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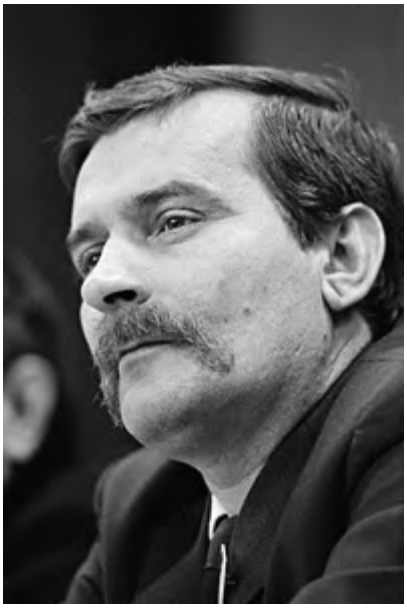

"Dissident Visions through Technological Use: Radio and Television Solidarity in Poland, 1982-1989"

By
Carmen Krol

The members of Solidarity (or Solidarność), a nationwide social movement in Poland during the 1980s, used different media technologies in order to broadcast their political views about the repression of the Polish communist regime. My interest is in the actors, comprised almost entirely of university engineers and scientists, who created and broadcast from radio and television transmitters and identified their actions as serving the Solidarity movement. This social group referred to their efforts as Radio and Television Solidarity, or Radio Solidarity (Radio Solidarność) for short.

These engineers and scientists began their radio broadcasts in 1982 in Warsaw and their television broadcasts a couple years later. This subset of the movement spread throughout Poland, particularly into metropolitan areas. Radio broadcasts averaged about five minutes in length. Television broadcasts worked on either the audio or video channels of the official national programming. The broadcasts were not transmitted on both audio and video as the activists did not have the technological capability to emit a complex video signal. The broadcasts were purposely transmitted during popular evening television programming to reach as broad an audience as possible. Poles learned about radio and television broadcasts through leaflets and sometimes underground newspapers.[1]

I study Radio Solidarity for several reasons. In light of recent social movements, such as the Arab Spring, that have used a particular technology like Twitter and Facebook to enact their political goals, it seems an especially appropriate time that historians of technology look more carefully at technological use within social movements. Solidarity is an important movement for historians of technology to consider because of its strong influence on other oppositional movements within East-Central Europe and is often perceived as a significant cause for the fall of communism in the Soviet Bloc in 1989. The broadcasting from radio and television by an oppositional movement against the Soviet Bloc regime began in Poland by Solidarity members and then spread to other countries within this region. In addition, recent social movements, such as the Arab Spring, were inspired by Solidarity and have received extensive political support by Solidarity members. A former Polish ambassador to Morocco commented that the Egyptians and Tunisians used social media similarly to the way that Solidarity members used shortwave radio: to evade state censorship.[2]

However, this Polish ambassador greatly simplifies radio use by Solidarity. Radio Solidarity actors were not just interested in avoiding state censorship but also directly subverting the government's media monopoly. In terms of networks as originally analyzed by Thomas Hughes, it is also interesting to consider what the actions of Radio Solidarity did for the government media network. The network originally served as a medium through which propagandistic messages from the government could be transmitted to its audience and also represented the hegemony that communism had on Polish society. The activity of broadcasting programs and images on the audio and video channels of government-owned television shows that despite the momentum that had already been achieved by the government media system, the Solidarity movement subverted this momentum and applied to the system their own meaning, that of freedom of speech and that Polish citizens could control the media network, instead of the communist regime.

In addition, the topic of technological use within political movements is under-examined in the history of technology and its related field of Science & Technology Studies (S&TS). Most S&TS scholarship of political movements focuses on groups that are organized around a technology they wish to change, such as computer software, rather than how these groups use a technology to enact a broader goal.[3] Exceptions to this literature include studies conducted by Ronald Kline and Christina Dunbar-Hester. In *Consumers in the Country*, Kline considers how technologies—including the telephone and automobile—were re-interpreted and modified by rural Americans to suit their lifestyle. Dunbar-Hester examines how low-power radio activists in the United States perceive their technical engagement with small-scale radio broadcasting as directly linked to other actions to promote social justice, such as housing rights.[4]

Unlike Dunbar-Hester and Kline, I consider the production and use of radio and television as new technologies introduced into a political movement with an already established broadcasting technology: underground newspapers. My focus highlights the heterogeneity of political visions present in different technological use within a political movement.

My dissertation project focuses on the group of

actors who identified themselves as Radio Solidarity through the consideration of the political visions they connected to their technological use of radio and television broadcasting, how they conceived their identities as related to a particular form of expertise, how their socio-technical network of broadcasting throughout Poland was constructed, and the movement of materials and ideas from the United States and Western Europe into Poland. In this paper, I will discuss the particular political visions that were associated with the use of certain technologies by different Solidarity members.

The conclusions I draw in this paper about political visions and technological use are tentative, based on preliminary evidence. More extensive research will be conducted in the spring, with funding provided by the Mercurians' Pamela Laird Research Grant, and during the 2012-13 academic year.

Background of Solidarity

In the 1980s Solidarity was a political movement that opposed the Communist regime in Poland, which ended in 1989. Solidarity began in 1980 in the Gdańsk Shipyards (Stocznia Gdańska) as an independent trade union of steelworkers recognized officially by the government. The idea of Solidarity, that Poles have the freedom to voice their opinions against the communist government, quickly attracted Poles across the country from heterogeneous backgrounds to join the cause of Solidarity and also expanded the movement from a union structure into a political movement that affected all spheres of Polish life. Since 1989, when the communist government ended and Poland became a democracy, many members—particularly intellectuals and white-collar workers—left the movement. Solidarity is still in existence today as a liberal trade union.[5]

During the Martial Law (Stan Wojenny) period, which began in late December 1981, the government no longer recognized Solidarity and its activities were illegalized. Most scholars who study Solidarity agree that Martial Law began because of concerns by the Soviet Union and the Polish government that oppositional movements would completely erode their authority if they were not suppressed. Even after the Martial Law period, which ended in the middle of 1983, Solidarity was "underground" and consisted of disparate groups pursuing a wide range of oppositional activities in the name of the movement.[6]

Tygodnik Mazowsze and Anti-Politics

One such Solidarity group was involved with the underground newspaper, *Tygodnik Mazowsze*, a Warsaw-based publication with the largest underground Polish readership during Martial Law. The editors of *Tygodnik Mazowsze* included articles that asked its readers to think about the present, not to appeal to their memories or emotions. The newspaper encouraged readers to assess issues of real consequence such as how the underground should be structured. In addition, while a primary purpose of *Tygodnik Mazowsze* was to remind Poles that Solidarity still existed, another important purpose was in serving as a reliable source of information, in contrast to the Communist media that maintained ambiguity in using official discourse and emphasizing propagandistic techniques in order to glorify government actions. Communist discourse in Poland expected its audience to agree with its messages and not to question them, in other words, to not form personal opinions about them. The format of the Communist media differed significantly from the articles included in *Tygodnik Mazowsze*, which were meticulously fact-checked and included information on Poles who were arrested, those killed by government officials, human rights violations by the Polish state, and local and regional Solidarity events. The paper also did not include outspoken editorials, rather encouraging the reader to from his/her own opinions.[7]

The content of *Tygodnik Mazowsze* abided by what the political scientist David Ost refers to as "anti-politics," which was a prevalent political theory adopted by Solidarity intellectuals. Under the rubric of "anti-politics," intellectuals deliberately rejected the state and had "the belief that what is essential to a just order is not a benign government and good people in power, but rather a vital, aware, self-governing and creative *society*."[8] These intellectuals wanted to form a civil society that was separate from the state. According to the sociologist Shana Penn, the Solidarity leadership involved with *Tygodnik Mazowsze* explicitly saw the newspaper as a forum in which to solicit responses from its members about particular political and social issues. By asking that readers develop their own views of situations, the writers and editors of *Tygodnik Mazowsze* encouraged the creation of an anti-political civil society.[9]

Tygodnik Mazowsze had strong ties to Radio Free Europe, a broadcaster that during the 1980s was funded by the CIA in the United States. Those involved with the newspaper contacted Radio Free Europe regularly about events in Poland. This information was then broadcast on Radio Free Europe that transmitted to Poland, from which many Poles could listen. Solidarity scholars agree that Radio Free Europe was distinctly influential as an accessible information source for members of the movement.[10]

Radio and Television Solidarity

Radio Solidarity seemed to have a different interaction with Radio Free Europe than those involved with Tygodnik Mazowsze. While an actor who broadcasted

for Radio Solidarity in a Warsaw suburb mentioned that some of his programs were re-transmitted on Radio Free Europe, another actor in Toruń depicted Radio Free Europe as a nuisance. According to him, police quickly shut down the Radio Solidarity efforts after hearing the re-transmission on Radio Free Europe.[11]

Unlike *Tygodnik Mazowsze*, Radio Solidarity activists did not think what was important was the actual content of their broadcasted messages, but rather appealing to the memory, emotions, and hopes of listeners and viewers. Broadcasts were purposely concise not just because of the threat of being caught but also to serve simply as appeals and not journalistic deliberations. They usually included emotional elements, such as popular songs and the national anthem. Sometimes the broadcasters aimed to be "somewhat fun" by including trivia, jokes, and elements that appealed to children. Overall, Radio Solidarity activists were invested in telling Poles that Solidarity still existed, even though it was underground.[12]

A main goal of Radio Solidarity actors, which was apparent in their language and their actions, was to end the government monopoly of the broadcast media. The television broadcasts by Radio Solidarity members represented a direct attack on the government media system. "Video" broadcasts were often an image transposed on top of the national programming; only one image was shown for a few minutes. That video and audio broadcasts hijacked the frequencies of official television channels and were often displayed over the state-run television programming shows a direct attempt to subvert the government's media network. Such an action emphasized that the government media network did not need to be controlled by the communist government nor transmit only communist propaganda. Rather, the Radio Solidarity actors applied their own meaning to an already established network, that Poles could control the network themselves. Radio Solidarity members presented a more belligerent perspective of the government than those involved with *Tygodnik Mazowsze*, who as discussed before, preferred to create a social space that was separate from the government.

