1969-1974) felt enough had been spent, particularly since there was no guarantee of success. Accordingly, the original allocation of $16,000,000 for program activities in 1969 was struck down by the federal government. The program was consequently abandoned and later closed.[38]

In May 1969, Surgeon General William H. Stewart advised PAHO that the U.S. Eradication Program would be closed and that there were no plans to resume it; he asked that the agency convey this decision to the Mexican government.[39] The U.S. government moved to close its program precisely when PAHO was starting to report a series of reinfestations in at least five countries of the Americas where *Aedes aegypti* had been successfully eradicated: Panama, Honduras, El Salvador, Mexico, and Brazil.[40]

On September 11-12, 1969, a binational meeting of the governments of Mexico and the United States was held in El Paso, Texas, to address the issue of mosquito infestation along their common border. Sencer was one of the members of the delegation sent by Washington to try to appease Mexican officials, who believed the mosquito had crossed the border, carrying with it disease and death. U.S. delegates listed the key factors behind the decision to do away with their country's program: its high cost; legal challenges related to its implementation (for example, many members of the public refused to allow public health inspectors onto their property to look for mosquitoes); and growing opposition to the large-scale use of DDT.[41] That same month, the U.S. government officialized its stance at the 19th plenary session of the PAHO Directing Council, held in Washington, D.C.[42]

Conclusion

The United States decided to end its national eradication program at a moment when a number of countries in the Americas were reporting reinfestation of their territories by *Aedes aegypti.* Both factors were responsible for the decline of the Continental Campaign and its later abandonment by PAHO, without accomplishing its goal of eradicating the yellow fever vector from the Americas. Public health experts across the continent watched in disbelief as the campaign's 22 years of work collapsed and the *Aedes aegypti* mosquito once again threatened the Western hemisphere.

The U.S. failure to implement an eradication program along the lines of those enforced by other American republics was due less to alleged government neglect and more to challenges and obstacles tied to U.S. social norms. The design of the U.S. Eradication

Program (1964-1969) was based on methods that had been used in other countries of the Americas since 1947 and on methods used during the Pensacola project (1957-1961). However, in transitioning from the pilot project to the national program itself, officials discarded the work of inspecting and spraying inside of residences, something that had been vital to the success of eradication efforts in other countries. The United States not only had to tackle the already sizeable task of eradicating the yellow fever vector from its territory but also had other complications to deal with, such as the notions of public and private space so dear to the society. Furthermore, given the country's federative structure, implementation of the nationwide eradication program required close collaboration among public health agencies and officials at the federal, state, county, and city levels, and this too proved extremely challenging. All these factors soon led to the abandonment of the national program and consequent reinfestation of the continent, undermining the foundations of the Continental Campaign.

The United States had been concerned with yellow fever since the late 19th century. Yet the country failed to do its part in the continental pact to eradicate the disease vector from the Americas, as signed by American republics during the Cold War. This apparent contradiction signals the need to problematize the notion that the public health field in the Americas was decisively influenced by the United States, a notion that ties in with the question of imperialism and emphasis on the weight of the United States in inter-American relations, which often eclipses relations among Latin American nations. The reconstruction of these relations constitutes a valuable research agenda, one that has emerged recently and to which we intend to contribute with this article.

Latin American nations took the initiative to propose and implement the Continental Campaign. At a moment when the Cold War was resurging in the region, Latin America, far from behaving as a peripheral actor, played an active role, urging the U.S. government to place the matter of yellow fever on its agenda. Under this pressure, the United States, which was eager to resume good relations with Latin American nations following a rough period after World War II, and particularly after the victorious Cuban Revolution, decided to implement a program to eradicate *Aedes aegypti* within its territory. Since yellow fever was not then an issue for the United States, its decision came not in response to any immediate public health concern but rather sought to comply with U.S. foreign policy goals for Latin America during the Cold War. It was truly a "good-neighbor policy for yellow fever." However, a number of problems were encountered when the United States joined the fight against the yellow fever vector on the continent, and this eventually led to the abandonment of the Continental Campaign and the reinfestation of the continent with *Aedes aegypti.*

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