The Radio Solidarity actors also wanted to show that Solidarity was technologically advanced. According to the Polish historian Bogusław Bakuła, who interviewed many Radio Solidarity broadcasters:[13]

> "The stereotype of Solidarity resistance—entangled in politics, technologically weak, organizing itself spontaneously and utilizing only copying techniques, or the so-called stencil ("ramka") that is commonly promoted, should be overcome. The history of Radio Solidarity presents the 1980s in a different light, namely, the technological aspect of the struggle against ruthless violence."

As I continue my research, I will explore more of this "technological" image of Solidarity. Why is it important to former Radio Solidarity members that Solidarity be perceived as technologically advanced? Is it to show that Poles were "modern"? That Poles had as much power or more than the communist government? The question about technological prowess is particularly interesting in contrast to the underground printing movement, which was more interested in showing connections to their practice with the past. In particular, they traced their dissident activities to those intellectuals who were involved in clandestine printing from the 18th century through World War II.[14]

This emphasis on technological prowess is a reflection of the makeup of Radio Solidarity members, who consisted mostly of university engineers and scientists. Technical expertise, which was acquired from institutions of higher education in Poland, was required to participate in the creation of and broadcasting from radio and television equipment for Solidarity. Most of this knowledge centered on the building of the actual equipment and less on the transmission and reception. For instance, those who worked on radio in Warsaw were mostly engineers from the Warsaw Polytechnic Institute (Politechnik Warszawskiej). Because this group lacked knowledge of how to transmit broadcasts, the Warsaw group also enrolled a climatologist and ecologist from the Institute of Space Management (Instytut Kształtowania Środwiska) to conduct radio experiments on the roofs of buildings to ensure effective reception of broadcasts. The Toruń group comprised mostly of astronomers, physicists, and engineers from the University of Nicholas Copernicus (Uniwersytet Mikołaja Kopernika). The astronomers involved with the Toruń subset recognized that their knowledge of broadcasting on television signals came from their experience of working with the Very Long Baseline Observatory, a group of five observatories located across Europe, that required time to be synchronized by using vertical sync pulses of television signals. Toruń members also developed a method of using balloons to carry radio and television transmitters into the atmosphere both to evade discovery by the police and to extend the radial distance of reception.[15] Ironically, Radio Solidarity members probably were educated in Polish universities, which since the later 1940s had its curriculum handled by the communist government.[16] As I continue my research, I will understand more of how these members reconciled their communist education with their oppositionist activities.

Underground printing differed significantly from Radio Solidarity in that it consisted of a more heterogeneous group of people including the blue-collar workers and intellectuals traditionally associated with

the movement. Whereas almost all those involved with Radio Solidarity were men, the editorial board of *Tygodnik Mazowsze* comprised entirely of women. Most of the women involved with Radio Solidarity had less prominent roles in the underground activities, usually spouses of the activists or lending their homes for transmitters. In addition, the creation and use of printing equipment was perceived as something that could be learned quickly without a university education, which was implied in a popular underground leaflet distributed during Martial Law that described how to make a copy machine.[17]

Conclusion

My sources constantly battle with historicism, or what should be remembered about Solidarity, and this differs significantly between different actors and the scholars who study them. One such example is the wearing of radio resistors, which is discussed little in the Solidarity scholarship. Rather, I found out about this practice by word of mouth and its details on a Facebook page sponsored by the European Center for Solidarity (Europejskie Centrum Solidarności) that calls for Poles to wear the resistors in commemoration of those who wore them during the Communist era.

The text of the flyer reads:[18]

> "December 1970 and December 1981
> We remember!
> Participate in our demonstration! On the anniversary of the tragedies that took place on December 16, 1981 and December 17, 1970, clip to yourself with the symbolic image of the resistor. During Martial Law, the masses pinned to their clothing the resistor were initially tolerated, but were quickly stopped and seen by others as doing something offensive. They [those who wore the resistors] received up to 3 months in prison."

The "tragedies" in the flyer refer to strikes in December 1970 in which a large number of Polish workers were injured or killed by the Militia and December 16, 1981 when the police killed 9 striking coal miners. Because the European Center for Solidarity is affiliated with Lech Wałęsa, a Solidarity leader often associated with workers, and since the protests were for tragedies that affected workers, the activity of wearing resistors was probably largely undertaken by blue-collar workers. My current sources do not indicate that those involved in Radio Solidarity participated in wearing radio resistors.

Similarly to the activists who wore radio resistors, Radio Solidarity also receives little attention in the Solidarity scholarship. The brief passages that do mention this subset depict it as a failure, only existing for a brief amount of time and having almost no impact on the Solidarity movement. This lack of consideration differs sharply from the glorification of underground printing in the Solidarity literature, which is strongly influenced by the stories told by prominent intellectuals who were involved with the movement.[19]

Those who participated in Radio Solidarity believed that their broadcasts were popular among Poles and the Solidarity movement. According to memoirs written by and interviews with these activists, many people consciously made the decision to support the radio by allowing their apartments to be used, as well as helping financially, technologically, and organizationally. Broadcasters in Warsaw thought their efforts were successful from the information they collected about the reception of broadcasts through such methods as requesting that listeners flash lights in their homes when they heard the program. One activist in the Trójmiasta region, which includes the city of Gdańsk, claims that the program broadcast on the audio frequency of a television signal was widely discussed in the region. Another participant in Gdańsk describes how after sending requests that those who could hear the radio broadcasts turn off their lights, he saw, hanging from a crane, half of the city go dark. An engineer from Toruń claims that the boycotts of elections in 1985 doubled in size after the television broadcast that called for such boycotts.[20]

The extent of these broadcasts is also implied by the large efforts of the Polish government to suppress them. Arrests, interrogations, and imprisonments by many of those involved in the broadcasts were common. The action taken by the police differed significantly from how they treated other oppositionists during this time, who usually only received fines instead of imprisonment. Radio activists reacted to the government's actions by organizing themselves in small groups consisting of friends or families to reduce the risk of surveillance or betrayal. Solidarity members also went to great lengths to avoid government jamming by placing transmitters at high points, such as in upper floor apartments, on rooftops, in trees, and on lampposts.[21]

These differences in history telling raise the question of how heterogeneous technological use functions within a movement, to what extent it reveals a collective political effort, and to what extent it reveals a movement's internal divisions. For instance, how were Solidarity actors able to reconcile, if at all, between the two different political visions associated with radio and television broadcasting and underground printing? As I continue my research, I will consider more of how different groups within Solidarity—especially Radio Solidarity and underground printers—understood each other's efforts as fulfilling the mission of the movement and why such different histories have been written about Solidarity depending on the focus of the use of a particular technology.

Footnotes =>

"Dissident Visions through Technological Use"

Carmen Krol

Footnotes

[1] Bogusław Bakuła, "The Atlantis of Social Memory: Poland's Radio Solidarity in the 1980s," 368, in Bogusław Bakuła, ed., *Radio Solidarność: Podziemne rozgłośnie oraz audycje radiowe i telewizyjne w Polsce 1982-1990* (Kraków: Poligrafia Dar Point, 2008); Jan Hanasz, "Radio 'Balonowe' Toruńskiej Solidarności," 71, in Bakula, *Radio Solidarność*; Roman Kotzbach, "Radio Solidarność Bydgoszcz," 62, in Bakula, *Radio Solidarność*; Janusz Radziejowski, "Ludzie i Technika. Z Historii Warszawskiego Radia Solidarność," 37, in Bakula, *Radio Solidarność*; Wojciech Skowron, "Radio Terenowego Komitetu Oporu Solidarności," 45, in Bakula, *Radio Solidarność*; Jarosław Wąsowicz, "Podziemnej Audycje Radiowe Opozycyjnych Środowisk Młodzieżowych w Gdańsku," 59, in Bakula, *Radio Solidarność*.

[2] Gareth Jones and Gabriela Baczynska, "Special Report: Solidarity in the Arab Spring," Reuters Africa, 16 June 2011, http://af.reuters.com/article/worldNews/idAFTRE75F23D20110616 (accessed 23 February 2012); Padraic Kenney, *A Carnival of Revolution: Central Europe 1989* (Princeton: Princeton University Press, 2002), 15-16; Tadeusz Ruzikowski, "Warszawie Radio Solidarność: Wybrane Aspekty," 32, in Bakula, *Radio Solidarność*.

[3] Eeva K. Berglund, *Knowing Nature, Knowing Science: An Ethnography of Environmental Activism* (Cambridege: White Horse Press, 1998); Kim Fortun, *Advocacy After Bhopal: Environmentalism, Disaster, New Global Orders* (Chicago: University of Chicago Press, 2001); David J. Hess, "Technology-and Product-Oriented Movements: Approximating Social Movement Studies, and STS" *Science, Technology, and Human Values* 30,4 (2005): 515-535; Shobita Parthasarathy, "Knowledge is Power: Genetic Testing for Breast Cancer and Patient Activism in the U.S. and Britain," 133-150 in Trevor Pinch and Nelly Oudshoorn, eds., *How Users Matter: The Co-Construction of Users and Technology* (Cambridge: MIT Press, 2005); Steven Yearley, *The Green Case: A Sociology of Environmental Issues, Arguments, and Politics* (Boston: HarperCollinsAcademic, 1991).

[4] Christina Dunbar-Hester, "Geeks, Meta-Geeks, and Gender Trouble: Activism, Identity, and Low-Power FM Radio," *Social Studies of Science*, 38,2 (2008): 201-232; Dunbar-Hester, *Propagating Technology, Propagating Community? Low-Power Radio Activism and Technological Negotiation in the U.S., 1996-2006* (Ithaca: Cornell University Press, 2008); Ronald R. Kline, *Consumers in the Country: Technology and Social Change in Rural America* (Baltimore: The Johns Hopkins University Press, 2000).

[5] David Ost, *Solidarity and the Politics of Anti-Politics: Opposition and Reform in Poland since 1968* (Philadelphia: Temple University Press, 1990), 2; Andrzej Paczkowski, *The Spring Will Be Ours: Poland and the Poles from Occupation to Freedom* (University Park: Pennsylvania State University Press, 2003), 400-419.

[6] Ost, 149-156; Paczkowski, 411-454.

[7] Jan Kubik, *The Power of Symbols Against the Symbols of Power: The Rise of Solidarity and the Fall of State Socialism in Poland* (University Park: Pennsylvania State University Press, 1994), 250-252; Shana Penn, *Solidarity's Secret: The Women Who Defeated Communism in Poland* (Ann Arbor: University of Michigan Press, 2005), 169-173.

[8] Ost, 2, emphasis in the original.

[9] Penn, 169.

[10] Maryjane Osa, Solidarity and Contention: Networks of Polish Opposition (Minneapolis: University of Minnesota Press, 2003), 13; Penn, 4 & 156.

[11] Tomasy Olko, "Smutni Chłopcy na Dachach, Radio Solidarność Siedlice," 49, in Bakula, Radio Solidarność; Jerzy Wieczorek, "Telewizja Obywatelska z Nadajnika Bazy Sowieckiej w Toruniu," 104, in Bakula, Radio Solidarność.

[12] Bakuła, "The Atlantis of Social Memory," 367; Ruzikowski, 28.

[13] Bakuła, "The Atlantis of Social Memory," 368.

[14] Tomasz Goban-Klas, The Orchestration of the Media: The Politics of Mass Communications in Communist Poland and the Aftermath (Boulder: Westview Press, 1993), 41-45.

[15] Bakuła, "The Atlantis of Social Memory," 363; Hanasz, "Plansze Podziemnej Telewizji Toruń w Programach Telewizji Państwowej," 68-71, in Bakula, Radio Solidarność; Eugeniusz Pazderski, "Wspomnienia Konstruktora Nadajników Dla Podziemnej Telewizji," 85, in Bakula, Radio Solidarność; Radziejowski, 38; Ruzikowski, 25.

[16] Michael D. Kennedy, Professionals, Power and Solidarity in Poland: A Critical Sociology of Soviet-Type Society (Cambridge: Cambridge University Press, 1991), 238-243.

[17] John Downing, Radical Media: Rebellious Communication and Social Movements (Thousand Oaks, CA: Sage Publications, 2001), 374; Anna Samantha Dziubak, "The Role of the Underground Press in Poland, 1976-1980," M.A. Thesis, Cornell University, 1992, 53; Penn, 152.

[18] European Solidarity Centre, Facebook, http://www.facebook.com/solidaritycentre (accessed January 23, 2011).

[19] Goban-Klas, 186-188; Penn, 148.

[20] Bakuła, "The Atlantis of Social Memory," 367; Hanasz, "Podziemne Radio," 68; Hanasz, "Radio 'Balonowe'," 72; Piotr Jagielski, "Radio w Trójmieście," 54, in Bakula, Radio Solidarność; Ruzikowski, 26-29; Skowron, 47.

[21] Bakuła, "The Atlantis of Social Memory," 366; Hanasz, "Radio 'Balonowe' Toruńskiej Solidarności," 72, in Bakula, Radio Solidarność; Kenney, 32.

"The Revolution Will Be Televised: The IRT Antú and the Chilean Road to Socialism"

By
Michael Lemon

A common trope of global revolutionary and countercultural movements holds that "the revolution will not be televised," suggesting that television as an instrument of entertainment and distraction has no place in movements for real social, political, economic, and cultural transformation.[1] However, on March 25, 1971, the recently inaugurated socialist government of Salvador Allende nationalized the majority share of the American communications giant, the RCA-Victor Company, and began manufacture of a twelve-inch black and white "people's television" destined for the Chilean working class. Forty years later, the Antú set remains an enduring icon of the socialist revolution that met a violent end in the military coup of September 11, 1973.

Emerging as a popular phenomenon amidst the tumultuous political environment of the 1960s and 1970s—the first regularly televised broadcasts having only aired after the country hosted the World Cup in 1962—television became a critical flashpoint in the struggle for ideological control in Chile. Before 1970, access to television technology remained in the hands of a privileged few. After assuming the presidency, the Allende administration intervened in the manufacture of television apparatuses to democratize access to this technology. Produced in the northern border town of Arica, the Antú project caused seismic shifts in the political, social, and economic geography of one of the world's most centralized countries. The design of the set embodied the democratic and socialist values of its designers and served as a primary conduit in the dissemination of revolutionary nationalism. The history of the Antú thus rebukes the idea of technological determinism and illustrates the mutual constitution of technology and society.

The history of the Antú challenges many of our most closely guarded narratives and periodizations of Chilean history. A product of the harmonious nationalization of the American RCA-Victor Company, the Antú belies conventional conceptions of the relationship between the U.S. government, American multinational corporations, and leftist regimes in Latin America. After Jack Anderson published a series of damning documents in March 1972 revealing collaborations between the American-owned International Telephone and Telegraph Corporation (ITT) and the Central Intelligence Agency (CIA) to destabilize the Chilean economy and end the Allende presidency, popular and scholarly accounts of this period have emphasized the outsized and nefarious influence of American business interests on U.S. foreign policy.[2] The history of the nationalization of RCA-Victor, however, suggests the extent to which some American corporations recognized the aspirations of the Allende administration as legitimate and negotiated in good faith to transfer a majority of their holdings to the Chilean government. While this argument does not suggest that American corporations did not agitate against the Allende government or influence U.S. foreign policy in the country, it does posit that a more nuanced view of the relationship between Latin American revolutionary governments, American multinationals, and the U.S. government adds an important perspective to our understanding of the process of revolution in twentieth-century Latin America.

The development of the electronics industry in Chile calls into question the standard narrative of rupture in the revolutionary and counterrevolutionary cycle in Chile. Building from an infrastructure of import-substitution industrialization developed under previous conservative and centrist administrations, the production of the Antú suggests a strong degree of continuity between the economic planning of the Allende administration and previous governments. As a result, we must question the extent to which Popular Unity economic policy promoted revolutionary changes in worker participation in production and to what extent the government advanced previously elaborated populist ideals of increasing the material wealth of the working class. After the military coup of September 11, 1973, the Pinochet regime maintained state ownership of the former RCA-Victor Company until 1980 and continued to manufacture the Antú set until the original mandate of 130,000 sets had been completed. Thus, the production of the Antú presents a portrait of continuity in economic planning and industrial production from the earliest experiments in import-substitution and the welfare state beginning in 1938 to the many continued statist practices of a purportedly neoliberal military dictatorship.

The diffusion of television technology to Chile forces us to reconsider how technologies move across the globe and what happens to these technologies as they travel. The extant literature in science and technology studies privileges technological innovation in the United States and Europe. Where studies of the diffusion of technology to the "developing world" do exist,

most scholars assume a linear, hierarchical transfer from center to periphery.[3] Innovative new scholarship, however, problematizes this top-down view by analyzing the spread and adaptation of technology within developing countries.[4] For instance, in a study of the diffusion of firearms in the Gonarezhou area of South Eastern Zimbabwe, Clapperton Mavungha, presents us with an "alternative understanding of these tools of empire as imported, as opposed to exported, technologies," urging us to attend to the "subtle local dynamics of diffusion."[5] Highlighting the development and diffusion of television technology within Chile, the history of the Antú illustrates that social and political forces on multiple scales—including the global, national, and local—condition the transfer and diffusion of technology.

This essay will trace the history of the design and production of the Antú television set, beginning with the initial development of the electronics industry in Arica in 1964 and continuing to the completion of the final Antú in July 1974. First, I will contextualize the rise of the national electronics industry by tracing the history of the Chilean operations of the RCA-Victor Company. Next, I will explicate the emergence of Arica as a "development pole" of the electronics industry and elaborate the process of nationalization of the RCA-Victor Company by the Allende administration. Then, I will illustrate the design and production of the Antú set. Finally, I will offer some initial hypotheses about the importance of the Antú within television broadcasting and the relationship of television and working class culture.

RCA-Victor and the Initial Development of the Electornics Industry in Chile

Fred Alton Moore arrived at the port of Valparaíso in December of 1928. Born in Mount Holly, New Jersey, Moore had *begun* work for the Radio Corporation of America (RCA) in 1925 as a traveling salesman in Latin America.[6] Founded in 1919, RCA had quickly become a global leader in electronics technology. RCA began manufacturing radio equipment for the Victor Talking Machine Company—at that time the largest manufacturer of phonographs and records in the world—in 1925 before purchasing a controlling interest in the company on March 15, 1929.[7] Moore traveled throughout Latin America for three years selling Victrola record players and Victor records. When the International Division of RCA decided to open a new plant in Santiago, Chile in 1929 to manufacture records, they offered the position of general manager to Fred Moore.[8]

When Moore arrived in Chile in 1928, radio broadcasting and the national manufacture of radio devices was virtually nonexistent. At the moment of his retirement from the company in 1957, Moore left behind a factory manufacturing radios and record players, a studio recording and producing international and national records, and a factory producing tubes for RCA radios. During his twenty-eight year career with RCA-Victor, Moore came to embody American-led technological development in Chile. Such was the association of Moore with the development of RCA-Victor in Chile that on the occasion of Moore's retirement party on May 8, 1957 in the Carerra Hotel in downtown Santiago, Sergio Maldonado, the President of the Radio Commission of the Association of Importers of Chile, opined, "The radio was born in Chile with RCA-Victor, and RCA-Victor is Mr. Moore."[9] Thus, for many, this one charismatic individual came to symbolize progress through American-led technological development in Chile.

However, RCA-Victor's Chilean operations were not exclusively American-owned. In 1938, Pedro Aguirre de Cerda won the presidency in Chile at the head of the Popular Front coalition. The Popular Front was a loose amalgamation of center and left parties headed by the centrist Radical Party but also including the ascendant Socialist and Communist parties. Before his death in November 1941, Aguirre de Cerda had ushered in a new era of populist state-sponsored development programs in Chile. In one of the new government's most significant achievements, it created in 1939 a National Development Corporation (CORFO, Corporación de Fomento de la Producción) to oversee industrialization efforts, develop Chile's energy resources, and oversee reconstruction efforts following the massive earthquake in Chillán in January of 1939.[10] In 1942, CORFO purchased 33% of the total shares in the Chilean operations of the RCA-Victor Company and changed the name of the firm to the Radio Corporation of Chile. While RCA-Victor still continued to exercise majority control over long-term planning and personnel decisions, CORFO did gain membership on the board of directors.[11] This new presence gradually steered the Radio Corporation of Chile toward more active promotion of national manufacturing of finished goods and component parts in the electronics industry.

Arica: Paragon of Import-Substitution

After the demise of the Popular Front coalition in 1948—when President Gabriel González Videla outlawed the Communist Party and began vigorously persecuting leading figures on the left—Chile deployed various, and often contradictory, strategies to promote national development, particularly within the electronics industry. Despite their differences, efforts at promoting economic and industrial development by right-wing and centrist governments between 1948 and 1970 drastically remade the social, political, and economic landscape of Chile.

The promotion of the northern border town of Arica as a "development pole" for the national electronics industry, advanced by conservative president Carlos Ibáñez del Campo between 1952 and 1958 and by center-left president Eduardo Frei between 1964 and 1970, shifted power from its traditional hub in the capital city of Santiago and rapidly transformed this sleepy border town into a booming manufacturing metropolis. The history of the development of the electronics industry in Chile, therefore, cannot be read as a simple story of linear progress in industrialization and technological innovation. Rather, the electronics industry emerged within a constellation of social, political, and economic forces unique to Chile. This particular path of development opened new possibilities for the democratization of access to technology in Chile but also imposed serious limitations on the prospects for future progress.

General Carlos Ibañez del Campo won the presidential elections of 1952, returning to power after his initial term between 1927 and 1931. In an effort to decentralize economic power and promote development in the remote provinces of Chile, Ibañez promulgated Law 303 on July 25, 1953, commonly known as the "Law of Arica." The law established Arica as a free port, guaranteeing special customs duties and other benefits to goods going in and out of Arica. The law did not, however, abolish all customs duties. The most significant provisions of the law stipulated that firms operating in Arica paid half of the typical customs duties on imported parts and materials and that companies in Arica paid only 10% of the typical tax on corporate profits which was set at 30%. Reflecting the growing clout of labor unions in Chile as a whole, the law also included a provision requiring that 10% of total profits be redistributed to the white- and blue-collar workers in each plant.[12]

The Law of Arica created an extended boom period in this small town. Large multinational manufacturing firms as well as important national industries rushed to establish plants in Arica. New job opportunities produced a population explosion—between 1952 and 1968 the number of residents more than tripled, from 23,033 to 76,408. The percentage of the workforce dedicated to industry similarly spiked in this period, leaping from 9.6% in 1952 to 25.8% in 1968.[13]

These striking demographic changes generated increasingly vocal demands for better services, infrastructure, and cultural activity in the city. Following the conclusion of the War of the Pacific in 1883 in which Chile wrested control of Arica and vast additional sections of present-day northern Chile from Peru and Bolivia, Arica served primarily as a military garrison against Peruvian incursions and a way-station in border crossing between Chile, Peru, and Bolivia. When the government passed the Law of Arica in 1953, Arica lacked critical transportation and communications infrastructure necessary to support the heavy industry and big business that arrived in the 1950s and 1960s, as well as housing, education, and recreational facilities for its inhabitants.

In order to address these needs, the government created the Development Commission of Arica (Junta de Adelanto de Arica) in October 1958. The mission of the Junta was two-fold. First, the commission assumed responsibility for the construction of roads, bridges, water mains, electrical grid, sanitation, and other essential services. Second, the Junta began to build facilities to promote cultural life in Arica. These projects included not only critical works such as schools, universities, and housing, but also an Olympic-sized swimming pool, a casino, and broad sea-side boardwalks. The government believed that these cultural projects were critical to the development of Arica as they would enable firms to attract Chile's top engineering and management talent from Santiago to the remote northern desert. A 1970 CORFO report summarized this view succinctly: "This type of industry [electronics] depends almost entirely on the professional quality of its workers, more so than on the raw materials or special tools used. Thus, the environmental conditions must be adequate in order to make highly technical work attractive and efficient."[14] Therefore, the Junta aimed not only to develop necessary infrastructure for business and industry, but also to cultivate educational and cultural opportunities that would enrich life in Arica for its inhabitants.[15]

During the 1960s, Arica became the favored site for television manufactures in Chile. The Catholic University of Valparaíso had conducted successful experimental broadcasts in 1959, but over the following four years, broadcasts were infrequent and televisions sets remained a scare commodity. In early 1962, as the World Cup soccer tournament approached, two leading multinationals with established operations in Chile, Phillips and RCA, began importing sets into Chile.[16] As popularity for the new broadcast medium boomed, two national firms, Mellafe y Salas and León Caro Azar, established plants in Arica to manufacture sets in Chile using component parts imported from the United States, Japan, and Europe. Nevertheless, with price tags ranging from $400 to $1,000, these sets remained the domain of a privileged few.[17]

Eduardo Frei of the centrist Christian Democratic party won the presidential elections of 1964 promising to usher in a "revolution in liberty" that would redistribute wealth and democratize the political process without launching a socialist revolution. Frei aimed to stimulate national manufacturing and increase access to consumer goods through import-substitution industrialization. As part of this plan, in 1965 the government created a "special commission" for the development of the

electronics industry under the auspices of CORFO to expand production in this sector, stimulate the national production of electronics components, and consolidate Arica as a development pole.[18]

The Frei government's plan to promote the national electronics industry centered on encouraging the national manufacture of component parts and the national assembly of finished goods. Still favoring Arica as the preferred hub of the electronics industry, the government amended the Law of Arica, eliminating the 24% purchase tax for Chilean-made components bought by firms operating in Arica. This amendment served the double purpose of encouraging manufacturers to open plants in Arica and purchase nationally-manufactured parts.[19]

Although the Special Commission held no legal power to regulate industry, the group did issue recommendations to industrial firms. In the television industry, the Special Commission encouraged companies to not only build plants to manufacture television sets, but also to establish factories for the production of component parts. Witnessing the success of Mellafe y Salas and León Caro Azar in producing televisions in Arica, two new national firms—SATEL owned by the Gil family and Chilevisión owned by the Bolocco family—set up plants in Arica to produce televisions. Following the recommendations of the Special Commission, these competing firms teamed up to invest in component part factories. For example, the Bolocco brothers established INCESA for the manufacture of tubes with investment from Mellafe y Salas and the Gil family. Mellafe y Salas purchased COELSA, a company that produced transformers, fly-backs, and deflecting yokes, with assistance from the Gils and the Boloccos. Phillips followed suit in 1967, building a television plant and a tube factory.[20] RCA-Victor moved into television manufacturing in Chile in 1969. The large multinational purchased Leopoldo Sanz y Cia, a small television producer, and opened a new plant for the production of speakers and tuners.[21] By this time, Chilean firms were producing 43% of the parts required for the production of a television.[22]

On August 7, 1969, the Frei government strengthened their intervention in the electronics industry by creating the National Electronics Company (ELECNA, Empresa Electrónica Nacional, Ltda,). CORFO owned 80% of the company with the National Electricity Company (ENDESA) and the National Telecommunications Company (ENTEL) each purchasing 10% respectively. The goals of ELECNA were similar to those of the Special Commission. ELENCA aimed to promote the continued development of the national electronics industry by aiding in the construction of new component part factories, coordinating the distribution between national electronics companies, liaising with foreign and national firms for capital and technical assistance, and promoting training programs in Chile's main technical universities. Compared with the Special Commission, however, ELECNA had more monetary support from the government and more legal power to intervene in the electronics industry. For example, by February 1972, ELENCA had opened a new high-technology transistor factory in Arica, the first of its kind in Chile.[23]

The development of the electronics industry before the presidential election of November 1970 established a base from which Salvador Allende's "road to socialism" could increase state intervention in the industry to further its goals of democratizing access to technologically advanced consumer goods. The development of a national electronics industry in Chile illustrates that the transfer of television technology to the South American nation occurred within a framework profoundly structured by Chilean political, economic, and social conditions. Moreover, the diffusion of television to the Chilean people followed trajectories shaped by political and economic projects unique to Chile. Thus, by focusing on the adaptation of technology in Latin America rather than on innovation in the United States and Western Europe, we gain a clearer picture of how and why technologies move between and within nations.

The Chilean Road to Socialism

Salvador Allende won the presidential elections of September 4, 1970 at the head of the Popular Unity (UP, Unidad Popular) coalition, an aggrupation of leftist parties including the Socialist Party, the Communist Party, the Radical Party, the Social Democratic Party, and the United Popular Action Movement (MAPU). The UP government laid out an ambitious plan to nationalize ninety-one of the most important firms in the country in order to steer the country down the "Chilean road to socialism." In addition to copper mining firms and large banks, the Allende government targeted large multinational telecommunications companies operating in Chile. The programmatic statement of the UP for the 1970 electoral campaign declared:[24]

> "These means of communication (radio, publishing companies, television, newspapers, film) are fundamental to the creation of a new culture and a new man. Thus, we must give them an educational orientation and rid them of their commercial character, taking measures to ensure that social organizations own these means of communication, eliminating from them the crippling presence of monopolies."

For the Allende government, the nationalization of telecommunications companies represented both a commercial and an ideological strategy. On one hand, the UP

government hoped to bring these companies into the social property area to end monopoly control and democratize access to communications technology and content. At the same time, the government also believed that state ownership of the means of communication would foment the creation of a new national culture sympathetic to socialist revolution.

Three months after assuming power, the UP government entered into negotiations with RCA-Victor to nationalize the company's Chilean holdings. On February 16, 1971, a four-person RCA delegation that included leading executives in consumer electronics and finance arrived in Santiago to meet with the heads of CORFO and the economics ministry of the Allende government. Over four days of meetings, CORFO and RCA hashed out a deal that would grant 51% control of the Chilean RCA-Victor Company to CORFO.[25]

From the outset, American RCA executives expressed their approval of the nationalization program of the Allende government. Charles Denny, Vice-President of RCA, stated:[26]

> "We understand from the previous conversations that the objective is to work out a way so that CORFO gains the majority of the Company. RCA on their part is prepared to see this done on a basis of mutual comprehension... We recognize that the changes which have taken place and are taking place in your country create a situation which is logical that you wish to obtain the majority and not the minority as until now (sic)."

This sentiment stands in stark contrast to the views of other American multinationals facing nationalization by the Allende government. While many corporations, particularly International Telephone and Telegraph (ITT), mobilized against the Allende government, RCA negotiated in good faith to ensure mutual benefit to the company and to the Chilean government.

The key to these negotiations for the Allende government was to boost overall investment in the national electronics industry in order to establish Chile as a regional leader in consumer electronics. The initial offer made by CORFO to RCA suggested that both parties should invest new capital in the company in proportions that would raise CORFO's holdings of the total shares to 51%. However, failed investments in computer technology in the early 1970s had substantially weakened RCA's international financial position.[27] Lack of capital, combined with general uncertainty about how the Allende government would manage the company, prompted the RCA negotiators to reject any notion of investing additional funds in the Chilean company. Instead, RCA offered to either sell all it shares to CORFO or to sell 18% of its shares, a figure that would have resulted in 51% control for CORFO. However, CORFO balked at simply purchasing shares from RCA, as this would not increase overall investment in the company. Fernando Flores, a Technical Vice-President at CORFO who would later go on to be Minister of Economics in the Allende government, summed up this position, saying:[28]

> "It seems to me that RCA sees our interest as taking control of the company. I would like to say, however, that our interest is in maintaining the program of investment and allocating the greatest quantity of resources in this program. From this point of view, the purchase of shares by us would represent an overall divestment that would be difficult for the country to support."

Ultimately the two sides reached an agreement in which CORFO would invest 16 million escudos (roughly 1.3 million dollars) in the company and RCA 4.9 million escudos (roughly 400,000 dollars). RCA's investment would involve only $70,000 in hard cash, the other $330,000 coming from waiving technical assistance, management, and guaranteed profit fees. Moreover, the Chilean government would assume responsibility for a one million dollar loan taken out with the Morgan Bank of New York by RCA for its Chilean operations; the first $515,000 of new CORFO investment would pay off part of this loan and the Chilean government would ensure the remainder. The Chilean government thus succeeded in increasing investment in the electronics firm without significant inflows of capital from RCA.[29]

CORFO also hesitated to purchase all of the RCA shares because they recognized the need for ongoing technical assistance and patent licensing from RCA. During the February meetings with RCA, Guillermo Grass, head of the Electronics division of CORFO, observed:[30]

> "We are clearly aware that this industry [electronics] has experienced incredibly fast development in recent years and everything would indicate that these developments will be even more accelerated in the coming years. This limits the possibility that we can keep up with these technological advances if we don't maintain close contact with a foreign company that is on the cutting edge of advances in this industry."

The Allende government recognized that Chile could not maintain an advantage in technological development within Latin America without assistance from U.S. firms. As a result, the socialist government continued to foster economic cooperation with capitalist nations when and

where it advanced the goals of the Chilean revolution.

However, to cement this deal, CORFO gave significant concessions to RCA. The most important of these agreements included a 5% guaranteed return on RCA's shares in the company. These payments were substantial, totaling $118,788.48 in 1973 and $114,014.87 in 1974. Additionally, CORFO would continue to honor the initial agreement between CORFO and RCA of December 30, 1941 that guaranteed RCA a 3% return on the total sales of all apparatuses, excluding sound recordings, and a 1965 agreement that promised RCA $7.50 for every television produced in Chile.[31] With a guaranteed return on investment in addition to a fixed percentage of total profits, this deal made solid economic sense for the RCA Corporation.

On March 25, 1971, CORFO and RCA finalized the agreement giving CORFO 51% control of the company. The government changed the name of the firm to Radio and Television Industry (IRT, Industria de Radio y Televisión). IRT now oversaw daily operations at the Santiago factory and recording studio and the Arica-based ILESCO plant. While the transition of power was smooth, dramatic changes also took hold in the factories.

Daily life in the plant changed substantially as unions operated more autonomously from management, workers formed new organizations outside of the traditional unions, and the Santiago factory integrated into the Vicuña Mackenna industrial belt (cordón industrial). Managers and workers employed by RCA and IRT during this period suggest that both white- and blue-collar unions in the RCA-era were "yellow," that is, dependent on management for their existence.[32] After the change to IRT, unions could operate with more autonomy and flexibility. Beyond the union, workers at IRT in Santiago also formed an Administrative Advisory Board (Consejo Administrativo de la Empresa) composed of eight to ten directly elected white- and blue-collar workers and a Production Committee charged with coordinating production amongst all the factories in the Vicuña Mackenna belt and discussing production and distribution in order to arrange extra shifts within IRT.[33] Heightened worker organization did not lead to increased combat between management and workers within the company. Former workers and managers suggest that as part of the social property area managed by the government, conditions at the factory were good and management treated workers with respect.[34]

The negotiations between RCA and the Allende government invite us to reconsider the relationship between economics and ideology in U.S.-Chilean relations. While the RCA case is unique and not indicative of the experience of all companies operating in Chile at this time, this nationalization does offer a powerful counterexample to standard narratives of Chilean history. Most analyses of this period have emphasized the extent to which American economic and ideological interests coincided to create a pro-business, anti-Communist attack on the Allende government. For example, Peter Kornbluh argues that documents published in March, 1972 about collaborations between International Telephone and Telegraph (ITT) and the CIA, "candidly charted the intrigue of covert corporate collaboration with the CIA, White House, and embassy officials to provoke economic chaos and subvert Chilean democracy in 1970 and early 1971."[35] Contrary to this position, Paul Sigmund and Kristian Gustafson have argued that American corporations held little sway over agencies in the U.S. government. American actions against the Allende government were, according to this line of thought, influenced more by ideological anti-communism and geo-political strategy than by desires to protect U.S. business interests.[36]

The amicability of the negotiations between RCA and CORFO suggest that no fundamental obstacle blocks economic cooperation between socialist and capitalist countries. When and where U.S. companies could work out deals that ensured continued profitability, large multinationals were willing to work with the Allende government. Hard-line policies and tactics employed by American firms such as ITT may have resulted as much from the ideological positions of their senior leadership as from a desire to maintain high profit rates in Chile. For example, former CIA director John McCone served on the board of ITT during the early 1970s and initiated contact with his successor at the CIA, Richard Helms, on behalf of ITT.[37] Thus, in some cases, the ideological and economic interests of U.S. corporations coincided. However, the RCA case illustrates that the nationalization program of the Allende government did not present insuperable obstacles to continued economic collaborations between American corporations and the Chilean government.

The Antú

When Salvador Allende assumed the presidency on November 4, 1970, there were nearly 500,000 televisions in Chile, owned almost exclusively by middle and upper class citizens.[38] On January 1, 1971, just two months after Allende assumed the presidency, the Vice-President of CORFO charged Guillermo Grass, head of the Electronics Division of CORFO, with the task of studying the possibility of importing or manufacturing televisions for low-income citizens. During the next two months, Grass formed two commissions comprised of Chile's leading engineers and managers from across various government agencies. The first, known as the Technical Committee, brought together representatives of ELECNA, CORFO, the Superintendency of Electrical Services, and National Television to draft a list of

specifications for the new set based on models currently available on the market. The second, the Technical Group, was comprised of employees of CORFO, the National Technical Institute (INTEC), ENTEL and RCA, and was charged with evaluating the existing models from a technical perspective to determine specifications for the new set. The Technical Group also employed managers from ELECNA and CORFO to study the best manner of bringing a new television to market from an economic perspective.

On March 4, 1971, CORFO created a new Electrical and Electronics Industry Committee (CIEE) to coordinate activities between these industries and oversee the "people's television" project. Headed by Guillermo Grass, the Committee called on the service of various managers and executives with the Ministry of Economics, CORFO, and the Directorate of Industry and Commerce, in addition to two representatives of the electronics industry from the United Worker's Federation (CUT, Central Única de Trabajadores), Chile's national worker union.[39] The inclusion of workers on this management board underscored the UP government's commitment to bring workers into high-level decision making.

At this point in early 1971, no decision had been made regarding who would manufacture the new television set or whether the television would be produced nationally or imported. After the Technical Group and the Technical Committee finished their work in drafting the specifications for the new set, CORFO began on April 2 to solicit bids to produce the television from RCA, National, Motorola, Mitsubishi, and Nissei Sangyo.[40]

Leading political figures in Arica fumed over the idea that the new government would import the "people's television" from a foreign company instead of manufacturing it in Arica. Juan de Dios Carmona, a Christian Democratic senator from the northern province of Tarapacá (which includes Arica), worried that the recently cemented nationalization of RCA would produce corrupt dealings between CORFO and RCA. In an impassioned speech on the floor of the Senate on May 5, Carmona argued that the Allende government planned, at worst, to import the remaining stock of the RCA AP-121 model from Taiwan or, at best, to deconstruct these models in Taiwain and reassemble them in Arica to give the semblance of national manufacture. Carmona opined:[41]

> "In my judgment, if the negotiations between CORFO and RCA carries with it the purchase of 30,000 televisions produced outside Chile by RCA, it would truly be a scandal… All this would mean in the short term that practically all the industrial development of Arica would be reduced to zero, and I don't know what would happen to the thousands of workers that work in these activities in the area."

Clearly, the design and manufacture of the Antú was a contentious political issue with implications reaching beyond the production of one television model.

On July 5, 1971, CIEE issued a mandate to IRT and its subsidiary ILESCO to manufacture 130,000 twelve-inch black and white televisions with the specifications drawn up by the Grass teams.[42] IRT named the new set Antú, after the sun god of the Mapuche people, Chile's largest indigenous group. The Antú boasted it's national manufacture, carrying on its front casing the Chilean seal emblazoned with the words, "IRT, manufactured by mandate of the Electrical and Electronics Committee, CORFO, Made in Chile."[43]

Ironically, however, the Antú was the Chilean set that carried the *least* amount of nationally manufactured parts. IRT purchased an RCA AP-121 "kit"—a base model that could then be supplemented with components of Chilean manufacture. The specifications of the Antú called for a "high performance hybrid design receiver."[44] Hybrid in this sense meant the set operated with transistors and tubes; this was a key design feature that reduced the size and weight of the set and made it higher quality. RCA noted that they could have supplied a cheaper kit, but that the Antú specifications called for a more expensive model. This is altogether surprising, as the initial concept of the Antú called for an "economic" set that would be accessible to the masses; however, the technical teams ultimately designed a set that would be lightweight, portable, and high quality. Each AP-121 kit cost IRT $38.95 plus shipping costs from Taiwan. Along with these kits, RCA sent along 10 completed AP-121 models to serve as "engineering samples" for IRT. IRT also purchased from the RCA factory in Taiwan used injection molds for the front and back cabinet of the Antú for $35,000.[45] These molds had been heavily used—having sustained nearly 120,000 uses prior to their purchase.[46] As a result, IRT had to substantially retool and modify the molds with help from RCA before they could be used in production.[47]

The unique design of the Antú required IRT to import more parts than other Chilean television manufacturers for two reasons. First, the portability and high quality of the Antú demanded a variety of highly technological parts not available in Chile. Second, as the Antú was the only twelve-inch set in production in Chile at this time (the other television manufacturers in Arica primarily produced expensive twenty-three inch models), it proved difficult to source nationally produced parts that were compatible with both the twelve-inch and twenty-three inch models.[48] From Chilean manufacturers, IRT purchased transistors from ELECNA, tubes from INCESA, bobbins and transformers from COELSA, electrolytic condensers from CONDENSA, and various plastic

parts from Electromecánica. From international manufactures, IRT bought resistors from the United States, deflecting yokes and coils from Argentina, screens and kinescopes from Japan, transistorized condensers from Brazil, and special soldering material from England. Ultimately, nationally produced parts accounted for 55% of the total value of parts in the Antú. By comparison, Chilevisión sourced 77% of the total value of their parts nationally, SATEL 76%, Mellafe y Salas 75%, León Caro Azar 70%, and SINDELEN 55%.[49]

Therefore, Carmona's critique rang true in one important respect—the designers of the Antú favored versatility, quality, and price over including the greatest number of domestically manufactured parts. By designing a set that required the importation of highly technical parts, IRT skirted around the government's recommendations of using parts of national manufacture.[50] Carmona could not have objected to the idea of purchasing kits from foreign firms. Indeed, all the other television manufacturers in Chile produced models of foreign design. Thus, what ultimately angered Carmona was the fact that IRT designed a set that required a significant quantity of imported foreign parts and did not conform to the standard component parts for a 23" television produced in Arica.

After receiving the mandate from CORFO to manufacture the Antú, IRT moved to quickly ramp up production. On August 16, IRT began a lease at a new, larger plant in Arica recently vacated by the Ford Motor Company.[51] By the end of 1971, IRT managed to produce 1,500 sets. In 1972, that figure increased to 71,000. At this time, the IRT factory in Arica produced an average of 310 sets per day. Although the coup of September 11, 1973 briefly disrupted production (IRT produced only 40,000 Antús that year), the Pinochet dictatorship did not stop production of the set. On July 25, 1974, after producing an additional 20,000 sets that year, IRT concluded production of the Antú, having met the initial mandate of 130,000 sets.[52]

Production levels of this quantity were uncommon amongst Chile's other television manufacturers. In fact, only the Motorola 23" set, produced by Mellafe y Salas, was produced on a large scale comparable to the Antú. In 1971, Mellafe y Salas manufactured 50,000 televisions, averaging 215 per working day. By comparison, Westinghouse, Chilevisión, and Phillips produced around 15,700 sets per year. The other nine television manufacturers in Chile produced at low levels well below the installed capacity of their factories. While these factories may well have desired to increase production, saturation of the national market and inability to capture export markets dampened their sales. Thus, to take 1972 as an example, Chilean firms produced 203,840 television sets in thirteen different models. The Antú, just one of these sets, represented one-third of the national production that year.[53]

Estimates of the final price of the Antú vary widely. Production analyses conducted by the military government after the coup suggest that the Antú cost consumers about $175.[54] Other studies have offered a price of $70, much closer to the $88 price tag of the RCA AP-121 in the United States.[55] However, it is important to note that the Antú was not sold on the open market. Instead, the government mandated that the television be distributed through factory unions, neighborhood cultural centers, and women's centers in order to ensure that the televisions reached working class hands.[56] Former workers at IRT and other factories based in Arica suggest that substantial subsidies may have been available through these distribution centers, making the Antú significantly cheaper.[57]

We can thus conclude that IRT was able to successfully lower the price of television sets due to a combination of three reasons. First, significant government investment in the production of the Antú allowed IRT to achieve mass production and economies of scale uncommon in the Chilean electronics industry in this period. Second, IRT had significantly less investment in the component part industry in Arica. This allowed the company to be much more selective about which parts it purchased nationally and which parts in imported. This advantage is the heart of the Carmona critique of the Antú project, as well as later critiques formulated by the military dictatorship. A March 1974 CORFO and IRT report opined that ILESCO under the Allende government was the "greatest expression of a privileged state competitor" that benefitted inordinately from "inferior integration"—meaning the extent of integration of nationally produced parts.[58] Finally, government subsidies through distribution channels such as the factory unions and popular organizations made the Antú significantly cheaper—not necessarily cheaper to produce, but cheaper for the consumer.

Surprisingly, the Pinochet dictatorship did not stop production of the Antú. The junta did remove the original Chilean seal from the front casing, replacing it with the IRT logo. In 1974, the new government attempted to sell the government's shares of IRT back to RCA. However, after RCA refused to purchase the company due to financial conflicts occurring between RCA and IRT, the military government purchased the remaining 49% of the company from RCA, bringing the firm under full government control. Although the initial intent of this purchase was to facilitate the sale of the company to a private buyer, this did not prove successful until 1980. Thus, a dictatorship known for its neoliberal reforms maintained ownership of this company for seven years.

The military dictatorship recognized that the sale of affordable televisions produced significant profits for the state-owned company. As a result, IRT began production in 1974 of a new twelve-inch set known as

the Alba, this time with the RCA AT-122 kit. Government control of IRT until 1980 suggests a greater degree of continuity in economic planning between the Allende and Pinochet governments than is commonly appreciated. Ultimately, the military government did sell all its shares in IRT and did profoundly restructure the Chilean economy. Nevertheless, during the interim period, the military government relied on continued state intervention in the economy to smooth the transition to neoliberalism.

The Antú set thus demonstrates that technologies change as they travel. The design and manufacture of the "people's television" emerged from political, social, economic, and historical conditions unique to Chile. Chilean engineers and managers did not invent the television, but they did adapt the technology to meet the country's needs for industrial development and equitable distribution of wealth. Therefore, television technology reached the hands of Chileans in the form that it did as a result of Chilean adaptation in addition to Western innovation.

Does the "New Man" Watch Television?

The production of the Antú coincided with the Popular Unity government's goal of expanding access to consumer goods. However, within this broader project the Antú was special. While ownership of a television set symbolized upward social mobility and middle class respectability, television was also a powerful tool of nation-building and a potent vehicle for the dissemination of ideology. Thus, the importance of the Antú stemmed from the achievement of both objectives. The set was simultaneously a luxury brought within reach of all Chileans and a weapon in the ideological struggles gripping the country in the 1960s and 1970s. Nevertheless, many scholars on the left maintained critical distance from the Antú and its project of spreading television to the working class. These critics argued that the diffusion of television technology would merely reproduce "bourgeois values" unless this expansion was also paired with substantial working class participation in the production of televised content.

Throughout the Allende presidency, the government and popular organizations attempted to utilize factories brought into the social property area to make consumer goods more accessible. These products included everything from agricultural machinery for small landowners, to cars, motorcycles, spoons for measuring powdered milk, and cloth blankets.[59] In addition to the Antú, IRT also produced record players and radios designed for greater accessibility to the masses. These products represented real material gains for their owners. Owners of Antú sets would often place their new televisions in the living room next to the refrigerator and other new products for all to see.[60]

However, a television is not a refrigerator. The influx of television sets into working class homes across the country engendered novel manners of political sociability and new ways of imagining the national political community. Before 1969 television was only available in the central regions of Santiago and Valparaíso. In 1969, however, the government of Eduardo Frei established National Television (TVN, Televisión Nacional) and extended televised broadcasting to the entirety of the Chilean territory. As a result, citizens in Punta Arenas, in the extreme south of Chile, could watch the same programs as people in Arica. The television thus provided Chileans with a common repository of images and a common set of debates that aided their ability to, in the phrase of Benedict Anderson, "imagine" their national political community. Anderson writes, "Each communicant is well aware that the ceremony he performs is being replicated simultaneously by thousands (or millions) of others of whose existence he is confident, yet of whose identity he has not the slightest notion."[61] Thus, the expansion of National Television to the entirety of the Chilean territory allowed citizens to plug in to a common frame of reference accessible to all Chileans.

In the hands of the Allende government, National Television became a critical instrument in the dissemination of revolutionary nationalism. The institutional setup of the channel ensured that each change in administration brought with it a total makeover of the upper management at the station. After assuming office, Allende replaced former head Jorge Navarrete, of the Christian Democratic Party, with Augusto Olivares, a journalist and close personal friend who would go on to die at Allende's side in the September 11 coup.[62] Throughout the one thousand days of the Popular Unity government, National Television promoted nationally produced programming sympathetic to the Popular Unity program. News programs reported on the achievements of the government, music programs aired national folkloric musicians—even soap operas addressed themes relating to imperialism and national sovereignty.[63] However, in keeping with the Allende government's commitment to protecting civil liberties and free speech, National Television also sponsored debate programs, such as "The Three Thirds (*A Las Tres Bandas*)" in which representatives from left, right, and center would debate the relevant issues of the week.[64]

In spite of the commitment to preserve public debate on TVN, the programming at the station often took a strong militant air. In the months leading up to the coup, when a confrontation between the government and the opposition seemed increasingly likely, René Schneider, a Program Director at the station, directed a program entitled, "Anti-fascist Cultural Offensive." This program featured a day of folkloric music, political speeches, and other programs supporting the

government and condemning military intervention.[65] Recalling this event, Schneider said, "With the Popular Unity, we became a rather militant channel. This was reflected in the news shows, in the programming. At one pointed, I directed a program entitled, 'Anti-fascist Cultural Offensive.' Can you imagine? This was extremely militant television."[66] Therefore, as National Television expanded access to television geographically, the Antú expanded access to television socio-economically. The result was a greatly increased community of national viewers who could connect to national political debates and forge new bonds with other citizens far beyond their immediate surroundings.

Nevertheless, scholars on the left advanced serious critiques of the Antú, National Television, and the larger cultural projects of the Popular Unity government. In 1971, Michelle Mattelart and Mabel Piccini carried out a study of television reception in Santiago's *poblaciones* (shantytowns).[67] They concluded that government projects to expand access to television modified patterns of consumption, without producing a similar alteration in modes of production. Mattelart and Piccini criticize National Television for promoting programming and making personnel decisions that aimed to forge consensus between the Popular Unity coalition and the centrist Christian Democrats. As a result of these policies, worker participation remained limited at TVN. Despite the channel's commitment to news and informative programs, TVN continued to attempt to attract viewers from all social strata with soap operas and musical variety shows during peak hours.

For many of the respondents in the Mattellart and Piccini study, television thus served as an agent of political demobilization rather than a means of informing people about current political debates. One informant for their study, a leader of the Nueva Habana *población* opined:[68]

> "In our *población*, there are a lot of TV sets. The comrades make sacrifices to buy them and afterwards, naturally, they want to profit as much as possible. Every evening, they are transfixed in front of the programs and watch everything. We think that currently, television is a factor of permanent demobilization. Because they watch television and are drenched with bourgeois ideology, these comrades don't participate in organizations and become used to not struggling. While we are making efforts to arouse the interest of the poblador for the construction of badly-needed houses, the television shows him a car, and unfortunately, the *poblador* thinks of it much too much. Television undoes the work done elsewhere."

For this shantytown leader, television kept people in their houses and away from participation in community organizations. Moreover, televised imagery promoted commercial interests that contradicted the "real interests" of the lower classes. Mattelart and Piccini argue, therefore, that the absence of worker participation in production at National Television resulted in a lack of programming capable of representing the real daily life of workers, peasants, and shantytown dwellers.

Mattelart and Piccini cite the University of Chile Channel 9 station, long known as the "voice of the people," as a counter example to the TVN model.[69] Following the election of Allende, Channel 9 launched innovative new programs focused on the working class. Working in conjunction with the CUT, Channel 9 launched in 1970 "Union Assembly" and "Union Window," two programs focusing on union activities and debates. In 1971 "Pobladores," a program focused on issues relating to shantytown dwellers began weekly broadcasts.[70]

After wining the rectorship elections at the University of Chile by a slim margin in April 1972, Edgardo Boeninger, a Christian Democrat, attempted to dramatically restructure the channel. In particular, Boeninger aimed to eliminate Popular Unity support in the press department and replace them with his appointees. Protesting the success of his maneuvers, workers at Channel 9 seized the broadcasting studio on January 20, 1973 and began producing their own content.[71] After seizing the channel, the workers decreed:[72]

> "The journalists of Channel 9, the workers, are aware that they are in a just fight to defend freedom of the press and the rights of the people. Thus, they have declared that despite the illegal maneuvers of Boeninger and in spite of the impediments that the opposition-dominated Superior Council [of the University of Chile] wants to put in their way, Channel 9 will continue to uncover the voice of the Chilean workers through the work of the legitimate press department."

Following the seizure of the station, Channel 9 continued many previous programs focused on the working class and launched two new programs, "Women Opine" and "Peasant Television."[73] Thus, Channel 9 offered an outlet to groups that had long struggled to make their voices heard on the national level. However, throughout the Popular Unity period Channel 9 attracted far fewer viewers than TVN or the opposition-aligned Catholic University Channel 13 station. Thus, for Mattelart and Piccini, worker participation at Channel 9 did not fundamentally alter patterns of television production in Chile as a whole.

In an essay entitled, "Continuity and Discontinuity in Communications: Points for a Polemic," Armand Mattelart, wife of Michelle, argues that "bourgeois genres" such as the soap opera and the detective story do not necessarily undermine or inhibit a transition to socialism. Indeed, Matterlart argues that if producers are able to substantially redefine the traditional meanings of these genres, continued use of these types of programming can confirm the "Leninist thesis of cultural continuity."[74] In this model, traditional genres are reproduced and given new meanings to facilitate the generation of a "new culture." Nevertheless, Mattelart remains skeptical of the efforts of producers—even those sympathetic to the Popular Unity—to achieve these goals. In this essay, he specifically takes on a Channel 9 program—produced before the worker takeover—known as Simplemente María, the story of a peasant seamstress who goes on to establish the most famous Santiago fashion boutique as a result of her hard work and ingenuity. For Mattelart, this show merely reproduces the "bourgeois values" of individualism, social hierarchy, and commercialism.

Armand and Michelle Mattelart both conclude that television produces different effects on viewers from different class positions. These distinctions within the viewing public hinder any real national unification through television programming. Michelle argues, "Opinions like 'television allows me to keep in contact with the community,' 'it serves to unite people' are, in fact, responses conforming to the project of social integration which the technological means of communication serve by eroding away the tangible aspect of class contradictions."[75] For both Mattelarts, the expansion of National Television and the Antú project merely reproduced traditional conservative values of commercialism and individualism because these projects did not produce a real inversion in the relations of production at Chile's television stations. In the estimation of the Mattelarts, this change in production relations never occurred in a meaningful way in Chile because the Popular Unity sought compromise with the Christian Democrats. This policy rendered useless any attempts to make working class consumers into producers of television content.

The Antú project is, thus, somewhat of a paradox. Through the Antú and National Television projects, the Frei and Allende administrations aimed to expand access to televised broadcasting geographically and socio-economically. The Popular Unity government hoped that the diffusion of mass media technology to the working class would substantially alter right-wing domination of the media. However, many scholars on the left argued that the diffusion of television technology to marginalized sectors of society does not necessarily grant power to the lower classes. In fact, increased access to television sets may be counterproductive to the extent that it depoliticizes viewers, promotes commercialism, and advances "national unity" over class conflict. Thus, the Antú and National Television may not have facilitated the formation of a "new culture" and a "new man," but rather consolidated traditional hierarchies of power.

Conclusion

The production and design of the Antú television set offers a transversal view of the experience of the Popular Unity period. At an economic level, negotiations between RCA and CORFO in 1971 illustrate the extent to which American multinationals were willing to collaborate with the Allende government when and where it served their economic interests. On a social level, the development of Arica remade the political and economic landscape of Chile. The geography of production in the electronics industry in Chile demonstrates that the diffusion of technology in "peripheral" countries follows patterns conditioned by the social, political, and economic history of that country. As a result, we would do well to theorize technology transfer and diffusion in the "developing world" from a perspective of adaptation within these countries as opposed to innovation in the West. Finally, on a cultural level, the Antú and the expansion of National Television broadened access to televised broadcasting geographically and socio-economically. This process engendered novel modes of political sociability and new manners of imagining the national political community. However, the Antú project also opened sharp fissures within the left about the proper role of cultural production in the revolutionary process. The unique view of the Popular Unity period offered by the Antú thus illustrates that technological artifacts are historical evidence. Reading their history offers critical new perspectives that cut across traditional lines of investigation.

Today the Antú is widely regarded as an essential icon of the Popular Unity period. The set has inspired Facebook groups, Flickr albums, and extensive blogging. Why does the Antú still continue to hold purchase in people's memories? I have suggested on one hand that the Antú marked a clear instance in which the Allende government succeeded in elevating the material welfare of the working class. On the other hand, however, I have also pointed to the manner in which the Antú attempted to expand access to televised programming in order to bind people in a new political community across vast geographic divides. I would offer that these two legacies work together to make the Antú a particularly strong representation of the entire period. The Antú, like the Popular Unity period generally, brought people together, if only briefly, behind a vision of society that worked for the betterment of all.

"The Revolution Will Be Televised"
Michael Lemon
Footnotes

[1] For popular uses of the phrase see, for example, Gil Scott-Heron, "The Revolution Will Not Be Televised," *Pieces of a Man* (Audio Recording) (New York: RCA Studios, 1971); Kim Bartley and Donnacha O'Briain, directors, *The Revolution Will Not Be Televised*, documentary (Power Pictures, 2003); and, Joe Trippi, *The Revolution Will Not Be Televised: Democracy, the Internet, and the Overthrow of Everything* (New York: Harper Collins, 2004).

[2] See, for example, Peter Kornbluh, *The Pinochet File: A Declassified Dossier on Atrocity and Accountability* (New York: The New Press, 2003).

[3] See, for example, Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Ithaca: Cornell University Press, 1990).

[4] See, for example, Eden Medina, *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile* (Cambridge: MIT University Press, 2011).

[5] Clapperton Mavungha, "Firearms Diffusion, Exotic and Indigenous Knowledge Systems in the Lowveld Frontier, South Eastern Zimbabwe, 1870-1920," *Comparative Technology Transfer and Society* 1:2 (August 2003), 204-5. Emphasis added.

[6] *La Familia RCA-Victor*, May/June/July 1957, Biblioteca Nacional (BN), Santiago, Chile.

[7] Frederick O. Barnum II and the General Electric Company, "*His Masters' Voice*" *in America: Ninety Years of Communications Pioneering and Progress* (Camden: General Electric Company, 1991), 127-155.

[8] *La Familia RCA-Victor,* May/June/July 1957.

[9] *La Familia RCA-Victor,* May/June/July 1957. Throughout the text, all translations are the author's.

[10] For discussions of the Popular Front era see Thomas Klubock, *Contested Communities: Class, Gender, and Politics in Chile's El Teniente Copper Mine, 1904-1951*; and, Karin Alejandra Rosemblatt, *Gendered Compromises: Political Cultures & The State in Chile, 1920-1950* (Chapel Hill: University of North Carolina Press, 2000).

[11] Corporación de Radio de Chile, S.A., "Estatuos," 1942, BN; *La Familia RCA-Victor,* May/June/July.

[12] R.N. Gwynne, "Import Substitution and the Decentralisation of Industry in Less Developed Countries: The Television Industry in Chile, 1962-1974," Occasional Publication No. 12 (University of Birmingham: Department of Geography, 1980), 9; Romina Le Blanc, "Incentivos Económicos Especiales para Arica," Memoria de Prueba para Optar al Grado de Licenciado en Ciencias Jurídicas (Iquique, Chile: Universidad Arturo Prat, Escuela de Derecho, 2006).

[13] Le Blanc.

[14] Archivo Nacional de la Administración del Siglo XX (ARNAD), Santiago, Chile, Files of the National Development Corporation (CORFO), v. 4828.

[15] Rodrigo Ruz Zagal, et. al., "Historia, Patrimonio, y Fotografía de la Junta de Adelanto de Arica, 1858-1976: Explaciones Teórico-Metodológicas," in Alberto Diaz Araya, et. al., eds., *Arica Siglo XX: Historia y Sociedad en el Extremo Norte de Chile* (Arica, Chile: Ediciones Universidad de Tarapacá, 2010); Le Blanc.

[16] Gwynne, 4.

[18] ARNAD, CORFO v. 4828; Gwynne.

[19] Gwynne, 9.

[20] Gwynne, 9.

[21] ARNAD, CORFO, v. 1.

[22] Gwynne, 5.

[23] CORFO, v. 4828.

[24] Popular Unity, "Program of the Popular Unity," 1969, 27, in, Princeton University Latin American Pamphlet Collection: Politics in Chile (Princeton: Princeton University Library), Roll 4.

[25] CORFO, v. 222.

[26] CORFO, v. 222.

[27] "RCA After the Bath," *Fortune*, September 1972, in, ARNAD, CORFO, v. 1.

[28] CORFO, v. 222.

[29] CORFO, v. 222.

[30] CORFO, v. 222.

[31] CORFO, v. 222.

[32] "Testimony of José Moya," in, Franck Gaudichaud, *Poder Popular y Cordones Industriales: testimonios sobre el movimiento popular urbano, 1970-1973* (Santiago: LOM, 2004); Nelson Navarra, Interview by the Author, July 19, 2011, Arica, Chile.

[33] "Testimony of José Moya."

[34] Julio Gaete Oliver, Interview by the Author, July 28, 2011, Santiago, Chile; "Testimony of José Moya"; Nelson Navarra, Interview; Pablo Jimenez, Interview by the Author, July 18, 2011, Arica, Chile.

[35] Kornbluh, 97.

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Footnotes (continued)

[36] Paul Sigmund, *Multinationals in Latin America: The Politics of Nationalization* (Madison: The University of Wisconsin Press, 1980); Kristiana Gustafon, *Hostile Intent: U.S. Covert Operations in Chile, 1964-1974* (Washington DC: Potomac Books, 2007).

[37] Kornbluh, 18.

[38] Valerio Fuenzalida Fernández, *Estudios sobre la television chilena* (Santiago: Corporación de Promoción Universitario, 1981), 31.

[39] ARNAD, CORFO, v. 3450.

[40] ARNAD, CORFO, v. 222.

[41] República de Chile, *Diarios de Sesiones del Senado*, Publicacion Oficial, Legislatura 312 Extraordinaria, Sesión 64, May 5, 1971, 3396.

[42] ARNAD, CORFO, v. 1.

[43] Palmarola, 277.

[44] ARNAD, CORFO, v. 1.

[45] ARNAD, CORFO, v. 1.

[46] Palmarola, 277.

[47] ARNAD, CORFO, v. 1.

[48] Gwynne.

[49] Gwynne.

[50] ARNAD, CORFO, v. 222.

[51] ARNAD, CORFO, v. 3063.

[52] ARNAD, CORFO, v. 1; Gwynne.

[53] Gwynne, 6.

[54] ARNAD, CORFO, v. 1.

[55] ARNAD, CORFO, v. 1; *Cass City Chronicle,* Cass City Michigan, October 15, 1970.

[56] "Testimony of José Moya"; Palmarola, 277.

[57] Tomás Bradonovich, Interview by the Author, July 19, 2011, Arica, Chile; Navarra, Interview.

[58] ARNAD, CORFO, v. 1.

[59] Palmarola, 226-293; Peter Winn, Weavers of Revolution: The Yarur Workers and Chile's Road to Socialism (New York: Oxford University Press, 1986).

[60] Bradonovich, Interview.

[61] Benedict Anderson, Imagined Communities: Reflections on the Origin and Spread of Nationalism (London: Verso, 1983), 35.

[62] Hurtado, 380-381.

[63] El Sal del desierto was a telenovela about a young couple living through the Chilean Civil War of 1891, which pitted the British-backed Congressionalists against President Balmaceda and his plan of national development.

[64] Hurtado, 384-385.

[65] René Schneider, Interview by the Author, August 1, 2011, Santiago, Chile.

[66] Canal 13, "TV o no TV?" Television documentary, originally aired, November 2008.

[67] Michelle Mattelart and Mabel Piccini, "La Televisión y los sectores populares," Comunicación y Cultura 2 (January 1974/1978), 3-75.

[68] Michelle Mattelart, "Chile: Political Formation and the Critical Reading of Television," in, Armand Mattelart and Seth Siegelaub, eds., Communication and Class Struggle 2: Liberation, Socialism (New York: International General, 1983), 80.

[69] Punto Final, Oct. 5, 1972, 12.

[70] El Siglo, January, 1971.

[71] Hurtado, 371-372.

[72] El Siglo, January 3, 1971, in, De la Luz Hurtado, Historia de la TV en Chile, 372.

[73] Hurtado, 377.

[74] Armand Mattelart, "Continuity and Discontinuity in Communications: Points for a Polemic," in, Mattelart and Siegelaub, 358.

[75] M. Mattelart, "Chile: Political Formation and the Critical Reading of Television," 80.

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